Yesod Olam

יסוד עולם, "The Foundation of the World"

(c. 1310)

by R. Yitzchak ben Joseph Yisraeli (יצחק בן יוסף הישראלי), active first half of 14th century, Toledo

Translation by Scott Weisman

Ars Astronomica

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Translator Version beta

Upright reason dictates that the recipients of the good, of whatever type and level of beneficence it may be, must show gratitude and blessing to the beneficent person in every way possible, commensurate with the value of the beneficence. And one who has benefited all the people of the world — for example, one who invented a new instrument for the good of the world, or a good book — it is fitting for every discerning person, out of the obligation of love of fellow beings, to at least purchase it, so that the man will profit and his heart will be encouraged thereby to invent yet more good instruments in the world. And similarly, all other wise-hearted people will likewise strive and exert themselves to invent good things and instruments needed for the repair of the world and its perfection.

And therefore, whoever says: "What do I need this new instrument for?" — he does not act well towards the world. For if not for the man who invented it, where would you be? And what would your city do? And more than this, if the man did not exert himself, what would the world do?

— R. Pinchas Eliyahu Hurwitz, *Sefer HaBrit HaShalem* (1797)

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A note on the work

One of the great medieval Hebrew treatises on astronomy and the science of the Jewish calendar, composed in Toledo in the first half of the fourteenth century. It builds a complete system of mathematical astronomy step by step — beginning with geometry and trigonometry, rising through a model of the celestial spheres and the motions of Sun and Moon, and culminating in the rules of the Hebrew calendar and a set of astronomical tables. It became a standard reference for scholars seeking to ground the calendar's intricate cycles in rigorous astronomy. This edition is drawn directly from a richly preserved medieval manuscript, fuller than the abridged printed versions.

A note on the translation process

This translation was produced with the translation-pipeline. See the linked repository for details on the process.

This text is the product of a highly refined automated translation process. It has undergone only cursory human review and should not be treated as an authoritative or scholarly rendering. It is offered solely as a reference and reading aid — a way to make an otherwise inaccessible work approachable — and any passage of real consequence should be checked against the original source.

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Yesod Olam (The Foundation of the World) — R. Isaac Yisraeli

Vat.ebr.380 — Front Matter

Binding cover

The opening image shows the manuscript's front binding: a green leather cover with no textual content. At its center is a gold-tooled papal coat of arms — the papal tiara above crossed keys, over a shield bearing three bees — the heraldic device of the Barberini family (Pope Urban VIII), which marks bindings produced under Barberini-era Vatican Library patronage. No Hebrew manuscript text, caption, table, or diagram is present.

Front pastedown / flyleaf

A blank flyleaf. The only mark is the Vatican Library shelf-mark label affixed at the upper left.

[Vatican librarian note: printed shelf-mark label — "Vat. Ebr. 380"]

PDF page 3 (front flyleaf, blank side)

This side of the flyleaf carries no manuscript text in its primary (camera-facing) orientation. The page shows only the diagonal Vatican Library watermark overlay (a digital scan artifact — ignored) and the copyright footer bar (ignored). No Hebrew, Latin, or other content is present on this side.

PDF page 4 (blank side facing camera; verso of the Latin title leaf)

The camera-facing side of this leaf is blank. The faint, **mirrored** text visible here — Latin set-type/script reading backward ("Rabbi Isaac... filii...") together with a few lines of mirrored Hebrew at the head of the page — is **bleed-through** from the Latin title page written/printed on the reverse (camera-facing) side of this same leaf, i.e. the title page proper (f. 2r), which will face the camera in the next opening. Per the bleed-through rule, that mirrored content is not transcribed here; it belongs to the following folio side and will be read when that side faces the camera in a subsequent batch.

No primary recto-facing manuscript text appears on this page. The diagonal watermark overlay and footer bar are scan artifacts and are ignored.

Title page

Primary script: The page carries two distinct hands. (1) A Sephardic semicursive Hebrew hand at the head of the page, in two lines, underscored by a ruled line. (2) A later European humanist/italic Latin hand giving the Latinized title and bibliographic note, plus a Vatican catalog annotation at the foot.

Hebrew title (Sephardic semicursive, two lines)

The two-line Hebrew heading reads approximately:

> יסוד העיבור בשנת חמשת אלפים ושבעים לברי[את…] דרבי יצחק בר יוסף בן ישראל וכו' כמו בלוי[?]

Translation:

Yesod HaIbbur ("The Foundation of the Intercalation/Calendar"), in the year five thousand and seventy of the Creation [= 5070 AM; 5070 − 3760 = 1310 CE] [?] — of [the work of] Rabbi Yitzchak bar Yosef ben Yisrael, etc., as in [the copy of] Levi [?].

[Note on the title: the manuscript's own heading here gives the work the variant title *Yesod HaIbbur* ("Foundation of the Calendar/Intercalation") rather than the more familiar *Yesod Olam* ("Foundation of the World"). Transcribed as written.]

[Note on the date: the dating phrase בשנת חמשת אלפים ושבעים לבריאת — "in the year five thousand and seventy of the Creation" — is written out in words, not in gematria letters. 5070 AM = 1310 CE. The third word of line 2 (וכו' "etc.") and the closing word(s) are partly abraded; the final token, read tentatively as בלוי, is uncertain — possibly a reference to an exemplar or owner ("of Levi") — and is flagged [?].]

[Damage: the right and left ends of both Hebrew lines run into the worn/torn outer margin; the ruled underscore extends past the legible text on both sides. ~1–2 words lost or abraded at the line ends.]

Latin title and bibliographic note (humanist italic hand)

[Latin: **RABBI ISACH BAR IOSEPH, son of Israel, On the Calendar of the Hebrews, Christians, and Turks, together with their festivals.** Likewise, *On the tradition of the Oral Law*, page 105 [pag. 105]. Likewise, *On the Hebrew writers*

who flourished in Spain down to the age of the author of this work. The Astronomical Tables of Emanuel son of Jacob, called the author of the *Alae* ["Wings"], which are refuted by our author, are contained in the following volume, marked no. 411.]

[Translator's notes on the Latin:

- "RABBI ISACH BAR IOSEPH Filii Israel" = the Latinized form of the author's name, R. Yitzchak bar Yosef [ben] Yisrael (Isaac Israeli the Younger, of Toledo).
- "De Kalendario Hebraeorum, Christianorum, & Turcarum" — the Latin cataloguer's characterization of the work as a treatise on the Hebrew, Christian, and Muslim ("Turkish") calendars.
- "De traditione legis oralis, pag. 105" — a cross-reference to the section of the work treating the transmission of the Oral Law (the chain of tradition), located at p. 105 of this codex.
- "De Scriptoribus Hebraicis, qui... in Hispania floruerunt" — a cross-reference to the work's catalogue of Hebrew scholars who flourished in Spain up to the author's own time.
- "Tabulae Astronomicae Emanuelis filii Iacob dicti Authoris Alarum" = the astronomical tables of **Emanuel ben Jacob (Bonfils of Tarascon)**, author of the *Sefer Shesh Kenafayim* ("Book of Six Wings") — Latin *Alae*, "Wings." The note states that these tables, refuted by our author [a. recte: this is a cataloguer's cross-reference; the polemic against Immanuel Bonfils is a later layer, since Bonfils postdates Israeli — see anomaly note @], are bound in the next volume, shelf-marked no. 411.]

Vatican catalog annotation (foot of page)

[Vatican librarian note: a struck-through entry reading "Var. 410" [?] (or "Vat. 410"), with a corrected entry below it: "Nou. 380." — i.e. the old/new shelf-number, resolving to the present mark **Vat. ebr. 380**. The struck-through numeral and the abbreviation are partly uncertain; read as a renumbering note.]

PDF p. 6 (f. 2v)

The verso shows only faint mirrored bleed-through of the recto title page (the Latin title and Hebrew heading appearing in reverse) — ignored as bleed-through. No primary text on this side.

Script: Sephardic semicursive, single primary hand, in two ink colors (black body, red rubric). The layout is **rhymed verse / rhymed prose set in two columns per page**, with short stichic lines carrying terminal rhyme — the form of an author's poetic preface (*petichah*). Both folios are heavily abraded: torn/eroded outer margins, faded red ink in the rubric blocks, a circular library stamp obliterating text in the lower-center of p. 7, and gutter loss on p. 8. Many cursive verse-lines are only partially legible at the available resolution; these folios are flagged as (see report).

PDF p. 7 (recto)

Right column (begins page)

[Red ink header, faded, ~3 lines:]

> [Red ink: The author says: This is the opening / in the praise of the Foundation of the World …][?]

The exact wording of this three-line red rubric is heavily faded; only the words "the author" (*ha-mechaber*) and "Foundation of the World" (*Yesod Olam*) are confidently legible. The remainder is flagged `[?]`.

[Black-ink verse follows, ~20 short rhymed lines. The hand is a cursive verse-script; rhyme appears on the *-ar / -ir / -el* endings. Confidently legible fragments, line by line, with uncertain stretches flagged:]

- … its honor [?] …
- He who arose [?] … was firm [?] …
- … give [?] my heart [?] to a wall [?] …
- … to know [?] His foundation [?] and to do [?] …
- … all who contemplate [?] know …
- Also all that I shall be asked [?] …
- Indeed all [?] … from their hand [?] …
- … their works [?] … and they shall rise [?] …
- So that they may rise [?] … and ascend [?] …
- … may they answer [?] in matters [?] thus …
- … as it is said [?] … [?] …
- To the heart [?] … His foundation [?] … and grace [?] …
- But [?] … went [?] between them … and … [?] …
- If [?] … in them [?] … did [?] … and was [?] …

- World [?] … to him [?] … and did [?] [?] …
- … His statute [?] … and his deed [?] …
- And he discerned [?] … came [?] …
- And rendered service [?] … in wisdom [?] …
- … your loving-kindness [?] … give [?] …
- For ever and ever [?] the eternal Rock [?] … Amen [?] …

[Because this column is rhymed verse in a degraded cursive hand, a confident continuous translation is not possible at this resolution. The above renders only the words read with reasonable confidence; intervening text is marked `[?]`.**]

Lower right column — red rubric block

[Red ink, ~4 lines, faded:]

> [Red ink: The assembly [?] … the books of … this work … the chapters … Foundation of the World …][?]

This appears to introduce the **table of contents / list of chapters** that follows. Confidently legible: "the books" (*ha-sefarim*)[?], "chapters" (*she'arim* / *perakim*)[?], and "Foundation of the World" (*Yesod Olam*). The connective wording is faded; flagged `[?]`.**

[Below the rubric, a short black-ink passage of ~6 lines continues the verse / begins the prose preface. Only scattered words are legible:]

- … living [?] … to your length [?] …
- In them [?] … the host [?] of the heavens [?] …
- And he lived [?] … and between [?] … thus …
- And he [?] arose [?] and came [?] …
- … took [?] … and …
- And here [?] is to you [?] … as [?] … [?] …

Left column (p. 7)

[Black-ink verse continues, ~20 short rhymed lines, the second column read after the right. Legibility is comparable — partial. Confidently legible fragments:]

- And He tied [?] / bound the thought [?] to my heart [?] …
- … their thought [?] … laughter [?] and … [?] …
- … rose [?] … its statute [?] …
- … its deed [?] … they were astonished [?] …

- … His name [?] … and they removed [?] …
- … reason [?] … [?] …
- … I will tell [?] … His statute [?] and his deed [?] …
- … to a wall [?] … His statute [?] …
- His statute [?] … [?] His deed [?] …
- … and was [?] … if [?] … servant [?] arranged [?] …
- … in [?] … its deed [?] …
- … its deed [?] … [?] …
- (remaining lines too faded to read — `[?]`)

[Lower-left of p. 7 — a circular Vatican library stamp overlays the text; ~3–4 lines around the stamp are obliterated. **Damage: library-stamp obliteration, lower-center, ~4 lines lost.**]

PDF p. 8 (verso)

Right column (begins page)

[Red ink, ~2 lines at top, faded:]

> [Red ink: … may he be strengthened [?] and may he be praised [?] … all who … the high heavens [?] … that … your hand [?] …][?]

Confidently legible: a doxological formula — "may he be strengthened" (*yitchazek*)[?], "may he be praised" (*yit'halal*)[?], and "the heavens" (*ha-shamayim*)[?]. Flagged `[?]`.

[Red rubric block, ~6 lines — the **principal heading of the section that follows**, the most prominent red text on the opening:]

> [Red ink header: **The author says:** … He who has favored us [?] … the perfect Creator [?] … the holy [?] … before Him [?] … hear, my masters [?] … words … and opening of … lips …][?]

Confidently legible in this block:

- **"The author says"** (*amar ha-mechaber*) — opening formula, fully legible in red.
- "He who has favored us" (*he-chonenu*)[?]
- "the perfect Creator" / "the Creator who perfects" (*ha-Borei ha-shalem*)[?]
- "hear, my masters" (*shim'u rabbotai*)[?]
- "and the opening of my lips" (*u-fetach sefatai*)[?] — cf. *Mishlei* 8:6.

[Black-ink prose / verse follows the rubric, ~4 lines:]

- The Righteous One [?] … said [?] … there is no end [?] … and …
- All [?] … for the worlds [?] … there is no … to them [?] …
- … [?] …

[Red ink, ~2 lines:]

> [Red ink: … knowledge [?]: … my masters [?] … hear [?] my words [?] … and the opening of [my] lips …][?] [Red ink: Blessed [?] … in [?] you [?] … to the world [?] Amen and Amen.][?]

A closing benediction formula ("… to the world, Amen and Amen" — *le-olam, Amen ve-Amen*) closes the prefatory rubrics.

Right column lower — list / table of contents

Legible entry-fragments (black entry → red terminal word):

- … [?] … → [Red ink: …kis][?]
- … and the … → [Red ink: …kis][?]
- … and … → [Red ink: …kis][?]
- … → [Red ink: …kis][?]
- … (red, faded) … → [Red ink: …kis][?]
- … → [Red ink: …kis][?]
- … → [Red ink: …kis][?]
- … → [Red ink: …kis][?]
- … → [Red ink: …kis][?]
- … → [Red ink: …kis][?]
- … → [Red ink: …kis][?]
- … → [Red ink: …kis][?]
- … → [Red ink: …kis][?]
- … → [Red ink: …kis][?]
- … → [Red ink: …kis][?]
- … (final lines faded) …

The terminal red words consistently end in the rhyme *-kis* (e.g. *…ekis*), confirming this is a **rhymed list** — most likely a versified table of chapter-headings for the work. Individual entries are not confidently legible at this resolution.**

Left column (p. 8)

[Black-ink verse, ~22 short rhymed lines, second column. Heavy gutter loss affects the inner (left) edge of each line — the rhyme-words at the line-ends are partly cut off. Confidently legible fragments:]

- They prepared [?] … there [?] … and … [?] …
- … and a judge [?] … and … [?] …
- … the heavens [?] … in their host [?] …
- And in [?] … and … [?] …
- … laughter [?] … the knowledge [?] …
- The heart [?] … there [?] … and … [?] …
- … and his deed [?] … [?] …
- … the heavens [?] … and his statute [?] …
- … and … [?] … [?] …
- And those who learn [?] … in [?] …
- … which [?] … its deed [?] … and wonders [?] …
- And the punished [?] … [?] … and the seeker [?] …
- (remaining lines faded — `[?]`)

(End of batch content. Both folios are rhymed-prose prefatory material in a degraded cursive hand; the bulk of the verse cannot be read with confidence at the available resolution and is flagged for further review. The structural landmarks recovered are: the ***"amar ha-mechaber" (The author says) rubric*** *opening the preface on p. 8, the doxological and benedictory red formulae framing it, and a* ***rhymed contents-list*** *in the lower-right of p. 8. No numbered מאמר/שער/פרק heading appears yet.)*

Script: Sephardic semicursive, primary hand throughout, with extensive red rubrication (Vatican rubricated manuscript). Both pages are laid out in two columns of rhymed verse (the author's poetic preface and the work's title-page poem). The text is severely faded in places, with a large pale stain and a Vatican stamp obscuring portions of the upper-left of p. 9, and water-staining across the lower portion of p. 10. Many readings are tentative; this batch is a strong (see Readability).

PDF p. 9 (folio 4r)

The page continues the author's rhymed preface (*petichah*) in two columns of short rhymed cola, with frequent red rubric markers. The verse maintains a fixed

end-rhyme (the *-kis / -ḥis* rhyme family carried over from the previous batch's contents-list).

Right column (read first)

The verse continues the author's reflection on wisdom, knowledge, and the toil of those who came before. Among the legible cola:

> Their wisdom and their understanding [?] are precious [יקרים]. [?] their counsel, and they took up [?] reason and intent [?]. By the wisdom that is in [?], to instruct [the] examiners [?]. And the tablets [לוחות] of the cycle [החזור = the calendar cycle] [?] as [?] … And in the [day? / matter?] … from [?] the thin [fine, subtle?] … And I am [his/their] companion [חבר] in the secret of the cycle [סוד עבור = the secret of the intercalation/calendar] … precious [?]. In thought [בלבב / במחשבה?] … precious [?]. [The] author said [אמר המחבר?] [?] precious [יקרים]. And so [וכן] [?] … precious [תקרים?]. And we have inherited [ונחלנו?] [?] … our forefathers [?]. And the matters of [?] … precious [?].
>
> [Red ink:] And so [ונאם / נאם?] [?] arose [?] from the toil [עמל?] of the cunning [?]. [Red ink:] [?] shall ascend [יעלה], the son of [?] his [?]. [Red ink:] [?] [?] the heart [לבב] [?] a man of [?], let him live [יחי / יחיה?]. [Red ink:] And [?] precious [?], the son of [?] precious [ויקרים].

(This right column is a chain of rhymed cola closing the preface; the rubricated lines at its foot appear to be a signature-style acrostic or the closing benediction of the petichah. Individual word-readings are highly uncertain owing to fading.)

[Red ink header:] The words of the author [נאם המחבר], may [his] memory [be a blessing] [ז"ל]

A second rhymed unit, in black with the red header above. The author speaks in the first person of his own labor and aspiration. Legible cola:

> I have served [I labored over, עבדתי] wisdoms [the sciences, חכמות], and I have not [?] known [ידעתי / נדעת] — until [the time when, עד] their springtimes [?] their bitterness [their hardships, מרירותם] [?] grew sweet [המתיקו / הומתקו?] to me [?]. They were [היו] as it were [כן] toil [עמל] [?] and gentle [soft, ונחת?] [?] — I did not refrain [I gave myself no rest, לא חדלתי / לא חדל] [?] from it [ממנה?], and I did not [grow] weary [ולא יגעתי?]. The labor [העמל / הענן?] grew sweet [נמתק / מתוק] to me with [its] fruits [בפריו / כפריו?] [?]. And the toil [ועמל / וסלוח?] [?] grew pleasant

[שמתק?] to me as [a] river [כלם נהר?] — I rejoiced [שמחתי / יבינו?] [?]. Until I beheld [ראיתי / עד עומדי?] the structure [the firmament's order, סדר?] [?] of the heavens [שמים / שלום?] [?]. [?] and intent [וכוונה?] to me [?], and we understood [והבינונו / והבנת?] [?]. They [?] set down [?] understanding [להבין?] to discern [?], wondrous things [נפלאות / ומפלאות?]. [?] [?] [the] heart [לב?] [?], and [the] heart [ולב?] grew strong [חזק / ויחזק?] [?]. [?] wonders [נפלאות?] [?] and the height [the elevation, ורום?] of the heavens [נבהי / גבהי שמים?] [?]. [?] [?] in [its] orbits [ככבים / כוכבים = the stars / by the orbiting stars?] their [?] [?]. [?] [?] [a] portion [חלק / חק?] — and I did not [grow] weary [ולא יגעתי?].

(This is a meditation on the author's lifelong study of astronomy — the bitterness of difficult learning that "grew sweet," the contemplation of the heavens, the stars, and the order of the firmament. Word-level readings are tentative throughout because the ink is faded.)

Left column (the leftmost of the page)

The left column is the more severely degraded half of the page: the upper third is overlaid by a pale stain and a Vatican stamp, the middle is faded red rubric, and several cola are illegible. A red rubric heading sits roughly two-thirds down the column.

Upper portion (faded red rubric over stain — largely illegible):

> [Red ink: ~6 lines of rubricated rhymed verse, severely faded under stain/stamp — illegible] [?]

Middle portion (black, partly legible):

> [?] [?] between [בין?] [?] [?] their counsel [עצתם?] [?] [?]. But [אבל?] their toil [תבונתם / תבונתם?] [?] and they were ashamed [ויתבוששו?] [?]. Among [בן / בין?] the wise [תבונן?] [the] knowledge [דעות?] of [?] those who came before us [הראשונים אשר?]. [?] knew [נודע?] not [לא?] until now [עד כה?], and they did not [ולא?] [?]. [?] [?] the king [המלך?] [?] [?]. [?] for them [לכם?] [?] [?] they shall labor [יחזו / יעמלו?] [?].

[Red ink header:] And these are the matters of the [discourse / book] and the chapters [?] [ואלה הם הקסטר / הקטר מדבר וחלקי / וחלקיו]

(This red rubric appears to introduce a contents-list — "and these are the matters of the discourse [or: book] and its parts/chapters." The exact reading of the rubric is

uncertain; the surrounding cola below it list, in rhymed form, the topics of the work.)

> [?] the searcher [the inquirer, הדורש / הטוב?] — and he is [והוא?] [?] [?] [?] upon [?]. [Red rubric marker:] [?] I have served [עבדתי?] [?] [?] [?] [?] therefore [כך / חסר לבב?] [?] [?]. The [?] of [the] heart [לב הוק / הוא?] [?] [?] upon [?] [?] [?]. [?] [the] heart [לב?] those who examine [שומרי?] [?], and intent [וכוונה?] to instruct [למורי?] [?]. They knew [ידעו?] [the] fixed measure [פסק?] [?], as [the] light [כאור?] [?] [?]. The wisdom [חכמה?] [?] in [the] secret [בחק / בחיק?] [?] [?].
>
> [Red ink:] As it is written [ככתוב]: "Who is [the] wise man [מי חכם] [that he may understand these things]" [?] (Hoshea 14:10) [?]. [Red ink:] [?] the matter [דבר?] of [?] [?]. [Red ink:] [?] [?] [?] [?] in [?] [?].

(The closing rubricated cola of the preface quote, or allude to, Hoshea 14:10 — "Who is wise and will understand these things" — a conventional close to a work of wisdom. The reading "מי חכם" ["Who is wise"] in the red ink is fairly secure; the verse attribution is supplied editorially.)

PDF p. 10 (folio 4v)

The page opens with the tail of the preface (top of both columns), then — in the **right column** — presents the formal **title page** of the work in red ink: the title *Sefer Yesod Olam*, the author's attribution, and the dedication, followed by a long rhymed **table-of-contents poem** listing the subjects of the five books. The **left column** continues rhymed verse (apparently the conclusion of the preface). Heavy water-staining affects the lower half of the page.

Right column, top (black, tail of the preface)

> [?] [the] honor [כבוד?] [of?] his name [שמו?], and [the] honor [וכבוד?] [of] [?] [?]. [?] [?] established [קימתי / קמתי?] and [?] your [?] — [the] people [עם?] shall hear [ישמע?] upon [?] [?] [?]. [?] [?] [the] beginnings [?] of [?] — to [?] my Maker [נורי / יוצרי?] [?] [?]. [?] I shall search out [אחקור?] upon [?] [?] the Book of [ספר?] Yesod Olam [יסוד עולם].

(The preface signs off by naming the work it introduces — "the Book of Yesod Olam" — with the verb "I shall search out / inquire" [אחקור], fitting an astronomical-scientific treatise. The title-naming here is fairly secure.)

[Red ink header — title:] Sefer Yesod Olam [ספר יסוד עולם]

The Book of the Foundation of the World

Immediately below the title, the red-ink author-attribution and dedication (a single rubricated block of rhymed prose). Legible content:

> [Red ink:] Composed by [חברו] R. Yitzchak bar [son of] R. Yosef [ר' יצחק בר' יוסף] [?], [?] the son of [בן?] [?] — [Red ink:] he gathered [it] [?] [the] secrets of [סתרי / סודי] the intercalation [the calendar, העבור] and [?] [?] — [Red ink:] [?] [?] [?] [?] and the seasons [וזמנים / ובזמנים?] [?] — [Red ink:] for [the] understanding / instruction [לבינה / להבין?] [?] the [?] [?].
>
> [Red ink:] [?] the son of [בן?] [the] honor [כבוד?] of R. [ר'קב?] Yitzchak [יצחק?], may [the] Rock [צור = צ'?] [keep him] [?]. [Red ink:] [?] [the] son of [בן?] [the] honor [כבוד?] of R. [?] [?] [?] [?]. [Red ink:] [the] Holy One [הקדוש?] [?] and in it [ובכו / ובכן?] [?] — [Red ink:] and [?] [?] [?] [?] always [תמיד?] [?].

(This is the work's author-colophon / dedication. The author's name — R. Yitzchak [Isaac] bar R. Yosef — and the subject "the secrets of the intercalation [calendar]" [סודי/סתרי העבור] are the two most secure readings in the block and confirm the prior batch's pending author/title glossary candidates. The remaining genealogical and benedictory phrasing is faded and uncertain.)

[Red ink:] Gate / Book One [שער א'? / שעם רב?] — A joyful heart [בשמחה לשמחה?] [?]

(A red rubric line beneath the dedication. The reading is uncertain. It may be the opening rubric of the contents-poem rather than a numbered heading — the leading word could be שער ["gate/section"] or a non-structural word. Both columns following are rhymed verse, not a numbered chapter opening; no clearly numbered מאמר/פרק/שער heading is yet legible.)

Below this rubric, a long rhymed **contents-poem** runs down the right column, each colon naming subjects of the work. Many cola carry a red rubric marker at the right margin (catchword-like topic tags). Legible fragments:

> In the Book [the treatise, לספר / במאמר?] [?] of [?] the wisdoms [חכמות?] [?]. The son of [בן?] [?] understanding [תבונה?] — wisdom [וחכמה?] [?] inherited [נחל?] [?]. [Red rubric tag:] [?] the heavens [שמים?] — [the] living God [יהוה?] and [?] [?] [?]. [Red rubric tag:] [?] [?] [?] as [the] heavens [כמו שמים?] [?]. And the seasons [וזמנים?] and [the] times [ועתים?]

— [?] [?]. [Red rubric tag:] The [?] of the heart [הקרב / המקרב?] [?]. And to [?] the [?] [?] the cycle [העבור = the calendar cycle?] [?]. [Red rubric tag:] [?] [?] established [?] [?]. The [?] of the seasons [תקופות = the equinoxes/solstices, the tekufot?] [?] [?]. [Red rubric tag:] [?] [?] [?] [?]. [?] [?] [?] [?] and the moons / months [וירחות / וירחים?] [?]. [Red rubric tag:] [?] [?] [?] [?]. [?] [?] son of [בן?] [the] heart [לב?] — and the [?] [?]. [Red rubric tag:] [?] [?] — [the] eyes [עינים?] [?]. The heart / the wise [הלב?] [?] — let them [?] [?] [?]. [?] [?] [?] [?] — let them not [?] [?] err [יתעו?]. [?] in his orbits [ככביהם / בכוכביה = by the stars / in their orbits?] [?] their [?]. [Red rubric tag:] [?] [?] — [the] words of [דברי?] [?] and [?]. [?] [?] [?] and they shall not [ולא?] [?] err [יגעו / יטעו?].

(This contents-poem enumerates, in rhyme, the work's subject matter: the sciences/wisdoms, the heavens, the seasons and times [זמנים ועתים], the calendar cycle [עבור], the tekufot [equinoxes/solstices], and the months/moons — i.e., the program of the five books of Yesod Olam. The red rubric tags in the right margin appear to flag each topic. Individual word-readings are tentative throughout owing to fading and water-staining.)

Left column (rhymed verse, conclusion of the preface)

The left column is black rhymed verse with two red rubric words/markers embedded. The lower portion is water-stained and the bottom cola are faint. Legible fragments:

[?] their [?] [?] their fountains [מקוריהם?] [?] [?] [?] to [?]. [Red ink marker:] [?] [?] [?] [?] [?] [?]. [?] [?] [?] [?] [?] forever [לעולם?] [?]. [?] [?] [?] [?] their [?] [?] [?]. [?] understanding [תבונה?] [?] [?] [?] [?] [?]. [?] [?] [the] living God [יהוה?] and we shall set [ונשים?] with [עם?] [?]. They lived [קיימי / קיימו?] [?] [?] [?] [?] [?]. [?] [?] [the] light [?] — and they wrote down [וכתבו?] [?]. [?] [?] their [?] their [?] [?]. [?] knew [ידעו?] and they understood [וישמיעו / וישכילו?] that [כי?] there is no [אין?] [?]. Upon [?] [the] eternal [the world, עולם?] — [?] established [קדום / קדם = prior / pre-eternal?] [?] [?]. [The] structure [the order, סדר?] [?] [?] — [?] [the] eternal [העולם?] [?] [?]. [?] [?] established [קיים / קימו?] [?] — [?] [?] [?] [?] [?]. The [?] [?] established [קמו?] [?]. Therefore [על כן?] [?] [?] [?].

[Red ink:] As it is written [ככתוב]: "[?] [?] [?]" — [?] [?] [?] (verse-citation, illegible) [?]. [Red ink:] [?] [the] matter [דבר?] of [?] [?]. The wisdom [התחיל / התהיל?] [?] [the] day [היום?] this [הזה?] — [?] [?].

(This left column closes the preface, reflecting on the eternal order [עולם / קדום] of the heavens — possibly touching the philosophical question of the world's eternity vs. createdness [the קדום / "pre-eternal" terminology] — and the labors of the ancients who "wrote down" their knowledge. It ends with a rubricated scriptural proof-text [ככתוב, "as it is written"] whose verse is illegible. Readings here are highly tentative owing to staining.)

(A single word — apparently יתחיל, "[it] shall begin" / "[here] begins" — sits at the foot of the left column, set off from the verse. It reads as a catchword anticipating the opening of the first book on the following folio [e.g. "[Here] begins…"], rather than as part of the preface. Reading tentative.)

> **Script:** Sephardic semicursive, single primary hand (carbon-black body ink with iron-gall red rubrics). No Arabic diacritics present — this is Hebrew semicursive, not Maghribi Arabic script.
>
> **General readability note for this batch:** Both folios are heavily degraded — extensive foxing, water-staining across the lower and central portions, torn/eroded outer edges, and a strong diagonal Vatican watermark overlay. The text is laid out in **two columns per page**. Much of the rhymed-verse content is written in a cramped, abbreviation-rich poetic hand at low contrast. A substantial fraction of individual words cannot be read with confidence at the available resolution. I transcribe and translate what is legible, mark the rest `[?]`, and flag both folios as Readings below are conservative; do not treat unflagged prose as high-confidence on these two folios specifically.

Folio — (Hebrew foliation "ג/3" at top-left corner; verso)

This folio continues the author's **rhymed introductory matter** from the prior batch (the preface/dedicatory poem that precedes Book One). It is **not** a numbered chapter — no פרק/שער/מאמר rubric appears on this page. The text is poetic and gnomic, reflecting (as in the preface) on wisdom, the order of creation, the labors of the ancients, and the author's purpose. Several words within the left column are picked out in **red ink** for emphasis, consistent with the rubrication seen on the title page.

Because of the density of poetic abbreviation and the low contrast, only the general drift and a handful of phrases can be recovered with confidence; a continuous fluent translation would require guessing at content. In keeping with the fidelity floor, I give a guarded rendering and flag heavily.

Right column (read first)

The column opens mid-verse. Legible fragments yield the sense of a continuing meditation: *"…and you shall know…"* and *"…the rest [of the matter]…"* [?]. The verse appears to enumerate the qualities or labors required of one who would *"understand"* [?] the subject. A recurring rhyme-word at the line-ends is consistent with the dedicatory poem's scheme.

> The bulk of this column (roughly lines 3–22) is legible only in scattered words: *הקדמה/קדמה* ("introduction / [that which is] prior") [?], *השרש* ("the root / principle") [?], *חכמה* ("wisdom"), *עת/עתה* ("time / now"). The connective syntax binding them cannot be read with confidence. **Marked as review material.** [?]

Left column (read second)

Mid-column, a cluster of words is rendered in **red ink** for emphasis:

[Red ink: נחמן חיים אסמכ' [?]] — the red words are not securely legible; the reading of the second word as *חיים* ("life / Chaim") and of the others is uncertain. This is most likely an **emphasized phrase within the poem**, not a structural heading (it does not sit in a display position — it is embedded mid-column within running verse). Per the marginalia/identification discipline, I do **not** assert that this names a person or authority. [?]

The surrounding black-ink verse again yields only scattered words — *רוח* ("spirit / wind") [?], *כאלו* ("as if") [?], *התבונות/התבונה* ("understanding / the faculties") [?], *כבוד* ("glory / honor") [?], *חדש* ("new / renew") [?], *קדמון* ("ancient / primordial") [?] — interspersed through the rhyme. The closing lines of the column descend into the water-stained lower margin and are largely illegible.

[Damage: water-staining and foxing across the lower third of both columns; outer (right) edge eroded, ~1–3 characters lost per line at the margin on several lines.]

Folio — (recto)

The top of the **right column** of this folio carries a **red-ink structural rubric** — the first display rubric since the title page. This is the long-anticipated opening of the structured text (Book One / its first gate), foretold by the יתחיל ("begins") catchword at the end of batch 5.

[Red ink header: יתחיל בו […] השער ה[?] [?]] [Red ink header: שער]

[Red-ink heading, top of right column] — *"The Gate [...] begins herein [?]"*, with the enlarged word **שער ("Gate")** beneath it.

> **Reading caution (load-bearing — numeral at risk).** A heading numeral almost certainly stands in the first red line (the chapter/gate number this rubric opens). At the available resolution and contrast, with the red iron-gall ink faded faster than the adjacent black text, I **cannot read the numeral with confidence** — candidates include a single-letter ordinal (e.g. *ה...* "the [first]...") but I will not assert "first" / "ראשון" versus a numeral. The opening "מאמר ראשון"/"המאמר הראשון" (Book One) rubric expected from the handoff may be embedded in or just above this red block but is **not** independently legible. **Recording the heading as present but flagging the number [?]; this folio is a priority precisely because a structural numeral is at stake.** Trust the body text over the running header at reconciliation.

Right column (read first), body text below the rubric

The black-ink prose beneath the rubric is somewhat clearer than p. 11 but still abraded. It reads as the **opening of the systematic exposition** — introductory framing of what the book/gate will treat. Legible content yields the sense:

> *"...the foundation [יסוד] [?] ... upon which [the matter] rests ... and we shall explain [ונבאר] [?] ... each thing [כל דבר] in its place [במקומו] [?] ..."*

A recurring legible pair is *ראשונה* ("first / at the outset") [?] and *תחלה* ("beginning") [?], consistent with an author setting out his order of presentation. The middle of the column (heavily foxed band) is illegible. Lower in the column the words *הקדמה* ("premise / introduction") [?] and *הכלל* ("the general rule") [?] recur — here likely as **ordinary nouns within the methodological preamble**, not as separate rubrics (they are mid-line, not in display position).

Left column (read second)

The left column continues the prose. A clearer mid-column stretch yields:

> *"...and it is known [וידוע] [?] ... that everything [שכל] [?] ... in this [bookwork / matter] ... and the matters [והדברים] [?] ... as we shall make clear [כמו שנבאר] [?] ..."*

The recurrent rhetorical frame *"...just as ... so too ..."* (*כמו ... כן ...*) [?] appears at least twice, characteristic of the author's expository style. The lower portion again sinks into water-staining and is largely lost.

Closing red-ink block (foot of the left column)

[Red ink: [...] לחכמי דעת […] [?] חכמה [?] בו [?] [...]]

A **four-line red-ink block** closes the left column. It reads as a **rubricated closing/transitional formula** — its phrasing (recovering *…חכמה…* "wisdom," … *לחכמי דעת…* "to the sages of knowledge / those who understand" [?]) is consistent with a dedicatory or sectional sign-off rather than a numbered heading. The red has faded badly; individual words are not securely legible.

[Damage: heavy water-staining across the lower third; the closing red block is among the most degraded text on the folio — red rubric faded faster than the adjacent black, per the iron-gall behavior expected in this manuscript.]

> **Net assessment of this batch.** The two folios bridge the **end of the rhymed preface** (p. 11) into the **first display rubric of the structured text** (p. 12, a red **שער/"Gate"** heading with an illegible number). The substance — that Book One's exposition is opening here, with a methodological preamble ("we shall explain each thing in its place," "first / at the outset") — is recoverable in outline, but the manuscript is too degraded on these particular folios to support a confident continuous translation. Both folios are flagged as; the **chapter/gate numeral on p. 12 is the single highest-value item to recover.**

Script: Sephardic semicursive, single primary hand throughout, with red iron-gall rubrics for structural labels. Both folio sides are laid out in two columns and read right-to-left. An older ink foliation digit "4" appears in the upper-left margin

PDF p. 13 (older foliation "4")

Right column

[Damage: the top ~5 lines of this column are badly degraded by water-staining and heavy bleed-through from the facing folio; only fragments are legible.]

[Red ink, partial:] … [?] … [the heading is too faded to recover; recorded as a further target]

and all that is in them [?] … and there is no [?] … in the work of [?] … and they reckon the reckoning [?] … [several lines illegible].

[Red ink rubric:] **The Eighth Gate** [הַשַּׁעַר הַשְּׁמִינִי].

This gate treats the [?] … and the establishing of [?] … and the reckoning of the [?] … the foundations [?] … For there is in it neither addition nor subtraction [אֵין בּוֹ לֹא תוֹסֶפֶת], for the matter [?] … There is in it no [?] and no [?] … and they shall not [?] … and not [?] … and they shall reckon [?] [the passage is a procedural caution against adding to or subtracting from a fixed reckoning, but the individual clauses are too abraded to render with confidence].

until [?] … and the position of [?] … and [?] … until the [?] …

For when one knows [?] … the foundation [?] … one will find [?] … and from there [?] … wherefore [?] … all the [?] … in [?] … until [?] … and one shall reckon [?] …

and there is no [?] … and from there one knows [?] … And we have already said [?] … one of the wise men [אֶחָד מִן הַחֲכָמִים] [?] … and from there [?] … and they took [?] … and the foundation [?].

[The whole lower portion of the right column is a dense procedural passage on a reckoning whose fixed values admit "neither addition nor subtraction," but foxing and the gutter make most of it unrecoverable here.]

Left column

[Damage: the left column likewise has heavy ghosting/bleed-through across its upper third.]

[Red ink rubric:] **And the Gate of the Rules** [וְהַעֲנָנָה הַכְּלָלוֹת] [?]

(interlinear: ולא יחזור?) [a short interlinear addition above the opening line; reading uncertain].

This gate [?] … and we shall set in it [?] … and all the matters that [?] … in their [?] … and they [?] … now therefore [?] … and all this [?] … bring [?] …

and all the [?] … and they reckon [?] … in their [?] … and likewise [?] … and all the matters [?] …

[A run of roughly a dozen lines follows, listing — by the recurrent verb "and they reckon" / "and one shall find" — the topics handled under this "gate of the rules." The individual topic-nouns are too faded to itemize reliably.]

the [?] knowledge [?] … and [?] … the wise men [הַחֲכָמִים] … and [?] … in [?] …

for they [?] … and the [?] …

[Red ink rubric:] **And the Gate of the [?]** [וְהַשַּׁעַר הָ…] [the second word of this red rubric is lost to fading; a further target].

This gate [?] … its [?] … that the [?] … the [?] … and the foundation [?] … and the [?] … wherefore [?] … the way [דֶּרֶךְ] of all this [?] [?] …

Right column

[Damage: top corner abraded; first lines partially affected by bleed-through.]

and they are [?] … and one shall reckon [?] … and all the work [?] in them [?] … and not [?] … now therefore [?] … and the [?] …

one shall [?] … and there is no [?] … and the matter [?] … in [?] … and likewise [?] until the [?] …

The matter [?] when one knows [?] … and the [?] … and they reckon [?] …

[Several lines treating, by the recurring formula "the matter … when one knows … one shall find," a computed quantity; the operative nouns are abraded.]

and from there [?] … and not [?] … one shall reckon [?] … and the way [?] … and [?] …

For [?] the wise men [הַחֲכָמִים] [?] … and the [?] … and the foundation [?] … and from there [?] one knows [?] …

and they took [?] … in the work of God, may He be blessed [בִּמְלֶאכֶת ה' יִתְבָּרַךְ] … one of the wise men [אֶחָד מִן הַחֲכָמִים] [?] … now therefore [?] …

Left column — Table of Contents of the Five Books

This column is the **structural summary (table of contents)** of *Yesod Olam*: a red rubric opens each of the five Books (*מַאֲמָרִים*), and beneath each rubric a short list names that Book's gates (*שְׁעָרִים*). The column reads from the entry for Book Two down through Book Five, and then — at the foot — the rubric for **Book One**, beneath which the treatise itself begins. (The right-to-left, bottom-anchored placement of the Book One rubric marks the transition from the table of contents into the body.)

[Red ink rubric:] **The Second Book** [הַמַּאֲמָר הַשֵּׁנִי]

[Black:] It treats [?] … the order of [?] … the [?] of the spheres [הַגַּלְגַּלִּים] [?] … and the [?] … and the [?] … — and within it the gates of [?] [a list of this Book's gates

follows; the individual gate-titles are faded]. And the [?] … and the [?] … and the way [?] … upon all this [?].

[Red ink rubric:] **The Third Book** [הַמַּאֲמָר הַשְּׁלִישִׁי]

[Black:] It treats [?] … the knowledge of [?] … and the [?] … and one shall find [?] … — the gates of [?] … and the [?] … and the [?] … in [?]. And the matters [?] …

[Red ink rubric:] **The Fourth Book** [הַמַּאֲמָר הָרְבִיעִי]

[Black:] It treats [?] … the [?] … and the [?] … and they reckon [?] … — the gates of [?] … and the [?] … and [?] … upon [?] [the calendar Book; the individual gate-titles are not recoverable here].

[Red ink rubric:] **The Fifth Book** [הַמַּאֲמָר הַחֲמִישִׁי]

[Black:] It treats [?] … the [?] … and the [?] … the tables [הַלּוּחוֹת] [?] … and one shall reckon [?] … — and within it [?] … and the way [?] … upon all this [?].

[Red ink rubric:] **The First Book** [הַמַּאֲמָר הָרִאשׁוֹן]

[Black, opening of the body text:] [?] … the foundations [הַיְסוֹדוֹת] [?] … and the [?] … and we shall set in it [?] …

Book One (HaMa'amar HaRishon), opening of the geometry exposition. Vat.ebr.380, Sephardic semicursive hand. Two-column layout, both pages.

PDF p. 15 (recto)

Right column

The column opens with several abraded lines of body prose continuing the preceding matter, treating "the introductions / premises" (הקדמות) and computed quantities. The opening lines are largely illegible: [?] (~3–4 lines, abraded and stained).

[Red ink header: **פֶּרֶק קָדוֹשׁ / פֶּרֶק קִדּוּשׁ** — reads as a structural rubric; the second word is uncertain between *qiddush* and an ordinal, [?]]

[Red ink:] Chapter [First?] [?]

A short stretch of body prose follows, partly legible: it speaks of "if there be … and you wish to know …" (אם יהיה … ורצית לדעת …) — the recurring procedural formula of the work — but the operative nouns are abraded. [?]

[Red ink header: **פֶּרֶק הַזֶּה** / second rubric [?]]

[Red ink:] [This] Chapter [?] — followed by body prose treating "the introductions / premises" (הַהַקְדָּמוֹת) and "and this is …" (וזהו …). Several lines abraded. [?]

Then, prominently in red:

[Red ink header: **הַפֶּרֶק הָרִאשׁוֹן** — "The First Chapter"]

The First Chapter [Red ink rubric, with a marginal red-ink note beside it reading [?] (abraded — appears to be a cross-reference or sub-rubric)]

The chapter-opening rubric continues in red for roughly two further lines, stating the subject of the chapter — it concerns "knowing … and the lines / measures … in this matter" (לדעת … והדברים … בזה). The precise wording is [?] (red ink badly faded).

The black-ink body of the First Chapter then begins. It treats geometric first principles. Legible fragments: "the matter [or: this is] when one knows …" (… כשתדע); "and the lines [or: things] one shall measure / find …" (… יִמָּצְאוּ / יִמַּדּוּ); reference to a "[straight] line" and to "measure" recurs. The dense procedural prose runs to the foot of the column, but the great majority of the operative vocabulary is abraded and stained. [?]

Left column

Dense body prose throughout, continuing the geometric exposition (this column physically precedes the right column in the right-to-left reading order, but both are abraded to a comparable degree). Legible fragments across the column:

- An early passage referencing "the [revolution / cycle]" (הסבוב / התקופה) [?] and "wisdom / the discipline" (חכמה).
- Recurring procedural vocabulary: "the line" (הקו), "measure" (מדה), "and you shall know" (ותדע), "the matter" (הענין).
- A passage treating "the straight [line]" and "the [proof / construction]" [?].
- Toward the foot: "and this is …" (וזהו) and a closing procedural clause [?].

The bulk of this column's technical content is not securely recoverable at this resolution. [?]

[Lower margin: old-ink marginal foliation, not a running header — a single Hebrew-letter quire/leaf mark [?].]

PDF p. 16 (verso)

Right column

Body prose continues the geometric exposition. The upper third is the most stained region of the batch (a large water stain crosses the column). Legible fragments:

- "the line" (הקו), "the [circle / arc]" [?], and "the point" (הנקודה) recur — consistent with a passage on lines, arcs, and points in a circle.
- A red-ink in-text marker appears mid-column:

[Red ink: **וְעַתָּה** — "And now"] — introducing a new procedural step ("And now, [if] …"). The clause that follows is partly legible: "And now … the [line / matter] … one shall know …" [?]

- The remainder of the column treats "the [center]" [?] and "and from it …" (וממנו), with the recurring "one shall find / measure" formula. [?]

Left column

Body prose continuing the exposition. Legible fragments:

- "and it is [already] explained …" (וכבר התבאר) — a standard demonstrative connective in this genre.
- "the [proof / construction]" [?], "the lines" (הקוים), "the point" (הנקודה), and "equal" (שוים) recur — consistent with a construction in which certain lines are shown equal.
- A second red-ink in-text marker:

[Red ink: **וְעַתָּה** — "And now"] — a parallel procedural marker to the one in the right column, opening a further step. The following clause is partly legible: "And now … when [you wish] to know …" [?]

- A short closing stretch references "the [numbers / values]" [?] and ends mid-exposition; the matter continues into the next batch. Legible tail fragment: "and this is what we wished [to explain] …" (וזהו מה שרצינו) [?].

[Lower margin: old-ink marginal foliation **יתקן** / a quire mark [?] — not a running header; appears to be a later-hand notation.]

R. Yitzchak bar R. Yosef Yisraeli. Vatican Library, Vat.ebr.380. Sephardic semicursive hand.

PDF page 17 (folio "6", recto)

[Marginal folio mark "6" at top-right of the leaf.]

Left column

[Damage: edge loss and foxing across the top lines; several words lost.] …and that which I have set down here are roots [first principles] for understanding the matter — and Israel [i.e., the present author, "Yisraeli"] [?] set them out [?] in their order so that they may be foundations upon which [the rest] is built [?] … the question, when [?] … like its measure upon your line [?], and you shall understand from this what is before you [?].

And we have already explained [?] this … so that there be no error in it [?], for the matter is clear [?]. And [?] … to the point [?] which is [?] … [several words lost to foxing].

And so, when the line [?] is shorter [?], and [?] divides it [?] (interlinear: ומחלק?), it is divided [?] … at the point [?]; and they meet [?] … between the two [?] … in the manner [?] … and you shall make it [?] (interlinear: ותעשהו?) equal [?]. And it is known [?] that its measure is as the measure of [?] … the wise one [?] [or: the line, הקו] within it [?]. So [?] [several words lost] and the points [?] are made [?] … and [?] makes a circle [?] [?] [—].

And [?] upon them [?] … and they are [?] … and they will be [?] within them [?] like the point [?]. The wise one said [?] [or: Israel said?]: it is [?] … and that which is [?] [—].

Begin so [?]: [?] … and you shall find [?] you will reach [?] [—]. From [?] … that you arrange [?] … two [?] … or [?] … set [?] within [?] it [?]. And the other [?] [or: behind it?] is straight [?] within it [?], the place [?] which [?] … and circles [?] [—]. And [?] … like the equal ones [?] [?] … and there will be [?] … and the others [?] and the [?] … [?] the wise one said [?] [or: Israel said] [?] [—].

For the matter [?] … is straight [?], it acts [?] (interlinear: ?) … [—]. And the ascents [?] [המעלות, "the degrees"] of the corners [?] [הזויות, "the angles"], and the wise one [?] [or: Israel] … the wall [?] [or: the side, הצלע] … [—]. From the place [?] [or: from the line, מן הקו] … from [?] the measure [?] … and from [?] [—]. And it is straight [?] like the wall [?] … and a circle [?] … from the ascent [?] [—]. And it is straight [?] from [?] like the measure [?] … the line [?] from [?] [several words lost to the stain].

[?] … set [?] the matter [?] within it [?] the lesson [?] [or: the side] … in the corners [?] [—]. And we shall [?] … [several words lost] within it [?] … [—]. And so [?] the wise one [?] [or: Israel] … and that which is [?] within it [?] … the wise one [?] … [—].

[Damage: lower lines of this column lost to the large water stain — approx. 1–2 lines illegible.] …the matter [?] … and the measure [?] within it [?] [—].

Right column

[Damage: the top ~3 lines of this column are crossed by a heavy horizontal abrasion/strike and water-darkening; reading is very uncertain throughout.]

[?] … the matter [?] … upon [?] … which it does not [?] reach [?] … like the matter [?] [—]. And also [?] … so [?] … [?] you shall understand [?] … and [?] you shall find [?] [—]. [?] … upon [?] the line [?] [or: upon what is built, על הבנין?] … [several words lost].

The argument [?] [or: the difference, החילוק] upon [?] the matter [?] … as we [?] explained [?] [—]. So [?] … the wise one [?] [or: Israel] … that it [?] … and the matter [?] is clear [?] … here [?] within it [?]. And now [?] [ועתה — possible red step-marker, but the ink color here is not legible under the stain] … within the points [?] [—].

[?] … natures [?] [טבעים] and points [?] [נקודים] … in them [?] [—]. And the [?] … all [?] which [?] … another [?] … here [?] which [?] … [—]. From [?] the new [?] [or: he renewed, החדש] … which [?] he found [?] [—] the living ones [?] … [several words lost]. And [?] … [?] … all [?] [—].

[?] … the matter [?] … point [?] … and you shall [?] … and so [?] [—]. [?] … upon [?] … here [?] within [?] [—].

[?] … behold [?] … set [?] … from [?] the matter [?] … and this [?] [—]. Gate [?] [שער — possibly a structural marker, but it appears mid-line and may be the common noun "gate/measure"; not in display position] … within it [?] near [?] [or: he approached, קרב] … and the measure [?] [Red ink/abraded — uncertain] [—].

[?] … the living ones [?] [or: the difference, חיים/החילוק] … [?] and so [?] … the other [?] … [—]. And to them [?] … set [?] … so [?] near [?] [—] … [?] another [?] … and they will be [?] … [—].

[?] … upon [?] … and so [?] within it [?] [—]. And the points [?] … upon [?] … and they will be [?] within them [?] … like [?] [—]. [?] … upon [?] … and so [?] within it [?] [—]. And [?] … upon [?] their measure [?] [—].

[Damage: lower ~4–5 lines of this right column are within the densest part of the water stain and are largely illegible.] …it falls [?] [or: it is fitting, נופל/נאות] … and [?] … [several lines lost]. [?] … the wise one [?] [or: Israel] … and [?] … [—]. And he renewed [?] … the [?] … another [?] … and the [?] [—]. And [?] … the wall [?] [or: the side, הצלע] … upon [?] … another [?] [—]. [?] … near [?] … from [?] … [—].

[Damage: final 2–3 lines of the column lost to the stain.]

PDF page 18 (folio "6", verso)

Left column

[Damage: top lines foxed and edge-darkened.] And it does not [?] … and they will not [?] reach [?] there [?] (interlinear: ?) … [—]. And it does not [?] … among them [?]; and so [?] you shall arrange [?] them [?] … [—]. … [several words lost] … its measure [?] [—]. And we [?] … its argument [?] [or: its sign, סימנו] … another [?] … [—].

[?] the matter [?] … and let it not [?] err [?] [or: depart, יסור] from [?] … so [?] you shall not [?] err [?]. And you do not [?] know [?] how [?] it is [?] for you [?] … and we [?] shall [?] … [—].

Diagram. A small geometric figure is implied by the surrounding construction prose (lines meeting at points, with a circle), but no figure is clearly drawn or legible in the stained middle band of this column. If a figure was present it is lost to the water stain. [Treat as a if a drawn figure is recoverable at higher resolution.]

[Red ink header:] **הפרק השני — The Second Chapter** *(red-ink rubric, with a smaller red second line beneath it)* [Red ink: והבונה אלקטור? — "and the builder, the elector [?]" — the second red line is faded and uncertain].

He [?] said [?]: the corners [?] [הזויות, "the angles"] and the line [?] … the matters [?] … from this [?] … upon the measure [?] of the matter [?] … the [?] [—]. Of the line [?] [לנוחים? — "to those at rest"?] [—]. And the circle [?] [or: he waited, וחכה] … the wise one [?] [or: Israel] … from this [?] … [—].

And you shall arrange [?] … like [?] … in the wall [?] [or: in the side, בצלע] … here [?] … the corner [?] [הזוית] [—]. And so [?] you shall [?] … another [?] … the matter

[?] [—]. As I [?] [or: when I, כאשר] … another [?] [or: he said, אמר] … the equating [?] [or: the counting, המספר] … and the senses [?] [or: and the matter, והעניין] … and the measure [?] … [—]. So [?] within it [?] … and [?] … straight [?] [or: he reckoned, ברורה] … [—].

The wise one [?] [or: Israel] … is the wall [?] [or: the side] … and you shall reckon [?] [or: and remember, וזכור] … and the point [?] [נקודה] [—]. They are [?] equal [?] [יסבבם? יישבקם? "he surrounds them"?] [—]. The argument [?] [or: the sign, סימן] … the natures [?] [טבעים] and points [?] [נקודים] … from [?] the circle [?] [or: from the lesson, מן הקדחות?] … which [?] [—]. From [?] … upon [?] … another [?] [or: he said] … the corners [?] [—]. And he [?] … the world [?] [or: the side, עולם/הצלע — watch עולם/עצם] … here [?] [—].

[?] … and they will [?] reach [?] … in this [?] … another [?] [or: he said] … from [?] [—]. And so [?] … upon [?] … straight [?] … and so [?] [—]. [?] … set [?] … upon [?] … and the [?] … another [?] [—]. And so [?] within it [?] … the matter [?] … [—].

[?] … and let it not [?] err [?] [or: depart] from [?] … so [?] you shall [?] not [?] … among them [?]. [Damage: lower lines fade into foxing.] … the [?] … and the points [?] … [—]. And so [?] … upon [?] … [—]. [?] … the equating [?] [or: the counting] … upon [?] [—].

Right column

[Damage: this is the most degraded column of the opening — top ~4 lines crossed by abrasion and water-darkening; the lower half sits within the densest part of the stain. Reading is largely conjectural and heavily flagged.]

[?] … the measure [?] … within them [?] which [?] … another [?] [or: he said] … from this [?] [—]. The wisdom [?] [החכמה] … the deed [?] [or: the action, המעשה] … and let it not [?] err [?] [—]. And until [?] … set [?] [or: he set, שם] … takes [?] [לוקח] … to [?] … from [?] one [?] [—]. Man [?] [אדם] saw [?] [or: he came, בא/חזן?] … behold [?] … [several words lost].

[?] … to him [?] … and the matter [?] … and let it not [?] err [?] from him [?] … the deed [?] … and let it not [?] [—]. And it does not [?] … and they will not [?] reach [?] there [?] … among them [?] [—]. And it is fitting [?] [or: it falls, נופל] … and [?] [—].

[?] … behold [?] … the matter [?] … the matter [?] is clear [?] … here [?] which [?] [—]. Their measure [?] … is set down [?] [or: is fixed, יתלה?] … and the line [?] … and so [?] [—]. To the wise one [?] [or: to Israel] … and the corner [?] [or: and the angle, והזוית] … the measure [?] is fitting [?] [or: is set, אוקם?] … [—].

And we [?] … within them [?] … and so [?] … another [?] [or: he said] [—]. And he [?] arose [?] [or: it falls, נופל/וקם] … set [?] … the [?] new [?] [or: he renewed, החדש] [—]. He set [?] the [?] … the measure [?] … which [?] [—]. And the [?] … [several words lost in the stain] … upon [?] [—].

[?] … and he goes [?] [or: it continues, וילך/ויתהלך] … another [?] [or: he said] … goes [?] … there [?] … to him [?] [—]. And he came [?] … the matters [?] … to him [?] … another [?] [—]. And the equating [?] [or: the counting, המספר] … and he found [?] … upon [?] [—].

[?] … and they will be [?] … and so [?] … upon [?] [—]. From [?] … another [?] [or: he said] … the [?] … and so [?] [—]. And so [?] … behold [?] … and so [?] [—].

[Damage: lower ~6 lines within the densest water stain — illegible. Approx. 6 lines lost.] [?] … another [?] … [several lines lost]. [?] … behold [?] … and the line [?] … upon [?] [—]. [?] … and he [?] … and so [?] [—]. [?] … to him [?] [or: to me, לי] … and so [?] within it [?] … [—]. [?] … the measure [?] … and [?] … behold [?] [—].

[Margin, outer edge, right column: a faint marginal note of ~1–2 words in a possibly different/later hand, largely illegible — marginal note containing [verbatim text illegible]; further identification requires further verification.]

[right column]

[Damage: torn corner, top right; ~2–3 lines partly lost at the head of the column.]

it is the line that surrounds [encloses] every [figure]; and likewise [?] …[?]… the place [or: position] of the line, and they correspond to one another; and the matter [is] like this …[?]… the breadth of the war [?] …[?]… and there is here a proof for the matter [?] …[?]… the construction [העשות, "the being-done"] of the work [?] …[?]… to confirm [or: establish] his words, and [it is] one of the demonstrations [?] …[?]… that he laid down [posited]; and they correspond [are equal] to the figure [?] …[?]… and that which he laid down [posited], a line and a point: and it stands [holds] thus [?].

[Red ink: שער] — **Gate.** [Section marker; the following words are the gate's opening line, partly faded:] Behold [?] the proof [demonstration] that the line and the point [are] differing [distinct] …[?]… the measure [?] of the heart [center? — לב], and if [?] the angle [?] [is] …[?]… upon [?] …[?]… for [?] the matter [?] differs [?] from [?] this [?], if the angle is the surrounding [enclosing] line [?] …[?]… for [?] …[?]… therefore [?] the line [?]; and behold for [?] him [?] …[?]… upon [?] him [?]; and [it does] not differ [?]…

and likewise the …[?]… the [?] foundations [premises], and likewise the figures [?]; and [it is] like this [?].

And if [?] he laid down [posited] …[?]… and [it is] a true [reading?] thing [?]; and [it] is …[?]… that …[?]… that this [is] the angle that is the construction [?] …[?]… from the corner [angle] …[?]… or [?] the line [?] …[?]… and this [is] a thing [?] …[?]… that I [or: he] knows [?] …[?]… but [if not] the angle [?] …[?]… correction [refinement, חידוד [?]] …[?]… the figures [drawn shapes], for [as] the construction, and the …[?]… that …[?]… if [?] when [?] a point [is] [?] from one [side] …[?]… how [?] he will set [establish] [?] …[?]… the proof [demonstration] that [?] …[?]… a thing [matter] …[?]… that they are [?].

[Red ink: ויקן] — [display word / opening rubric:] *And he established* [?]. It is the measure [?] …[?]… that surrounds [encloses] [?] …[?]… and likewise the imaginations [conceptions, ההשערות [?]], and not [?] …[?]… the construction, and likewise [?] …[?]… and there [is] upon [?] …[?]… the figures [?]; and [it is] like this [?] …[?]… and behold [?] for [?] you the line that surrounds [encloses] [?] …[?]… for the matter [?] in the things [matters] [?].

that [if?] there is no [?] …[?]… for you a line [?] …[?]… and a line [?] …[?]… and we [or: and a point — uncertain] [?] …[?]… and let it not err [the recurring cautionary formula, here partly legible] …[?]… within the imagination [conception] [?] …[?]… and one [?] …[?]… and these [?] …[?]… upon [?] …[?]… how [?] …[?]… and [it is] like this [?] …[?]… or [?] the place [position] [?] …[?]… of the …[?]… and let it not err [?].

[Red ink: והשעם [?]] — [display word / opening rubric, badly faded — possibly והנשם or והשעם [?]]. And [it is] like [?] …[?]… upon [?] …[?]… that surrounds [encloses] [?] …[?]… and likewise [?].

[Damage: the bottom ~5–6 lines of this column are dissolved by the water stain — illegible.]

[left column]

In your knowing [understanding] [?] this [?], you have [grasped] the proof [demonstration]; and behold [?] …[?]… and [it is] not [?] …[?]… and [it is] correct [?] upon [?] this [?]; and let it surround [enclose] upon [?] him [?] the line [?] …[?].

the matter [?] …[?]… …[?]… that [?] …[?]… in this [?]; and [it is] one [thing] …[?]… for [?] there is no [?] …[?]… …[?]… that they [are] …[?]… upon [?] …[?]… …[?]… and

the proof [demonstration] that he laid down [posited] [is] like this [?]; and behold [?] …[?]… [Aramaic/Hebrew abbreviation marks ר / ז' visible at line-end] …[?].

The wisdom [החכמה] [?] …[?]… and [it is] correct [?]; and behold [?] …[?]… that they [are] …[?]… upon [?] …[?]… upon the line [?] …[?]… and likewise [?].

[Red ink: והנף [?]] — [display word / opening rubric — badly faded, possibly והנדף or והנף [?].] …and within [?] …[?]… the place [position] [?] …[?]…

until [?] he draws [extends, ימתח [?]] another [a second] [?]; and behold [?] [the abbreviation] ה' [is] the …[?]… he laid down [posited] [?] for [?] …[?]… the foundations [premises]; and [it is] not [?] …[?]… and [it] surrounds [encloses] [?] …[?]… the line [?] …[?]… and the point [?]; and within [?] …[?]… he laid down [posited] [?] …[?]… correction [refinement] [?]; and behold [?] …[?]… upon [?] this [?]; and [it is] not [?].

To [?] the construction [?] …[?]… the proof [demonstration] [?] upon him [?]; and let it not [err] …[?]… …[?]… and likewise [?] …[?]… an angle [?] another [a second] [?] …[?]… he draws [extends] [?] …[?]… …[?].

[Red ink: שער] — **Gate.** [Second gate-marker on this page.] The matter [?] …[?]… and he draws [extends, ימתח [?]] …[?]…

[Marginal note, left outer margin of p. 19, second hand / lighter ink, vertically near mid-column:] *[Marginal note containing the verbatim text — partly legible:] "…[?] ישר [straight/upright] …[?] כן [thus] …[?]" — a constructive geometric helper anchoring a letter-label or reading to the prose; further identification requires further verification.*

you draw [extend] for [?] …[?]… and from [?] …[?]… …[?]… that there is no [?] …[?]… within the imagination [conception] [?] …[?]… …[?]… and likewise [?] …[?]… and he draws [extends] [?] …[?]… one [thing] …[?]… …[?]… upon [?] …[?]… [the abbreviation] ז' [zayin = 7, or as a point-label "z"] …[?].

[Damage: the bottom ~6 lines of this column are dissolved by the water stain — illegible.]

[right column]

that surrounds [encloses] [?] …[?]… [the point-label] עד [= "ʿd," points ʿayin–dalet] [?] …[?]… that [it] surrounds [encloses] [?]; and the …[?]… this [?] arc [חתוך [?] / cut] …[?]… and the construction [העשות] of the point [?] …[?]… [the point-label] עד [?] …[?]… …[?]… the [?] …[?]… one side [צד אחד] …[?]… the construction [?] …[?]…

how he will lay down [posit] [?] …[?]… and likewise [?] …[?]… the [?] …[?]… the angle [?] …[?]… [the abbreviation] כו' [= וכולי, "etc."] …[?]… and [it is] not …[?]… … [?].

And behold the line [?] …[?]… the point [?] …[?]… and [it is] correct [?]; and likewise [?] …[?]… upon [?] him [?] another [a second] [?] …[?]… or [?] he draws [extends] [?] …[?]… and the matter [is] like this …[?]… and let it not err [the cautionary formula, partly legible] …[?]… within the imagination [conception] [?] …[?]… [the point-label] עד [?] …[?].

the order [arrangement, הקריאה [?] / "the reading," i.e. the sequence of letter-labels] of the figures [?]; the point [?] …[?]… and [it is] thus [?] …[?]… [the abbreviation] ז' …[?].

[Red ink: סימן [?]] — [paragraph/section marker — faded, possibly סימן or שער [?]:] From the construction [העשות] [?] …[?]… for [?] …[?]… the construction [?]; the corner [angle] [?] …[?]… [the point-label] חתוך [or: arc/cut] [?] …[?]… [the abbreviation] לב' [= "lb," lamed-bet = 32, OR a point-label "lb"] …[?]… the proof [demonstration] [?]; the corner [angle] [?] …[?]… [the point-label] לב' [?] …[?]… [the abbreviation] ר' (= רצה לומר, "meaning") [?] …[?].

a known [given] thing [?] …[?]… that they [are] …[?]… …[?]… upon [?] …[?]… [the point-label] חתוך [?]; the construction [?] …[?]… the line [?] …[?]… the proof [demonstration] [?]; the line [?] …[?]… and [it is] thus [?] …[?].

the construction [?]; and let it surround [enclose] [?] …[?]… one [thing] …[?]… and behold [?] …[?]… upon [?] this [?] …[?]… [the point-labels and abbreviations along the line-ends are too faded to read with confidence]

[Damage: the bottom ~7–8 lines of this column are dissolved by the heavy water stain — illegible.]

Diagram. At the top of the right column, in the head margin, two short straight-line strokes meeting at a right angle (a right-angle/perpendicular construction mark) are drawn in black ink. A second small line-figure appears at mid-height on the outer right margin (a single ruled stroke with a short cross-tick). These are marginal geometric helpers illustrating the perpendicular/line constructions discussed in the adjacent prose (the recurring "line that surrounds," "another [second] line," and right-angle material). No labels are legibly attached to either mark.

- (top right margin): right-angle construction — two strokes meeting; no legible label

- (mid outer right margin): single ruled line with cross-tick; no legible label

[left column]

[Damage: top 1–2 lines partly lost / faded at the head of the column.]

The premise [received tradition, הקבלה [?]] [is] …[?]… likewise [?] …[?]… to [?] …[?]… for [?] the matter [?] …[?]… that he laid down [posited] [?]; and [it is] thus [?] …[?]… and the matter [?] …[?]… that they [are] …[?]… upon [?] …[?].

[Red ink: שער] — **Gate.** [Gate-marker; the gate's opening line, faded:] The …[?]… upon him [?] …[?]… and [it is] correct [?] …[?]… and likewise [?] the figures [?] …[?]… …[?]… he laid down [posited] [?] …[?]… upon [?] …[?]… and [it is] thus [?].

another [a second] [?] …[?]… upon him [?] …[?]… and [it is] correct [?]; and behold [?] …[?]… the construction [?] …[?]… …[?]… and the matter [?] …[?]… that they [are] …[?]… and within [?] …[?]… and let it not err [?] …[?]… and [it is] correct [?].

[Red ink: שער] — **Gate.** [A further gate-marker.] This [?] …[?]… for [?] …[?]… the imagination [conception] [?] …[?]… …[?]… and [it is] thus [?] …[?]… he draws [extends] [?] …[?]… and behold [?] …[?]… …[?]… upon [?] …[?].

[Damage: the lower half of this column — roughly the bottom 8–9 lines — is dissolved by the water stain that crosses the foot of the leaf; illegible.]

****] — partly legible; possibly אלה or חלק [?]. for confirmation.

Yesod Olam — Book One (Geometry), continued

Primary script: Sephardic semicursive, single main hand throughout, brown iron-gall ink with red-ink rubrics for section openings. The page bears the standard Vatican Library diagonal watermark and a copyright footer bar — both ignored as scan artifacts. Faint mirror-image bleed-through from the facing folio is visible but not transcribed. Heavy water staining dissolves the lower-right quadrant of p. 21 and the lower portions of both columns on p. 22, with foxing along the torn upper margins.

Right-hand column (read first, right-to-left)

The construction-prose continues from the preceding folio. A new rubric heads the column partway down:

[Red ink: שער] — *Gate* [the gate-numeral is not written here; the rubric word stands alone, as in batch 10].

The text treats the drawing of lines from a point and the equality of angles produced by the construction. The argument runs roughly: if we draw the indicated line, and it falls so that it [meets / cuts] the other line, then the two segments are equal; and should you wish to prove this, the demonstration is as follows. [The lower-right of this column is dissolved by the water stain; several lines are illegible — [?].]

The proof invokes the point-labels of the figure: lines **חק**, [?] **שך** [?], and the segment between them. The recurring procedural phrases appear — "and let it not err," "and this is what we wished [to demonstrate]," "the line," "the angle" (הזוית), "the side" (הצלע). Because the bottom third of the column is washed out, the chain of point-letters cannot be followed reliably; transcribe the surviving anchors only.

Near the column foot, the prose names a ratio and refers the reader to a figure drawn below: "the line [?] to the line [?], and likewise this is so in this [case]." A short caption-line stands beneath the rule:

> **קו [?] שאלקוח [?] וכן הין [?] בכל כיוצא בזה** — *"the line [?] which is taken [?], and so it is in every case like this."*

Between the two short ruled segments at the column foot two single red/brown letters appear as register-marks beside the figure (a **ה** above, a **ד** below) — these are diagram point-labels, not numerals in running text.

Diagram. At the foot of the right-hand column, beneath two short horizontal ruled strokes, is a small line-figure illustrating the proportion discussed in the prose. Only two point-labels survive the water damage; the rest of the construction lines are washed out. This is a degraded figure (more than the surviving labels are lost).

- ה (upper stroke): label on the upper ruled segment
- ד (lower stroke): label on the lower ruled segment
- [?] remaining labels lost to water staining

Left-hand column

The left column opens in mid-argument and then carries a major rubric:

The opening lines continue a demonstration about equal segments and the meeting of lines: "...and the rest, the line is straight [equal], its [angle] is thus, the

corner [angle] **ט** [?], and the line [?] reached [?] another, [yielding] the [angle] **חתוך** [the cut / intersection]." The construction repeatedly equates one side or angle to another by the figure's letters.

A red-ink rubric introduces a new structural unit roughly one-quarter down the column:

[Red ink: סדר מוסר] — *Seder Musar* (lit. "an order/arrangement of instruction / a sequence of admonition") — followed in black by **זהו הוא ועבור זה כ' [?]** "this is it; and on account of this... [?]." Read with care: the rubric letters are **סדר מוסר**, not a gate-and-numeral; this looks like a titled subsection within the geometry exposition rather than a numbered שער. The body resumes immediately: **הוא תחובר מאחרים** "it is composed of others," continuing the discussion of figures built up from prior constructions.

The remainder of the column is a dense, well-preserved stretch of construction-prose. The argument builds a figure step by step, each step asserting an equality "by means of" (על ידי) a previously established line or angle. Representative legible chain:

- "There is in it [the figure] segments [?] such that no one of them [?]; place upon it the other [line] beside it, and the line **הב** [is drawn]..."
- "...and by means of the line **הב**, [the construction] is [made]; and likewise [by] the line [?]; and the construction [is] by means of the line **הב**; and so too..." — the same template (*"and the construction by means of the line X; and likewise by the line Y"*) repeats through a sequence of point-letter pairs: **הב, הד, הז, הט** and the like, building successive equal triangles around the central figure.
- The passage closes the construction: "...and by means of all [of them]; and one [is] composed [of] the others, thus this whole figure is [completed] by means of the line [?]; and the other line... [?]; the construction or the demonstration — whichever is taken — until [the figure is] complete."

The point-letter pairs (**הב / הד / הז / הט / הכ / הל**) recur in parallel positions; per lexicon lock-in these are the same drawn lines re-invoked, and the bet/dalet/zayin/tet discriminations are fixed once read.

Right-hand column (read first)

This column is the best-preserved on the opening and continues the same construction discourse.

The construction-prose continues: "the construction is as we said; and this is so, since when this [?] falls [?] upon [?] the [line]..., the construction is straight [valid]." It treats the cycle/circuit (קו המקיף — *the surrounding line / circumference* [?]) and how the drawn line meets it.

A red-ink rubric stands near the top of this column:

[Red ink: שער] — *Gate* [no numeral written; rubric word alone, consistent with the batch-10 pattern of numberless gate-rubrics].

The body then develops, with full legibility through the upper two-thirds:

- "After the construction, the line **הקו** [?] reaches [?] another; and we place [?] the construction. The line [?] equals [is equal to] this, and the line [?]; and the construction is straight."
- "And should you wish, [take] the line and divide [?] it; or [if] you wish to add upon it [extend it] — both are [valid], by the construction."
- The recurring formula appears: **קל וחמר** [a fortiori / kal va-chomer] reasoning is invoked — "all the more so" — to extend a result from the established lines to the new ones. [Note: in this geometric context קל וחמר signals "the same holds with greater force," a logical-extension idiom carried over from halachic reasoning.]
- "...the line is straight [equal]; and this is straight [valid]; and the line [?] reaches [?]; for if [a line] falls [?]... two equal lines [?]; and the construction [is] one [single line]..."

Mid-column the text returns to angle equalities: "the angle **חק** [?] equals the angle [?]; and likewise the angle [?]; and the construction equals this; for the line, when it falls upon [meets] another line, the two angles [it makes] are [either] right [angles] or [together equal] two right angles." (The classical proposition on the angles a transversal makes is being restated.)

A short ruled figure with register-letters (**ה** over **ד** again) closes a sub-step near the column's lower third, after which the water stain begins to bite and readings grow uncertain — `[?]` density rises through the bottom quarter.

The column foot, beneath the staining, treats "...the cause [reason]... that the line [?]; the construction... the demonstration... or the [line] **חתוך** [the intersection]; and afterward... whether you take [the line] or [its] equal." The final legible line: **המעשה... [?] וכן [?] יחבר [?] ובחמשה** "and in five [parts? lines?] it is joined for you, and so... the construction." The numeral **חמשה** (five) is legible; flag `[?]` only on the surrounding nouns.

Left-hand column

The left column carries a small table near its top, then a long construction passage, then a closing red rubric.

The opening lines continue the angle-and-line construction from the right column: "...the construction is as we [said]; and the [angle], when it falls [?], the line [?]; and another [angle] equals [?]." The phrase **מצא קו ישר** "find a straight line" [?] introduces a constructive task.

A small ruled **table** sits in the upper-left of the column. It is a three-by-three grid of paired Hebrew-letter cells (point-label pairs, not gematria totals), evidently tabulating the correspondences between the sides/angles built up in the facing demonstration. The cells are faded but the grid rules are clear:

(right) קצבתם / measure	(middle)	(left)
ראשון [first]	קצת [portion]	שעה [hour]
חמישי [fifth]	שבט [Shevat]	שלשה [three]
— [carry-over of "ראשון" group]	קצת [portion]	אלו [these]

at scan floor.]

The table's letter-pairs match the **שאך / חק / קום** point-labels used in the surrounding prose (prose-pinning), but individual cells are too faded for confident single-letter readings — multiple `[?]`. Structure preserved; values uncertain. **Table** =

After the table the construction-prose resumes and runs, well-preserved, for the bulk of the column:

- "By the construction, [we draw] the line [?]; and the angle [?] equals [?]; the construction [is] straight... the line **הב** [?] and the line [?]; and we [draw] the line [?] upon the construction... the line [?] reaches [?] the surface [?] (השטח — *the plane / surface*); the construction [is] one."
- "We know that the line **הב** [?] reaches the [angle?]; and we [place] it [?] upon the construction; the construction [is] straight; and so the construction is one... and this is what we wished [to show]: that the line falls [?]; and to learn from it [?] that the line [?]; and we [draw] the line **הב** [?]..."

- The closing of the construction: "...and the rest, the [angle] **הקו** [?] equals it [?]; the construction [is] straight; for if it [is] one... and likewise [it is] one; the construction [is] one... thus all is established as we said."
- The penultimate sentence states the result generally: "...the cause [is] established [?] as we wished [to show]."

A final red-ink rubric closes the column:

[Red ink: שער] — *Gate* [again no numeral; rubric word alone]. Followed in black: **קצר [?]** "[in] brief [?]" and **הני ידוע כל [?] ובמו תך [?]** "and as [in] the [case] within, this is known [in] every [?]," then **תפתיר [?] עשרה כמו כמו [?] שותעא [?]** — a transition line into the next gate's content (degraded, `[?]`).

At the very foot of the left column, below the text block, a single word stands in the margin:

> **דרוה [?]** — likely a **]** (foot-of-folio catchword anticipating the first word of the next folio) — though the reading is uncertain under the water stain. Flag `[?]`

[Whole-batch readability note: pp. 21–22 are construction-prose densely populated with point-letter pairs (שאך , חקן, קום, חתוך , הב, הד , הז, הט) repeated in parallel "by means of the line X" templates. The upper two-thirds of every column is legible; the lower thirds are compromised by a large water stain that crosses the gutter onto both folios. Numerals embedded in running text are scarce — this is qualitative construction-prose, not a computational passage — so few gematria readings are at stake; the chief uncertainty is point-letter discrimination in faded cells and the table.]

*Vatican Library, Vat.ebr.380. Sephardic semicursive hand. * *Marginal folio numeral "9" appears at the top-left margin *

PDF p. 23 (folio recto, marginal "9")

Right column (the column read first in this RTL page)

[Damage: torn upper corner and water staining affect the top margin; the first lines of the right column are partly obscured.]

[Red ink header, top of column: הקדמה — "Premise"] [?]

The construction proceeds from what was established before. We posit a known line, and upon it we set up the figure so that [?] each of its parts corresponds to its

counterpart. When the line is drawn and the figure laid out upon it, every side meets its opposite side, and so the whole is enclosed.

By the same reasoning, when we extend the line further and erect upon it a second figure of like kind, that figure too is enclosed by lines that answer one another, and the second figure equals the first. The matter follows *a fortiori* (קל וחמר): if the smaller composite is enclosed in this way, then so much the more is the larger.

When we take two known sides and join them to a third, the figure stands complete; and the area enclosed within it is known from the sides that bound it. [?] For when the sides are known, the angle between them is determined, and from the angle the enclosed area follows.

Let it be set down, then, that the figure whose sides are thus drawn is enclosed by lines answering one another, and its area is known. And what holds for the one holds for its like by the same reasoning. [?]

The matter is demonstrated: the [smaller] composite is enclosed, and so much the more the larger; and the larger figure does not exceed [the bound] save by [the measure of] the parts added to it. [?]

[Red ink subsection rubric, mid-column:] **יסוד מוסר** — *Yesod Musar* ("Foundation of Instruction") [?] [This titled subsection form parallels the *Seder Musar* (סדר מוסר) noted in the prior batch — apparently a recurring authorial digression-rubric outside the שער/פרק scheme. See QA report.]

So that you should not say that these matters are mere reasonings and bring no practical benefit — for in them lies great usefulness and many applications. Bear this in mind, and remember it well, and let it not depart from your heart; for in it lies the foundation of the science (חכמה) and the root of all that comes after it.

I have already told you, my son, that the road of inquiry [?] is set in order, and that whoever sets out upon it [?] — by the same reasoning the figure stands complete, and its measure follows the path of the line that bounds it. [?]

[Lower portion of right column lost to water stain; ~3–4 lines illegible.]

Left column

[Top lines partly obscured by water stain and edge wear.]

It already came about that the figure is enclosed, and the line answers [?] [the second], and they are equal. [?] When we extend the figure further, the matter follows *a fortiori*: the second equals the first.

(interlinear: above this line, a short corrective gloss — illegible, ~2 words [?])

The other figure too — when we build upon it as before — its parts answer one another, and the second equals the first; and so the whole is bounded. [?]

For thus it is enclosed: when the matter is settled and the figure is bounded by its parts, what is said of the one is said of its like. And by this the construction is complete. [?]

Diagram. A small ruled rectangular point-label table set into the left column, drawn as a grid of cells. It tabulates side/point correspondences in the construction. The cell contents are faded; legible entries below.

[27] כז [?]	[76] עו [?]	
	[4] ד	[3] ג [?]
	[2] ב	[1] א

[The numerals are faint; ד/ר and ב/כ discriminations uncertain. The grid pairs lettered points (א, ב, ג, ד) with tabulated values. for the upper-row figures.]

By this the figure stands [?]: the matter follows the path of the line. [?]

[Red ink subsection rubric:] **סדר ידוע** — *Seder Yadua* ("Known Procedure") [?]

[The following passage opens a new procedural unit.] By this is meant the [procedure of] the [known] line and the figure laid upon it [?]... [text continues; lower lines faded].

[Final ~3 lines of the left column: water-damaged; partly legible.] However many [?] times you arrange [the construction], so long as there is no [?] error, the figure of one and the same kind [?] is enclosed, and what holds for it holds for its like. [End of column.] [?]

PDF p. 24 (folio verso)

Right column

[Top of column partly obscured by foxing.]

And the lines (השרטוטים [?]) of the [diagonals?] of the rectangle [?] — when we let them fall, they divide the figure, and the two [triangles] that arise from it are equal, each to the other. [?]

If [the figure] is right-angled or not right-angled, when the lines fall within it and divide it, the parts answer one another; for in every case the diagonal divides the figure into two equal triangles. [?]

I have already said to you, my son, that the surface enclosed within known sides is itself known. The matter is demonstrated: when the sides are known, the angle between them is determined, and from the angle and the sides the enclosed area follows. [?]

For the area is the measure of the surface bounded by the lines, and the lines bound it from every side; therefore, when they are known, the surface is known. [?]

By this reasoning the foundation [?] is laid down, and from it follows all that comes after. Remember it [?]. [Red ink mark / paragraph divider.] [?]

Let it now be supposed [?] that there is a known line, and upon it a known figure; and when the figure is divided, each part answers its counterpart, and the whole is recovered from its parts. [?]

It already came about [?] that the surface is enclosed within the lines; and when the lines are known, the surface is known. So much the more, then, when the figure is the larger: for it does not exceed [its bound] save by the parts added to it. [?]

[Mid-column ~2 lines faded.]

For when the line [?] is enclosed [?], whatever falls within it is enclosed; and the part [?] answers the whole. And if the figure [?] is the larger, then by the same reasoning it too is enclosed [?], and its surface is known; and what holds for the one holds for its like. [?]

Left column

[The left column of this page carries four geometric figures interspersed with brief construction-prose. The prose between the figures is faded in its lower half.]

[Opening lines, top of left column:] He who comes to understand [?] this — let him set down a known line, and upon it the figure; and when it is divided, the parts answer one another. [?] And so it is enclosed. [?]

Diagram. A triangle (the uppermost of the figures), drawn with its apex toward the upper left and a base at the lower right; the three vertices bear letter-labels, now very faint. Per the surrounding construction-prose (which names points ג, ד, ה [?]), the apex is most likely ה [?] with ג and ד at the base.

- (apex): ה [?]
- (base, right): ג [?]
- (base, left): ד [?]

[>2 labels flagged [?]: marked as in QA report.]

It is the case [?] that this is a triangle, and the line that divides it [?] makes of it two [parts]; and the two are equal, each to the other. [?]

Diagram. A larger triangle below the first, with its apex toward the lower left and base toward the upper right; an internal line (a cevian or perpendicular) is drawn from one vertex to the opposite side, dividing it into two parts. Vertex labels are faint.

- (apex): ב [?]
- (base, upper right): ג [?]
- (base, lower): ד [?]
- (foot of the dividing line on the base): ה [?]

[>2 labels flagged [?]: marked as in QA report.]

And this is the figure [?]: when the dividing line falls upon it and parts it, the two [triangles] that arise are equal; and the surface of the whole is the sum of its parts. [?]

Diagram. A narrow elongated quadrilateral (a thin parallelogram or rectangle, oriented diagonally), to the left, captioned above. The caption appears to read לקיחת חצי [?] ("the taking of a half") [?], consistent with a figure illustrating the halving of an area. Internal labels not legible.

[Caption uncertain — watch for recurrence as a possible captioning convention; see Convention candidates in QA report.]

Diagram. A four-sided figure (a rhombus / leaning parallelogram) at the foot of the left column, with a caption above reading לחזרת נכון [?] ("for proper restoration/recovery") [?] — apparently labeling the figure as the recovered (reconstructed) area. To its right, separated by a short ruled vertical line, a

second small caption: לחזרת נכון [?] (repeated) or a related rubric. Internal vertex labels faint.

[Two short captions flank this figure; both readings uncertain. See Convention candidates.]

Therefore [?]: when we take two known sides and a third, the figure stands complete, and its area is known from the sides that bound it. [?] And the surface enclosed within the lines is known [?] from them; and when the lines are known, so is the surface. [?] This is the demonstration. [End of page.] [?]

Vat.ebr.380, Sephardic semicursive hand. Book One (geometry), continuation of the long unrubricated geometric-proof stretch. Two columns per page, read right-to-left. Several construction diagrams and red-ink "gate" rubrics appear.

PDF page 25 (folio marked [10=] ׳ in the upper-left margin)

Right column

and once the line has been laid down [as known], then the points and the [given] line are also as it ought to be, just as in [the previous construction]. So too every line that is bounded by points is known, and the [whole] figure standing upon it is known.

When this [premise] has been laid down, then any figure of equal sides, with the [given] line standing upon it, [is known] [?]. This [holds because] the figure is bounded by points, and so [each part] yields its share of the construction. [And he said:] when we draw a chord [?] within the figure, dividing it, the two triangles that arise from it are [each] half of [the whole], and the line that bounds them is known. Therefore the area of the whole, recovered from its parts, is known.

When you wish to verify this, draw the diagonal [?] and let the two triangles be equal, and let the bounding line be known; then the whole standing upon it is known, and the matter is verified. [And he said:] this is the way of every figure bounded by known sides — its area is known, and what is built upon it is recovered from its parts. (interlinear: …חצי… ("half") — addition above the line, partly legible [?).]

Diagram. A construction of two overlapping (intersecting) circles drawn at the left edge of the right column, with internal chords and an oblique line crossing the region of intersection — the standard figure for bisecting a quadrilateral by its diagonal and for the two-circle intersection used to erect a perpendicular / find

a midpoint. The labels are very faint and largely lost to the cursive ink and the page edge.

- (apex / upper intersection): [?]
- (left circle center): [?]
- (right circle center): [?]
- (lower intersection): [?]

Most point-labels here are illegible at this resolution

[Red ink header: **לעור [recte: לשער] שב** ("To the gate, [number]…") — a red-ink structural rubric mid-column. The numeral is faded; it reads as a two-letter group **שב** [?]. Trust body heading; numeral uncertain — see report.]

This [following] gate concerns the points upon which the figure stands and the line drawn upon them. [And he said:] when the points are set and the line is drawn upon them, the figure is bounded, and every side of it is known by what was demonstrated before. [The remainder of the column continues the same area-recovery argument, partly obscured by water-staining and edge loss along the right and lower margins — see Readability.]

Left column

[The chord [?]] … its half. [And he said:] when we wish to know the area that stands upon the line, we proceed as we proceeded before: we set the points and draw the line upon them, and the two triangles arise, each being half. The bounding line is known, and the whole, recovered from its parts, is known.

This is the rule [הכלל] for every figure: when its sides are known, its area is known. [And he said:] therefore we have demonstrated that the figure built upon a known line, bounded by points, is itself known — and this is what we sought.

[Red ink header: **לעור [recte: לשער] שו [?]** ("To the gate, [number]…") — second red-ink gate rubric, lower in the left column. Numeral faded; reads **שו** [?].]

This gate concerns the two equal lines [?] that arise [from the construction], and the figure standing upon them. [And he said:] when the two lines are equal and the figure stands upon them, [each part] yields its share, and the whole is recovered from the parts. [Lower lines of the column are degraded; the argument concludes the bisection-and-area-recovery sequence.]

PDF page 26

Right column

[the figure] of equal sides; its area, recovered from its parts, [is known] [?].

[Red ink header: **לעור [recte: לשער] שט** ("To the gate, [number]…") — red-ink gate rubric near the top of the right column. Numeral reads **שט** [?].]

This [gate] concerns the line and the area that arise [from it]. [And he said:] when the line is set and the area drawn upon it, then the figure is bounded by points, and each part yields its share. Draw within it the diagonal [?]: the two triangles that arise are equal, the bounding line is known, and the whole, recovered from its parts, is known.

Diagram. A single circle with an inscribed triangle near the top of the right column; a point marked at the apex within the circle and lines drawn from the apex to the base, forming the triangle inscribed in (or circumscribed about) the circle — the figure for an equilateral triangle constructed within a circle and the area recovered from its bisected parts. Labels faint.

- (apex of inscribed triangle): א [?] (per the prose's letter-of-reference convention)
- (base-left vertex): ב [?]
- (base-right vertex): ג [?]
- (circle center): [?]

When [we draw] the chord [?] from [point] to [point], the [two] triangles are equal, and the line that bounds them is known; therefore the area is recovered from its parts and is known. [And he said:] this is the way of every figure of equal sides standing upon a known line — its area is known. [The column continues the same procedure, the lower lines partly obscured by the water-stain spreading up from the foot of the page.]

Left column

[Red ink header: **לעור [recte: לשער] שיא [?]** ("To the gate, [number]…") — a red-ink gate rubric at the head of the left column. Numeral group reads **שיא** [?] (= the next gate in sequence).]

This [gate] concerns the line and what arises upon it. [And he said:] when the line is set down and the figure drawn upon it, the figure is bounded by points and every side is known. We then draw the diagonal [?] and the two triangles arise,

equal, the bounding line known; and the whole, recovered from its parts, is known.

[The middle of the column repeats, with minor variation, the area-recovery argument: setting the points, drawing the line, dividing by the diagonal into two equal triangles, recovering the area of the whole from the known bounding line.]

[Red ink header: **לעור [recte: לשער] שיב [?]** ("To the gate, [number]…") — a further red-ink gate rubric lower in the left column. Reads **שיב** [?].]

This gate concerns the perpendicular [?] line that is dropped, and the figure that arises upon it. [And he said:] when the perpendicular is dropped and the figure stands upon it, each part yields its share, the bounding line is known, and the whole is recovered from its parts.

Diagram. A single circle low in the left column with a long vertical line (a dropped perpendicular / diameter) descending well below the circle to a marked point near the foot of the page — the figure for dropping a perpendicular from a point to a line, or for the diameter and its extension. The lower terminus is marked with a point; intermediate labels are lost to the faint ink and the page-foot staining.

- (top of vertical line / on circle): [?]
- (circle center): [?]
- (lower terminus, foot of page): [?]

Labels largely illegible

[The column closes the gate-sequence with the customary recovery formula: the area of the figure, bounded by known sides and divided into equal parts, is itself known.]

[Vatican librarian note / marginal numeral: a small mark **שלה [?]** at the foot of the left column — likely a quire/leaf tally or catchword; verbatim reading uncertain.]

Manuscript: Vatican Library, Vat.ebr.380. Sephardic semicursive hand, single scribe. Book One (geometry/trigonometry), continuing the propositional exposition. Two columns per page. Red-ink rubrics here take the form **לימוד** ("lesson/proposition") + ordinal — the structural unit running through this stretch — rather than the שער rubric of earlier batches. Numerous geometric figures (triangles, an intersecting-circles construction) appear at column feet and within columns.

PDF p. 27 (folio 11r)

Right column

[The column opens mid-proposition, continuing the construction from the previous batch.]

the enclosing line, since the surface [area] is divided, and we already explained this. Therefore the triangle [Red ink: letter labels] is equal to triangle [?], and so the bounding line is known. The angle [?] of triangle [?] [is determined], and likewise the angle, as we set forth before.

We take the surface [area] (interlinear: a corrected letter-label) and recover it from its parts, [?] and this is what we sought.

[Red ink rubric:] **Lesson [?]** — [the ordinal numeral is in faded red and individually uncertain; candidates by glyph: ה / ב]

When two circles cut one another, and you wish to know [?] [the chord of intersection], set the two centers as known points, and draw a line from center to center, and another line joining the two points where the circles intersect. These two lines cut one another at right angles [?], each bisecting the other.

[A series of procedural clauses follows — drawing the joining line, dropping it perpendicular, taking each half as a known magnitude, and recovering the whole from the parts ("from its parts," מחלקיו). The reasoning runs by the a-fortiori form (קל וחמר).]

Diagram. A triangle with internal lines drawn from the apex and across the base — a construction with intersecting cevians/diagonals forming an inner crossing point. Vertex labels are faint; the apex label and base-corner labels are only partly legible.

- (apex): [?]
- (lower-left): [?]
- (lower-right): [?]
- (interior crossing point): [?]

Left column

[The left column opens mid-proposition.]

the bounding line, and the surface [area] is divided as before. We already explained the like of this; and so triangle [?] is equal to triangle [?], and the bounding line [is] known. Then the matter is established as we set forth.

[Red ink rubric:] **Lesson Eight [שמיני]** — [Red ink: rubric partly faded]

[A geometric proposition on triangles.] When you wish [to know] this, [the procedure is as follows]: I say that the triangle [?] — its parts [are] thus, [?] and from this you derive [?]. Set the bounding line known, [?] and likewise you need [?], and the matter is established as we set forth.

Diagram. A large triangle with an internal line dropped from the apex to (or toward) the base — a dropped-perpendicular / bisection construction. Apex and base-corner labels are faint.

- (apex): [?]
- (lower-left): [?]
- (lower-right): [?]
- (foot of internal line on base): [?]

[Red ink rubric:] **Lesson Nine [תשיעי]** — [Red ink]

When you set the bounding line, [?] and you wish [to know] the surface [area], [draw] a line from corner [?] to corner [?], and the triangle is thus, [?] and the surface [area]. Take the bounding line [as] known, [?] from this, [?] and the surface [area] is divided in two, [?] as we set forth before. Then the matter is established, [?] [as] in the like of these, the matter is established as we set forth. The bounding line [is] thus, [?] and this is what we sought.

Diagram. A triangle resting on its base with an internal line from the apex to the base, dividing it. Base-corner labels appear at lower-left and lower-right; apex label faint.

- (apex): [?]
- (lower-left): [?]
- (lower-right): [?]

PDF p. 28 (folio 11v)

Right column

[Red ink rubric:] **Lesson Ten [עשירי]** — [Red ink]

[A proposition opens.] We have set out [?] the matter as it [should be], [?] and we have explained [?]. The line [?] [is] thus. Continue [?]: as we set forth before, [?] the triangle thus, [?] as we set forth above. [?]

For when [the figure] is determined [?], its parts [are] known, [?] and so this is equal to that, [?] this whole being equal to this whole. [?] The bounding line [?], take it [as] known. [?] We have set it [as] known [?] from this, [?] and we recover it [the area] from its parts, [?] and this is what we sought.

Diagram. A triangle with internal lines drawn from the apex toward the base, producing a crossing/sub-triangle within. Vertex labels faint.

- (apex): [?]
- (lower-left): [?]
- (lower-right): [?]
- (interior point): [?] When [?] the bounding line [is] known, and you set [?] the triangle, [?] take the line [?] as we set forth above, [?] and recover [the area] from its parts, [?] and this is what we sought.

[Red ink rubric:] **Lesson Eleven [עשתי עשר / אחד עשר]** — [Red ink; the rubric reads as the eleventh in the ordinal series]

Set [?] the triangle, [?] and draw [?] a line from corner to corner, [?] and the surface [area] is divided, [?] and the matter is established as we set forth. [?] The bounding line [?] take [as] known, [?] and this is what we sought.

Left column

[Red ink rubric near column head:] **Lesson Twelve [שנים עשר]** — [Red ink: rubric partly faded]

This triangle — its parts [are] thus: [?] in it [are] two known [magnitudes], [?] and a third [?]. And [we have] the bounding [line]. [?]

We take the bounding [line] [?] upon [?] [the line], [?] and recover [it] [as] known. [?]

[Procedural prose continues:] And this is so [?] — its angle [?] [is] thus, [?] more [?]. Set it [as] known [?] with [?]. Take [?] the triangle, [?] and from it [?], [?] and so the bounding line [is] divided [?], [?] and the angle [?] [is] thus, [?]. The matter is established as we set forth before. [?]

[Further prose, mostly procedural repetition of the standard formulae — setting bounding lines known, dividing the surface by an internal line, recovering the

area "from its parts," and concluding "this is what we sought" — with several letter-label citations too faint to read with confidence.]

and as for the angle, [?] set it [as] known, [?] from this, [?] and the matter is established as we set forth. The two angles [?], [?] and likewise [?]. The triangle, [?] [in] two angles, [?] [?] and the bounding line [?]. [?] And so it goes — this is the law of these [figures].

[Foot of left column / foot of page, left:] —

PDF page 29 (view 0029)

Right column`.]

[Red ink header:] **Lesson Thirteen** (לימוד שלשה עשר)

When the two sides enclosing the right angle of a [right] triangle are known, the enclosing line [קו המקיף, the hypotenuse] is thereby known as well. Take, for example, side AB [אב] known and side BG [בג] known; we then seek to know side AG [אג], which is the enclosing line. [?] Multiply each of the two known sides by itself, add the two products together, and the square root of the sum is the length of the enclosing line you sought. [The remaining lines of this short proposition restate the rule for recovering one of the legs when the hypotenuse and the other leg are known: subtract the square of the known leg from the square of the enclosing line, and the root of the remainder is the side sought. The cramped final clauses are partly obscured by staining [?].]

[Red ink header:] **Lesson Fourteen** (לימוד ארבעה עשר)

This proposition concerns a triangle and its [inscribed] figure. [?] Given triangle ABG [אבג] with the line BD [בד] [drawn] — the line BD is to the line DG [דג] as such-and-such — the ratio of the one segment to the other is preserved, and from the parts the whole [area] is recovered. [The body of the proposition develops the proportion among the segments cut on the base and ties it back to the enclosing line; several mid-line letter-chains (אב / בג / גד / דה) are legible, but the connective clauses are faded [?].] And this is what we sought.

[Red ink header:] **Lesson Fifteen** (לימוד חמשה עשר)

[This proposition continues the same line of reasoning about segments and area; only its opening clause and red rubric are clearly legible. The body is heavily affected by the water stain crossing the lower right column. [?] — degraded]

Left column

[The upper left column is the continuation of the body prose from the right column / preceding proposition, treating the "enclosing line" (קו המקיף) and the recovery of the area "from its parts" (מחלקיו). Letter-labels אב, בג, גד recur. Multiple lines are abraded by the stain and edge wear [?].]

[Red ink header:] **Lesson [Sixteen]** ([עשר] לימוד ששה) — [the ordinal word עשר ("-teen") is faded; the spelled-out ששה ("six") is legible, so this is Lesson Sixteen by sequence] [?]

[Red ink, continued label / opening:] **Gate** / **[seder]** (שער) [?] — a short rubricated word follows the lesson number; reading uncertain between שער and a seder-title [?].

When the [given] line is such that [its relation to another line is as stated], then... [The proposition opens by positing a line and a ratio; it proceeds with an "if... then" construction (אם… כן) and an a-fortiori step. Mid-column letter-chains קז / זח / חז and the phrase "this is what we sought" (זה מה שרצינו / זה מה שבקשנו) [?] are partly legible. The lower third of this column is the most degraded region on the page — foxing plus the water stain — and several whole lines cannot be recovered. [?]]

[Toward the foot of the left column, legible fragments: "...עד עשר נקדות..." ("...up to ten points...") and "...אם עד ארבע נקדות..." ("...if up to four points..."), indicating an enumeration of points/divisions on a line, but the surrounding clauses are lost to the stain. [?]]

PDF page 30 (view 0030)

Right column

[The right column opens as the continuation of body prose from page 29 — geometric construction language: "and the chord [וחבור / וחק]... up to the figure [הצורה]... the two angles..." Letter-chains and the term השטח (area) recur. The opening lines are legible in part; abbreviation strokes are visible over several tokens. [?] on the most cramped clauses.]

The line that encloses the figure is known, and from it the area is known... [the argument carries the proportion of segment to segment through to the recovery of the whole, restating "if... then" and closing with] this is what we sought. [?]

[Red ink header:] **Lesson Seventeen** (לימוד שבעה עשר)

[Opening:] And concerning every figure... [the proposition treats a figure and the line drawn within it, with the now-standard moves: a ratio of segments BD : DG [בד : דג], multiplication of a known side by itself, and recovery of the enclosing line.] [?]

[A short rubricated sub-list follows in the right column — each line a brief labeled step, possibly a "seder" (ordered procedure). Legible line-openers, in order:]

- הקו הזאת [?] — "this line, the [chord / known]"...
- תחלה נשב [נשים?] כמו שהוא — "first we posit it as it is"...
- ובזה ושמנו השטח — "and in this, we set the area" [?]...
- הצלע כדי שיהיה אב [?] — "the side, so that it be AB"...
- שלנו שוה לבן הצלע [?] — "ours equal to... the side" [?]

[These five steps are an ordered procedural list (a "seder"); the wording is at the edge of legibility and the bracketed readings are provisional. [?] Not enough is recoverable to flag a numerical impossible.]

[Red ink header:] **Lesson Eighteen** (לימוד שמנה עשר)

[Opening, legible in part:] The known figure / the known line... [the proposition restates the recovery of an area or side from known parts, closing again with "this is what we sought."] The remaining clauses are partly stained. [?]

Left column

[The left column is dense body prose continuing the geometric exposition — letter-chains (אב, בג, גד, דה), the terms הזוית (angle), הצלע (side), השטח (area), and קו המקיף (enclosing line) all recur. The argument runs through a construction, multiplies known sides, and recovers the enclosing line, with repeated "if... then" (אם… כן) and a-fortiori (קל וחמר) steps closing on "this is what we sought."]

[Mid-column legible fragments include: a step "first we posit / we draw the line" (תחלה… הקו), a proportion among segments, and "we multiply AB by itself" (נכפול אב על עצמו) [?]. The lower-left of this column is abraded; a few lines are lost. [?]]

[Foot of left column, legible: "...וזה מה שרצינו / וזה מה שבקשנו..." ("...and this is what we sought...") closing the proposition.]

End of batch 015 translation. Both leaves carry geometric propositions in the same hand; the heavy water stain crossing the lower portion of view 0029 and the foxing on the lower columns of both leaves leave several lines unrecoverable at this resolution — flagged below as

Vat.ebr.380, ff. 13r–13v. Sephardic semicursive hand; red-ink לימוד ("Lesson") rubrics. The לימוד lesson-counter continues from 18 (prior batch) into the 19th–24th lessons here.

Right column

[The opening lines complete the demonstration carried over from the previous lesson.] …and we already explained this above. When the angle is known and the two sides enclosing it are known, the area is thereby determined. So too, when one of the sides is doubled [?] and the figure is set out, [the remaining quantity] is reached [?]. [Damage/water stain: ~2 words obscured at line start.]

We have set this down as a [worked] example, so that one may take the square of one [side] and add it [?] to the square of the other, and what results is the figure we sought. [Water staining obscures ~3 tokens here] This is what we sought to demonstrate.

[Red ink: **לימוד תשעה עשר — Lesson Nineteen**] [The rubric runs mid-column.]

When you wish to know [?]…

The line that subtends a right angle — [the relation of] one [leg] to the other and to the whole [hypotenuse] — is what we have already set down [?]. Now we shall return [?] to the matter [and explain it].

For [?] when its [the triangle's] sides are known, take the square of each side [קו = line/side], and let them [the two squares] be [summed]; and what they amount to [?] is the square of the third side [צלע]. Take its root, and that is the third side which you sought. [Several tokens through this passage are dimmed by the water stain — the procedure is the inverse-Pythagorean rule already established at Lesson 13, so the recurring technical terms (צלע "side", שורש "root", מרובע "square") are read by lexicon lock-in, not re-flagged.]

the line [קו] which is upon [?]…

with the known [quantity]; and when [?]…

the figure [שטח] that arises from it [?]…

[Red ink: **לימוד עשרים — Lesson Twenty**] [Rubric mid-column, partly faded.]

the area [שטח], and so the line [קו] is known, and this is what [we sought] [?]…

If you wish [?] for the [?]…

[A short run here — ~3 lines — is crossed by the heavy water stain and is not securely legible. Transcribe only the recurring frame: "take the square… add… the root is…".]

the line [קו] which is [?]…

the square [מרובע]…

upon the side [צלע]…

[Red ink: **לימוד אחד ועשרים — Lesson Twenty-One**] [Rubric mid-column.]

This [matter] [?] — and all of it — is what you will set out [?] in [?] [a worked example/figure], and so on [וכו']. [The closing two lines are largely obscured by the stain and torn lower-right area; ~4 tokens illegible — further candidate.]

Left column

[The top lines of the left column complete the lesson begun at the foot of the right column.]

and this [is] the [?]…

to the proportion [?]…

[A passage on a square set out as a worked figure: "and what you set out [?] — the same figure equal to it [?]…", the recurring frame of constructing a square equal to a given area. Several tokens dimmed.]

[Red ink: **לימוד שנים ועשרים — Lesson Twenty-Two**] [Rubric mid-column.]

[Sub-rubric / heading on the next line, partly in darker ink: ~2 words, possibly a *musar*/*seder* label — illegible — further candidate.]

When the lines [קוים] are equal [?], they enclose [?] an area [?]; and what you set out [?] is the figure. [The geometric procedure recurs: equal lines, the enclosed area, the resulting square. Read by lexicon lock-in.]

[and there are figures [?] equal one to another …][?]

There are surfaces [שטחים] equal [to one another] [?]; and [when] you take the side [קו/צלע] [?], the figure [is] reckoned [?]…

There are surfaces equal [to one another] [?]; and what you set out [?]…

And these [?] — when you set them out [?] [as figures] equal one to another [?] — and [it/he] sets out [?]…

[The closing ~6 lines of this column are crossed by the dark stain and bleed-through; only the recurring frame ("equal… set out… figure") is legible. Two further lines at the foot are illegible]

Right column

[The top lines complete a demonstration: a surface set out, "this is one, and after it another" — establishing a sequence of equal figures.] …a surface [שטח] [is] set out [?], this one [is] one, and after it another [?]; this is [?] [the matter] [?]. By this it is verified [?]… [Damage: water stain across upper-right; ~3 tokens obscured.]

When the [?] points [נקודות] [?] are set out, this is [the figure] [?]. (interlinear: short note above, ~1 word, illegible.) So [?] the line [קו] [?]…

I shall return [?] to the [matter] [?] of the figure [שטח], and [what] the figures amount to [?]; and so [?]…

[The remainder of these upper lines is dimmed by bleed-through and stain; the inverse-Pythagorean / area-decomposition frame recurs and is read by lexicon lock-in — not re-flagged.]

it is verified [?]; this is what we sought [?]…

[Red ink: **לימוד שנים ועשרים [?]** — **Lesson Twenty-Two [?]**] [The numeral here appears to repeat "twenty-two" (שנים ועשרים) — The rubric is faded red and partly obscured; the ordinal-word is read with the second-occurrence caution. Could instead read **שלשה ועשרים** ("Twenty-Three"); the discrimination שנים/שלשה turns on whether a lamed is present.] [Sub-rubric: **דבר[?] הקדמ[ה]** — "the matter/premise" [?], the *hakdamah*-type sub-label — partly legible.]

[The body, on the proportion of figures:] …the [?] figure [is] one [?], and so [?] the surfaces [שטחים] [are] set out [?]; one of them [is] [?]…

and the line [קו] [?]…

and we shall verify [?] from this [?] the surfaces [שטחים]; the square [מרובע] of [?]…

[A continued passage of the area-decomposition procedure ("take the square… and the surface… and what amounts…"), several tokens dimmed by stain — lexicon lock-in applied.]

the figure [שטח] [?]; and [we shall] verify [?]…

this [is] [?]; and after it [?] another [?] [figure] [?]…

[and there is/are] another [?] [figure] [?]…

[The foot of the right column — ~4 lines — is crossed by the dark stain; only the recurring frame is legible.]

Left column

[The top lines complete the lesson from the foot of the right column.]

This [is] a line [קו] [?], and all of it [?] is what you will set out [?]; and so [?]… [Damage: stain across top of left column.]

and this [is] [?] [the figure] [?] that is set out [?] [as] equal [?]; [in/by] the example [?] [it] is [?]…

[Red ink: **לימוד שלשה ועשרים — Lesson Twenty-Three**] [Rubric mid-column. If the right-column rubric above is read as "Twenty-Two (repeated)," this is the genuine Lesson Twenty-Three; if that one is "Twenty-Three," this is the doubling —]

[Sub-rubric line: ~2 words, faded — possibly *seder*/*musar* label — further candidate.]

When the surface [שטח] is set out [?] — [it] one [?], and the [?] — take its line [קו] [?], and so [?] the figure [is] reckoned [?]…

the [?] which [?] [is set out] [?]…

[A continued procedural passage; recurring frame "take… the square… the root… the side." Lexicon lock-in.]

the surface [שטח] [?]; the square [מרובע] [?]…

the line [קו] [?], and so [?]…

[Red ink: **לימוד ארבעה ועשרים — Lesson Twenty-Four**] [Rubric mid-column, faded red. The ordinal-word ארבעה ("four") is read with care; the discrimination from שלשה turns on the bet/resh and the final stroke — committed reading is "Twenty-Four."]

[Sub-rubric: short label, ~2 words, faded — further candidate.]

[The body of Lesson Twenty-Four:] This [is] a line [קו] [?] — take it [?], and [?] the surface [שטח] [?]; and so [?] [it] is verified [?]. [Several tokens through the lesson body are dimmed by stain and bleed-through; the area/line frame recurs.]

and the figures [שטחים] [are] set out [?] equal [one to another] [?]; and so [?]…

[The foot of the left column — ~4 lines — is crossed by the heavy dark stain and bleed-through; not securely legible.]

Yesod Olam — Book One (Geometry), continued

PDF p. 33 (folio 14) — right column

so that line GB [קו ג"ב] is equal to it, and the matter is established. And he said: since the area enclosed by [?] [Damage/abrasion: ~1 word faint], this is what we set out to demonstrate.

And he said: when you wish to find the area of a right triangle [משולש] whose [right] angle [is known], multiply one of the two sides enclosing the right angle by the other, and take half of the product — this is the area of that triangle. For when you complete it [the triangle] into a quadrilateral [מרובע], that whole quadrilateral is twice the triangle, since the diagonal divides the quadrilateral into two equal parts; therefore half of it is the area of the triangle, and this is what we sought.

[Red ink: לימוד שבעה ועשרים — Lesson Twenty-Seven] [Interlinear/marginal numeral: כ"ז = 27]

The roots [השרשים] and the squares [המרובעים], when they are joined, behave according to [?] [קל וחמר — a fortiori reasoning]. [Several words here are faded; the passage opens the lesson on combining a root with its square.]

By way of [על דרך] the first [premise], [name of figure faint]: …upon line AB [קו א"ב] [?] still [עוד] … and upon line GD [קו ג"ד] still [?] …

And there are other [questions/cases] besides these. When line AB [קו א"ב] is the [?] [unknown/sought], and line GD [קו ג"ד] is [given] — and the matter is that this [is] established as [?] …

PDF p. 33 (folio 14) — left column

[Damage: torn upper-right corner of the leaf, affecting the first line of this column — ~3–4 words lost. A faint upper-margin mark, possibly a פרק running header, sits above; not securely legible.]

[?] for line AB [א"ב] is thus, as [it] equals [?] BG [ב"ג], and he said: when [?] this [is] established [?] [Damage along the top edge obscures the opening clause.]

and they correspond to one another [ויהיו יבאו זה לעומת זה] [?] … and that this established [thing] is as [?] … and one of them [?] [is] like the other; [?] therefore this established thing [קביעות] is as [?] established, and the matter is correct, and this is what we sought.

[Red ink: לימוד חמשה ועשרים — Lesson Twenty-Five] [Marginal numeral: כ"ה = 25]

The lines [הקוים] and the squares [והמרובעים], when they are [combined/joined], behave [נוהגים] [?] in such a manner [as set out]. [Several words faded.]

[The body continues with the construction:] Set up line AB [קו א"ב] [?] … upon [?] line — [?] still [?] … upon line GD [קו ג"ד] still [?] … and there are other cases [שאלות] besides these.

[Mid-column the text returns to working a particular figure:] When [?] [the figure] is [?] [a square / מרובע] [?] — its area [שטחו] [?] — and you wish [תרצה] to find [?] …

the lines [הקוים] [?] the [?] sides [צלעות?] [?] [a clause is faint] … the quadrilateral [המרובע] is the [?] [enclosed] area; and there are [other] questions besides these, [each] in its proper place [על מקומו].

[Toward the foot of the left column the working continues, with letter-labels of a construction — line AB, line GD — and the recurring formula "this is what we sought." The ink is even but the gutter-side words are abraded; see Readability.]

right column

[Damage: torn upper-right corner continues onto this leaf; the top ~2 lines of the right column are partly lost — ~3 words per line.]

[?] it was already established [כבר התבאר?] that line GB [קו ג"ב] [?] [is] equal [?] to line [?]; therefore [?] the squares [המרובעים] [?] [Damage: ~2 words lost at line-ends].

[A short stepped passage follows — each step a brief clause set on its own short line, in the manner of a worked proportion:]

- and [?] [it] returns / corresponds [?]
- [?] [it] is established [?]
- everything [הכל] [?] [and] the matter [?]
- the line [הקו] [?] [is] the [?] [equal]

- there is [יש] no [?] [Several of these short lines carry only two or three legible words; the rest are faded — these are a chain of justification steps for the construction.]

[The column then opens into continuous prose:] Therefore [כי] from this it is plain [נראה] that the [?] [point/line] — [?] [it] is one and the same [אחד בעצמו] [?]. And there is [?] in it [?]; and [?] [it] is established [?] as already [explained]. By this means [?] [the square] is established and its area [שטחה] [is found], and the matter is set in order, and this is what we sought to demonstrate. When you complete [תשלים] line AB [קו א"ב] [?] into a square [למרובע], the whole square [המרובע כולו] [?] is [?] [twice / equal to] [?], since [?] [the diagonal] divides it; and the matter [?] is established as [?]. Therefore this established [thing] [הקביעות] is correct, and this is what we sought.

left column

[Red ink: לימוד תשעה ועשרים — Lesson Twenty-Nine] [Marginal numeral: כ"ט = 29]

When you have line AB [קו א"ב] and line GD [?] [ג"ד] [?], multiply each [?] [side] by [the other], and what arises [מה שיעלה] [?] — [Damage/fade: ~1 line partly lost.]

and when one root [שרש אחד] is set against another root [?], and likewise [וכן] one square [מרובע אחד] against another square [?] — and when these established things [הקביעיות] are [?] [equal], then [?] [it] is plain [נראה] [?] that this established thing is as [the other] established thing, and the matter is correct [נכון].

the lines [הקוים] [?] [the sides] [?]; and from this the square [המרובע] [?] is established [?], and its area [שטחו] [is found], for [?] [it] is one and the same [אחד בעצמו] [?] …

and these [are] established [things] [קביעיות], one against the other [זה כנגד זה]; [?] therefore [?] this established thing [is] as [the other] established thing, and the matter is correct [נכון]. By this [path] the [whole] thing [is found] in its place [על מקומו]; and there are [other] questions besides these.

Vatican Library, Vat.ebr.380. Sephardic semicursive hand. (folio numbered "15" in the upper-left margin of the first page; the second page bears a faint upper-margin folio mark, not securely legible).

Manuscript navigation note: the opened spread reads right-to-left, so on each page the right-hand column precedes the left-hand column. The translation below follows that logical order.

PDF page 35 (folio 15r)

Right column

[The column opens mid-demonstration, continuing the right-triangle constructions of the preceding lesson.]

the line AG [?], when its square is taken, equals the [combined] squares of the two [other lines]. By contrast, when line GD is added [?], it [?] becomes the longer [side]. Should the two [?] be equal, then the [resulting] figure is equal [on both sides]. Take, therefore, the square of line AB together with the square of line GD; the sum of the two is what the square of the enclosing line [קו המקיף] yields.

This having been settled, you should know that whenever line AB and line GD are joined [?], the squares of both together equal [the square of] the whole. By contrast, when each is taken on its own [?], each square stands apart [?]. And after this you will [?] from line GD [?] what is required [?] of the enclosing line [?].

Diagram. A small constructional figure embedded in the right column, accompanying the right-triangle/squares demonstration. The drawing is faint and partly obscured by foxing; it appears to show a quadrilateral with a diagonal, the four corners labeled with the running letter-chain used in the prose (A, B, G, D). Individual label glyphs are not separately legible at this resolution.

- א (corner): [?]
- ב (corner): [?]
- ג (corner): [?]
- ד (corner): [?]

[This figure has more than two labels flagged `[?]` — marked as a]

[Red ink header: **לימוד השלשים — Lesson Thirty**] [marginal Hebrew-numeral gloss: (30 =) ל]

On the matter of triangles [הענין במשולשים] [?].

It has already been demonstrated [?] that the [interior] angles [הזויות] of every triangle [?] together equal two right angles [?]. Now I say [ואומר] that when you draw line AB [?] and erect upon it [?]… for in every triangle there are three angles [?], and the line GD [?] divides [?]… and the triangle ABG [?] is established [?]. I say, then, that the triangle [?] makes [?] one [?]… angle on each side, and the [two] together with the third [?] amount to [?]… the [interior] angles. And the proof [והמופת] is line AB [?], drawn from [?]…

when its [the triangle's] angles are added [?], line AB [?] equals the [combined] amounts [?]…

and likewise [וכן] when you draw line AB [?], it makes [?] the figure ABGD [?], a quadrilateral [?]…

and seek [ובקש] from line GD [?] what is required [?]. And know [ודע] that it follows [?] from one to another [?]… one [?] establishes [?] the other. This [?] is line GD [?]; and from it [?] you reach [?] [the result]. The judgment [המשפט] of line AB [?], in all of this, is one and the same [?].

[The column closes the lesson here; the following indented block opens a fresh argument.]

To you, then, line GD [?]. And I say [ואומר] that line AB [?] equals line GD [?], as [I have shown]… in the way that [?] line [?] is drawn [?] doubled [כפול]. Therefore [?] line AB [?] equals [?]… [It is] possible [?] that line GD [?]… and seek [ובקש] [?]. And know [ודע] that line GD [?] is drawn [?] doubled [?]. So [?] you reach [?] line AB [?]… This is what was sought [וזה מה שבקשנו / וזה מה שרצינו]. [?]

Left column

[The left column continues the cluster of triangle demonstrations.]

line GB [?]: when you take [?] the [?] amount [?], the figure ABGD [?] [results], and this is the matter [וזה הדבר] [?]. Moreover [?], when line AG [?]… that [?] line GD [?]…

[A run of closely-spaced geometric sentences follows, each built on the AB / GD / GB line-pairs and their squares (מרובעים) and roots (שרשים). The argument is procedural and the same five or six technical terms — line (קו / צלע), square (מרובע), root (שרש), angle (זוית), and the enclosing line (קו המקיף) — recur in parallel positions throughout.]

the square [המרובע] of line AB [?] equals [?]… and line GD [?] doubled [?]… and seek [ובקש] from it the root [השרש] [?]. The figure [?] is line AB [?], and its square [?]…

and after [ואחר] you have multiplied [?] line AB [?] by [?] line GD [?], and this [?] [is] the surface [השטח] [?]… draw [?] line GD [?]…

line AG [?] [is] longer [ארוך] [?] than line GD [?]; and line AB [?]… the square [המרובע] [?]… and seek [ובקש] [?] the root [השרש] [?]. This [?] is the surface [השטח] [?] of the figure ABGD [?].

and so [?] for the line AB [?]; the surface [השטח] [?] [comes out] equal [?]. By contrast [?], when line AG [?] is longer [?]… the surface [השטח] [?] is greater [?]…

[The lesson concludes and a fresh demonstration is introduced.]

This [?] is line GD [?] in the figure [?]; and the surface [השטח] [?]… When line AB [?] and line GD [?] are taken [?], and you join [?] them [?], they yield [?] the figure [?]. By contrast, when each [?] [is taken] on its own [?]… [you obtain] line AB [?]. And the proof [והמופת] [?]: line AB [?] is longer [ארוך] than line GD [?]; therefore [?] the surface [השטח] [?]… this is what was sought [?].

[Lower-left of the column — a short subsection, partly under a water/foxing stain:]

[Red ink: **מוסר** — *Musar* / ethical-instructional aside] [?] [the rubric and its first words sit beneath a stain and are only partly legible]

you should set your heart [?] to understand [?] these matters [?]… for they are the foundation [?] of the work [?]… and one who grasps [?] them [?]… [several words lost to staining] … [?]

PDF page 36 (folio 15v?)

Right column

its [?] length [אורך] [is] line GD [?], doubled [?]; and you draw [?] line GD [?]… that the [?] amount [?] of the surface [?] [?] [equals] line GD [?]…

and this [?]: line AG [?]… line AB [?]… for in [?] the triangle [המשולש] [?]… line GD [?]… the proof [המופת] [?]… and so [?] line AB [?] [is] longer [?]. By contrast [?], when line GB [?]… line AB [?] doubled [?], so [?] every [?] line [?]…

and when [?] line GB [?]… line AB [?], and you take [?] this [?], the line [?] is established [?]. And the triangle ABGD [?]… that [?] line GD [?] is one [?] [and the same]… and seek [?] this [?]… and you reach [?]…

[Red ink header: **לימוד אחד ושלשים — Lesson Thirty-One**] [marginal Hebrew-numeral gloss: לא (= 31)]

And we say [ונאמר] that every triangle [?]…

it is settled [?] that line AB [?] equals [?]… and there [is] within [?] [the figure] line GD [?] [?], and the length [?] [is] line GD [?]…

how [?] you multiply [?] line AB [?]; so [?] line GD [?]… [the result] is line AB [?] [?]…

for if [?] line GD [?]… how [?] the amount [?] comes out [?] [equal to] line GD [?]… this [?] is line GD [?]…

line AG [?]… line AB [?]… on [?] line GD [?] [?]… line AB [?] [is] longer [?]; and after [?] this [?], the line [?]…

line AB [?]… line GB [?]… [?] line AB [?]… line GD [?], and you draw [?]…

[Several very short, tightly-written lines here — each apparently a single line-name with a verb — partly obscured by a large foxing/water stain across the lower-right quadrant of the column. Individual readings are not securely recoverable; see report.]

Left column

[Heavily affected by foxing along the gutter; readings degraded throughout this column.]

[?] when line AB [?] equals [?]… and seek [?] line GD [?] [?]…

it is established [?] that line AB [?] [is] the root [השרש] [?] [?]; and after [?] you [?] line GD [?]…

[?] line GD [?]… line AB [?]… [several words lost to staining] … line GD [?]…

line AB [?]… and we say [ונאמר] [?]… the figure ABGD [?]… line GD [?]… line AB [?]…

and this [?] the triangle [?]… and after [?] it [?]… that [?]… one [?] establishes [?] the other [?]; and seek [?] [the result] [?]. This is what was sought [?].

[Red ink header: **לימוד שנים ושלשים — Lesson Thirty-Two**] [marginal Hebrew-numeral gloss: (32 =) לב] [followed by what may be a short red-ink phrase, e.g. "כל שטח…" ("every surface…"), partly legible] [?]

[The lesson's opening text continues beyond the foot of the column.]

Manuscript: Vatican Library, Vat.ebr.380, fols. 16r–16v. Sephardic semicursive hand, black body ink with red-ink structural rubrics. Two-column layout per page; in this Hebrew RTL manuscript the right-hand column is read before the left-hand column on each page.

General readability note for this batch: Both leaves are significantly degraded. The top edges are torn (the upper margin of fol. 16r has lost material above the columns). A broad water/damp stain runs through the lower-center and gutter of both leaves, fading the iron-gall ink to near-illegibility across many lines — most severely in the left column of fol. 16r and the inner (gutter-side) lines of both leaves. Red-ink rubrics, being iron-gall, have faded more than the surrounding black text in the stained zones. A large diagonal Vatican watermark and faint bleed-through are present and have been ignored throughout. Because of the staining, much of this batch is transcribed at lower confidence than usual; the heavily affected columns are marked as in the report.

Fol. 16r

[Damage: torn upper margin, top edge of leaf above both columns lost; the topmost line of each column is partly affected.]

Right column

[The right column opens mid-demonstration, continuing the right-triangle / line-pair constructions carried over from the previous leaf.]

The matter of the lines AB and GD [?] and the [?] line which [?], thus this is [?]. And then [?] [Damage: ~1–2 words faded by stain] the year [שנה — or "this," ה?] [?]…

the lines that [?] the lines [?] which fall [?] [?] [Damage: stain, several words faded]…

And further [וכן/ועוד], from the line [?] AB upon the line GB [?] [?], thus the line [?] which falls [?] [?]. And further the line [?] [Damage: faded]…

[This passage continues the squares-and-roots (מרובעים ושרשים) demonstrations on the AB / GD / GB line-pairs introduced in the prior batch, but the right column here is badly stain-affected; only the recurring technical scaffold — הקו ("the line"), נופל ("falls"), השטח ("the area") — reads with confidence. The connective tissue between these terms is largely illegible.]

[Red ink header, faded:] **[Red ink: ימוד]ל** ["Lesson"] [Marginal Hebrew-numeral gloss in the margin beside this rubric, partly lost to the edge; not securely legible — see report.]

This [lesson is] that we set down [?]… [Damage: stain through the body of this lesson; ~several lines faded] …upon the line [?] which [?]… the line AB [?] which

[?] [?] [Damage] …the line GB [?] which [?] the line [?]… and the line [?] [?]. This is what we sought [זה מה שרצינו] [?].

[Several further lines of this column are reduced by the stain to scattered legible tokens — הקו ("the line"), המרובע ("the square"), הצלע ("the side") — without connected sense. Transcribed as a degraded region]

Left column

[Damage: this column sits in the densest part of the water stain; the lower half is largely illegible. The upper lines and the two red rubrics are partly readable.]

Because the [?] [Damage] the line AB [?] [?], thus this is [?]. The line [?] AB [?] upon the line GD [?] [?]…

the line [?] [Damage, ~1 line faded] …the angle [הזווית] [?]… upon [?] [?] [Damage]…

[Red ink rubric, mid-column, faded:] **[Red ink: לימוד]** ["Lesson"]

And this [is] that we [?]… [Damage: the body of this lesson runs into the heaviest stain; only fragments — הקו "the line," המרובע "the square" — are legible. Degraded region]

[Red ink titled subsection rubric, mid-column, faded:] **[Red ink: שלשה ושלשים]** ["Thirty-three"] [?]

[This red rubric appears to be a titled/ordinal subsection heading ("thirty-three") of the kind the work uses alongside the numbered לימוד lessons. The reading "שלשה ושלשים" is offered with low confidence given the fading; the leading words are partly lost to the stain. See report — possible parallel-counter heading, further review.]

[Damage: the remaining lower-left of the column — roughly the bottom third — is effaced by the stain. Isolated legible tokens include שנה ,[?] לונדריב ["year," ?], נקודות ["points," ?], and a closing-type phrase. No connected translation is recoverable here. Degraded region]

Fol. 16v

[Damage: torn upper-right corner of the leaf; a water stain runs through the lower-center and the left column. Marginal folio/quire numerals visible at the foot of the left column.]

Right column

[The right column of the verso is the better-preserved portion of this batch — the upper two-thirds read reasonably, the lower lines fade into the stain.]

the line [?] AB, and the line GB [?]; thus likewise the line [?]… The line [?] AB, thus the [?] line AB [?]. And the [?] line GB [?], the line [?] [?] [Damage]…

the line [?] AB [?] [Damage] …after [it/this] [?] [Damage] …the line [?] [?].

The line GB [?] [?] this is [?], thus the line [?] AB [?]. This is [?] [?].

And we have established [?] that the line [?] [?] [?], thus the line [?] AB upon [?] GB [?] [?] [?]…

[Red ink rubric, faded:] **[Red ink: לימוד]** ["Lesson"] [Marginal Hebrew-numeral gloss alongside; not securely legible.]

And this [is] that the line [?] [?] [?] [Damage] …and we have established [?] that this [?] which [?] the [?]. And the line [?] [?] [?] [Damage] …This is what we sought [?].

[Red ink titled subsection rubric:] **[Red ink: ארבעה ושלשים]** ["Thirty-four"] [?]

[A degraded line follows.] …the [?] which was [?] [Damage] …the line [?] [?] [?].

[Red ink rubric:] **[Red ink: לימוד]** ["Lesson"]

[Damage: lower right column fades into the stain; recoverable tokens — הקו ("the line"), השטח ("the area"), הזווית ("the angle") — without connected sense. Degraded region]

Left column

[Damage: the upper-left column is partly readable; the center and lower portions are heavily stain-affected.]

And [it is] not [ולא] one [?] [Damage] …the [matter/thing] [?] the reason [הטעם] [?] [Damage]…

[Red ink titled subsection rubric, mid-column:] **[Red ink: חמשה ושלשים]** ["Thirty-five"] [?]

This [?] [Damage] …upon [?] the line [?] [?]. And we set down [?] the [?] [Damage] …upon the points [?] and the angle [הזווית] [?] [?]… and we draw [נשרטט/ונקיף, ?] [?]…

[Several lines of this lesson are legible only in fragments — הצלע ("the side"), הזוית ("the angle"), נקודות ("points"), קו ("line") — through the stain. Degraded region]

[Lower-left of the column — beneath a faded line beginning with what may be a red rubric — runs into the heaviest stain and is effaced. No connected translation recoverable.]

[Marginal numerals at foot of left column: a Hebrew-letter numeral [?] and a second mark below it; quire/folio signature, not securely legible.]

Vat.ebr.380, Sephardic semicursive hand. Translation from the manuscript witness. The leaves of this batch are heavily affected by water-staining across the center gutter and the lower third of both folios, with foxing along the right and lower margins; several stretches — particularly the lower-left column of p. 39 and the center of p. 40 — are read only partially and are flagged accordingly. Bleed-through from the facing sides is present and ignored. The diagonal Vatican watermark overlay is ignored throughout.

PDF p. 39 (folio marked "17" in the upper-left margin)

Right column (read first)

[The top of the column continues the demonstration carried over from the preceding leaf.] Once this has been laid down, the whole of line AB [?] equals [?] the original line. Therefore [?] line BG falls upon [?] line GD, and the two of them together [?] enclose the [right] angle. So [?] you must place [?] this [?] until [?] line GD [?] comes out [?] equal to it.

The line [?], when [?] line AB [?] is set against [?] line GD, the resulting figure [?] is what we sought.

[Red ink: לימוד] **Lesson [?] [the marginal Hebrew-numeral gloss for this rubric is lost to staining; from the running sequence it stands in the mid-thirties — see QA report].**

[Red ink: מוסר] **Musar [moral/instructional note]** — here begins [?] a thing [?].

[Red ink: שבעה ושלשים] **[Lesson] Thirty-Seven [?]**

After this [?] we take [?] line GD [?] together with [?] line AB [?], and from them [?] there is generated [?] a square [?], and we draw [?] from point G [?] [a line] until [?] it falls [?] upon [?] line AB, and the angle [?] which it makes [?] is a right angle [?].

The line [?] GD [?], when it is set against [?] line AB [?] and against [?] line GB [?] — the square [?] arising [?] from line GD [?] [equals] the square [?] of line AB together with [?] the square [?] of line GB.

[The following appears to be a short enumerated list of the lines/figures of the construction, set out as successive short lines in the manuscript:]

- The line AB
- The line which is GD [?]
- [?] GD [?]
- The angle [?] which is AB [?]
- The line, and it is BD [?]
- The square AB [?]
- The area [שטח], which is GD [?]
- [?] —

It comes about [?] that the square ABGD [?] is equal [?] to the square [?] [built on?] — that the area [?] which is line GD [?] [equals] the angle [?] which is line GB [?] — [this stretch is materially damaged; see QA].

[Several lines here are heavily stained and read only in part:] … line GD [?] … line AB [?] … and from [?] line GD [?] … point [?] … and likewise [?] line GB [?] … the square [?] arising from line GD [?] … and the area [?] … and this [?] is what we sought [?].

[Red ink: שמנה ושלשים?] **[Lesson] Thirty-Eight [?]** [the rubric ordinal here is low-confidence — read as "thirty-eight" from the sequence; marginal numeral gloss not legible].

Left column

[The upper-left column is comparatively legible.] When [?] line AB [?] [is set] against [?] line GD [?], so too [?] line GB [?] [stands] against [?] line GD [?]. So [?] you place [?] the line [?].

The line GD [?], and you draw [?] line [?] — the square [?] — line BD [?] is generated [?]; and likewise the square [?].

The enclosing line [קו המקיף] and the area [?] which is generated [?] together [?] make [?]. And so [?] you do [?] until [?] line GD [?] —

The line which [?] equals [?] line BD [?], and another [?] from [?] line GB [?] — this [?] is the square [?], and the angle [?] which they make [?] is [a right angle?]. So [?] you place [?] the angle [?] of line GD [?] — this [?] is what we sought [?].

זה מה שרצינו — *this is what we sought.* [Followed by a closing flourish ~.]

[Red ink: לימוד תשעה ושלשים] **Lesson Thirty-Nine** [Red ink: הקדמת המעלות] — **Introduction to the Degrees [המעלות]** [a titled subsection rubric].

The degrees [המעלות] [?], and also [?] the figure [?] arises [?] from [?] the [right] angle [?] of the line [?]. The figure [?], so [?] from [?] the line [?] [?] or [?] this [?] arises [?]. You draw [?] [a line] until [?] another [?] generated [?]. The line [?], so [?] thus [?] the degrees [?] —

[A short enumerated list follows, again set out line-by-line:]

- The figure [?], which is …
- The figure [?] from [?] them [?]
- The square AB [?]
- … and so [?] line [?]
- The area [?] which is generated [?]
- [?] and [?] line GB [?] —

[Red ink: לימוד] **The lesson [?]** — that line [?] equals [?] line GD [?], and the area [?] [is] of line [?]. So [?] when [?] line [?] [is set] against [?] the right angle [?] of the line [?] — [this stretch is degraded].

[The foot of the left column carries two further short lines, the very last partly lost to the lower margin:] The lesson [?], and we draw [?] until [?] the enclosing line [קו המקיף] [?]. The lesson [?] — and the enclosing line [קו המקיף] [?] [the remainder is lost to edge/water damage at the foot of the column].

This folio is more heavily damaged than p. 39: a broad water-stain runs down the center gutter and across the lower half, and the upper-left corner shows foxing. The right column reads better than the left in the upper portion; both columns degrade toward the foot. A folio marker (Hebrew numeral, "18"-range) is visible at the lower-left margin.

Right column (read first)

And we draw [?] [a line] until [?] line [?] AB [?], line GD [?], and you set [?] line [?] [?] over [?] line [?]; and you set [?] another [?]. So [?] the figure [?] arises [?] from this [?], that [?] line GD [?] [stands] against [?] [the line], and there falls [?] —

It happens [?] that line [?] equals [?] line [?] [?], and [?] from [?] the square [?] [?] there is generated [?] another [?]; the area [?] [?], when [?] line [?] [?] [is set] against [?] line [?]. And thus [?] this [?] is to be set down [?].

[Then a transitional formula introducing what follows:] By the [foregoing] root [שורש] [?] of the construction [?], the matter [?] —

[A short enumerated list:]

- … the figure [?] is …
- … the line which is the area [?]
- The figure [?], when [?] generated [?]
- … the degrees [?] over [?] line [?]
- … the enclosing line [קו המקיף] of [?] —
- The introduction [?] of the degrees [?], and it [?] —

It happens [?] that [?] line [?] [?] equals [?] line [?] [?]. Or [?], if [?] [a line] falls [?] upon [?] the [right] angle [?] — the area [?] [?], when [?] line [?] [?] [is set] against [?] line [?] [?], so too [?] the square [?] [?] which is generated [?] [?] equals [?] the square [?] [?]. And [?] when [?] line [?] [?] [is set] against [?] line [?] [?], so too [?] the area [?] [?] equals [?] the area [?] [?]. By this [?] there is generated [?] from [?] line [?] [?] another [?] —

The right angle [?] [?], when [?] line [?] [?] [is set] against [?] the right angle [?] [?] of [?] line [?] [?]; and likewise [?] the right angle [?] [?] which is generated [?] [?] from [?] line [?] [?] equals [?] [?] line [?] [?].

the figure [?] is set against [?] line [?] [?], and the enclosing line [קו המקיף] [is set] against [?] line [?] [?]; and [?] line [?] [?], so too [?] the right angle [?] [?] —

And [?] from [?] line [?] [?] [is generated?] the enclosing line [קו המקיף] [?], and [?] line [?] [?] equals [?] line [?] [?], the enclosing line [קו המקיף] [?] [is set] against [?] line [?] [?]; and likewise [?] the enclosing line [קו המקיף] of [?] line [?] [?]. By [the foregoing] root [שורש] of [?] the matter [?] —

[Red ink: לימוד ארבעים] **Lesson Forty [?]** [marginal Hebrew-numeral gloss not legible; ordinal read from the sequence].

the lesson [?] above [?] — and likewise [?] the introduction [הקדמה] [?] [of?] [?] gates [שערים?]. And the matter [?] is [?], and you draw [?] until [?] line [?] —

[The remainder of the right column, the last 2–3 lines, is lost to water-staining and the foot margin.]

Left column

The left column of p. 40 is the most degraded region of the batch — water-stained at the top and across the lower two-thirds, with bleed-through. Only fragments are recoverable.

[Upper fragments:] … line [?] [?] over [?] line [?] [?] … and the figure [?] arises [?] … line [?] [?] over [?] line [?] [?] … this [?].

the figure, the area [שטח] [?] … the right angle [?] of [?] line [?] [?] … the figure [?] —

line GD [?] over [?] line [?] [?] … the square AB [?] … another [?] —

[A short enumerated list is partly recoverable:]

- The square [?], which is …
- The area [?] which is …
- … the angle [?] which is …
- The area [שטח] [?], when [?] line [?] [?] —

[Mid-column, partly read:] It happens [?] that this [?] is line [?] [?], the area [שטח] [?] which is generated [?] [?], and that [?] — [Red ink flourish?] — that [?] line [?] [?] equals [?] line [?] [?] [the marginal mark "?" or numeral appears here].

and we draw [?] until [?] line GD [?] equals [?] line [?] [?], and [?] from [?] the square [?] [?] another [?]; the area [שטח] [?], when [?] line [?] [?] [is set] against [?] line [?] [?]. By [the foregoing] root [שורש] of [?] [the matter] —

upon [?] the degrees [?] over [?] line [?] [?] … and [?] also [?] another [?] is set against [?] line [?] [?]; the figure [?], when [?] generated [?] [?] over [?] line [?] [?] —

also [?] [a line] falls [?] [?] when [?] line [?] [?] [is set] against [?] line [?] [?], so too [?] the right angle [?] [?] which is generated [?] [?] from [?] this [?]. And [?] the matter [?] [?], when [?] line [?] [?] [is set] against [?] line GD [?] —

[The lower third of the left column, ~8–10 lines, is effaced by the water-stain and is not recoverable at this resolution. See QA report]

R. Yitzchak bar R. Yosef Yisraeli, Yesod Olam. Vatican Library, Vat. ebr. 380. Book One (geometry/trigonometry), continuing the לימוד ("lesson") sequence; the work is transitioning toward degree/angular measure.

Reading order: two columns per page; the right-hand column is read first, then the left-hand column. (Hebrew reads right-to-left.)

Right column

[Damage: water-stain and edge wear across the upper right; ~first words of several lines partly lost.] When the surface [שטח] is set as known, it follows that the line enclosing it [קו המקיף] is likewise determined. [?] One then proceeds to the second case [צד]: that the enclosing line is known, and from it the surface is sought, and the matter returns [to the prior procedure]. [?]

Thus the two cases correspond to one another: from the side [הצלע] you reach the surface, and from the surface you reach the side. By this same method, whichever of the two is given, the other is found alongside it. [?]

[The argument continues through several lines obscured by the central stain.] … and you should understand that this holds whether the figure be a square or any other right-angled [figure], so that you may extract the one quantity from the other without error. [?]

[Red ink: rubric — partially legible, marginal numeral gloss lost to staining] [?] — this appears to mark the close of the preceding lesson and the labeling that follows; the spelled-out ordinal is not securely legible here. [?]

And after this, understand a further matter regarding the degrees [המעלות]. [?]

Left column

[Red ink header (mid-column rubric):] לימוד אחד וארבעים — Lesson Forty-One. [Beside it, the marginal Hebrew-numeral gloss is faded; reading consistent with מ"א = 41, by sequence from the prior batch.] [?]

When you wish to know the ratio of one of the sides of a right-angled triangle [המשולש] to another of its sides, and to derive from the one the measure of the other: take the given side and set it as the line of reference [?]. From it you proceed to the second side by the established ratio between them. [?]

For each side stands in a fixed proportion to its fellow, and from the known side you draw out the unknown, just as you drew the surface from the side and the side from the surface in the lessons before. [?]

And he said: if the first side is such-and-such, and the ratio between it and the second is such-and-such, then the second side is determined; and the third side

likewise follows from the two, since in a right-angled triangle the three sides are bound to one another. [?]

[Several lines here turn on specific letter-labels of points and on numeral ratios; the central stain and the cursive ש/ע confusion make the individual values uncertain. The procedure is the standard one of deriving one side from another by their proportion.] [?]

[Red ink mid-column rubric, lower in the column:] **…** [the spelled-out ordinal here is largely lost; by sequence this would be **Lesson Forty-Two**, but the reading is not secure.] [?]

When you know the side, and you seek the ratio of the side to its fellow [?]… [Damage / stain truncates the legible portion.] [?]

[facing folio]

Right column

The path [דרך] by which you operate: take the known [quantity], for it is the ground of the computation [חשבון], and set down what is established, so that the result [המבוקש] comes out true. [?]

Then [it follows that]: when the angle [הזווית] is right, and four right angles surround the point, the [whole] revolution is four right angles; and a [single] right angle is the quarter of the revolution. From this the measures of the other angles are reckoned, each according to its portion of the circle. [?]

[The text lays out that a full turn = 4 right angles, and proceeds toward dividing the circle into degrees — the הקדמת המעלות ("introduction to the degrees") framework. Individual numeral values across these lines are obscured by the gutter and stain.] [?]

[Red ink: rubric, mid-column —] ובכן ("And thus / accordingly") [Red ink: opening word of the following passage in red]. The matters that we have set forth concerning the side and the surface and the enclosing line apply equally to the angle and to the degree, for all of them are governed by ratio [יחס]. [?]

and the established ratio [?] holds between every part and the whole, so that whichever you know, you reckon the rest from it. [?]

So understand all that has been said: from the side to the angle, and from the angle to the degree, the reckoning is one and the same in its method, though the things measured differ. [?]

Left column

[Damage: upper-left corner worn; opening words of the first lines partly lost.] from the known [part] you reach the unknown; and so we set down all of this in order. [?]

When the sides are equal [שוים], and the figure is regular [?], the angles too are equal, each to each; and when the sides differ, the angles differ with them in their proportion. [?]

And he said: take one of the sides as known, and seek the ratio between it and its fellow; then by that ratio you bring out [תוציא] the second side. And so for the third: take it as known [?] with respect to the side that is its fellow, and draw out from it what you seek. [?]

[A sequence of lines turns on letter-labeled points (the cursive ד/ר and ב/כ discriminations are at risk here) and on the proportions among them; the specific labels and values are not securely legible under the staining.] [?]

When the sides are equal, the figure is equilateral [?]; and when only two are equal, it is of two equal [sides] and one differing — and the angles answer to the sides in each case. [?]

So if you wish, you may take the [ratio] by addition [?]; and if you wish, by the established [proportion]. Either way the result is one. [?]

The matter is set forth [?]: that the known [quantity] is the foundation of all the computation, and from it the result is drawn. [?]

Yesod Olam — Book One (Geometry / Angular Measure), continued

Primary script: Sephardic semicursive, single hand throughout, black carbon ink with red-ink structural rubrics (the לימוד / "lesson" counter and a red ושער / section marker). Both folios carry the diagonal Vatican Library watermark overlay (ignored) and a large water-stain / discoloration band crossing the writing area — most severe through the center-right of p. 43 and the lower-left of p. 44 — together with pervasive bleed-through from the facing side. Many passages in the stained band are only partially legible and are flagged below as

PDF page 43 (folio 19v) — right column

the measure [of the angle] is such. And when two lines cross at a point, the angles around that point are likewise reckoned. [?] For when [the line] is straight upon [another], they make [right] angles [?]. And just as the [?] right angle is reckoned, so are the remaining angles reckoned from it — [those] that are greater than a right angle and those that are smaller than it.[?]

[Red ink: ושער] [a red-ink section/marker word, partly faded — reads as ושער ("and a gate / section") or a counter-word; the following line resumes in black]

When the angle is right, it stands upon the line as a perpendicular, and the two angles on either side of it are equal — each of them a right angle.[?] But when the line that stands upon the other is inclined and does not stand perpendicular, then one of the two angles it makes is greater than a right angle and the other is smaller than a right angle, while the two of them together [equal] two right angles.[?]

[The central portion of this column — roughly 6–8 lines — falls within the heaviest water-stain band and is largely illegible. The surviving fragments concern reckoning angles greater and smaller than a right angle and their sum. [?]]

and this is the result that was sought.[?] And from this you understand that the [two] angles standing upon a [straight] line are together equal to two right angles, whether the standing line be perpendicular or inclined.[?] …[?]…

PDF page 43 (folio 19v) — left column

the right angle [?], and the line that crosses [?]. For when [it stands] straight, [it makes] the angles [equal] [?]; and so too when it [is inclined], the angle [?] …[?]

[Several lines in the upper-left of the column run into the stain and bleed-through and are illegible — [?]]

[the angle] is such, and this is what was proven [?]. Therefore the lines [?] — the line that crosses [?] and the [?] …[?]

[Red ink: רדן] **[Red-ink lesson counter.]** [The red rubric word here reads רדן/ררן — most likely the running לימוד ("lesson") counter continuing the Book-One sequence (the prior batch reached ~41–42). The marginal Hebrew-numeral gloss that would fix the ordinal is faded beyond reading. [?] for the exact number]

The [?] of the line [?]. When two lines [cross], each of them [?] [makes] the angle [?] … And so too when [?] [the line] crosses [?], the angle [?] is such, and the line [?] is such.[?]

[The lower third of the left column lies in the stain; the surviving black ink yields only scattered geometric vocabulary — הקו ("the line"), הזוית ("the angle"), הקש ("the [?]") — without recoverable connected sense. [؟]]

and this [is] the figure / and so it is in the figure.[?]

PDF page 44 (folio 20r) — right column

[Top of column, partly stained:] …the difference [?] of the line [?], as we explained [?], for [it stands] perpendicular [?] …[?]

The premise: that the [?] of the surface[?] [comes out] such. And it is already explained [?] that when two lines [?] [meet], the angle [?] between them …[?]

[Red ink: ושער] [or red counter-word — partly legible] …

The [?] of the [angle] [?]: that it comes out such [?]. And we set down [the line] [?] upon [?] the [?] …[?] so that the angle [?] [is] such, and the [?] of the line [?] is such.[?]

[Middle of the right column — several lines stained and faded: the surviving text continues the demonstration that lines crossing at a point make angles whose relations are fixed, but the connected reading is lost. [؟]]

for the line [?] is such, and the angle [?] [comes] out such; and this is the result that was sought.[?] And from this you understand that [?] …[?]

When the angle [?] is such [?], and the [other] angle [?] is such, then the difference between them [?] is such — and this is what was sought [?].[?]

PDF page 44 (folio 20r) — left column

[This column is the most degraded on the opening: it lies largely behind heavy bleed-through from the facing folio combined with the stain band crossing the lower portion. Only fragmentary words are securely legible.]

the surface [?] [is] such [?], and the line that encloses it [קו המקיף, the enclosing line] [?] …[?]

[Upper lines: scattered legible tokens — הצלע ("the side"), השטח ("the surface/area"), הקו ("the line"), הזוית ("the angle") — within an otherwise illegible field. [?]]

and so it comes out [?], for the [?] [is] such [?]; and this is the result that was sought.[?]

when [?] [the line] crosses [?] the [?], the angle [?] [is] such [?] …[?]

[Lower portion of the column lost to the stain — only isolated geometric terms recoverable, no connected sense. [?]]

Yesod Olam — Book One (Geometry / Angular Measure)

Script: Sephardic semicursive, single primary hand throughout. Structural counters and one rubric word are in red ink. Both folios show heavy water-staining across the lower half and the right-hand margin, with iron-gall fading; the left column of the verso is significantly degraded by a large water stain. Bleed-through is present and ignored. The Vatican watermark overlay is ignored.

right column

[The continuation of the preceding demonstration on angles formed by intersecting lines.]

the matter that we have explained to you regarding [?] the [?]. And we shall now say further [?]: when [?] two lines meet at a point [?], one of them being inclined [?] to its companion, the angle [?] is divided [?] so that [?] one part of it is greater than a right angle and one part of it is less than a right angle — yet the two of them together [?] equal two right angles. [Reading of this passage is partly reconstructed from the parallel proof-template; several glyphs flagged below.]

And know that [?] when [?] the two angles are equal, [then] each one of them is a right angle, and this is what was demonstrated [?] before. But if they are unequal, the one is greater than a right angle and the other [?] is less. So [?] if you wish [?] to know [?] this, [proceed thus]: [?]

Therefore [?] this [?] is so. And when [?] you draw [?] from the point [?] the line [?] [that is] perpendicular [?] [Interlinear/uncertain], [the matter comes out] as we said. And know [?] that every [?] line [?] that goes out [?] [from the point], if it [?] does not stand perpendicular [?], makes [?] one angle [?] greater [than a right

angle] and one [?] smaller, [the two] equalling two right angles — this [?] is [?] the [matter] [?]. ✦

And we shall draw [?] two lines [?] [namely] the line [?] [letter] and the line [?] [letter] [?]. The first [?] of [?] them [?] [?] [stands?] thus [?]: and we shall make [?] for [it] [?] [a point?] in the middle [?], and [?] we shall [draw out?] [?]… [Heavy water damage across the lower third of this column; ~5–7 lines partly to wholly illegible. Transcription suspended; see Readability note.]

[Damage: water stain, lower-right column, ~6 lines obscured]

left column

[continuation; the rubric word וכו׳ / structural counter region]

the surfaces [?] in the line [?], and they [?] are equal. The figures [?] [are] equal, and we wished [?] to know this [?]. And he said [?] [as follows]: every [?] line [?] [letter] is [?] equal [?] to [letter], etc. [?]

These [?] [matters] are [?] correct [?] (interlinear: corrections present but illegible). And this is the demonstration [?]: …[3–4 lines water-obscured]…

[Red ink: וְהַמְּבוּקָּשׁ — "And the [matter] sought"] is this. ✦

[Following the red rubric, a new sub-demonstration begins:]

This [?] is also [?] correct [?]. If you wish [?] [to know] this [?]: when you set [?] [letter] equal [?] to [letter] in [?] its [?] entirety [?], and [?] [draw] [?]… [the construction continues with letter-labels that are largely illegible under the stain]. And he said [?]: …and we shall divide [?] [it] equally [?]; and [?] [letter] is therefore [?] equal [?] to [letter], etc. [?]

And the [?] half [?] [of?] [letter] [?] [equals?] the half [?] [of letter] [?], and therefore [?] [letter] [equals letter] [?]. And this [?] is [?] the conclusion [?] of [?] the matters [?]. [Several gematria letter-labels in this passage are individually flagged; see Numbering note.] [The lines [?] are] equal [?] in [?] their measures [?]; and when [?] they [?] [are equal] in [?] [letter], and so [too] in their measures [?]. ✦ [end of column]

PDF p. 46 (verso) — right column

[Top of column — continuation, then a red-ink structural counter mid-column.]

it is fitting to demonstrate [?] the [matter] [?]. And it is [?] [the] proof [?] that the [?] [angle?] is [?] a right [angle], and this [?] [the] inclined [angle] [?]. And he said

[?]: that when [?] [the line?] stands [?] upon [?] [its companion?], it makes [?] [an angle?]; and when [?] [it does not] [?] [the angle?] comes out [?] [from] within [?]… ✦

[2 lines water-affected]… and [?] [letter] is therefore [?] greater [?] than [letter] [?]. So [?] [letter] [equals?] [letter], and the whole [?] is [?] greater [?]; therefore [?] this [?]. [And] we [?] [set] [?] [letter] [?] equal [?] to [letter], etc. [?] ✦

[Red ink: counter-word — a לִימוּד-type or section counter, faded] — Marginal Hebrew-numeral gloss present but **not securely legible** [?] (consistent with the faded marginal ordinal noted across this run; see Numbering note).

[Body text resumes after the red counter:]

now [?] [letter] [?] is [?] equal [?] to [letter] [?], [the two of] them [?] [together?] [equal?]… And he said [?]: every [?] [angle?] that [?] is [?] [a right angle?] [?], [and?] the one [angle?] [is] within [?] the other [?]; [therefore] [it] makes [?] [the] angles [?] [equal?]. [Heavy stain mid-column; ~4 lines partly illegible.] ✦

the line [?] [is?] [drawn?] from [?] the point [?], and [letter] [equals] [letter], and [letter] [equals letter] [?]. And [?] [the angle?] [letter] [is?] equal [?] to [the angle] [letter] [?]; and so [too] [letter] equals [letter] [?]. And this [?] is the conclusion [?]. ✦

[lower portion of column heavily water-stained, ~5 lines mostly illegible]…

[Damage: large water stain, lower-right column p. 46, ~5 lines lost]

PDF p. 46 (verso) — left column

[This column is the most degraded surface in the batch — a broad water/foxing stain crosses it diagonally. Much of the upper-middle is faint; a red-ink rubric appears near the foot.]

in [?] the [?] [matter?] [?]. And he said [?]: when [?] [the line?] [letter] [?]… is [?] equal [?] [to letter] [?]. [3 lines illegible under stain.] …and they [?] [are?] equal [?]; [the figures?] are equal [?]; and the line [?] [letter] [equals] [letter] [?]. ✦

[middle of the column, ~6 lines, mostly illegible under the stain; isolated legible tokens: "the angle" [?], "equal" [?], "and he said" [?], "two right angles" [?], "the measures" [?]]…

and [?] when [?] [the angle?] is [?] greater [?] than a right angle [?], the other [?] is [?] less [?]; and [?] the two of them [together] [?] [equal] two right angles [?]; and this [?] is [?] the [conclusion?] [?]. ✦

and [?] when [?] you [?] [draw?] [?] [the line?] [?], [letter] [equals] [letter], etc. [?]. And [?] [letter] [is?] within [?] [letter] [?], [therefore] [it] makes [?]… [2 lines faint]…

[Red ink: שַׁעַר — "Gate"] [?] — **A red-ink rubric, plausibly a שער ("gate") heading, sits low in the left column. The accompanying word(s) and any numeral are faded into the stain and not securely legible.** [Treated cautiously per marginalia/rubric guidance; see Numbering and Body-headings notes. Marked as a]

[Following the red rubric, the demonstration appears to continue / a new gate opens:]

he made [?] [letter] equal [?] to [letter] [?], and [?]… [final ~2 lines faint] …and the line [?] [letter] [equals] [letter], etc. [?] ✦

Yesod Olam — Book One (Geometry / Angular Measure)

> Sephardic semicursive hand, one principal scribe. Black body ink with red-ink structural rubrics. Both pages are substantially faded with water-staining (lower-right quadrant and gutter on both folios) and ink bleed-through; the bleed-through and the diagonal Vatican Library watermark overlay are ignored throughout. This batch continues Book One's geometric/angular-measure proof-prose, which proceeds by inline letter-labels (point- and line-references such as א, ב, ג, ד) carried through chains of comparisons ("X is greater than Y," "the whole is greater than its part," "we set X equal to Y"). Several proofs close on the standard המבוקש ("the result sought") template. No body table appears; no ruled diagram is drawn on either page (the geometry is argued verbally with lettered references). Two red-ink section rubrics appear on the verso.

(The page has two written columns. Following Hebrew reading order, the right-hand column is read first.)

Right column (p. 47):

[Damage: upper-right corner and first lines water-stained, ~3–4 words per line lost] …for the heavens [?] and the knowledge and the measure [?]… that which is within them [?] [Red ink: …] upon all the [?]… the matter that we set [?] before [?] and we shall make clear [?] this [?]…

Before us, therefore, [?] in [?] the lines [?] and we shall make plain… upon [?] their [?] together [?]… and it is already established [?] that the line [?] is straight [?] and another [?] line… the part [?] which is [?]… [?] with them [?]…

And he answered [?]: since [?] the line is [?]… as [?] in the computation [as it is written?] [?]. And we have already [?] explained [?] that there is in it [?]… that the part [?]… [?] but rather they [?]… [?] him [?] [Damage: ~2 words lost].

[Red ink: וזה] [?] [And this:] [?]… we have measured [?] the line [?] [?]… and we shall set [?]… we have made clear [?] this [?]… and yet [?] he [?] said [?] this [?]… [?] there is in it [?]…

Therefore [?], since [?] the line is [?]… [?] and we measured [?]… [?] **[Red ink: צריך] [?]** [it is necessary] [?]… we therefore return [?] to the line [?]… [Damage: lower-right quadrant water-stained, ~4 lines partly lost]…

Left column (p. 47):

and the lines [?] which we [?] set… and we shall return [?] the gate [?] to the measure [?] in [?]… [Damage: ~2 words]…

[Red ink: ועתה] [And now] [?] — we shall make plain… that [?] the area [?] and the surface [?] of [?] the line [?] and the [?]…

When [?] we know [?] the area [?] and the surface [?]… [?] from [?] the computation [?]… we set [?] them [?] equal [?] [Damage]… therefore [?] [?] and [?]… [?] him [?]…

And we shall return [?] the [?]… [?] when [?] he set [?] the line [?] equal [?]… and [?] the line [?]… and so [?] the part [?]… and [?] the area [?]… [?] that he set [?] the line [?]…

and [?] this [?]… [?] therefore [?] the [?]… [?] the angle [?] which [?]… and [?] him [?]… [Damage: gutter and lower-left, ~3 lines, ~3 words each lost]…

the result sought [המבוקש] [?] and that is what we wished [to make clear] [?]. [Damage: closing lines of column faded]…

(Two columns; right column read first.)

Right column (p. 48):

[Damage: upper margin water-stained] …on [?] the matter [?] [Red ink rubric mark ׳ in margin]… we have [?] explained [?]… [?] the [?]… [?] and the line [?]…

[Red-ink rubric / paragraph mark in right margin: שער? [?] — gate-marker, numeral illegible.]

[Body, right column:] …the line [?] which [?]… and the place [?]… from [?] another [?] place [?]… the [?]… and we set [?]… that [?] the line [?]… and it [?] is [?]… [?] equal [?]… and the [?]… [?]…

When [?] in the computation [?]… we set [?]… the line [?]… equal [?]… therefore [?] the [?]… [?] [Damage: ~2 words]… and we [?] return [?]…

[Red ink header: מאמר החמישי] [?] — *The Fifth Book* [?] *(A red-ink major rubric appears here. The reading מאמר החמישי ["the Fifth Book"] is uncertain in this damaged region; the numeral-word is faded. If correct, this would mark a transition to Book Five — but the surrounding prose continues the same geometric argument with no break in topic, so this may instead be an internal red-ink rubric, e.g. a gate or premise number, mis-resolved. Flagged for further verification.)* [?]

[Below the red rubric:] And he set [?] the foundation [?]… [?]…

Now [?] he set [?] the area [?] is [?]… and the place [?] which [?]… [?] the line [?] another [?]… [?] the area [?]… the [?] foundation [?]… and we set [?]…

upon [?] the line [?]… and we set [?]… that [?] the area [?]… [?] the line [?]… and so [?] the [?]…

The premise [המוסר] [?] and [?] the [?]… that [?]… [?] the [?]… and we return [?]… upon [?] the [?]… [?] [Damage]…

that [?] the line [?] which [?] he set [?]… and so [?] the angle [?]… that [?]… the [?] result sought [המבוקש] [?]. [Damage: ~2 lines faded]…

Left column (p. 48):

[Red ink rubric mark in upper area] [?]… the area [?] and the computation [?]… upon [?]… [?] him [?]…

[Red ink: ורם] [?] [And he raised / And the height [?]] [?] — [reading uncertain; possibly ורום "and the height," or a letter-label sequence] [?]… that [?] the area [?] [Red ink: ׳ שלש] [?] [three [?]]… equal [?]… the line [?]…

The premise [המוסר] [?]: since [?]… and there is in it [?]… [?] equal [?]… the line [?]… and the [?]…

and we return [?] the [?]… [?] this [?]… and [?] the area [?]… therefore [?] the [?]… [?] [Damage: lower-right quadrant heavily water-stained, ~5 lines lost]…

[Red ink: ועתה] [And now] [?] — let him [?] take heed [?]… and there is in [?]… [?] from [?] the lines [?] which [?]… [?] the computation [?]… [Damage]…

the computations [?]… [?] the area [?]… [?] and the [?]… [?]…

[Foot of column:] …and so [?] the area [?]… [?] the [?] result sought [המבוקש] [?] and that is what we wished to make clear [?]. [Damage: final lines faded.]

R. Yitzchak bar R. Yosef Yisraeli, Yesod Olam. Vatican Library, Vat.ebr.380, Sephardic semicursive hand. Book One (geometry / angular measure) continues.

PDF p. 49 (folio recto)

[Two columns. Reading order: right column, then left column. Heavy foxing and water-staining at the upper right and lower right; ink faded in places. Watermark overlay and bleed-through ignored.]

Right column

[?] the line, and [it] falls [?] upon its center, so that the [?] is divided [?] in two equally. And [?] the [?] of the line falls [?] upon the [?] [?], and the measure of [?] [?] [?]. So [too] [?] [?] [?] equally [?] [?]. And after this, since [?] the line falls upon it, and it is not [?] [?], and yet the area of the figure [?] [?] [?] equally [?] [?]. Therefore the area [?] is equal to the area [?] [?]; and likewise [?] [?] the area [?] is equal to the area [?] [?]. And [?] thus the area is divided [?] upon the line [?] [?], and this is what was sought. [?]

The matter, and [?] [?] [?] the line falls [?] [?]. The angle [?] [?] [?] upon the center, and this is [?] [?] [?]. So [too] the area which is upon the side [?] [?] the line, the angle [?] [?], the [?] [?] [?] [?] [?] [?].

[Red ink header: חידוד **("refinement / sharpening") — possible rubric.]** *[The red-ink word appears mid-column on p. 49 right column. Reading is חידוד ("refinement"); note the rule-11/rule-10 caution that ה/ח and ד/ר confusion is possible here, so הידוד cannot be fully excluded. No topic break accompanies it — this is an internal Book-One rubric, not a Book transition. Marginal numeral gloss (lesson ordinal) not legible.]*

Diagram. *[No drawn figure is clearly visible in the right column at this resolution; the rubric חידוד heads a worked geometric demonstration in prose. If a small inline construction figure is present it is obscured by foxing.]* Not enough is legible to enumerate labeled points. (degraded — caption/labels uncertain). …And [?] [?] the line [?] [?] [?]. And since [?] [?] the area which is upon [?] the line [?] [?]; and [?] the area [?] [?] [?] [?]. So [too] the area [?] [?] [?] [?] [?] equally. And [?] [?] [?] [?] [?] [?] this is what was sought. [?]

Left column

The angle [?] [?] [?] like the angle [?] [?], and so the [?] [?] are equal. And [?] [?] [?] [?] like [?] [?], and the line [?] [?] [?]. And after [?] [?] [?] like [?] [?] [?], the area [?] is [?] [?].

The angle [?] [?] [?], and this is [?] [?]. The angle [?] [?] [?] the angle [?] [?] [?] the angle [?] [?] [?] [?] [?] [?] [?]. And the line [?] [?] [?] [?] [?] [?] [?] [?]; and the line [?] [?] [?] [?] [?] [?].

And [?] [?] the angle [?] [?] [?] the angle [?] [?] [?]. And [?] [?] [?] [?] [?] like [?] [?] [?] [?]. And the line [?] [?] [?] [?] [?] [?] [?] [?] [?]. And this [?] [?] [?].

[Further down the left column, a sequence of short ruled lines each ending with a small marginal Hebrew numeral:]

- …[?] [?] from the area which is upon [?] the line [?]. [marginal numeral: [?]]
- And [?] [?] [?] [?] [?] [?] this [?]. [marginal numeral: [?]]
- And [?] these [?] [?] [?] [?] [?] their [?] upon [?] [?] [?] this [?]. [marginal numeral: [?]]
- A part [?] [?] [?] [?] like [?] [?] [?] for the [?] [?]. [marginal numeral: ה (?5) [?]]
- …[?] [?] [?] [?] equally [?] [?] [?] [?] [?] [?] [?] [?] the surfaces. [marginal numeral: [?]]

PDF p. 50 (folio verso)

[Two columns. Severe water-staining and ink loss across the entire right column and the right (gutter) margin of the left column; this is the most degraded page of the batch. A red-ink word (נאמר, "we say / it is said") is visible mid right-column. Watermark overlay and bleed-through ignored.]

Right column

[The upper two-thirds of this column is largely effaced by a brown water stain; only scattered words are recoverable.]

[?] thus [?] [?] [?] is divided [?] [?] [?] [?] [?] [?]. And [?] [?] the line falls [?] [?] [?] [?] [?] [?] [?] [?] the angle [?] [?] [?] [?]. And [?] [?] [?] [?] [?] [?] the [?] [?] [?] upon [?] [?] [?] [?].

[Red ink: נאמר ("we say" / "it is said") — possible rubric or proof-marker.] [The red-ink word reads נאמר (the conventional "we say" of a demonstration); נ/ת and the third letter are partly stained, so the reading is `[?]`. It may instead be the rubric נחזור ("let us return"). Marginal numeral gloss not legible.]

[?] [?] [?] [?] in the surface [?] [?]; [?] [?] the angle [?] [?] [?] [?] like [?] [?] [?] [?] [?]. And since [?] [?] [?] [?] [?] [?] [?] [?] [?] [?] the line [?] [?] [?] [?]. And [?] [?] [?] like [?] [?] [?] [?] [?] [?] [?] [?] [?] [?] [?].

[Remainder of right column — roughly the lower third — illegible under the stain.] `[Damage: water stain, right column, ~8–10 lines largely effaced.]` (degraded).

Left column

[?] [?] the line [?] [?] [?] [?] [?] [?] from the center [?] [?]. And after [?] [?] [?], let us say [?] that the angle [?] [?] [?] [?] [?] [?] [?] [?] like the [?] [?]. And so [?] [?] [?] [?] [?] [?] this [?] [?] [?].

The matter: since [?] [?] [?] [?] [?] [?] the line [?] [?] [?] [?] like [?] [?] [?] [?] [?] [?]. And [?] [?] [?] [?] [?] [?] [?]; and so [?] [?] [?] [?] [?] [?] [?] [?] [?] [?].

[?] [?] the angle [?] [?] [?] [?] [?] [?] [?]; and the line [?] [?] [?] [?] [?] [?] [?] [?] [?] [?] [?]. And after [?] [?] [?] [?] [?] [?] [?] [?] [?] [?] [?] [?] like [?] [?] [?].

And [?] [?] [?] the angle [?] [?] [?] [?] [?] the angle [?] [?] [?] [?] [?] [?] [?] [?] [?] [?]. And [?] [?] [?] [?] [?] this is what was sought, by [?] [?] [?] [?] [?].

[?] [?] [?] [?] [?] equally [?] [?] [?] [?] [?]; and so [?] [?] [?] [?] [?] the area [?] [?] [?] [?] [?] [?] [?] [?]. And [?] [?] [?] [?] [?] [?] [?] [?] [?] [?] [?] [?] this [?] [?].

[Toward the foot of the left column, the prose closes on the customary result-formula:]

and so [?] [?] [?], and this is what was sought. [?]

**]

PDF p. 51 (Source: MSS_Vat.ebr.380/0051)

[Severe water-staining and foxing run down the center of the page, with a large brown stain crossing both columns; the standard Vatican watermark overlays the whole leaf. A faint marginal folio numeral and a faded rubric word (apparently פרק, "chapter") appear at the top edge but are not securely legible as a working heading — recorded under Running headers only.]

Right column (begins the recto, read first)

[?] for the position [?] just as in the [first?] reckoning. So too [?] the surface [area] that lies upon [?], and the line that encloses it is [?]; and likewise the other degrees [of the arc]. The remainder [?] [Damage: ~1–2 words lost to staining]. We therefore take the [?] together with the [?], and the result [המבוקש, "the sought quantity"] comes out [?].

When you have set down [?] the side [הצלע] and the angle [הזווית] [?], and you know [?] the [?] [Damage: water stain across mid-line, ~2 words lost], turn the [?] upon [?], and [?]. Thus [?] the side and the angle [are] [?].

[Red ink header: יסוד מוסר] — *[A red-ink structural rubric, "Foundation of Instruction" / "a fundamental teaching" (yesod musar). It opens a short admonitory/methodological subsection of the kind Book One interleaves among its proofs.]* / שקיב [?] [?] — "knowledge of [?]" — not securely legible.]

For when we wish [?] to grasp [?] the [?] [Damage: foxing], we must [?] take care that the [?] reckoning [החשבון] be set straight [?] in its [?]; and we shall not be far [?] from [?]. Now if [?] we come [?] upon [?] the side, [?] the [?] is small [?] [Damage: ~1 word]. The [?] degrees [המעלות] are [?] from the [?] which we have set down [?] [?]. And we shall return [?] to the same reckoning [החשבון], and it shall be complete [שלם] [?] [?].

And now [נאמר / ועתה?] [Red marker, faded] we shall [?] the angle [המבוקש?] [?] [?] [Damage: ~2 words to staining] until it is established [?] that the [?] [Damage] [?]; and we have already [?] [?] [?] given [?]. The [?] of the [?] [Damage: line obscured by brown stain] [?] [?] [?] [?].

[Several lines here fall under the heaviest part of the central stain and are not recoverable at this resolution Faint traces of recurring inline letter-labels and a red marker survive but no continuous sense can be read.]

that which is [?] [Damage] and you shall know [וידעת] that [?] the side and you shall [?] [Damage: ~3 words] upon [?] [?] [?]. If [?] the [?] is near [הקרוב?] [?] and

you shall [?] over [?] until [?] [Damage]. When [?] the angle [הזוית] [?] there comes out [?] the [?] [Damage]. The [?] of the side [?] [?] degrees [?] [Damage], and from this [?] you shall [?] the result [?] [המבוקש?] [?]. And [?] from [?] [?] until [?] the [?] [?] [?].

Left column (read second)

For [?] he who is [?] upon all [?] the [?] [Damage: top of column foxed] and he is [?]; rather [?] [?] the [?] from [?] the [?], and we have placed [?] them [?] in the [?]. And the [?] [?] [Damage] [?] the [?] of the side [הצלע] [?].

And we said [?] [ואמרנו?] [?] [?] the [?] [Damage] another [?] [?]. And [?] [?] [?] there [?] [?], that [?] the [?] [?]. The figure [התמונה] [?] [?] [Damage: stain] [?] [?] the side and the [?] [?] [?].

[Damage: a run of ~4–5 lines here is crossed by the central stain; only fragments — "…the side…", "…the angle…", "…degrees…", a recurring letter-label — are legible. Not recoverable]

of [?] the [?] [?]. Then [?] [?] the [?] [Damage] and you shall reckon [ותחשב / יחשוב] [?] [?]. And likewise [?] [?] the [?] [?] [Damage]. Either [?] the [?] is [?] or [?] [?]; and the [?] [?]. So too [?] [?] [Damage] [?].

The figure [התמונה?] [?] [?] [?] [Damage: ~2 words] [?] the [?] and [?] [?]. And [?] [?] [Damage] [?] [?] [?] [?] [?].

[Damage: heavy staining across the lower-middle of the column — ~3 lines obscured. Letter-labels and "…degrees…", "…the side…" recur.]

to the [?] and we have [?] [?] [?]. The [?] [?] [Damage] [?] [?] [?]. So [?] [?] this [?]; and likewise [?] [?] [?]. Either [?] [?] there is [?] [?] [Damage] [?], or [?] [?] [?]. And [?] [?] [?] [?] [?].

[Lower lines of the column are progressively more degraded; only the recurring vocabulary of the proof (side, angle, degrees, reckoning, figure) is recoverable, not connected sense.]

PDF p. 52 (Source: MSS_Vat.ebr.380/0052)

[A very large water/mold stain (light blue-grey at its core, brown at its margins) covers the entire lower-left quadrant and intrudes well into the center of both columns, with text loss in the affected lines. The Vatican watermark overlays the leaf; a faint marginal folio numeral and a faded rubric word at the top edge are not

securely legible. A red-ink catchword (חולפ / חולק?) appears at the lower-left foot — recorded as a catchword.]

Right column (read first)

So [?] the angles [הזויות] and they are [?] equal [שוים] [?], [?] [?] [?]. And we [?] [?] that the figure [?] [Damage] [?]. So [?] this [?], for [?] [?] [Damage: ~2 words]. The [?] [?] [Damage] [?] two [?] degrees [?] [?]. And [?] [?] [?] [?] from [?]. We have [?] [?] that [?] [?] [Damage] [?] [?] [?] not [?] [?] for [?]. And [?] [?] upon [?] the side [?] [?] [?] [?] [Damage] [?] [?].

[?] [?] the [?] [Damage] [?] [?] degrees [?] [?]. He [?] [?] [?]. And [?] [?] [?] the [?] [?] [Damage] [?] the side [?] which [?] [?] [?]. The end [?] [סוף?] [?] the [?] [Damage] [?] [?] [?] [?]. We have placed [?] [?] until [?] [?] [?] [?] [?]. The [?] [?] for [?] [Damage] [?] and [?] [?] [?] [?].

[Several lines under the upper margin of the stain are illegible]

[Red ink header: ושעה] — *[red rubric; most likely the manuscript's recurring in-line proof-marker — read as ועתה ("and now") rather than the literal ושעה, given the scribe's ש/ע confusion noted for this hand and the established convention. Flagged [؟].]*

[?] [?] the figure [?] [?] [?] [?] and we shall [?] [?] [Damage] which [?] [?]. The [?] [?] [Damage] [?] until [?] [?] [?].

[A short tabular / list-like stretch of very short lines follows in the right column — single short phrases per line, each apparently a step or a labeled quantity. They are partly under the stain and read, top to bottom, approximately:]

- [?] when [?] thus [?] [?]
- the bend / curve [העקום?] [?] [?] [Damage]
- [?] [?] the bound / measure [הגבול?] [?]
- the rising-point [?] and now the [?] [?]
- [?] [?] [?] [Damage]
- the side [?] and a [?] upon the [?] [?]

[This short-line block is too degraded to render as a confident table; transcribed as a list with the caveat that it may be a small computation table.]

And we said [?] [?] upon [?] this, [?] the [?] [Damage] [?] [?]. So [?] [?] [?] [?]. So [?] [?] [?] the [?] [?] [Damage: stain] [?] and now [?] [ועתה?] the [?] [?]. The [?] [?] near [הקרוב?] [?] [?] [?] [Damage] [?] [?] [?]. This [?] [?] the [?] [?] [?] [?] [Damage] [?] [?]

[?]. He [?] [?] [?] [?] [?] upon [?] [?] [?] [Damage] [?] [?]. The [?] [?] [Damage] [?] [?] [?] [?] [?].

[Red ink marker: ודע] — *["and know" (vada); a red in-line marker, faded.]*

[?] [?] [?] [Damage: heavy staining] [?] when [?] [?] [?]. The figure [?] [?] [?] [Damage] [?] [?]. And likewise [?] [?] [?].

Left column (read second)

[The left column's lower two-thirds is buried in the page's large water stain; readability is poor throughout, and the bottom third is essentially lost.]

And from [?] thus [?] [?] [?] [?] [?]. The figure [?] [?] [Damage] [?] [?] [?]. The side [הצלע] [?] [?] [?] [Damage] [?] until [?] [?] [?]. And [?] [?] the side [?] [?] [?] [?] and the [?] [Damage] [?] [?] [?]. From [?] [?] [?] [?] [?] another [?]. And we placed [?] [?] [?] [?] [?] [?] [?] [Damage] [?] the side [?]. After [?] [?] [?] [?] [?] [?] [Damage] [?] [?] [?].

[Damage: a run of lines here — center of the column — lies under the densest part of the stain. Only "…the side…", "…the angle…", recurring letter-labels, and "…figure…" are legible. Not recoverable]

the [?] [?] [?] [?] [?]. So [?] thus [?] [?] [?] [?]. And [?] [?] [?] [?] [Damage] [?] [?] [?]. The [?] [?] [Damage] [?] [?] [?] [?] [?]. And [?] [?] this [?] [?] [?] [?].

[The lower third of the left column is lost to the water stain — only ink-traces survive, no continuous text.]

[Red ink marker: ודע] [Lower-left, faded red] — *["and know"; opening another short red in-line marker. The following short clause is illegible: וכשתרצה [?] / וכשתעשה [?] — "and when you wish/do [?]" — not securely read.]*

[?] [?] the figure [?] [?] [?] [?] [Damage] [?] [?].

R. Yitzchak bar R. Yosef Yisraeli, Yesod Olam. Vatican Library, Vat.ebr.380. Sephardic semicursive hand. Book One (geometry / angular measure), continuing.

PDF p. 53 (MSS_Vat.ebr.380/0053)

[Marginal folio numeral, top center, faded: "[?]"]

This folio side carries two columns of continuous geometric proof-prose, with several red in-line proof-markers. The text continues the triangle-solving / angular-measure discussion from the prior batch. The page shows significant

edge loss at the upper-right corner and a broad water/foxing stain crossing the right column from top to lower margin.

Right column

[The opening lines of the right column run into a heavy water stain and are only partly legible.]

and when we know it, the matter [is established], and behold the result is [?] …all of them. Therefore, when the angle [הזווית] is known to us, we know its measure [shiuro]; and the line that [?] the second [?], and we [?] it [?]. [several words lost to staining]

In this computation [חשבון], when [we] take a portion of [?], and behold the [?] of the line that [?] the [?]. And know [Red ink: ודע] that the matter is according to what we explained.

For so the matter is established, and behold the result is found [המבוקש]; and it [?] according to [?] the side [הצלע]. And when [?] is [?] equal [?], and behold [?] between them [?].

Behold his measure [?] is opened [?]; thus the side [הצלע] [?], and behold it returns equal [?]; and the [?] like [?].

and behold this is the refinement [Red ink: חידוד] [?] of the matter that we sought, and [?] the figure [התמונה]. [several words lost to staining]

If we know the side [הצלע] of the [?] that is [?], and this [?] the [?] of the [?]; and the line [הקו] that [?] it [?] is [?], and behold [?].

What [?] the [?] of the [?] [?] established [?]. We say [Red ink: נאמר]: when we [?] the [?] of the [?] equal to the angle [הזווית] [?] it, behold [?].

The [?] [?] when we know the measure [shiur] [?] within it [?], and behold [?].

and the [?] [?] of [?]; and it [?] the side [הצלע]; and [?] the angle [הזווית] [?]; behold the result [המבוקש] [is established].

Left column

[The left column is somewhat better preserved than the right, though the lower portion is crossed by the same stain.]

the figure [התמונה], behold this is the result we sought [המבוקש] …upon it. And when [?] [?] each one [?] from the [?] from the [?].

And behold all of them, behold their [?]; and behold [?] the side [הצלע] from [?], and behold [?].

We [?] equal [?]; and when [?] [?] in measure [shiur] from the side [?]. And the result [המבוקש] [Red ink: יסוד] [?].

These [are] the lines [הקווים] [?]. And behold [?] the figure [התמונה] [?] [?], and it returns [?].

when we [?] equal [?]; and behold [?]; and the figure [התמונה] [?] [?]; and behold [?].

the [?] [Red ink: יסוד] [?]. And behold [?] the side [הצלע]; and we [?] [?]; and behold [?].

The figure [התמונה] [?]; and behold [?] the side [הצלע] [?] [?]. And it returns [?] [?] equal [?].

And [?] [?] the angle [הזוית] [?]; and behold [?] the side [הצלע] [?] [?] [?]. [several words lost]

The portions [?] [Red ink: יסוד] [?] the figure [התמונה]; and behold this is what we sought [המבוקש].

[Lower-left column, fading badly:]

the matter [?] [?] [?] is established [?], and we [?] it [?] [?]. And the [?] of the [?] [?]; and behold [?].

the side [הצלע] [?] [?]; and when [?] [?] equal [?]; and behold the result [המבוקש] is found.

for so it [?] [?]; and behold [?] is established; and the side [הצלע] [?] [?]; and behold [?].

that we [?] [?] [?] before us, and we [?] [?] [?] from [?]. And behold the figure [התמונה] [?].

that [?] [?] [?] [?]; and the [?] [?] of [?]; and behold [?] [?]; [several words lost to lower-margin fading].

PDF p. 54 (MSS_Vat.ebr.380/0054)

[Marginal folio numeral / running header, top center, faded: "[?]"]

This folio side carries two columns. A large water/foxing stain crosses the lower-right of the right column and the lower portion of the left column. The bottom-left margin bears a single Hebrew word, apparently a catchword.

Right column

[Top lines run into a stain; partly legible.]

[?] [?]; and behold [?] [?]; and the [?] [?]. When [?] [?] [?] [?]; and behold [?].

the [?] is [?] equal [?]; and the figure [התמונה] [?] [?]. And behold the result [המבוקש] [is established].

when we know the side [הצלע] [?], behold the angle [הזווית] [?] [?]; and behold [?].

[the result] we sought [המבוקש] [Red ink: יסוד] [?]. And behold [?] the figure [התמונה], and it returns [?] equal [?].

We say [Red ink: נאמר]: when we know [?] [?] within it [?]; and behold [?] [?] the side [הצלע]; and behold [?].

and the [?] [?] of the [?]; and behold [?] [?] equal [?]; and the figure [התמונה] [?].

[?] and we [?]; and behold the side [הצלע] [?] [?]; and behold the angle [הזווית] [?] [?]; and behold the result [המבוקש].

[Lower right runs into the stain — several lines lost or only fragmentarily legible:]

[?] [?] [?] established [?]; and we [?] [?]; and behold [?] [?] from [?].

the [?] [?] [?]; and behold [?] the figure [התמונה]; and behold [?].

Left column

And afterward [ואחר] [?] [?] the [?] [?] [?] [?] [Red ink/rubric: ?]. Behold [?] [?] from his [?]; and the [?] [?] [?].

of the [?] [?] [?]; and the [?] [?] [?]; and behold [?] the side [הצלע].

The [?] [?] [?]; and when [?] [?] equal [?]; and behold the figure [התמונה] [?] [?]; and the result [המבוקש].

And behold [?] [?] of the [?]; and the [?] [?]; and behold [?] [?] [?]. When [?] [?] [?] [?].

[?] [?] established [?]; and behold the side [הצלע] [?] [?]; and behold [?] [?] equal [?].

And behold [?] [?] [?]; and the figure [התמונה] [?] [?]; and behold this is the result we sought [המבוקש].

For so [?] [?] [?] [?] [?]; and we [?] [?] [?]; and behold [?] [?] [?] before us.

and we [?] [?] [?] from [?] [?]; and behold the [?] [?] [?]; and behold [?].

[?] [?] the side [הצלע] [?] [?]; and the angle [הזוית] [?] [?]; and behold [?] [?] [?].

[Lower-left column, crossed by staining and fading badly:]

[?] [?] [?] [?]; and behold [?] [?] [?]; and the figure [התמונה] [?].

[?] [?] established; and behold the result [המבוקש] is found [?]. [several words lost]

and the [?] [?] [?] of [?] [?]; and behold [?] [?] [?]. [remainder of column lost to fading]

(No figure is drawn on either folio side of this batch, though the prose repeatedly refers to "the figure" [התמונה], as in the prior batch.)

Yesod Olam — Book One (continued)

Script: Sephardic semicursive, single primary hand throughout. Red ink used for in-line proof-markers and one structural sub-rubric. Heavy water-staining across the upper inner quadrant of both folios and a large bleached/water-damaged patch in the lower-left of p. 55 and lower-center of p. 56, producing substantial text loss. The hand's ש frequently loses its left stroke and resembles ע — readings affected by this are noted.

[Marginal folio numeral, upper-left: "[?]" (faded Hebrew numeral, possibly "כה"/25 — note this is the marginal folio count, not a structural number).]

Right column

[Red ink, opening: **הקש"ק** — apparently an abbreviated rubric/sigil at the head of the column [?]]... in the figure (התמונה) [?]... the angles (הזויות). The wise men (החכמים) have already labored over this... [Damage: water-stain, upper portion of column, ~2 lines partly obscured]... and they reached the [computation] [?] by way of the gates [i.e., the established theorems], and there is no need to... [?]

Since the two angles together are known, and the [side] is known, then the third angle is known by the principle that the three angles of every triangle [together equal two right angles]. Once one [side] and its opposite angle are known, together with another angle, the [side] opposite that angle is also made known — and so the result sought (המבוקש) is the side you seek (הצלע אשר תבקש).

The premise (הקדמה) of the figure is thus established.

Now (ועתה): since [side] AB [אב] is known, and angle [?] is known, then the side [opposite] is known by computation (בחשבון).

Now we say (נאמר): if [side] [?] and the angle [?] [are known] [?]...

The figure (התמונה): if [side] AB is known, and the angle which is at point [?] is known, then we already explained earlier that the side which subtends that angle is known. And if another angle of the triangle is also known, then [the third angle] [?] is known too, since the [sum of the] angles of the triangle is [equal to two right angles] [?]. Therefore the side which subtends it is known by computation.

So too: if [side] AB is known, and the angle which is at point B [?] is known, then the side opposite it (הצלע אשר כנגדה) is known by computation; and the side AB together with the [other] side, and the angle [contained] between them, are all known. [?]

By contrast, if the side were not [?] known [?], but [only] the angle and another side were known, then the result sought (המבוקש) — namely the angle [?] — would [also] be made known by [computation] [?], for the [?] is known. [Damage: ~1 line water-stained, right column ~middle. [?]]

[Red ink in-line marker: **והנה** ("And behold")] the surface (השטח) [?] is known by computation; and this figure [?]... [Damage: ~1 line obscured by water-stain. [?]]

Now (ועתה) [?]: the side which is [?] known, and the angle which is [?] — by computation [?]... thus all of it (כלו) is known. [?]... so too the side, the angle, and the result sought. if [side] AB is known, and the angle [?] is known, then [the side] [?] opposite is known by computation; the result sought (המבוקש) is the side [?]. [?]

The figure (התמונה): so too, if [side] [?] is known and the angle is known, then the side [?] [is known] by computation, [and] the [?] figure (התמונה) [?].

[Damage: lower ~3 lines of right column degraded by water-staining and edge wear; the iterative side/angle/computation template evidently continues but individual letters are not securely legible. [?]]

Left column

[Damage: top ~2 lines water-stained. [?]]... in the figure (התמונה) is the known computation (החשבון הידוע) [?]... and there [is] [?] [Damage]... and so too. By that which we explained...

[Red ink in-line marker: **והנה** ("And behold")]... [text continues the proof]... and you measure (ועתה) [?]...

[Red ink structural sub-rubric, mid-column: **יסוד מוסד** ("A founded foundation" / a foundational principle) — a titled subsection-marker in red. [Red ink: יסוד מוסד]]

After we have [explained] the matters [?], and the gates [theorems] (השערים) [?]... [Damage]... the [?] and the chords (והחבלים?) [?] (interlinear: a faded interlinear word above this line, illegible. [?])]...

[There follows a short two-column tabular list — number-words in the right sub-column paired with letter/numeral tokens in the left sub-column. The list reads as a small reference table of values (degrees / sines or chords), set off within the prose.]

Value (label)	Quantity
כל זוית [every angle] [?]	ב' [2] [?]
לכלך [?]	ה"ח [?]
שש פנ"י [?]	טבע נ"ח [?]
דקה כולל [a whole minute] [?]	אחד אחר [another one] [?]
תם הסכום [the sum is complete] [?]	מי הסכום [?]

[Damage / faded ink: the table values are only partially legible; several cells are bleached. The right sub-column appears to give number-words or category labels and the left sub-column the corresponding letter-numerals. Transcribed as written with [?] on uncertain cells; structure preserved. — table values degraded.]

And the discerning student (התלמיד) [?] — by way of [these examples] [?]... [Damage: water-bleached patch, ~3 lines lower-left, largely illegible. [?]]... the cause (הסבה) [?]...

[Resuming legibly:]... by way of [computation] [?] [Latin: none]... when [?] the lines (הקוים) [?]... so too, when [?] [Damage]... the proportion [?]...

Therefore, [for] every angle and its opposite [side] [?], in the manner [we have shown]... and the [matter] [?] is correct [?]...

[Damage: lower ~4 lines of left column water-bleached and edge-worn; only scattered words legible — "by computation" (בחשבון), "side" (צלע), "angle" (זוית), "the figure" (התמונה) recur, confirming the same iterative triangle-solving template continues. Individual sentences not securely recoverable. [?]**]

[Bottom line, partly legible:]... and there is no [?] in the figure that the angle [?]... by computation [?]. [?]

[Marginal folio numeral, upper-left: "[?]" (faded).]

Right column

[Damage: top ~1 line water-stained. [?]] And [?] [if] the matter (הדבר) [?] is [?], then the side AB [?] is known [?] by computation; thus the side [?].

It happened [?] (יקרה) [?] [Damage]... the [side] is known, and the [?]. Behold (הנה) [?] the figure (התמונה) [?] [Damage]...

The side AB and the angle [?], the half [?]... [the proportion?] of [side] [?] to [side] [?]... [Damage: water-stain]...

Behold, the [side] AB [?] is known, and we measure (ונבקש?) [?] the side [?], [and] the angle [?] which is known [?]. The [?] which is [?] [Damage]... [?]

For [since] it (שהוא) [?] is in the figure [?] [?], and we measure (ונבקש) [?] the side [?], by [the principle] [?]...

By contrast (וכבר) [?]: the side AB [?] is known [?], [Damage]... by computation [?]; and the side [?] which is known [?], and the angle [?] [contained] between them (ביניהם) [?]. [?] when [?] [side] [?] is known [?] [Damage: ~1 line water-stained]... and [?] [?] is known [?]; and the side [?] [?] [Damage]...

[Resuming:] this figure (זה התמונה) [?], and the [side] [?] is known [?], [and] the angle and the result sought (המבוקש) [?]. The side AB [?] together with [the other] side, and the angle between them [?] — [all] is known [?] by computation [?]. [?]

[Damage: ~4 lines, lower-middle of right column, water-bleached and edge-worn. Recurring legible tokens — "side AB" (צלע אב), "angle" (זוית), "known" (ידוע), "by

computation" (בחשבון), "the figure" (התמונה), "the result sought" (המבוקש) — confirm the same iterative template continues across the gap. [?]**]

[Bottom lines, partly legible:]... and you already know (וכבר ידעת) [?] [Damage]... in the figure [?]... the angle [?] is known [?] by computation [?]. [?]

Left column

[Damage: top ~1 line water-stained. [?]] And it (והוא) [?] [if] it happened (יקרה) [?] [Damage]... when [?] the side AB [?] [is known] [?].

[Red ink in-line marker: **ונשוב** ("And we return") [?] — possibly **ועתה** ("And now"); the red rubric is faded. [Red ink: ונשוב] [?]]

The premise [?] (ההקדמה?) [Damage]... behold [?] the side AB and the [?] [Damage]... and this [?] is the figure (התמונה) [?]...

[Damage: ~2 lines water-stained, upper-left column. [?]]

But (אבל) the figure (התמונה) [?]: from the [?] [Damage]... behold [?] the half [?] of [side] [?]... and we say (ונאמר) [?] the figure [?]... [Damage]...

[Resuming legibly:] when (כאשר) [?] the side AB [?] is known [?], and we already explained (וכבר ביארנו) [?] that the side which subtends the angle [?] is known [?] by computation [?]. And if another angle [of the triangle] [?] is known [?], then [the third] [?] is [also] known [?], for the [sum of the] angles [?] [equals two right angles] [?]. [?]

So too: if [side] AB is known [?], and the angle which is at point [?] is known [?], then the side opposite it (הצלע אשר כנגדה) [?] is known [?] by computation [?]; [and] the side AB together with the side [?], and the angle [contained] between them [?]. [?]

[Damage: ~3 lines, middle-left column, water-stained. Iterative template continues — "side AB," "angle," "known," "by computation," "the figure," "subtends" (יתר) recur. [?]**]

[Red ink in-line marker: **ועתה** ("And now") [?] — faded red. [Red ink: ועתה] [?]]... behold [?] the [?], and the [?] [Damage]...

[Resuming:] then (אז) [?] the side [?] is known [?] by computation [?]; the result sought (המבוקש) is the side [?] you seek [?]. [?]

[Damage: ~4 lines, lower-left column, water-bleached. The iterative triangle-solving template evidently runs to the foot of the column; only scattered tokens —

"side AB" (צלע אב), "by computation" (בחשבון), "the angle" (הזוית), "the figure" (התמונה), "subtends" (יתר), "two right [angles]" (שתי נצבות) [?] — are legible. Individual sentences not securely recoverable. [?]**]

[Bottom margin:] [?] — a single word at the foot of the left column, in the primary hand, anticipating the opening of the next folio. [?]

Vat.ebr.380, Sephardic semicursive hand. Book One (geometry / angular measure), long unrubricated stretch. Two ink colors: black body text with red in-line proof-markers. Both folios are heavily water-damaged through the center and lower portions, with substantial loss of legibility in the left-hand columns.

Folio

Right column

and we [draw/extend] line [?] over the point [?], which is [the point/line] that we sought. For the ratio [?] of [?] is as [the ratio of] line ב to line ד [?]; and we already [demonstrated/know] this. And since the angle [is known], we already know [the side] opposite it by computation. [Red ink: ועתה] **Now**, the [side/angle] that we sought is the side [?] opposite the known angle [?] —

[Red ink: ושער] **and the gate** [proof-marker, in-line — here functioning as a structural in-line label]. And there remains [?] for us [the matter of] the surface [area] [?] —

When [?] the angle is known, and we [draw/know] the lines [?], the ratio of [?] which falls [?] upon line [?] ד [?] —

The first [?] — when the angle [of] the triangle is known [?], over [?] the [?] computation [?], we [demonstrate/say] that the side ב [?]; and when [?] the [?] computation [?] of the figure [?], so too [?] —

[Red ink: ושער] **And the gate** [in-line proof-marker]. We say [?]: [the matter of] the surface [area] of the figure [?] —

[The remainder of the right column is partly obscured by water-staining. What can be recovered:]

the ratio [?] of [?] line ב which [is/falls] [?]; and we computed [?] —

upon [?] the side of the triangle [?], with the right [angle] [?] —

[the triangle] ב upon which [is/falls] the [?] computation [?] [?] ב [?] —

the known [?], and [?] the [?] —

the figure [?], and the side ב [?]; and we already [know] this by [?] (interlinear: ?); for it [?] —

[Red ink: ועתה / ושער — in-line marker, partly faded [?]] [?] the figure [?] — and this is [?] computed [?] —

[and] the side of the [?] surface [area] [?] —

and we know [?] from [?] the side [?] —

line ב which [is/falls] [?] upon the side of the figure [?], for it is known [?]; and we already [demonstrated] this [?] —

[the matter] which we sought [המבוקש] [?].

Left column

[water-damage to the upper-left; only fragments legible:]

over the corner [angle] of the [structure/building — בנין] [?]. (interlinear: ?) [And he said / He said [?]] to it [?]: this [?], [as] in the foregoing [?] [?] —

over it [?]: that [?] the line [?] [is] short [?], and [we set / place] it [?], over [?] [?] —

in [?] for [?] we sought [?], and [?] [?] the [?] computation [?] of the figure [?]; for [?] he was [?] —

and as for [the matter] that I [said/refined] [?], and [we reckoned/will reckon] for [the example/the parable] [?] [?] —

[Several lines here are illegible under heavy water-staining — partial recovery:]

the example [parable] [?], that [?] —

and we computed [?] from [?] —

[Red ink: in-line marker, faded — ושער [?]] [?] when [?] [the matter] which we sought [?] [?] —

[over/from] the line [?] —

and it follows [?] that [?] this [?], that [?] —

[that the matter] which we sought [?] is [?] this [?] —

this [?] —

[Red ink: ושער] **And the gate** [in-line proof-marker — faded] — [?] for [?] the [?] [?] —

[and] this [?] when [?] —

[Following this point the left column degrades almost entirely into water-staining. A short list-like set of brief lines is partly visible at the foot, but the readings are too uncertain to transcribe with confidence:]

[?] the [?] —

[?] computation [?] —

[?] [the matter] which we sought [המבוקש] [?] —

[?] —

[?] this [?] —

and so forth [וכו'].

Folio

Right column

[that] when [?] the [number/computation] [?] is as line ב [?] [?], so [?] [?] —

[that] when [?] [?] line ב; and when [?] [?] line ב [?] —

the first [?]: as [?] line [?] [?]; [and] line ב [?] —

[?] as line [?] [?]; and so [?] when [?] [?] line ב [?] —

[example/parable] [?]: [we demonstrate/say] [?] that line ב [is] [?] [?] —

[draw/place] [?] [the matter of] line ב [?]; [or/and] [?] —

[?] when [?] line [?] [?]; and when [?] line ב [?]; and so [?] [?] —

[when] the angle is known [?] [the matter of] line ב [?] [?]; [and] when [?] line [?]; and [we say] —

the gate [?] ב [?]; and this [?] —

[Red ink: ושער / ועתה — in-line marker, partly legible [?]] [?] [?] —

[?] when [?] [?]; and we [compute/will compute] [?] [the matter] [?] —

[?] [?] [?] —

the angle [?] when [?]; and we [compute / will compute] [?] [the surface / area] [?] —

[?] line [?]; and [it follows] [?] —

[?] line [?] [?] [computation] [?]; [and] this [?] —

[that] the angle [?] [?] from [?] [the side] which [is/falls] [?] —

[draw/extend] [?] [the matter] which we sought [?] [?] —

[?] [?] [?] —

[the matter] which we sought [?] [?]; for it is known [?] from [?] —

[that] [the side/line] [?] [?]; and [it follows / will follow] [?] [?] —

[?] [the matter] which we sought [?]; for [?] this [?] [?] —

the corner [angle] [?] [?] [?] —

[Red ink: ושער] **And the gate** [in-line proof-marker] — [?] over [?] [the figure] [?] (interlinear: ?) —

[Red ink: ועתה] **Now** — [?] [?] [as it [is] in [?]] [?] —

[and] when [?] [?] —

[the matter] which we sought [?]: [we draw/extend] [?] [?] over [?] line [?] [?] —

and [?] [?], [and over] it [?] [?] —

and the line [?] [?] [is/falls] [?] [?] [?] —

[?] [?] [we placed/established] [?] [?] over [?] —

Left column

and [up to / as far as] [?] [we [established/placed]] [?] [the [?] which [?]] [?]; for [?] [?] —

and as for [?] [?] [computation] [?] — [?] [?] [?] [?] [?] —

the [?] [?] [the [?]] [?] [over it] [?] [?] —

[Red ink: נאמר / ושער — in-line marker, partly faded [?]] **We say** [?] [?] —

[that] [the figure / surface] [?]; [we set / placed] [?] [?] —

[that] [the matter] which we sought [?]: [we demonstrate / draw] [?] [the matter of] line ד [?] over [?] —

[?] [?] line [?] [?] [?] [right [angle]] [?] [?] —

[and] the [?] [?] [?] [?]; and this [?] —

the surface [area] [?] [?] —

[the [?] which [?]] [?] line [?] [?]; for [?] [?] —

[The remainder of the left column degrades into heavy water-staining and the gutter shadow. Only scattered words ("line ב", "the figure", "this", "computation", "the matter which we sought") are recoverable, with too little continuous syntax to translate responsibly. The lower-left third of the folio is effectively illegible.]

[?] line [?] [?] [?] — [?] [?] [the matter] which we sought [?]; for [?] —

[and] when [?] [?] [over] it [?] [?] — [?] [?] [?] —

[draw / place] [?] [?] over [?] [?] [?]; and [?] [?] —

and as for [?], [?] [?] —

R. Yitzchak bar R. Yosef HaYisraeli, Vat.ebr.380, Sephardic hand.

PDF p. 59 (Vat.ebr.380, fol. 27 — recto by foliation mark "כז")

Right column (the column read first in a RTL page; here the left column carries the older text-flow — see layout note)

Layout note. This folio is written in two columns. Following the manuscript's running text-flow, the prose continues from the previous batch into the left column, runs to its foot, and the right column carries the **section-conclusion rubric** and the opening of the chapter-list for the new Book. I transcribe left column first (text continuation), then the right column (rubrics + list), preserving the logical reading order of the argument.

Left column (continuation of the geometric/computational template)

upon the [line] ב ד [?], and we shall return and subtract the [side?] from line ב ד upon the [whole?], as [we did] when [?] the figure was [?]… The known [angle], and behold the line ב ד is sought [?], and the figure [is?] one [?]; for line ב ד — and behold this result [המבוקש] is [the?] sought line [?]…

upon the figure [התמונה], and behold the angle [is] known by computation [חשבון], this [is] the line ד ב [?]; and likewise [for] line ד ב the figure [?]; and we shall subtract [נשליך — "cast off / subtract"] [?] this, which is what is sought [שנמצא, "what is found"]…

and now, when [?] the figure [is] given, the line [הקו] and we shall subtract [ונשליך] the sought [המבוקש]… the angle [הזוית] [is] in [the] gold [?] [reading uncertain — possibly בזהב a copyist slip; flag] the [whole?] line, this [is] the [angle?] [?], [the matter?] returns [?]… for whoever computes [?] this — given [?] that line [is] given [?]…

[Red ink, mid-column proof-marker:] **[Red ink: ועתה]** ("And now…")

So you will know that, [just] as we said previously [שכתבנו, "that we wrote"] [?]… the computation [החשבון] [?]; and when [?] the figure [is] given, line [is] sought [?] [המבוקש], the line and we shall subtract [?] the computation [?]; and they [are?] given [?] — they [are] as the computation [?] of the line that is sought [המבוקש]…

for they [are] given [?]; and when [?] the figure [is] given, line is sought [?], we shall subtract [?] [המבוקש]…

the sought figure [?] is computed [?] from this computation [?] [ההיקש?, "this inference/computation"] — and this [is] the figure [?] [התמונה]…

[A short labeled-line series follows, set as separate brief lines — apparently a worked tabulation of computed line-values, each line opening with a connective:]

- …line ב ב [?] [or קו אב — "line א ב"] [?] [Hebrew letters of value uncertain — see Numerical readings] …
- …we shall subtract [ונשליך] and [it is] computed [?] …
- …from [?] the figure [?] …
- …the [given?] [angle] one [?] the [whole?] …

they [are] given [?]: line is sought [?] line ד ב [?], and this and behold [?] [it is] given [?] [בחשבון, "by computation"]; first [ראשון] we shall subtract [?] line ד ב [?], and behold the angle [is] given [?] by computation [כך חשבון] [?] — and this [is] the figure [?], this the line ד ב the [whole?] [?] [?].

Right column — ***section-conclusion rubric and start of the new Book's chapter-list***

[The right column's upper portion concludes the running prose of Book One; then a prominent red rubric marks the conclusion of the Book and the beginning of the next, followed by a numbered chapter-list (table of contents).]

the degrees [המעלות], upon the inference/computation [?]; and there [is] no [?] the doubt [הספק] the [?]… that the doubt [is the?] computed [?]; and now [?] the [angle] this [?]… he shall add [?] [or "it returns" — verb form uncertain] from [?] the inference [ההיקש] he shall multiply [?] [or "double"]… and we shall multiply [?] [the?]… as the inference [ההיקש] which [?]; this and behold this [is] the [computed?] [?]… [angle?] the third [השלישי] [?]; [?] this [is the?] sought [?]… and let us return to the figure, [for] the angle [is] known by computation [?] [כפי חשבון, "according to the computation"]…

and behold its computation [?] [it is] given [?]; he shall multiply [?] [or "it returns"], and that [is] the third [?] [?]…

and when [?] the figure [is] one [?], line is sought [?], it shall come [or "let it come": יבא] [?]…

[?] [the?]… and let us return to the figure, that [is?] in our hand [בידינו], with them [?] [degrees?] [?]…

[?] [?] the figure [התמונה]… [a damaged/foxed cluster of ~1 line, faded] …and we shall arrange/draw [ונשרטט?, "and we shall mark out"] [?] the figure [?] there [?] [?] given [?] in it [?].

[Prominent red display rubric, mid-column:] **[Red ink header: חתימת המאמר]** ("Conclusion of the Book.") …[the words immediately following the rubric, partly black:] **קונטריס** [?] **תם** [?] — "[Here] ends [tam] the quire/booklet [kuntres]" [?] [reading of the post-rubric line uncertain —]

[Then, set as a sub-heading line, red:] **[Red ink: בתחילת המאמר]** ("At the beginning of the Book." — i.e. the opening of the next Book / the chapter-list that follows.)

[The remainder of the right column is a numbered **chapter list (table of contents)** for the next Book, each entry opening with a short topic-phrase. The leading entries:]

This [is] the [?] [topic of the] premise [ההקדמה] [?]; the [?] [first?] chapter [?] [the figure?] [?]; the figures [?] [?]…

and we shall draw out [?] and they [are] given [?] the figures [?] the computation [?] [?] בג יקבע [?, "ב ג will be fixed/established"] [?]…

[?] from the figures the computation [?] [?] [?] and not the figure [?] בג יקבע [?]…

this [?] one [?] [for?] line [?] and behold the figure the computation [?] the [whole?] there [?]…

[Red ink: ונשוב] ("And we shall return…") to draw out [?] the [?] this the [whole?] one [?] [?]…

that the [?] from the [?] line[s] [?] the angle [הזוית] the [?]… he shall add [or "it returns"] [?] [or יקבע "be fixed"] the [?] the [?] the angle [?]…

[Then a short bracketed-list series — apparently a list of the construction's line-segments or the chapter's labeled points — each on its own brief line:]

- **החלק** ("the part / the portion")
- **מחובר** [?] ("joined / composite") [or **מחושב** "computed" — ש/ב ambiguous]
- **לזב** [?] ("to ב ז" [?] — letter-label) [?]

[Red ink: הקדים?] [or **הקודם**, "the preceding"] [?]

[a final ~3-line black cluster, faded at the gutter:] computation [?] [?] one [?] like [?] line [?] degrees [?] given [?] [המבוקש?]… first [ראשון] [?] [?] line [?] [?]; the [given?] angle [?] [?] the [whole?] [?]; the [whole?] line [?] degrees [?] [?] line [?] the [whole?] [?] [?] [?].

PDF p. 60 (Vat.ebr.380, fol. 27v — verso)

This page is dominated by a CHAPTER-LIST (table of contents) for the new Book — the **left column** is a column of red-ink **פרק** (chapter) headings, each numbered, with a one-line black topic-summary after each. The **right column** carries continued prose (the new Book's opening matter / the conclusion of the preceding list). I render the chapter-list as a structured list (it is parallel-heading prose, not a numerical table — no ruled cells, no numeric columns), then the right-column prose.

Left column — chapter-list (red פרק rubrics + black topic lines)

Layout note. Each entry below is a red-ink **פרק** ("Chapter") heading with its Hebrew-numeral ordinal, followed by a brief black topic-line. Numerals transcribed verbatim; several are faded — flagged. The ordinals do **not** run in a

clean 1-2-3-4-5 sequence as I read them, so I transcribe each as written rather than normalizing.

- [Top of column, black prose tail of the previous entry:] …the [whole?] [?] this [is the?] computation [?]; the matter [?] in [the?] computation [?] [?].
- **[Red ink header: פרק ראשון]** — **Chapter One.** In the [?] [topic]… the [whole?] [?] and we shall draw out [?] and they [are] given [?]… a chapter [?] [or "and the matter"] [?].
- [Black, a connective entry:] …and we draw [?] [or "and from the figures"] and they [are given?] [?]… given [?] [?] the [whole?] [?].
- **[Red ink header: פרק שני]** — **Chapter Two**, [black topic:] בעבור [?] ("on account of / concerning…") [?]… and the [matter?] [?] [?]. [Black sub-line:] the heights/elevations [?] [or הראיות "the demonstrations"] [?] [?].
- **[Red ink header: פרק שלישי]** — **Chapter Three.** [Black topic:] To explain [or "the explanation of"] [?] [a topic the line is too faded to read] … [?] [?]. [Black sub-line:] and this [is] the figure [?] [?].
- **[Red ink header: פרק רביעי]** — **Chapter Four.** [Black topic:] [?] the topic [?] [?] [?]. [Black sub-line:] the topic [?] [or הטעם "the reason"] and [?] if [?] [?]. [Black sub-line:] and this [?] [?] [?].
- **[Red ink header: פרק חמישי]** — **Chapter Five.** [Black topic:] [?] [?] [?]. [Black sub-line:] the figure [?] [?]; and this [is the?] inference/computation [?] [?]… [?]. [Black sub-line:] the way [?] [or "the road"] [?] [?] [?] the figure[s] [?]. [Black sub-line:] [?] the [?] [?] [?].
- **[Red ink header: פרק ששי]** — **Chapter Six.** [Black topic:] the heights/elevations [?] [or "the demonstrations"] [?] [?]. [Black sub-line:] and we shall draw out [?] [?]; and the figures [?] [?]. [Black sub-line:] the premises [ההקדמות] [?] and we shall draw out [?] upon [?] each [?] [?] [?].
- **[Red ink header: פרק שביעי]** — **Chapter Seven**, [black topic, two lines:] for the [?] [?] [?] the figure [?] [the?] computation [?]. [Black sub-line:] and the [?] [?] [?] [?].
- **[Red ink header: פרק שמיני]** — **Chapter Eight.** [Black topic:] [?] [?] [?]. [Black sub-line:] the day [?] [or "the heat"] [?] [?] and [?] [?]. [Black sub-line:] and [?] and [?] [?] [?].

- **[Red ink header: פרק תשיעי]** — **Chapter Nine.** [Black topic:] [?] [?] [?]. [Black sub-line:] in [the?] [?] [?] [?]. [Black sub-line:] [?] [?] [?] [the?] computation [?].
- **[Red ink header: פרק עשירי]** — **Chapter Ten**, [black topic:] [?] [?] [?]. [Black sub-line:] the heat [?] [or "the day"] and the [?] [?] [?]. [Black sub-line:] [?] [?] [?] [?].
- **[Red ink header: פרק אחד עשר]** — **Chapter Eleven.** [Black topic, faded at gutter:] [?] [?] [?]; [?] [?] [?] in the heavens [?] [or "in the computations" — בתקופות / בתשבורת ambiguous] [?].

Right column — new Book's opening prose / list-conclusion

that we said [?] [שאמרנו] the figure [?] the [whole?]; the figures [?] [?]… [?] the [angle?] this [?] [the?] computation [?]… and we shall fix/establish [נקבע] [?] [the?] computation [?] from the figures [?]… [?] [?] [?] the [whole?] [?] [?] computed [?] [?].

and behold its computation [?] [it is] given [?], the line [?] [it is] given [?]; line[s?] [?] [?] given [?] [?] the line[s] [?] [the?] computation [?].

this [is] the figure [?] [?]; and behold [?] [?] [?] line [?] the figure [התמונה] [?] [?] the [whole?] [?].

[A damaged/foxed cluster — the lower-middle of the right column carries a large water/foxing stain through ~5–6 lines; only fragments legible:] …line [?] [?] given [?] [?]… computation [?] [?]… the figure [?] [?]… [?] degrees [המעלות] [?]… [?] sought [המבוקש] [?]… [?] [?].

[Prominent red display rubric, lower right column:] **[Red ink header: המאמר השני]** — **The Second Book.** [Followed, partly black:] בו [?] לפתח [?] ("to open [the discussion] / with which to begin") [?] — i.e. the incipit-formula opening Book Two [?] [post-rubric line uncertain]. [Black, red-flecked sub-line, an opening doxology/incipit:] [the?] premise [ההקדמה] [?] [?].

and now [?] [or "and we shall draw out"] [?] and we draw out [?] [?] and we shall establish [נקבע] [?] [?]; the figures [?] and the [?] [?] [?] [?]… [?] and we draw [?] עם [?] ("with") [?] [?] [?] and [?] [?].

[?] [or היה "[it] was"] [?] [?] and we draw out [?] [?]; and behold [?] [?] [?] [?] [?]… this [?] [?] [?] the line [?] the figure [?] [?].

this [?] [?] [?] [?]; in the [?] [?] [?] [?] [?] [?].

and let us return [ונשוב] [?] [?] [?]; [?] [?] [?] [?] the figures [?] [?] the [whole?] [?] [?].

and let us return [?] [?] [?] [?] [?] [?] the [?] [?] [?] the angle [?] [?].

[?] [?] [?] [?]; for [?] [?] [?] [?] [?] [?]… [?] [?] [?] [?] [?] [?].

⚠Translator's note on this batch (read before the report)

This batch is, by the manuscript's own display rubrics, a **major structural seam**: red-ink **חתימת המאמר** ("Conclusion of the Book") closes the running geometry section, and red-ink **המאמר השני** ("The Second Book") with a chapter-list opens what follows. **This contradicts the task-prompt expectation that the run is still in Book One (batch 30 of 259) and that any "מאמר X" rubric should be treated with suspicion.** I have translated per the source (the rubrics are unambiguously display-class and red) and flagged the divergence prominently under Numbering anomalies for the orchestrator to resolve at reconciliation. It is entirely possible that what the manuscript labels "מאמר" here is an internal division (a *gate*/שער or a major sub-section of Book One) rather than the corpus-level "Book," given that the established glossary maps מאמר → "Book" and the geometry content is supposed to fill Book One. **The body of this folio is also heavily damaged (water-staining/foxing across the lower half of both pages) and written in a very compressed cursive; first-pass legibility on the running prose is low, and the running prose is largely a reiteration of the established right-triangle-solving template (known angle → side known by computation → sought line/figure).** Most prose tokens are flagged. This whole opening (p. 59 left column) through the chapter-list (p. 60) is a

> Vatican Library, Vat.ebr.380. Sephardic semicursive hand. Watermark overlay and ink bleed-through ignored throughout. Both folios carry a large water/foxing stain across the lower third that obscures the closing lines of several columns — flagged under Readability.

PDF p. 61 (folio marked "28" in upper margin)

This page is laid out in two columns. The **right-hand column** is the logical *continuation* of a red-ink chapter-list (table of contents) for a Book, running through its final entries and then opening with **פרק ראשון ("First Chapter")** — i.e., the chapter index closes and the body of the Book's first chapter begins. The **left-hand column** is dense running prose continuing from that opening (and/or from the facing recto).

Because the running headers are not securely legible and the columns interleave a closing chapter-list with the start of running prose, the two columns are rendered separately below.

Right column — close of the chapter-list, then opening of the first chapter

[Red ink:...] [The top lines are partly lost to staining and the red rubric ink has faded. Reading what survives:]

the cities [or: the days?] [?] within them [?], according to the calculation [?] of the regions [or: climes, האקלימים].

[Red ink header: פרק שלשה עשר — Chapter Thirteen.] On the equating [or: balancing] of the day, [that] the night equals it [?] [the equinox / the equal day-and-night]. [?]

[Red ink:...] [a heading line, largely abraded] [?]

[Red ink header: פרק ארבעה עשר — Chapter Fourteen.] On [the matter of]... [?]

[concerning] the... and the daylight [or: the heat? החום] and the... that go around [?] [a circuit, סבוב] [?] in the figure [?].

[Red ink header: פרק חמשה עשר — Chapter Fifteen.] On the matter of the...

the divisions [?] and the differences [or: the parts, החלקים] [?] in their measure, upon [?] the small [?] day [or: the short day] [?] … [the line is broken by the stain] [?]

[Red ink header: פרק ששה עשר — Chapter Sixteen.] On the matter of the...

[broken] [?]

[Red ink header: פרק שבעה עשר — Chapter Seventeen.] On the matter of the... [?]

[and] the cloud [or: the canopy, the ענן] [?] … and he wrote [?] … and the daylight [?] … [the line is heavily damaged] [?]

[Red ink header: פרק שמנה עשר — Chapter Eighteen.] On the matter of the...

on the day,... [?] the seasons [or: the cycles, תקופות] [?], the... [?] and... [?]

[Red ink header: פרק תשעה עשר — Chapter Nineteen.] [?] On the matter of...

and the... [?] [On] the days that are equal [?]... [the calculation?] [?] … in the... [?]

— end of the chapter-list —

[Red ink header: **פרק הראשון — The First Chapter.**] [This rubric stands in a clear display position and is followed by running prose; it opens the body of the Book whose contents were just listed.]

[The opening lines of the chapter, partly stained:] we shall expound [?] and we shall make known [?] all [?]... in order [?]... the high ones [or: the upper realms, העליונים] [?]. By contrast, those things that are below [?]... [?] — they are... [?]. And we shall speak [?] concerning their [?] order [?]... [?]

[The remainder of the right column runs into the stained lower zone and is largely illegible — several lines lost. The legible fragments mention...:]... and we have known [?]... the wise [?]... and there is [?]... it [?]... [the foundation? the principle? היסוד] [?]. [?]

Left column — running prose

And so [?]... a matter [?], and these [?] are the things [?] [that] we set down [?] [concerning] the perfect [or: complete, התמים] [?]... [?]

[The opening of this column is abraded;]... when [?] you... in their knowledge [?]... and you have grasped [?] [?] the matter [?]. Therefore [?] know the soundness [?] [or: the proof — הבחינה] [?] of the perfect [or: complete]... [?], and grasp [?] firmly the foundations [?] and the premises [?]... (interlinear:...) [?]

the... that were transmitted [or: handed down, נמסרו] [?] [Red ink:...] [?] [interlinear/marginal token] in the senses [?] [or: in feeling, במשענת] [?]... [?] which [?] the heaven [or: the sky, השמים] [?] [?] revolves [?] over [?] the... [?] of the... [?] [the lines here are heavily faded] [?]

and the heavenly bodies [?] [or: the luminaries, the המאורות?] [?]... and the... [?]... over [?] the regions [or: the climes, האקלימים] [?] [?] of [?] the earth [?] [?]. [?]

[A long, badly faded stretch follows; the surviving anchor-words across these lines are:] the... [?]... the spheres [or: the orbs, הגלגלים] [?]... [?] [the bodies?] [?]... the order [or: the arrangement, הסדר] [?]... [?] the premises [ההקדמות] [?]... [?]

[Lower portion lost to staining — several lines illegible.] [?]

PDF p. 62 (verso; small margin notation, illegible)

Two columns of running prose. The **right column** is rubricated with one red word (**ושוב** [?] / "and again" [?]) mid-column; the **left column** is unrubricated running prose. The lower third of both columns is lost to the water stain.

Right column

and in the... [?]... knowledge [?] and understanding [or: insight, תבונה] [?] and... [?] and... [?] and we have... [?] in the... [?]. He saw [?] [or: there is — יש / ראה] [?] [that] the matter [or: the affair, הענין] [?] [?] is... [?] [?] near [?] to the... [?] over [?] [?] the... [?].

[He, or: it] makes the... go [or: brings... — יביא] [?] up [?] [or: upon — על] [?] the spheres [or: the orbs, הגלגלים] [?] [?]. He gave [or: put — נתן] [?] there [?] [in] the [?] reckoning [?] [or: the system, the המהלכות / movements] [?]... and [?]... [?]

in their cycle [or: their turning, בסבובם] [?] daily [?] [or: by day — יומם] [?] [?], and night [?]. [?] We shall [?] make [?] [it] go around [?] [?]. [?]

the... [?]... that are [?]... [?] over [?] the regions [or: climes] [?] [?]... and they revolve [?] [or: are revolved] [?] over [?]... [?]

until [?] [that] their order [or: their arrangement, סדורם] [?]... [?] [the wise ones — החכמים?] [?]... [?]

[and?] those that are visible [or: the visible ones, הנראים] [?]... [?] [they?] are at the... [?] [?]. [?]

[Red ink:...] [a short red word, abraded — possibly a numeral or section mark] [?]

the matter [?] [?]... [?]... in their measure [?] [or: their reckoning, בשקולם] [?]... [?]

and [?] they were... [?]... when [?]... [?]... the... [?] [?]

and we have grasped [?] [or: we have weighed — ושקלנו] [?] the... [?]

[and we have known? ונדע] [?] [that] the... [?]... [?]... [over] the... [?] [?]

and... [?] [the cycle? the season? — the תקופה] [?]... [?] and... [?]

and the... [?] [the bodies? the spheres?] [?]... [?]... [the foundation — היסוד?] [?] [?]

[**Red ink: ושוב** [?] / "and again" [?] — a single rubricated word mid-column.] [Or possibly an interjected reference word.] [?]

[that?] all [?] [or: the principle, הכלל] [?]... [?]... in [?] the... [?]

[he?] returns [or: it comes back — יעבור / יחזור] [?] [?]... over [?]... [?] over [?]... [?]

[He?] grasped [?] [?]... [?]... [?] [?] our... [?]

[?]... when [?] [?]... [?] [?]

in [?]... [?]... [?]... and there [?] [?] is... [?]

[Lower lines lost to the stain.] [?]

Left column

[and] in [?] them [?]... [?] there is [?] [or: the wise — חכם / יש] [?]... a matter [?]... another [?] [?]. [?]

only [?] [that] the thing [?] [or: the matter — הדבר] [?]... over [?] [?] them [?]... another [?]... [?]

in their... [?]... and... [?] [?] revolves [?] over [?] them [?] [?].

in the... [?]... the... [?] [?] and they revolve [or: are revolved] [?]...

[among?] those [?] [that] grasp [?] [or: think — חושבים] [?] [?]... and there is [?]... [?]

[and?] all [?] [or: the principle, הכלל] [?] [?]... another [?]... [?]

[the wise ones?]... [?]... over [?]... [?] [?] [the bodies? the spheres?] [?]

[the?] order [?] [or: arrangement, הסדר] [?]... [?]... [?] [we?]... [?]

[A long stretch of running prose follows; the surviving anchor-words — repeated across these damaged lines — are:] another [?]... the... [?]... over them [?]... [the cycle / circuit, the סבוב] [?]... the daylight [or: the day, היום] [?]... the regions [or: the climes] [?]... [?] [?]

Yesod Olam — Book Two (Cosmology)

Script: Sephardic semicursive, single principal hand throughout, consistent with the prior batches. Structural rubric in red ink at the head of the first column. The familiar quirk of this hand — ש frequently shedding its left stroke and reading like ע — recurs; readings have been pinned to context where possible.

Physical state: Both folios show torn upper corners and ragged outer edges. A large water/foxing stain sweeps across the lower third of each leaf, obscuring the

gutter-side column of folio 63 most severely and the foot of both columns on folio 64. The Vatican watermark and footer overlay are ignored per standing instruction; faint mirror-image bleed-through from the facing side is likewise disregarded.

(The page is laid out in two columns. The right-hand column carries a red-ink rubric at its head and continues the First-Chapter cosmological argument; the left-hand column continues the same discussion. The right column is read first.)

[Red ink header: מאמר עוד ונזכור · רננו שם הנעלה] [Book — and let us further recall · Sing out the exalted Name [?]]

(The red rubric is partly abraded; the opening words appear to mark a fresh thematic unit within the First Chapter and to invoke a doxological formula. The exact wording of the second clause is uncertain — [?] — and should be verified.)

It has already been made plain to you [?] regarding these matters that have been set forth, and which were demonstrated upon their proper grounds. What we have laid down — and what is yet to be set down and written — and what has been understood and grasped — let it be a settled foundation for you.

And as for this further point: even though the matter has its difficulty [?], the order of things [?] is one [?]. We have already touched upon some of these themes among those that were mentioned earlier; yet the discussion of them here, in this place, is fuller [?] than there.

Now the upper realm [?] — its body [?] and its proportion [?] are one [?], a single thing; and the lower bodies [?] are bounded [?] and ordered [?]. Their gathering and their joining [?] are one [?] — and this is the matter we set out to demonstrate [?].

For the demonstrators have made plain the magnitude of the body [?] of the heaven, by measure [?], and have ranked it [?] in its course [?]. And as for the body [?] of the [outermost] sphere itself — between it and the body of the heaven [?], the matter [?] stands as we have set out [?]: of the [intervening] bodies one upon another, and concerning [?] their gathering and their joining — for these have been ranked one beneath another [?].

The thinking [?] of the matter, and the further [...] [?] is completed [?] in its measure [?]. And we have brought [?] proof [?] of this from [?] the [?] [...] — [the text along the foot of this column is lost to the water-stain] —

[Damage: water stain across the lower ~6 lines of the right column of folio 63r, ~half of each line lost; running argument continues but is not securely recoverable.] [?]

— and concerning what is required [?] of the body [?] of the heaven [?], and the apportioning [?] of it [...] [?]. And the matter of the parts [?]: if this [?] arrangement [?] is laid down [?] upon [?] this [?] computation [...] [?] —

— for these [?] things have been ranked [?] as [the demonstrators] said [?]. And there is [?] no [?] [...] in the matter of the order [?] [...] [?]. And one beneath another [?] [...] [?] — and so the lower [?] [...].

[Damage: the closing lines of the right column are abraded; reading not secure.] [?]

(Left-hand column of folio 63r.)

[Damage: torn/abraded upper-left corner; the first line is partly lost.] [?]

[...] the computation [?] — let it be set [?] that what is written [?] is to be set [?] before you [?]. And we have set down [?] [...] [?]; and we have set down [?] [...] [?].

The matter [?] [...] [?] the body [?] of the heaven [?] [...] [?], so that the lower [bodies] [?] are made plain [?]. And the matter [...] [?].

[Several mid-column lines here are crossed by foxing and only partially legible; the discussion continues to concern the body of the heaven, the ranking of the bodies one beneath another, and the computation of their measures.] [?]

[...] and the gathering [?] [...] [?]; and they have ranked [?] [...] [?] one upon another [?], and the upper [?] [...] one beneath [?] [...] [?].

[Damage: water stain across the lower third of the left column of folio 63r — approximately the final 10 lines are lost or reduced to disconnected words; the thread of the argument (the order and proportion of the heavenly and lower bodies) is not recoverable here.] [?]

[Marginal note, upper outer margin: a faint Hebrew word/numeral gloss — illegible.] [?]

(Two columns again. The right-hand column carries an interlinear red-ink word partway down; the left-hand column ends with a catchword at the foot. Right column read first.)

[The upper outer corner is torn; the first line of the right column is partly lost.] [Damage: torn corner, ~1 line lost.] [?]

[...] [?] the world [?] [...] [?] for him [?]; and he took [?] [...] [?] for him [?] a measure [?] [...] [?].

And it would [?] [...] [?]; for in it [?] is [?] the way [?] [...] [?]. The world [?] [...] [?]; and we have set it down [?] [...] [?] and proved it [?].

And as for the difference [?] [...] [?]; and the ordering [?] [...] [?]. And there [?] is the body [?] of the heaven [?], the upper [?] [...] [?] far [?].

[...] arose [?]; and behold [?] [...] [?] difficulty [?], for [?] the body [?] of the heaven [?] [...] [?]. And it does [?] not [?] make [?] [...] [?] as we [?] have demonstrated [?]. And the body [?] of the heaven [?] [...] [?].

[...] [?] one [?] beside [?] the other [?], and they joined [?]; and these are bodies [?] one beneath another [?] [...].

[...] [?] this [?] [...] [?] difficulty [?]. He said [?] [...] [?] above [?] him [?] [...] [?]; and behold [?] this [?] difficulty [?] [...] [?].

[Mid-column the argument is again obscured by the stain; the thread concerns whether the bodies, joined one beneath another, generate a "difficulty" (קושיא [?]) in the proposed order.] [?]

[...] [?] before [?] [...] [?] there [?] [...] [?] he gave [?]. He said [?]: the matter [?] is one [?], and there is no [?] [...] [?] [doubt] [?].

[The lower half of the right column of folio 64 is lost to the large water-stain that crosses the foot of the leaf.] [Damage: water stain, lower ~12 lines of the right column, text lost.] [?]

(Left-hand column of folio 64.)

[The upper-left corner is intact here; reading begins at the column head.]

As for the tongue [?] — and we have already set down [?] that the [...] [?] arrange [?]; for they have gathered [?] in the place of [?] [...] [?].

And he said [?]: this [...] [?] difficulty [?]; and there is [?] [...] [?]. The matter [?] [...] [?] is set down [?].

[Marginal/interlinear position, mid-column: **[Red ink: והנלקח]** — "and that which is taken [as given]."]

The premise [?]: the upper [?] body [?] is one [?] [...] [?]. And the order [?] [...] [?]; and the rest [?] of the others [?] [...] [?] one beneath another [?].

The bodies [?]: [...] [?] heaven [?] [...] [?] one upon another [?]; and there is no [?] [...] [?] one beneath another [?]. And these [?] [...] [?].

[Several mid-column lines are partly legible. The argument continues to treat the ranking of the heavenly bodies one above and one below another, and the resolution of the "difficulty."] [?]

[...] [?] one beside [?] the other [?] [...] [?] the body [?] of the heaven [?] [...] [?] this [?] difficulty [?] [...] [?] arrangement [?].

And he said [?] [...] [?]; and the matter [?] [...] [?] one beneath another [?]; and the upper [?] [...] [?].

[Damage: foxing and water stain across the lower portion of the left column of folio 64; the final ~8 lines are reduced to scattered words and are not recoverable as continuous text.] [?]

Manuscript: Vatican Library, Vat.ebr.380. Sephardic semicursive hand, primary scribe (black carbon ink, body) with red iron-gall rubrication for structural headings and the planetary-name labels. Two columns per page, reading right-to-left.

[Older foliation (p. 65, upper-right margin): "30"]

Right column

and so it is established. So too the premise, that it [the body of the heaven] is itself the circling sphere — this likewise is set on firm ground. For we observe of the orbs that some of them move more quickly and some more slowly; and were they not joined together as a single ordered whole, one motion would not bear upon another. Therefore each sphere is moved by the one above it while also keeping its own proper motion, and from this conjunction the visible array of the heavens results, as the [astronomical] figure [התמונה] makes plain. [text partly degraded by water stain — ~1 line uncertain]

So when one considers the order of these bodies, one finds them ranked one above another, each in the place fitting to it, neither rising above its allotted bound nor falling short of it; and this is the meaning of "that which is taken as given" [הנלקח] which we recalled earlier. [?]

[Red ink: ובהיות] And since the matter stands thus — that the body of the heaven is one and continuous, yet within it are distinct orbs ordered one beneath another — it follows of necessity that the lower orb is borne along by the motion of the one above it, [?] while the highest of them all moves [?] them all by its own motion. This is the conclusion the sages of the [astronomical] craft [חכמת התכונה (?)] reached.

[Red ink header: הקדמה] **Premise.** [Red-ink marginal numeral gloss alongside, faded: "[?]"] And now I shall return to show you, by this premise, the order of the orbs one beneath another and the proper place of each. Know, then, that the foremost premise here is the firm establishing of the [order of the] orbs: that one orb is set beneath another, the lower borne by the motion of the higher, as we said. From the firm establishing of this premise the [whole] order [of the orbs] is firmly established, and from it the result [המבוקש] is reached. [?]

Left column

that some of them are above and some below. Likewise [it is established] that there are seven [?] wandering stars [the planets] [?] — and this is the matter we now wish to set in order, for there has been disagreement among the early authorities concerning the order of these orbs. [?]

And there is another orb, lower [than these?], by which the reckoning is set in order — namely the orb of the fixed stars [גלגל הכוכבים (?)] — and the computation [החשבון] proceeds from it. [?] And this is the foremost [orb], moved by [its own] motion, in [the place] fitting to it. [text degraded — water stain across mid-column, ~2 lines uncertain]

And there is yet another orb, the uppermost [?], which surrounds the others and sets the whole in order. This is the diurnal [?] orb, the encompassing one, which carries [?] all that is within it along with it from east [to west], [?] and completes its revolution in a single day. [?]

[The author treats here the difficulty of where to place each planetary orb and how the early authorities — the Greeks and the [later] sages — differed; the passage is partly obscured by staining.] [?]

[Red ink: פרק] **Chapter.** [Red-ink marginal numeral gloss, faded: "[?]"] And his words [are]: [?] …concerning the body [of the heaven] and its parts. [last two lines of column degraded] [?]

Right column

The order of the orbs [is] thus: above all of them is the orb of [Saturn] [?] — [text resumes mid-discussion of the planetary order, naming each planet in turn with red-ink labels]:

- [Red ink: כוכב] **Kochav** [Mercury]. The orb of Mercury [is] above [?]; and the orb is named for Mercury [כוכב], and [the planet] is called Kochav.
- And above it [is] the orb of [Red ink: נגה] **Nogah** [Venus]; the orb [takes] the name [of Venus].
- Above which [is] the orb of [Red ink: חמה] **Chammah** [the Sun]; the orb [is] established for the Sun [חמה].
- And above it [is the orb of] [Red ink: מאדים] **Maadim** [Mars]; the orb is named [for Mars].
- And above it [is the orb of] [Red ink: צדק] **Tzedek** [Jupiter] [?] [marginal numeral gloss: "[?]"].
- And above it [is the orb of] [Red ink: שבתי] **Shabbtai** [Saturn] [?] [marginal numeral gloss: "[?]"]. The orb takes its name from it [the planet Saturn].

This is the order of the seven orbs, [reckoned] one above another. [?] And now that the firm establishing [of this order] has come about, [we may proceed]: [?] the early authorities differed concerning it, [?] and the sages of the craft [חכמי התכונה (?)] set it in order according to [their] observation. [?] [water stain across several lines — uncertain]

[A passage follows reasoning that each orb is moved by the one above it and keeps its own motion, so that the apparent motions result from the conjunction of the several spheres; the text is partly obscured.] [?]

[Several lines concern numerical day-counts and the comparison of the orbs' revolutions — "and the days [are]... and the orb... in [so many] days" — but the numerals are obscured by the water stain and are not securely legible.] [Numerals illegible: [?]]

Left column

The bodies [of the orbs] [are] one above another, each in the place fitting to it, as we have established. [?]

And since this is so, it is necessary that the order [of the orbs] be set firm, and that the lower be borne by the motion of the higher; and from this the wisdom and

the reckoning [are] set in order [?] — and this is the premise on which the whole of [astronomical] science rests. [?]

For the [astronomical] craft [התכונה] [proceeds] thus: that one orb [is set] beneath another, and the lower is moved by the motion of the upper; and were it not so, the reckoning could not be set in order, nor the result [המבוקש] reached. [?]

And by this it is established for you that the orbs [are ordered] one beneath another, each [moved] by the one above it. [?] So consider this premise well, for from it [are] derived [?] many [results], [?] and upon it [rest] the foundations of the [astronomical] craft. [?]

[Red ink header: חכמת המזרח (?)] **The wisdom of the East** [?] — [or possibly: חכמת התכונה, "the wisdom of [astronomical] reckoning" (?)] [text degraded; reading of the rubric uncertain].

[Red ink: והגלגל החמישי] **And the fifth orb** [?] [marginal numeral gloss, faded: "[?]"]: …[the discussion of the individual orbs continues; the orb here named "the fifth" is treated in relation to those above and below it]. [last lines of column degraded by staining and edge-loss at the foot] [?]

Yesod Olam — Book Two (Cosmology)

Script: Sephardic semicursive, single primary hand throughout, with red ink (rubrication) for chapter rubrics, structural labels, and section openers. Two-column layout; reading order is right column then left column on each folio side.

[right column]

and on the whole, when its motion is examined, it is found to accord with what we have set down regarding it. Therefore the investigation requires that we set down for it [an orb], so that the matter may be understood as we have indicated. As for the position of the planet [?], according to the configuration we have drawn [it], it returns to the place from which it set out, and the motion proceeds [?] according to the reckoning. [?]

[Damage: water-staining across the lower portion of this column obscures several words; readings degraded.]

He said: This being so, it follows of necessity that the matter stands thus, and the demonstration of it stands firm [?]. The order [?] of its motion, and the manner [?] of the equation [?], we have already explained; and the chapter [?] sets it forth, so

that you may inquire into [?] the particulars of each one of them — for each particular has its own equation [?], and a fixed reckoning [?] proper to it. Take note of this [?].

[Red ink header:] עלה ["ascent / table-of-entry," lit. "leaf/folio"] — the columns: [Red ink:] חמה / שבתי / מאדים ["Sun / Saturn / Mars"] [?].

[The red rubric here functions as a column-header band introducing a tabular or list structure. The three legible red labels — חמה (Sun), שבתי (Saturn), מאדים (Mars) — head the entries that follow. The remaining heads in the band are degraded by the water stain and cannot be read with confidence.]

[Red ink header:] נתנה ["it is given"] — שתי / קשת / [?] מאחשה [?].

[A second red structural band. The middle term שתי = "two" / "second"; קשת = "arc/bow." The first word is uncertain. These appear to be sub-labels of the table introduced above; further identification requires further verification.]

[Red ink:] [chapter/section opener] · דניס · [?] דף · [?] על [?]. ¶ And we have set down for them the demonstrations [?], so that the matter may be made plain [?].

[The opening red tokens of this section are damaged; the chapter number is not legible. Likely a new chapter (פרק) of Book Two — further candidate.]

The whole has been arrived at [?]: from the motion [?], the demonstration is established. And the equation [?]: the first one [?], according to its arc [?] — thus the reckoning is established [?]. From the [investigation] that we have set down, the motion of the [orb?] arises, and the first [orb?] — its arc [?] is its measure [?]; the matter is not so [?]. And it returns and goes round [?], and the result [המבוקש] comes out according to the reckoning of [?] the equation. [Take note] of this. ¶

We say further: When the motion is examined, the equation arises, and the result [המבוקש] returns to the place from which it set out — provided the reckoning has been [carried out] for it; and from this the matter is made plain. The motion of the spheres [הגלגלים], [each] from its [proper] motion: the lower is carried [?] by the equation of the higher — that is, of the orb above it [?]. [Take note] of this. ¶

[Damage / water stain: the foot of this column is obscured; the closing lines are degraded.]

[left column]

and the line — let it be drawn [?] from point ב to point ה; the motion is [established?] according to it [?]. And we set down [for it] the demonstration, the figure [התמונה] making the matter plain, as we have indicated. [Take note] of this. ¶

[Damage: the upper-left corner of the folio is torn; ~1–2 words lost at the top line.]

[Red ink opener:] ונשוב ["And we return"] — He said: Now we shall know [?] that the motion [?] is found [?], its arc [?] in the sphere [?]. The orb [?] whose [motion] is [thus]: [point] נ [?] — the line, the demonstration [?]. From here you may know [?], by way of the demonstration [?], that the motion arising [?] from the configuration that we have drawn returns [?] to its place [?]. The result [המבוקש] of the spheres [?]: it goes round [?] and returns [?], and from its motion [?], from each particular, the equation [?] arises, [each] particular [having] its own [reckoning] [?]; and the whole is reckoned [?] according to the configuration. [Take note] of this. ¶

Now the configuration of the orbs [?]: it goes round and returns [?] — yet it [stands] still [?] from its motion [?] of the spheres [?], and according to it the result [המבוקש] returns to its place [?]. And the equation [?], according to its arc [?] in the sphere [?] — the line [?] of the demonstration [?] sets it forth [?]. [Take note] of this. ¶

[Red ink opener:] ונשוב ["And we return"] — He said: Now we shall know [?] that the spheres [הגלגלים] [in] their order [?] are [arranged] thus [?]. The investigation [requires?]: take [?] the motion [?], so that you may see [?] [the result]. By way of the demonstration [?] — point [?] כבר [?] — the matter is [made plain?] [?]. [The orb] which is third [?]: it goes round [?], [each] particular according to the equation [?] of the orbs [?]. [And this is what we sought?] [?]. ¶

[Damage / water stain across the middle-lower part of this column: several lines are degraded; readings marked [?] are low-confidence.]

the demonstration [?] is established [?]; and the equation [?]: the first one [?], according to the [arc?] [?] — the reckoning [?] is the matter [?]. As we [have set down?], the demonstration [?] [shows?] that the result returns to the place from which it set out [?]; and from the configuration [?] [the matter is made plain] [?]. [Take note] of this. ¶

[Lower portion of column obscured by the large water stain; ~several lines degraded]

[right column]

to it [?]. And we shall set down [?] the motion [?], so that the result [המבוקש] [may come out] according to the reckoning [?]; [the matter] is [made plain] [?] from the configuration. The motion [?], when it is examined [?], according to [its arc?] — the orb [?] [carries?] the one below it [?] by its equation [?]; the lower [orb] [?] [is carried by] the equation of the higher [?]. [Take note] of this [?]. ¶

[Damage: the top edge of the folio is torn / abraded; the first line is partly lost.]

The matter being thus [?], the demonstration [?] of the equation [?] is established [?]; and the result [המבוקש] returns [?] to the place from which it set out [?]. As we have explained [?], [each] particular [?] [has] its own equation [?] and a fixed reckoning [?]. And we have drawn [?] the configuration [?], so that the matter [may be plain] [?] from it. [Take note] of this. ¶

The motion [?] of the spheres [?], [each] from its [proper] motion: the lower [orb] is carried [?] by the equation of the one above it [?] — that is, the orb above [?]. So too with the rest [?], one by one [?], until the matter is complete [?]. And from this [?] the matter is made plain [?], and the result [המבוקש] [comes out] [?] according to the reckoning. [Take note] of this. ¶

[Water stain across the lower part of this column degrades several closing lines.]

[Red ink opener:] הגלגלים [?] / [structural rubric] — He said: This being so [?], the spheres [הגלגלים] [in] their order [?] [stand] thus [?]: their configuration [?] [is set down?] from their motion [?], so that the matter may be [made plain] from the demonstration [?].

[The red rubric introduces a recapitulation of the order of the spheres. The chapter/section number is degraded — further candidate.]

[right column, continued (lower band)]

The order of the spheres [הגלגלים], and the great [orb] [?] which surrounds them [?] [from?] without [?] — its measure [?] [is] thus [?]: [point?] כ [?]. The orb [?] which [is?]: [its arc?] in the sphere [?]; from here [?] you may know [?] that [?]. The spheres [?], [each] of them [?] — [its motion?] [?]; the matter is [thus?] [?]. ¶

Now the great surrounding orb [?]: [each] particular [?] [is reckoned?] [?]; [point?] ל [?] — [its arc?] [?]. [And the result?] [המבוקש] [comes out?] according to the [configuration?] [?]. The spheres [?], [in] their order [?] [as] we have set down [?] — [the matter is plain] [?]. [Take note] of this. ¶

[Damage / water stain: the right column's lower band is degraded across multiple lines; many readings here are low-confidence.]

[left column]

the [orb?] [?] [returns?] and [goes round?] [?], and the figure [התמונה] [makes plain?] the matter [?]. [Take note] of this [?]. ¶

[Damage: top-left corner torn; ~1 line partly lost.]

He said: Now [we shall know?] [?] that the order [?] of the configuration [?] [is] thus [?]. According to the [reckoning?] [?]: take [?] the motion [?] [so that you may see?] [?]; [each] particular [?] [has] its own [equation?] [?]. And [from?] each one [?] [it returns to its place?] [?]; and the whole [?] [is reckoned?] [?] according to the configuration [?]. [Take note] of this. ¶

[Water stain across the gutter side obscures the column's middle lines.]

The configuration [?] of the spheres [?]: it [goes round?] and [returns?] [?]; [from?] its motion [?] of the spheres [?] [the result?] [המבוקש] [returns?] to its place [?]. And the equation [?] — [point?] [?] [its arc?] [?] in the sphere — [the line?] [?] of the demonstration [?] [sets it forth?] [?]. [Take note] of this. ¶

[Red ink opener:] ונשוב ["And we return"] — He said: Now we shall know [?] that the [motion?] [?] [arises?]: [point?] [?] — [the configuration?] [?]; [and it returns?] [?] [to the place?] from which it set out [?]. [Each] particular [?] [according to?] the equation [?] of [the orbs?] [?]; and the whole [?] [is reckoned?] [?] [according to?] the demonstration [?]. ¶

[Foot of column: the closing lines are degraded by the lower water stain]

Yesod Olam — Book Two (Cosmology)

Script: Sephardic semicursive, single primary hand throughout, consistent with the preceding batches. No hand change observed. The ש of this scribe frequently loses its left stroke and reads like ע; readings have been adjusted accordingly.

General condition: Both folios are heavily affected by water staining and foxing. On both pages a large brown water stain spreads across the lower and middle portion of the *right-hand* column (the column that reads first), rendering substantial stretches only partially legible. The right and upper outer edges show edge wear and minor loss. The Vatican watermark and copyright footer are ignored. Faint bleed-through from the facing folio is present and ignored.

Folio — right column

[Marginal foliation, upper left of leaf: "32" in a later hand — Vatican/modern pencil.]

The right column opens within an ongoing argument and is the more water-damaged of the two columns; the lower two-thirds sit beneath the brown stain.

in the line of the equation [?], for the body [?] is gathered [נקבץ?] [?] and we have [?] [several words lost under stain] … the distance [המרחק] … [?] … in the [?] … to it the [?]. [Damage: water stain, ~3 lines, right column upper-middle, heavily obscured]

[?] … and the computation [החשבון] … each one of them [?] … but [?] this is [?]. … [?] there is no [?] in it [?] … the result that we sought [המבוקש?] [?]. [Damage: water stain across ~4 lines, partial loss]

[?] … and we said [ואמרנו] … and the [?] … and what is [?] … [?] … it is correct [נכון?] [?] for it [?] … [Damage: continued water stain, lower right column largely illegible; ~6–8 lines reduced to scattered legible words: "and the orb" [והגלגל?], "its motion" [תנועתו?], "in the figure" [בתמונה?]] [?]

[The remainder of the right column (lower third) is beneath the densest part of the water stain and is not recoverable at this resolution]

Folio — left column

The left column is far better preserved (carbon-black ink, outside the stain).

[Red ink sub-opener:] ונשוב — "And we return" [to the matter]:

We say that the moving spheres [הגלגלים הנעים], when [?] they move [?] (interlinear: small correction above the line, a single word, illegible — `[Interlinear: ?)`], the body of each one of them is carried along by the equation [בתנועת / בעבור ?] of the orb that is above it. For the lower orb is set within the thickness [בעובי] of the orb above it, and it is borne by its motion as a thing set within another is borne along with it.

And therefore, when we wish to know the true place of a planet, we must add to its own motion the [?] motion [?] of the orb that carries it, and only thus do we arrive at its true position [מקומו האמתי?].

For this reason the early scholars [הקדמונים / הראשונים ?] called this added quantity the "equation" [התקון / המנה ?], since by it the apparent motion is made

even [?] with the true motion. And the matter is as we have drawn it in the figure [בתמונה], that the result we sought [המבוקש] returns to its place.

And we say further: every sphere of these that move [?] has two motions — one its own proper motion, and one [?] that it acquires [?] from the orb above it; and the sum [קבוץ?] of the two is its motion in [relation to] the [?]. [?]

And it has already been made clear [וכבר התבאר] that the uppermost orb [הגלגל העליון] — namely the orb of the [?] [the diurnal/encompassing sphere] — has no orb above it from which it would receive [?] any motion; therefore its motion is simple [פשוטה], a single motion, and it is the swiftest [המהיר?] of all the motions, completing its revolution in a day and a night [במעת לעת / ביום ובלילה ?].

But the orbs beneath it are compounded [מורכבות] in their motions, each according to the number of orbs that lie above it, [?] each lower one [?] more than the one above [?] [?] in the number of its motions.

And this is the meaning of [?] what the scholars said, that the planet [?] [a clause obscured by a small ink smudge — [illegible]] … and they were correct in this. And we say [?] [several words] … this is plain [?] [?] from the configuration [התמונה] and from what we have set down [?].

Folio — right column

This column is again the more damaged: the same large water stain spreads up from the lower-middle and across the foot, with the lowest several lines very faint.

We have already explained [שכבר?] [?] that every one of these motions returns [חוזרת] [?] to its own beginning. And the body [?] [הגשם?] of one [?] is distinct from [נבדל מן ?] the body of another [?]; and they are not [?] one and the same [?] body, [Damage: ~1 line faint] but each one of them [?] [?].

And it was already [?] [?] [several words faint] … in its [?] revolution [?]. And we [?] [?] [?]. [Damage: water stain, ~2 lines, right column upper-middle, partial loss]

and the order [?] of the orbs [?] and the manner [?] of their motions. And we [?] [?] their [?] life [?] [or: "their existence/duration" — חיים/קיום ?] [?] and they remain [?] [?] in [?]; and they do not cease [ולא יבטל / ולא ישבת ?], nor do they grow weary [?] [ולא ייעף ?] in their revolution [?]; and they do not [?] [?]; nor do they [?] [?] as the [?] body [?] [?]; and they remain [?] in their order [?]. [Damage: lower-middle right column under stain, ~5 lines reduced to scattered words]

[?] … the [?] eternal [?] forever [לעולם?] [?]. And these [?] [?] [Damage: ~1 line]

the simple bodies [הגשמים הפשוטים?] [?], and they are not [?] composite [?] [מורכבים?], [?] but [?] [?] [?] are above [?] the [?] of the four elements [היסודות?], and they are [?] divisible [?] / indivisible [?]. [Damage: ~3 lines under densest stain]

[The remaining lower ~6–8 lines of the right column lie beneath the heaviest staining and are not recoverable at this resolution]

Folio — left column

Better preserved (outside the stain), though the lower portion fades.

upon the firmament [על הרקיע?] [?] there is [?] [?] separation/distinction [/ נבדל הבדל ?] between this [?] and that [?]; the [?] body [?] [?] of the [?] [?] [?], for [?] it is [?] [?] within [?] its [?] thickness [?], [?]. [Damage: ~3 lines faint at column head]

And we shall now [?] [?] explain [?] one [?] matter [?] [?], that it is set [?] within its [own?] motion and does not [?] exceed it [ולא יעבר / ולא יותר ?]. (interlinear: a word added above the line — illegible — `[Interlinear: ?)]`

It is correct [?] [?] [?]; thus [?] the [?] heavens [?] [?] … its [?] revolution [?] [?] [the motion?]. [?]

And [?] [?] [several legible words: "and they are not many" [ולא רבים?], "but one" [אבל אחד?]]. [?]

He said [?] [or "and we said"]: it is a great [?] [?] foundation [?] [יסוד גדול?] [?] [?] in this craft [בזאת המלאכה / בזאת החכמה ?], [?] [?] that it is set [?] within its motion [בתנועתו] and does not exceed it [?].

And [?] [?] R. [?] [the body-text "name" here is more plausibly a phrase such as "one of the scholars" than a proper name — see anomaly (a) below] said [?] … [a clause]. And we [?] [?] [?].

A great principle [?] [?]: after [אחר?] he established [?] [?] and clarified [?] [?] the principle [הכלל?], he went on [?] [?] to [?] … and Abraham [ואברהם?] [?] [a personal name appears here — possibly "ibn Ezra" or a transmitted authority — illegible after the first word; do not assert — `[?]`] [?].

they used [?] [השתמשו?]; and the matter is plain [?] [?]. And R. [?] [?] [an authority cited — name illegible] [?] [?] the climes [האקלימים?] [?] [?].

And R. [?] [?] explained [?] [?] [?], and he [?] [?] beautifully [?]. And [?] [?] [Damage: ~2 lines faint] … the [?] [?] order [?].

And it is correct [?] [?] [?] in the truest [?] [?], and the [?] order [?] [?] of the [?] [?] motion [?]. [?]

The [?] [?] [?] thin/subtle [הדק?] [?] is [?] within [?] the [?] body [?], and a [?] [?] [?] [?]. [Damage: closing ~3 lines fade into the foot of the column]`.]

Manuscript: Vatican Library, Vat.ebr.380. Sephardic semicursive hand. (folio 33r–v by the margin numeral on p. 71).

[Damage: edge loss along the top margin; the uppermost ~1 line of each column is partially torn away.]

Right column

[Damage: top line lost] … and yet [?] this is the body of the heaven [גשם השמים], that is to say, that they [the orbs] move [?] one upon another [?]. He [the orb] takes up [?] the … and the [?] body of the heaven [?] was as it was … [?] between the … [Damage].

Now if you should ask [ואם תאמר] [?]: how can it be [?] … and there is no [אין] … [?] in this matter [?]. The answer is [?] that … takes [?] the … and the answer [?] to it: there is no [?] gold [?] … and a doubt [?]. [The stretch here is too faded for connected sense]

And in [?] this matter [?] … as it [?] is written [?] … to them [?] [Aramaic-like phrasing, uncertain] [?]. And the … did not [?] … for there is [?] no [?] … upon it [?]. And the body [?] … this matter, the body [?] passes over [?] above [?].

[Red ink: ועשה] [?] — *"And he made"* [or a rubric reading ועשה / ובשה; the red rubric word here is faded and the reading is uncertain. [?]]

for these are [?] founded [?] … for the body [?] in the moving [?] … the orb [הגלגל] moves [?] in a swift [?] motion [?] for the sake of [?] … and they move [?] one upon another [?] [?].

the figure [התמונה] [?] that … the orb [הגלגל] [?] … was [?] … the orb is the figure [?] … [Damage / fade].

[a run of cosmological reasoning about the orbs and their motions; individual sentences not securely recoverable] …

Left column

[Damage: top line partially lost] … the period [?] of the day [היום] [?] and they ascend [?] … as the matter [?] which [?] is found [?] … upon … [?].

[Red ink: ועתה] [?] — *"And now …"* [the rubric/opening word here shows red traces; reading uncertain. [?]] … behold the orbs [הגלגלים] [?] … and behold [?] the orb [?] moves [?] … and behold the orb is … [?].

for he [?] … the upper [העליון] [?] … he is [?] … [?] from this side [?] he goes round [?] [סובב] … and from the other [?] side … and there is no [ואין] … for him [?]. And behold [?] this [?] is the matter [?].

And there is no [ואין] … in the … free [?] … and the [?] orb [הגלגל] [?] moves [?] and goes round [?].

[Marginal note / interlinear: "יש ש[?]" — a brief marginal annotation containing two or three letters in the right margin of this column; the text is not securely legible and no authority or judgment can be identified. Further identification requires further verification.]

[a stretch on the order and motion of the orbs, with the upper carrying the lower; the wording follows the compounded-motion doctrine but is not letter-secure here] …

[Red ink: ויש ש[?]] — a small red rubric or emphasis marker mid-column, reading something like *"and there are some who …"* [?]. Reading uncertain.

the matter [?] … the orbs [?] … and there is no [?] … upon it [?] … [Damage].

[Lower portion of the left column: water-staining and fade; ~several lines of connected cosmological prose not securely recoverable]

and one [?] … and behold another [?] … and the matter [?] is whole [?] [or: complete — כלל] … and behold [?] … [the column closes on the doctrine of the orbs] [?].

[Damage: edge loss along the top margin; upper ~1 line of each column affected. Water-staining across the lower outer corner.]

Right column

[Damage: top line partially lost] … to his governance [?] [לממשלתו] [?], and behold [?] it [?] is established [?], and behold [?] for the body [?] … and behold [?] to the …

[?]. And the heat [?] [or: the warmth — החום] [?] upon [?] … and behold [?] it is established [?] [Aramaic-like cadence] [?].

When [?] [כאשר] … the body [?] … [?] and there is no [ולא] … in it [?] … and there is no [?] … from … [?] there [?]. The [?] … from … [?] [?].

For if [?] [כי אם] … is [?] light [?] [קל] [?] and [?] … and behold [?] all [?] … [Damage]. And behold the orb [?] [העלגל / העלה [?]] … and [?] …

[Red-ink chapter heading]

[Red ink header: פרק] — **Chapter** [the chapter numeral is not legible in the red rubric; faded. The body heading reads "פרק" followed by a line of red text that continues "…בביאור סדר…" — *"in explanation of the order of …"* — most of the heading's wording is faded. [?]]

> [Red ink, continuing the heading line:] … in the explanation [בביאור] of the order [סדר] of … [the configuration / the orbs] [?] … and we shall explain [?] [ונבאר [?]] … the matter [?] … and the …

[The chapter title is a faded red rubric; only "… פרק … בביאור סדר" is recoverable. Full wording]

And we shall say [?] [ונאמר] [?]: that the … is found [?] [נמצא] in the … of the world [העולם] [?]. [Watch: this hand's ש loses its left stroke; read with care — the token here is העולם / העולה [?].] … and they [?] separated [?] … [?] for the body [?] … and there is no [ולא] … [?].

For the body [?] … all [?] the orb [?] [הגלגל] [?] was [?] good [?] [or: well — טוב] [?] in the … [?]. [The reasoning here concerns the body and the orb but the connective sense is not letter-secure]

and behold the … [?] … and the body [?] [הגשם] [?] of the orb [?] … upon [?] which [?] is [?] … and behold [?] for [?] the body [?] … [?].

The matter [?] … the orb [?] [הגלגל] [?] moves [?] … in [?] the body [?] … and behold the heaven [?] [השמים] [?] … [?]. And the orb [?] [והגלגל] … there is no [?] … [?] in [?] it [?] [?]. And the orb [?] [והגלגל] [?] … the body [?] [הגשם] … in its [?] [?].

and it [?] is found [?] [נמצא] … the body [?] [הגשם] [?] … upon [?] which [?] … in it [?] [?].

[a run of prose on the order and disposition of the orbs and their bodies; the argument is consistent with the compounded-motion / order-of-orbs material, but the lines are too faded for secure word-by-word rendering here] …

for the body [?] … and behold [?] … the body [?] [הגשם] [?] … was [?] … and there is no [?] … [?].

[Lower right column: water-stain and fade; remaining ~several lines not securely recoverable.]

Left column

[Damage: top line partially lost] … and behold [?] to it [?] … and behold [?] to the body [?] [Aramaic-like cadence] [?]. And [?] … behold [?] he set [?] … upon [?] … [?].

When [?] [כאשר] … the body [?] … and there is no [ולא] … [?] in it [?] … and [?] … [?].

for the … [?] … the body [?] [הגשם] [?] [Watch ע/ש: read with care] … upon [?] which [?] … and behold [?] for [?] the orb [?] [הגלגל] [?] … in [?] the body [?] [Damage].

and the … [?] … and behold [?] another [?] [אחר] … and the matter [?] is whole [?] [or: a single whole — כלל אחד] [?]. And [?] … behold [?] … [?].

and behold [?] the body [?] [הגשם] … and there is no [ואין] … for [?] him [?] … and behold [?] … the body [?] [?].

[Marginal/interlinear note in the left margin: a short annotation of two or three words; not securely legible — marginal note, content unrecoverable; further identification requires further verification.]

[a closing stretch of cosmological reasoning; lines not securely recoverable] …

and behold [?] the matter [?] is whole [?], and the body [?] [הגשם] … upon [?] which [?] … [the column and folio close] [?].

Yesod Olam — Book Two (Cosmology)

Sephardic semicursive hand, single scribe throughout. Two columns per page, read right-to-left. Both folios show water staining (a large stain descends through the lower-right of p. 73 and the lower portion of p. 74), some edge wear at the top margin, and faint bleed-through; red-ink rubrics open new paragraphs/chapters. The watermark overlay is ignored as a scan artifact.

[right column]

and now we return to the matter of the heavens. We have already explained that the [body of the heaven] is a single body, simple and not composite, and that its nature is unlike the nature of the four elements below it. For this reason it neither comes-to-be nor passes-away, neither increases nor diminishes, and it admits of none of the changes to which the bodies of the lower world are subject. [The surrounding clauses here are abraded; the sense is the standard contrast between the unchanging celestial body and the mutable sublunar elements — several connective words are [?].]

And we say that this celestial body is divided into many orbs (גלגלים), one set within another like the layers of an onion [?], each orb encompassing the one beneath it and being encompassed by the one above it, until the whole is bounded by the outermost orb. [Lower lines of this column run into the water stain and are read with low confidence; the argument concerns each orb's being contained by its superior, with [?] on the connectives.]

> [Red ink rubric, opening a new paragraph:] **And we say [Red ink: ונאמר]:** that just as we have established the order [?] and the arrangement [?] of these orbs…

[left column]

[This column is the more abraded of the two; its lower half passes through the water stain. The legible upper lines continue the discussion of the orbs and their motions.]

the heavens [?] in their [revolution?], and they revolve [?] one upon another, this one in this direction and that one in the opposite direction, so that no two of their motions are alike. And from this it follows [?] that the order which the Creator, blessed be He, has set within them is preserved, and that nothing in their arrangement is left to chance.

[Several mid-column lines obscured by abrasion and the descending stain — [?]. The discernible content concerns the differing directions of the orbs' rotations and the governance (ממשלה) that maintains their order.]

> [Red ink rubric mid-column:] **And we say [Red ink: ונאמר]:** [the following clause is degraded — it appears to introduce a further point about the motion of the orbs; [?].]

and the matter [?] is as we have said [?]. [The remaining lines of this column are largely lost to the stain and abrasion; transcription not attempted — see QA report]

> [Red ink rubric near foot of column:] **And we return [Red ink: ונשוב]:** [continues onto the foot of the column; content degraded, [?].]

[right column]

[Upper lines abraded along the top edge; the column then becomes more legible before descending again into the lower stain.]

to the matter [?], and we say that there is in this no [?] whatsoever, and that one ought not [?]. For when the [?] is found in the [?] of the world, this teaches [?] that…

[The middle of this column continues the cosmological argument: that the orbs are nested in a fixed order, each in its place, none transgressing its bound; the governance set in them is from the Creator. Numerous connective words are [?] owing to the abrasion.]

> [Red ink rubric:] **And we say [Red ink: ונאמר]:** that this is the order [?] which we set forth [?], and there is no [?] in it.

[Lower lines of the column run into the water stain — read with low confidence. The argument turns to the reckoning [?] and the figure/configuration (התמונה) of the orbs.]

> [Red ink rubric near foot:] **And the chapter [?] [Red ink: ונשער / ושער] [?]:** [the rubric word here is degraded; it may be the chapter/gate marker שער or a verb form ונשער — [?]. It introduces what follows on the next folio.]

[left column]

[This column is comparatively well preserved in its upper two-thirds, then enters the lower stain.]

likewise [?] in this matter there is no doubt at all, and one ought not [?] to suppose [?]. For just as we have explained the order of the orbs and their arrangement, so too [?] is the matter of their motions: each orb has its own proper motion, and from the combination of these motions there arise the phenomena that are observed in the heavens.

And we say [?] that the upper orb, which encompasses them all, completes its revolution in a day and a night [?], carrying [?] all the orbs beneath it along with it [in its swift daily motion]; while each of the lower orbs has, besides this, its own motion proper to itself, slower [?] and in its own direction.

[The middle lines develop the doctrine of compounded celestial motion: the daily revolution of the outermost orb imposed upon the proper motions of the inner orbs, so that the apparent path of each planet results from the sum of these motions. Several technical connectives [?].]

and this is the governance (ממשלה) [?] which the Creator, blessed be He, set within them, that they should not depart from their order [?] nor transgress their bounds [?].

> [Red ink rubric:] **And we say [Red ink: ונאמר]:** [introduces a further clause; the body that follows is partly lost to the lower stain — [?].]

[The final lines of the column descend into the water stain and are largely illegible — [?]. The catchword/foliation mark at the foot of the column area is noted below.]

End of batch 037 translation. The cosmological argument of Book Two continues without a securely legible new פרק numeral; the chapter on the "order of the orbs" (סדר הגלגלים) opened in the prior batch is still running. Substantial portions of both folios are degraded by water staining and abrasion and are flagged as

**

Right column (read first, right-to-left layout)

The opening lines of this column continue the discussion carried over from the previous folio, then break to a new chapter heading.

[?] the body [גשם] is one, and there is among them [?] one [אחד] [?] … and the matter is established [?] upon [?] …

[Red ink header: פרק] ("Chapter") *[the accompanying chapter-numeral, also in red, is faded and not legibly recoverable — [?]].*

[Damage: the lines immediately following the red rubric are crossed by the central water-stain; the readings below are partial.]

when the [?] is found [נמצא] [?] … the matter [הדבר] [?] is correct [?], and we have already said [וכבר אמרנו] … that the proof [?] is [?] … and we shall return [?] to [?]

arrange [?] the [?] … and after this we will explain [נבאר] [?] … so that [?] the matter will be clear [יתבאר] [?]. This was [?] … the cause [?] [העלה] [?] … as we said [?] in the [?] gate [שער] [?].

Lower-right column (continuing after the stain)

For it [כי הוא] [?] is a created body [גשם] [?] … and it is sought [נמשך] [?] upon [?] … the moment [שעה] [?], that the [?] uppermost [העליון] [?] body and its motion [?] … upon [?] … its motion [?] and its degrees [המעלות] [?] thus … the body of it [?] … this is its motion [?] …

After this [אחר זה] [?] the body [?] of it [?] … its substance [עצמו] [?] … is good [?] [the reading here is uncertain] … the [?] foundation [יסוד] [?] of the matter [?]…

the [?] body [גשם] [?] (interlinear: a brief insertion above the line, ~2 words, illegible) [?] … the swift [?] [body/motion] [?] … its motion [?] … and the [?] body [גשם] [?] [?].

and yet [?] it will be made clear [יתבאר] [?] from this [?] that [?] … upon [?] … its body [גשמו] [?] … the [?] swift [?] [body] [?] [?].

For the moment [כי השעה] [?] … the [?] body [?] … upon [?] its body [גשמו] [?] … the swift [?] [body] [?] [?].

Left column (folio 35r)

[?] the matter [?] … its motion [?] … in the [?] … as [כמו] [?] …

then [אז] [?] … the matter [?] … [?] in the [?] place [מקום] [?] … which [אשר] [?] …

[?] the surface [?] [שטח] [?] [?] … the body [?] [גשם] [?] [?] … is [?] [?]…

[?] the [?] body [?] … its motion [?] … and after [?] this [?] [?] …

[?] the [?] [?] … its motion [?] … and after this [?] [?] …

[Red ink: ונאמר] ("And we say") *[this paragraph-opening rubric verb continues the manuscript's established in-text rubrication pattern.]*

and we say [?] that the good [?] body [?] [?] … in the [?] [?] … its motion [?] … then [?] … as [?] …

for the [?] body [?] … and the [?] body [?] … the surface [?] [?] … as [?] … its [?] motion [?] …

the [?] [?] … its motion [?] [?] … upon [?] … as [?] … its body [?] …

[Damage: lower-left column lines are abraded; ~6 lines partially lost to the diagonal stain and foxing] [?].

Right column (read first, right-to-left layout)

and until [?] [ועד] here [?] [?] … its motion [?] in [?] … the [?] [?] limit [הגבול] [?], the [?] [?] … and a sign [סימן] [?] [?] … the [?] [?] in its [?] … thus [כן] [?] from [?] … its body [גשם] [?] [?]…

to [?] the [?] surface [?] … the motion [?] of the [?] … and the [?] [?] limit [?] [?] (interlinear: ~1 word above the line, illegible) [?] … upon [?] … as [?] …

in the [?] [?] motion [?] … the matter [?] … upon [?] … its [?] body [?] … and the [?] [?] body [?] [?].

the [?] [?] motion [?] … the body [?] [גשם] [?] … and the [?] [?] [?] … upon [?] … as [?] [?].

The body [גשם] [?] … its motion [?] … to the [?] south [דרום] [?] … and the [?] [?] … upon [?] … as [?] …

[?] [?] … to the [?] south [דרום] [?] [?] … the good [?] body [?] … and after this [ואחר] [?] …

[?] … and we shall return [ונשוב] [?] … upon [?] … that [שהם] [?] [?] … the [?] body [?] [?] … the matter [?].

[Red ink: ושב] / [ונשוב] ("And we return") *[a short red rubric verb opens this paragraph; the reading wavers between ושב ("and he returns / it returns") and the established ונשוב ("and we shall return") — [?].]*

to explain [לבאר] [?] … the matter [?] … [?].

[Red ink: ונשוב] ("And we shall return") *[paragraph-opening rubric verb, established pattern.]*

to [?] explain [?] … its motion [?] … upon [?] … the [?] [?] … and [?] …

[Damage: this central band crosses the worst of the water-stain; ~4 lines only partially recoverable] [?].

For the [?] body [כי הגשם] [?] … its motion [?] … upon [?] its body [גשמו] [?] … and the [?] [?] body [?] [?].

[?] … its motion [?] … to the [?] … and after [?] this [?] …

the body [הגשם] [?] … the [?] [?] motion [?] … its body [גשמו] [?] … and [?] … the matter [?].

[?] the body [גשם] [?] is moved [נמצא/נע] [?] … upon [?] … as [?] … its body [?] …

[?] the [?] [?] limit [?] … the matter [?] … and after this [?] … upon [?] … as [?].

the [?] body [גשם] [?] … its motion [?] … upon [?] … the substance [עצם] [?] … and the [?] [?].

[?] [?] … the [?] [?] motion [?] … its body [גשמו] [?] … and after this [ואחר] [?] … upon [?].

The matter [?] [הדבר] [?] … and the moment [והשעה] [?] … upon [?] … the body [?] … as [?].

[?] body [?] … its motion [?] … upon [?] … as [?] … and the [?] [?].

Left column (folio 35v)

and it remains [?] … its body [?] [?] … upon [?] … the [?] [?] … as [?].

[?] that it [?] … its body [?] … and [?] … upon [?] … the [?] body [?] [?].

[?] [?] … the body [?] … upon [?] its body [גשמו] [?] … as [?].

[?] [?] … and the [?] body [?] … its motion [?] … and [?] … the [?] [?] [?].

[Red ink: ונס] / [ונאמר] ("And we say") *[a short red rubric verb opens this paragraph; reading wavers between a contracted ונס[ם]/ונסב and the established ונאמר ("and we say") — [?].]*

and we say [?] that the [?] body [?] … its motion [?] … in the [?] place [מקום] [?] … as [?] …

the matter [?] … the [?] [?] … upon [?] … its body [?] … and after this [?] …

[?] the moment [השעה] [?] … and we shall return [ונשוב] [?] … upon [?] … the [?] body [?] …

[?] … its motion [?] … upon [?] … as [?] … and [?] …

the body [?] … its substance [עצמו] [?] … upon [?] … and [?] … the [?] [?].

[Damage: lower-left column, ~5 lines abraded and stained, only fragments recoverable] [?].

[Red ink: ונשוב] ("And we shall return") *[paragraph-opening rubric verb, established pattern.]*

to explain [לבאר] [?] … the matter [?] … upon [?] … as [?].

[Red ink: ונאמר] ("And we say") *[paragraph-opening rubric verb, established pattern.]*

and we say [?] that the [?] … its motion [?] … upon [?] … and after this [?] [?].

[Damage: the final ~6 lines of the left column run into the bottom-edge stain and the diagonal water damage; readings are fragmentary.]

the questions [השאלות?] / the climes [האקלימים?] [?] … the [?] [?] … in the [?] [?] … [?].

thus [?] the foundation [היסוד] [?] [?] … and we shall arrange [?] … [?].

and we shall explain [?] / and we shall return [?] … [?] [?].

`.]

General condition. Both folios are heavily degraded. A large brown water/foxing stain spreads across the lower-middle of each page (worst at the gutter side), and the outer edges show tearing with localized text loss. The Vatican watermark overlay and copyright footer are present and ignored. Ink bleed-through from the facing folio is visible and ignored. Many readings below are necessarily partial; degraded stretches are flagged [?] and the folios are flagged as in the report.

PDF p. 77 (f. 36r) — Running header

Right-hand column (read first)

The text continues the cosmological discussion of the celestial body and the spheres. The opening lines treat a measured magnitude and its placement, describing how one body [or region] is set opposite (כנגד) another, and how a given configuration (התמונה) is established. [The first several lines are legible only in fragments]: …a place set opposite the [?]…, and the body (הגשם) being [?]… upon it. [?]

He then argues by reference to a known point: "this is clear to him" (זה גלוי לו) — i.e., the matter is self-evident from what precedes; for if it were otherwise (ואם היה הענין) the configuration (התמונה) would not hold, and one would be compelled to reckon (לחשוב) [the magnitude] differently. [?]

[Mid-column, the prose develops a geometrical/cosmological proportion]: …and the line (הקו) of the [?]… reaches (יגיע) toward the south (דרום) [?]… as we explained above; the body (הגשם) [?]… and its measure (ושיעורו). [?]

He continues: thus it is established (כן הוא) that the [body/region] [?]… in the position (מצב) it occupies relative to the line (הקו) of the [?]. [?] And it follows (ושב) that the body (הגשם), and likewise (וכן) the [?]… of the [?]. [?]

[Lower right column, badly stained]: …the point (הנקודה) [?]… and the line (הקו) of the [?]… and it returns (ושב) [?]… the south (דרום) [?]… the calculation (החשבון) of the [?]. [?] [Several lines here are lost to the central stain.]

Left-hand column

The prose treats a measured arc (קשת) and its corresponding chord/measure: "we have already explained (כבר באר) the measure (מדה) of an arc (קשת) of [such-and-such], its [?]…, and likewise (וכן) [?]…" — describing how, the arc (קשת) being given, one derives (תוציא) the desired magnitude (המבוקש). [?]

[Red ink] **ועתה נאמר** [Red ink rubric verb opening a new paragraph: "And now we say"] — this is the manuscript's in-text paragraph marker (a rubricated verb, not a chapter heading): *that upon* [?] …the [?] of the divisions (החלקים) which are [?]… among them (ביניהם). [?]

And we say (ונאמר): there are several arguments/proofs (ראיות) showing that the body [?]… is [?]… toward [?]. The first (האחד): that, the [?] being [?], one infers (תוציא) [?]… and the measure (ושיעור) of [?]. [?] : also (גם), when the [?] is [?], it follows (יתחייב) that [?]… is established; and there is no [?] in this (ואין בזה) [?]. [?]

He turns to a counter-consideration: it is not (לא) [the case] that [?]… for there is no (אין) [?] in it, and the [?]… is established (קבוע) [?]… upon the foundation (על עיקר) [?]. [?]

[Mid-left column]: the [proof] is sound (הראיה) [?]… and likewise (ולא) it does not follow (אין) [?] from the [?]… that [?]. The configuration (התמונה) [?]… being so, [?]… and it returns (ותהא) [?]… simple (פשוטה). [?]

[The argument compares two regions/figures]: and there is a region (מדינה) [?] — i.e., one region opposite another region (מדינה אחת… למדינה אחרת) [?] — [discussing the relation of one locality to another, perhaps in the geographical sense of one place set against its antipode]. [?] When the [?] of Jerusalem (ירושלם) [?]… and it is reckoned (ותהיה נחשבת) [?]. [?]

[Lower left, heavily stained]: …and when (וכן הן) [?]… the place (מדינה) [?]… and the [?]… one to another, [?]… for these are [?]… governances (ממשלות) of [?]. [?] [Several lines lost to the stain.]

[Near the foot]: …and likewise (וכן הן) [?]… the divisions (החלקים) [?]… and the [?]… reckoning (חשבון) [?]. [?]

PDF p. 78 (f. 36v) — Running header

Right-hand column (read first)

[Opening lines, stained]: …in order to [?]… its measure (שיעורו) [?]… and the [?] is so (כן הוא). And this being so (וזה כן), the [?]… of the [?] [?]… and likewise (ויהיה) [?]. [?]

The text speaks of Jerusalem (ירושלם) and a meridian/line through it: the [line] of Jerusalem (של ירושלם) [?]… and what [?]… upon it (עליו). And the bodies (הגשמים) [?]… upon [?]… [discussing how the body/position relates to the reference line of Jerusalem]. [?] : and this is [?]… the place (המקום) [?]… the [?] of the position (מצב) [?]… [?]… upon [?]. The line (הקו) [?]… and the [?]… of the [?]. [?] He notes that the matter "comes out" (יצא) [?]… correctly (כראוי). [?]

[Mid-right]: and the [?]… of the south (דרום) [?]… and the line (הקו) [?]… the body (הגשם) [?]… and its position (ומצב). [?]

[Red ink] **נחזר שנבאר** [Red ink rubric: "Let us return, that we may explain"] — in-text paragraph marker (rubricated verb phrase, not a chapter heading): *that which we shall explain* [?] …the matter (הענין) [?]. [?]

We know (נדע), then, that there are several [?]… in [?]… and the body (הגשם), being [?]… toward the south (דרום) [?]… as we explained (כמו שבארנו). [?] When the position (אמת) [?] of the body (הגשם) is [?] [?], it follows (יתחייב) [?]. [?]

[The argument develops an enumeration]: there are several divisions (חלקים) [?]… and these are [?]… degrees (מעלות) [?]… in [?]. The [?] being [?], it follows (יתחייב) [?]… that [?]… [?]… one to another (זה לזה) [?]… and the [?] of the south (דרום) [?]. [?]

[Lower right, stained]: …the body (הגשם) [?]… the position (מצב / תנועה) [?]… and it returns (ושב) [?]… the calculation (החשבון) [?]… degrees (מעלות) [?]. [?] [Several lines lost to the central stain.]

Left-hand column

[Opening, stained]: …from the [first] (מן הראשונה) [?]… and the body (הגשם) [?]… upon [?]. The [argument/reckoning] (החשבון) [?]… of the [?]… and the [?]… [?]… so. [?] : …another (אחר) [?]… the [?] of the line (הקו) [?]… and the body (הגשם) [?]… so it is (כן הוא). And [?]… [?]… upon [?]… the south (דרום) [?]. [?]

The prose develops a case about a measured chord and arc, with a numbered consideration: "the [?] of the [?] [?]… and this [?]… that [?]… among them (ביניהם) [?]". The line (הקו) [?]… and the body (הגשם) [?]. [?]

[Mid-left]: …the configuration (התמונה) [?]… so it follows (כן יתחייב) [?]… and there is no (ואין) [?]… in this (בזה). [?] And the [?]… of the [?]… is established (קבוע) [?]. [?]

[The text turns to a comparison of two cities/regions and their meridians]: …one region opposite another (מדינה… למדינה אחרת) [?]… and what is reckoned (נחשבת) [?]… [?]… Jerusalem (ירושלם) [?]. [?]

[Lower left, heavily stained near foot]: …and likewise (וכן) [?]… degrees (מעלות) [?]… the [?]… and the calculation (החשבון) [?]… and the body (הגשם) [?]. [?]

[Red ink] **שער רביעי** [Red ink header, display position near the foot of the left column: "Fourth Gate"] — a new structural division (שער, "gate") opens here, numbered *רביעי* ("fourth"). [?] (The word *שער* is legible in red; the ordinal reads *רביעי* = "fourth," though the red ink is faded.) The opening line beneath it begins a new topic: "…in the [?]… and likewise (ואותן) [?]…" with mention of [?]… [?]. [?]

[Below the שער heading, the first lines of the new gate, partly legible]: …these are (הם הינו) [?]… and the [?]. [?]

Yesod Olam — Book Two (Cosmology), Fourth Gate

[Column 1 (right column on the page):]

The path of the visual ray and how it stands relative to the body [of the planet] [?]… as has been clarified above [?]. For when the diameter [?] passes [?]… and the [solar/celestial?] body comes to be opposite [?], its place is known [?]… he should therefore take the [given] arc [?] and reckon from it [?].

[The following lines are only partly legible; the reasoning carries forward the determination of position from a given arc and the configuration:]

and from this [?] it is known [?]… that the body [?] when it comes to be opposite [?]… and this is what was sought (*ha-mevukash*) [?].

[Red ink (in-text rubric verb): "ונשוב" — "And let us return"] — that is, the author resumes the thread of the demonstration. He resumes to clarify [?] how the [celestial] body [?] stands in relation to the line (*ha-kav*) [?] and to the meridian [?], so that one region (*medinah*) may be set opposite another (*medinah aḥeret*) [?], and the configuration of the matter be made plain.

[Several intervening lines (mid-column) are obscured by a water-stain and foxing; ~5–6 lines partly lost. Recoverable fragments: "the body" (הגשם) [?]; "the degrees" (המעלות); "the reckoning" (החשבון) [?]; "opposite" (כנגד) [?].]

[Red ink (in-text rubric verb): "ונדע" — "And let us know" / "we shall know"] [?] — opening a fresh step of the argument [?]. From this it follows [?] that when the arc is given [?], the magnitude sought is determined [?]; and the difference between the two [?]… is what was required [?].

[Column 2 (left column on the page):]

The path [of the ray] [?]… for it is right [?] that the celestial body [?]… [the column opens mid-argument; first lines partly lost to staining]. …and in this [way] [?] the place [?] is found [?].

the [equant/equating?] line [?] is [?]… and when the body comes to be at [?] the noon-line (*kav ḥatzi ha-yom*, the meridian) [?], its position relative to it is known [?]; and from this is derived [?] what was sought [?].

[A run of procedural sentences follows, each restating the same operation in a parallel position — given the arc, derive the position; the recurring technical terms are *ha-kav* (the line), *ha-keshet* (the arc), *ha-temunah* (the configuration), *ha-mevukash* (the magnitude sought), *ha-ma'alot* (the degrees), and *ha-ḥeshbon* (the reckoning). Individual numerals in this stretch are not separately legible.]

and therefore [?] it is established [?] that this body [?] stands so [?]… and the difference [?] is such-and-such [?]. This is what was intended [?].

[Lower third of the column: ~6 lines degraded by foxing and bleed-through; recoverable words include "the sun (חמה)" [?], "south (דרום)", "Jerusalem (ירושלם)" [?] as the meridian reference, and "opposite (כנגד)".]

[Column 1 (right column on the page) — opens mid-sentence, continuing from 37r:]

to its place [?], and not toward the [?] day [?]… so that it comes to be [?] thus [?]; and the difference [?] of the configuration [?]. [First lines partly lost.]

[Red ink (in-text rubric verb): "ונשוב" — "And let us return" (resumption)] — the author returns to set out [the next case] [?]. For [?] the operation (*ha-pe'ulah*) [?] was done [?]… in the configuration [?] of the matter [?], the body [?] standing opposite [?] the [?] line; and from this [?]…

[A long procedural stretch follows, again iterating the position-from-arc determination. Mid-column water-staining obscures ~4–5 lines; recoverable terms: "the arc (הקשת)" [?], "half the day / the meridian (חצי היום)" [?], "the place (המקום)", "and let us know (ונדע)".]

and this [?] is right [?]; for the body [?], when it stands in the noon-line [?], its position [?] is known [?]. And so [?] in another place [?] the matter is [the same] [?]. This is what was sought [?].

[Red ink (in-text rubric verb): "וכן" / "וזה" — "And thus" / "And so" — paragraph opener] [?] — and the difference between this place and that [?]… is the magnitude sought [?].

[Column 2 (left column on the page):]

[The column opens mid-argument and is the most degraded panel of the batch — bleed-through from the facing recto overlays the lower half. First lines:]

and the [equant?] line [?]… for it is right that [?]… the body [?] when it comes to be [?]… opposite [?]; and from this [?] the place is found [?].

[Red ink (in-text rubric verb): "וכן" — "And likewise"] [?] — likewise [?] in the other case [?], the same operation [?]…

[Lower half of the column (~8–10 lines): heavily obscured by combined foxing, water-staining, and bleed-through. Only isolated words are recoverable: "the line (הקו)" [?], "the arc (הקשת)" [?], "south (דרום)" [?], "the degrees (המעלות)" [?], "Jerusalem (ירושלם)" [?], "the reckoning (החשבון)" [?], and a closing "this is what was intended / sought (זהו המבוקש)" [?]. The intervening syntax cannot be reconstructed from this scan at this resolution.]

`]

Yesod Olam — Book Two (Cosmology), Fourth Gate (continued)

Primary script: Sephardic semicursive, single hand throughout, in faded brown iron-gall ink. Two text columns per page. Page 82 carries one red-ink chapter rubric. The two pages are heavily affected by water-staining (a large pale wash across the upper-center and lower portions of both folios), foxing at the margins, and edge loss at the outer (torn) margins; faint bleed-through from the facing folio is present and has been ignored. Many words are recoverable only partially; the lower-confidence stretches are flagged and the worst-affected regions are noted as

(The chapter continues the positional-geometry argument from the previous batch: given an observed arc, one derives a body's position relative to the reference line and the meridian, sets up the configuration, and extracts the magnitude sought by reckoning.)

[Damage: water-stain wash and faded ink across both columns; outer margin torn with edge loss, ~1–3 characters lost per affected line at the right margin of the right column and the outer margin of the left column.]

As we have shown — the line being so positioned, then the point [נקודה] of the configuration falls thus; and if you wish [ואם תרצה] [?], you proceed by the second method [?]. The premise [?] stands upon this. [The text here couples the two derivation methods established in the preceding chapter; several mid-line words are washed out — [?].]

For from the point of reckoning [מקבת] [?] — were it not so [אם לא יהיה זה], then this [zero] [?] would be the line itself; and we already set [וכבר שמנו] [?] upon the known [על הידוע] [?] the place [המקום] [?] there [שם] some quantity [שעור] [?]. [Heavy washout mid-column; the running argument concerns assigning a known magnitude to a determined place. — [?]]

[Red ink: ונשוב] — *And we return* [in-text red rubric verb opening a new step, consistent with the MS pattern of red paragraph-opening verbs]. And know [ודע] [?] that this is [?] always [?] when you do the operation [תעשה הפעולה] [?] upon the configuration of the line [תמונה] [?]:

Upon the line, if it [is] short [?], the position holds [העמדה] [?], and you bring out [ותוציא] in this [way] the magnitude sought [המבוקש]. Then by another method

[ובדרך אחר] [?] reckon the reckoning [?] of the configurations [התמונות] [?], and it will come out [ויצא] [?] one and the same [שוה] [?].

[Several lines here are crossed by the heaviest water-stain band; words legible only in fragments. The thread is the comparison of two methods of computing the sought magnitude, confirming they agree. — extended [?]]

the magnitude [על העמוד] [?] of this from its measure [נדע] [?] this; and they [will be] equal [שוין] [?] — for when the configuration [התמונה] [?] is set up, the operation upon them [is] one [?], and the magnitude of this [is] like the magnitude of that. [The author is establishing the equivalence of the two reckoning paths. — [?] on the bracketed letter-labels.]

This [is] the day [?] [or: when this is] — and there is [ויש] [?] that the reckoning [?] comes out in this way [?] correct [?] and clear [וברור]. The configuration [התמונה] [?] of this … [washout] … and the operation upon them [is] one [?].

[Several short lines closing the right column are reduced to disconnected legible words by the stain. — [?]]

[Damage: lower right column, ~5–7 lines reduced to fragments by water-staining; transcribe-and-flag only.]

In another [way] [?] — when you [will know] [?] the place, and the position [העמדה] [?] of the line [is] upon its place [?], and the position [is] known [נודע] [?], you [will know] [?] … the figure [?] … the chord [?] … [The closing lines of the left column rehearse, in compressed form, the same chord/position construction; legibility is poor. — [?]]

[Damage: water-stain wash heaviest across the left column's upper two-thirds and the gutter; outer margin foxed. The red rubric near the foot of the right column has faded more than the surrounding black text, as red iron-gall ink characteristically does.]

Right column

the position [?] and the configuration [התמונה] [?], and from it [you derive] the magnitude sought [המבוקש] [?]. The premise [ההקדמה] [?] in the matter of [?] the configurations of the line [?]; and the position [?] of the reckoning [?] — were it not so [אם לא] [?], it would not [be] correct [?]. [Mid-column washout; the argument restates the conditions under which the construction yields a valid result. — [?]]

[Several lines here, in the upper-center of the column, fall under the heaviest part of the stain — legible only in fragments concerning the configuration (התמונה), the line (הקו), the magnitude (השעור), and the meridian/noon-line (חצי היום). — [?]]

so that the configuration of the line [will be] equal [?]; and from the meridian [מחצי היום] [?] you [will know] [?] the magnitude [השעור]; and we have already given [ונתן] [?] the operation [הפעולה] [?] of this … [washout].

> [Red ink header: פרק חמשי] — **Chapter Five** *(Red-ink chapter rubric near the foot of the right column, faded; followed immediately by the chapter's opening, which itself begins with a red-ink rubric-word.)*

[Red ink: צבא השמים] [?] — *the host of the heavens* [?] [the chapter-opening rubric-word(s); reading low-confidence under the fading red ink — [?]].

The premise of the configuration [?]: now that we have completed [שלמנו] [?] the matter of the configurations [התמונות] [?], and the matter [ענין] [?] of the line [?] — we will speak [נדבר] [?] of the matter [?] of the host of the heavens [?] [צבא השמים], and of their motions [תנועותם] [?], according to what is fitting [כפי הראוי] [?].

[Damage: the first several lines of Chapter Five, under the faded red rubric and adjoining stain, are partly washed; the topic — opening the discussion of the heavenly host and their motions — is recoverable, the exact wording is not. — [?]]

For every motion [תנועה] [?] is either simple [פשוטה] or composite [מורכבת] [?] [the established simple/composite (פשוטה/מורכבת) distinction]; and the simple [motion] [?] — its line [?] … the configuration [?] … and the host of the heavens [?] move [ינועו] [?] with it. [Standard cosmological setup distinguishing the kinds of celestial motion. — [?]]

and it is fitting [?] that we know [שנדע] [?] the matter of [ענין] [?] every motion [?], and the configuration [התמונה] [?] of the host of the heavens [צבא השמים] [?] in their motions [?].

[Mid-column: a sequence on the motions of the heavenly host, the line, and the configuration; the established terms recur (תנועה, התמונה, הקו, צבא השמים) but individual clauses are washed. — [?]]

the host of the heavens [is] one [?]; the motion of the host of the heavens [?]; and their motions [are] equal [שוין] [?] in [?] … the configuration [?].

[Damage: lower right column, ~4–6 lines fragmentary under the stain. — [?].]

in the configuration of the line [?] the position [?] of the heavens [?]; and from this [comes] the magnitude [?]. [Closing the right column.]

Left column

[Damage: the upper two-thirds of the left column lies under the densest water-stain wash on this page; only scattered words and the right-margin line-ends are legible. The thread continues the host-of-the-heavens / motion discussion. — extended [?]]

the configuration [התמונה] [?] — its measure [?] is like the measure of the configuration [?]; the reckoning [?] in the …

we have already [?] reckoned [?] the reckoning of the configuration [?], and there comes out [?] from it [?] the configuration [?]; and this [is] another configuration [?].

[Heaviest washout band crosses here; ~6–8 lines legible only as the recurring technical lexicon — התמונה (configuration), החשבון (reckoning), הקו (line), העמדה (position). — [?]]

the configuration of the line, and behold [it is] another [?]; and from the position [?] of the configuration … the reckoning [?] … the position [?]. And from the configuration of the line [you derive] the magnitude sought [המבוקש] [?]; and the configuration of the line [is] equal [?].

and the place [?] is upon the position [?] of the line [?], and the position [is] equal [?] [or: known]; and the configuration [is] another. The position of the line [is] upon its place; and behold [it is] thus.

[Damage: lower-center of left column severely stained; the closing lines of the column, which appear to recapitulate the position/configuration construction (with the recurring terms הקו, העמדה, התמונה, נקודה), are fragmentary. — [?]]

the measure of this [?] from the magnitude [?]; the configuration of the line [is] equal [?], the configuration [is] the host of the heavens [?] [reading uncertain].

Yesod Olam — Book Two (Cosmology), Chapter Five

Vatican, Vat.ebr.380. Sephardic semicursive hand. Both folios show a broad brown water-stain crossing the central and lower portions of the page, with foxing along the edges. The marginal folio number "39" is written in the upper right of f.39r in a later hand. Red-ink rubric verbs continue to open paragraphs.

[f. 39r]

Right column:

that the motion that befalls it is in accord with its position. [?] As for the difference between them — it varies according to the configuration (התמונה) of the spheres and their poles. [?]

By this you will know the order of the motions and the disposition of each of them in relation to the others. The motion of [each] sphere is measured (or: reckoned) upon (לפי) [its position], and the host of the heavens (צבא השמים) moves together with it. [?]

Now we have already explained that the simple motion is one motion only, [moving] about a single axis and toward a single direction; whereas the composite motion is the one that comes about from two motions [or more]. [?] When the spheres differ in their motions — this one toward the east and that one toward the west — there comes to be among the planets a motion compounded of them both. [?]

[The middle of the column is crossed by the water-stain; ~4–5 lines are severely degraded:] …the line… the pole(s)… [Damage: water-stain, central band, ~4–5 lines partly illegible; reading uncertain throughout] …and the host of the heavens [?]… according to the configuration… [?]

When you have grasped this, you will understand that each of the planets has its own proper motion (תנועה מיוחדת), and that no single one of them is exactly equal to its fellow [in its motion]. [?] For each one of them completes its revolution in a time of its own, differing from [the time of] the others. [?]

and the order of the spheres — as we have set it down above — is the true order; and we have already verified it (אמתנוהו) [?] by the [necessary] proofs. [?] And the matter is as we have said. [?]

[The foot of the right column runs into the brown stain; final ~3 lines degraded:] …the configuration… [?] …and we shall return (ונשוב) to complete (להשלים) [?] … [Damage: lower-right corner, ~2 words lost].

Left column:

[The left column of f.39r is the more heavily damaged of the two; the central water-stain and an ink-loss band affect roughly the upper-middle third. Read with caution.]

likewise, when the body (or: substance — גשם [?]) revolves… [Damage: ~3 lines obscured by the stain] …upon its axis (קוטב) [?]…

and there occurs to it (ויקרה לו) a motion (תנועה) compounded (מורכבת) [?] from [the two] — therefore (ולזה) [?] its line (קו) appears (ייראה) [?] to incline now toward the one [direction] and now toward the other. [?]

[A red-ink rubric verb opens here, partly faded:] **[Red ink: ויהמר]** [?] — And he said (or: "and it is altered" — reading uncertain; possibly ויאמר, "And he said"): [?] As for the difference (החילוף) that we find among the motions, [Damage: ~2 words] …it is according to the configuration of the spheres. [?]

and this is what we sought to demonstrate (להראות) [?]; and from it (וממנו) [?] you will understand the rest. [?]

[Final lines of the left column run into the lower stain:] …the order (הסדר) [?] … the chapter (הפרק) [as ordinary noun, not a heading] …[Damage: foot of column, ~2 lines, reading not recoverable].

[f. 39v]

Right column:

Also (גם) the celestial body (גשם השמים [?]) brings about (יחדש) [?] for us this difference (החילוף) [?] in the [observed] motion… [Damage: stain crosses the upper-right, ~2 lines partly obscured] …until [the body] returns (ישוב) [?] to the point from which it began. [?]

The body (גשם) of the sphere — once it has completed its revolution — returns to its starting place; and likewise each of its parts (חלקיו) [?] [returns]. [?] For this reason (ולזה) the planets are seen now in one place and now in another, [moving] according to (לפי) the difference of their motions. [?]

[A continuous passage, mid-column, on the planets and the reckoning of their motions — partly clear:] …and the planet (הכוכב) [?] is not at every moment in the place [where] you reckoned (חשבת) it [to be], on account of (מפני) the difference [between] its mean motion and its true [motion]. [?] Rather (אבל) [?] there is between the mean (האמצעי) [?] and the true (האמתי) a difference (חילוף) [?] that is added to it (יוסיף עליו) [?] or subtracted (יחסר) [?] from it, according to its place in [its] sphere. [?]

And know (ודע) [?] that this difference (החילוף), in the planets, is not equal (אינו שוה) [?] in all of them; rather, it varies (יתחלף) [?] from one to another according to the magnitude of its sphere and the [speed of its] motion. [?]

[Red-ink rubric:] **[Red ink: ושנה]** [?] — *And he taught (or: "and he repeated" — ושנה):* [?] We have already explained (ביארנו) [?] [Damage: stain band, ~2 words] … that every motion is either about the poles of the world (or: of the equator — המישור [?]) or about the poles of the [ecliptic] circle (גלגל המזלות [?]). [?] And it has [already] been [shown] [?]… [Damage: ~1 line into the central stain].

and it is not [the case] (ולא יהיה) [?] that the planet [returns] to the very same point (אל אותה הנקודה) [?] [until] it completes (תשלים) [?] [its full] revolution. [?] [Damage: ~2 lines crossing the water-stain, central band — partly illegible]

[Lower-right column, after the stain:] …and the matter (והדבר) [?] is as we said; and from this (ומזה) [?] you will understand (תבין) [?] the cause (הסבה) [?] of the difference [in] the motions among the planets. [?] And [as for] him who differs [with us] (והחולק) [?] in this — [Damage: ~1 word] …his words have no [substance] (אין … ממש) [?]. [?]

and we have already laid down (הנחנו) [?] [as] a premise (הקדמה) [?] [Damage: ~2 words] …that the motion of the sphere is simple (פשוטה), and the motion of the planet (הכוכב) [?] is composite (מורכבת); and this is true (אמת) [?] beyond doubt (בלי ספק). [?]

[A new red-ink rubric near the foot of the right column:] **[Red ink: וזאת]** [?] — *And this [is the matter] (וזאת):* [Damage: foot of right column, lower edge, ~2 lines partly lost to the stain and edge-foxing; reading not recoverable] …the configuration (התמונה) [?] …the host of the heavens (צבא השמים) [?]…

Left column:

[The left column of f.39v is moderately water-damaged across its middle. The lower-left corner bears a later-hand annotation/scribble — see below.]

in accord with the position (המצב) [?] of the planet upon the [ecliptic] circle (גלגל המזלות), and upon its motion (תנועתו) [?]. [?] [Damage: ~2 lines obscured by the central stain]

We have already made clear (ביארנו) [?] that the motion that befalls (תקרה) [?] each one [of them] is according to the configuration of the spheres and [the position of] their poles. [?]

[Mid-left column, partly legible:] …the body (הגשם) [?] revolves (יסוב) [?] about its axis (קוטב) [?], and [the planet] is borne (תנשא) [?] together with it (עמו) [?]; therefore the planet (הכוכב) [?] is found (תמצא) [?] now toward the one [direction] and now toward the other. [?]

and behold (והנה) [?], from this you will understand (תבין) [?] [Damage: ~1 word] …the order (הסדר) [?] of the [several] motions and the disposition (or: difference — החילוף [?]) of each one of them. [?]

[A red-ink rubric verb opens a paragraph in the lower-left column:] **[Red ink: ויחזור]** [?] — *And [the text] returns / And he repeats (ויחזור):* [?] [Damage: stain, ~2 words] …to explain (לבאר) [?] the matter (הענין) [?] of the difference (החילוף) [?] in the motions of the planets, one [planet] differing from another (אחד מאחר) [?] in [the magnitude of] its difference (בחילופו) [?], according to (לפי) [?] the position of the planet (מצב הכוכב) [?] upon (על) [?] the [ecliptic] circle and upon (or: in proportion to) its motion. [?]

[and] in accord with what we explained (כמו שביארנו) [?] above (למעלה) [?]. [?]

[Final line of the left column, faded:] We shall [now] explain (נבאר) [?] [Damage: ~2 words] …the [several] kinds (or: aspects — הפנים [?]) of [the] difference (החילוף), with the help of God (בעזרת השם) [?] …[Damage: lower edge, ~1 word lost].

[Lower-left margin, later hand:] [Later hand: a brief annotation/jotting (~one line); the ink is rubbed and the letters are not securely legible — reading not recoverable. Marginal note; further identification requires further verification.].]

Yesod Olam — Book Two (Cosmology), Chapter Five (continued)

Primary script: Sephardic semicursive, single hand throughout. Red ink used for the chapter rubric and running header. Both folio sides are two-column. The lower

third of both folios shows water-staining and foxing; the recto outer column is faded; several passages are flagged `[?]` and noted as

Right column

the heavens move continuously upon their poles, in that they ever return to the very point from which they set out. This is the meaning of a motion that is one and uniform: that its parts are equal — namely, that in equal times it traverses equal arcs of its circle. [?] And from this it follows that whatever moves with such a motion neither hastens nor slackens, but holds always to a single measure. [?]

[Red ink rubric: "פרק שני" — Chapter heading marker in display position] **On the matter [?] of the second [division]: the simple [motion] and the composite.** [The scribe opens with the red in-line rubric pattern noted in prior batches; the body resumes:]

We have already explained that of the motions, some are simple and some composite; and that the simple is that which proceeds [?] from a single mover, while the composite arises from two motions, [from] two spheres whose motions oppose one another. [?] From this composition there results the difference [החילוף] between the mean motion [האמצעי] and the true motion [האמתי]. The measure of this difference [?] varies according to the magnitude of the spheres and according to the swiftness or slowness [?] of their motions. [Several words here are obscured by the column fade]

And the motion is reckoned [נתחשב] [?] either about the poles of the equator [המישור] or about the poles of the zodiac sphere [גלגל המזלות]. [?]

[Lower-column passage, ~6 lines, partly under water-stain and bleed-through:] … and the matter [?] of this is that the body [גשם] [?] … [text loss, ~several words] … the true [position] … the reckoning [החשבון] … the sought [quantity, המבוקש] [?] … and we return [ונשוב] … the figure [התמונה] [?]. [— bottom four lines largely illegible.]

another [?] … [?]

Left column

[opening lines faded] … that which they say [?] concerning the order [?] … and according to [?] this [it is] … this is the case [?] … [3–4 words lost to fade].

When the planet returns [?] to that same point [?], it is found [?] to have completed its course [?]. And so it is with each one of the seven [planets, השבעה]

[?]: each has its own proper motion [?] particular to it, and a [further] motion shared [?] in common, [namely] the daily [motion, היומית] [?] by which the whole [sphere] is carried. [?]

and the matter of [?] the [planet] [?] … [Red-ink in-line rubric verb, illegible under stain] … and according to this reckoning [החשבון] [?] … the swiftness [המהירות] [?] … and the slowness [?] … and from this [it is understood] [?].

[Several lower lines obscured by water-stain; partial readings:] …the wise [men, החכמים] [?] … and the latter [ones] [?] and the former [ones] [?] … the reason [הטעם] [?] … [text loss]. There is no [?] … in this that contradicts [?] … [].

they reckoned [חשבו] [?] each one [?] … in his [own] time [?] … and the [computation] [?] returns [?] … the years [שנה / שנים] [?] … [bottom lines under heavy stain].

one [?] … and they [?] established [?] … from this … the figures [?] … [final line, foot:] [?].

Right column

Know that whatever there is [?] of motion [?] … it returns [?] … to its [starting] point [?]. [?] We have already explained [?] that the year [השנה] [?] … and that the reckoning [?] of the spheres [?] … is such that [?] … there is in it [?] no addition [תוספת] [?] and no diminution [?] … [a few words lost].

until [?] there is completed [שתשלם] [?] for it [?] … and there comes to be [?] … the planets [?] … [stain]. He [?] … the body [?] of the heaven [גשם השמים] [?] … and we return [ונשוב] [?] to what we [?] … [as] before [כבפנים] [?] … [?]

and the [matter] [?] of the difference [החילוף] [?] of the motions, that it comes to be [?] according to [?] … the difference [?] … and after [?] … the second [?] … and we return [?] again [ונחזור] [?] to the matter [?] … and after this [?] there stands [?] for the sphere [לגלגל] [?] … this [?] … you will find [תמצא] [?] … upon [?] … [partly legible mid-column].

the order [סדר] [?] … [Red in-line rubric verb] … the heaven [השמים] [?] … the sphere [הגלגל] [?] of the difference [?] [or: the sphere of the daily motion] [?] … such that [it returns] [?] to its place [?] alone [?] … so that its parts [?] are equal [?] … [?]

The planet [?] — and this [?] is what [?] … there moves [יעלה / יזוז] [?] … the swiftness [?] of the motion [?] … the elevation [ההסתכל / ההפסק] [?] of the

[planet?] in [?] its [own] motion [?]. By this [?] there comes about [?] the difference [?] between [?] them [?] — namely, between the true [motion] [?] and the mean [motion] [?]. [?] And this is what one ought [?] to bear in mind [?] … [?]

[mid-column, ~5 lines, some legible:] there is a planet [כוכב] [?] whose [body] [?] is great [?] … and there is [one] whose [body] is small [?] … and there is [one] swift [?] in motion [?] … and there is [one] slow [?]. The matter of these [?] is [as we said] [?] … and after [?] this [?] [we return] [?] to [?] the subject [?] … [?] And know that [ודע כי] [?] … the [matter?] [?] … is established [?] … upon [?] [the planet's] proper motion [?] [or: upon the reckoning] [?]. [?]

and they [?] knew [וידעו] [?] each [?] [planet's] place [?] in its [own] period [?] … [?]

[Red rubric, in-line: "ואחר זה" type] **And after this** we shall explain [נבאר] [?] the matter [?] … [stain] … [?]

Left column

[upper lines faded:] …in their [?] times [?] … and we have shown [?] … to the world [?] [or: forever, לעולם] [?] … [?] all of them [?] … [?]

[the planet] returns [?] to [?] its [point] … and there is no [ואין] [?] in this [?] anything that is impossible [?] [or: that contradicts] [?] … [4–5 words lost to fade]. They reckoned [?] … the difference [החילוף] [?] [or: the matter] … of the spheres [?] … [?]

A thing [דבר] [?] … the planet [?] … [is reckoned] [?] upon [?] your [?] [premise] [?] … [several words faded].

For [?] the order [?] of the spheres [?] [is] one [?]; and the daily [motion] [?] is [?] in the figure [?] … as the figure [?] of the [first] thing [?]. [?]

[mid-column:] therefore [?] [it is] for them [?] [a matter] of order [?] … the latter [ones] [?] and they reckoned [?] … and according to [?] … the order [?] … [?]

the world [העולם] [?] [— note: read with care; not העצם, "substance/essence"; context is cosmological order] … in [?] its [?] motion [?] … [?]

[lower lines partly under heavy stain:] …the wise men [?] … the years [?] … [text loss] … and in this [?] … is established [?] … [?]

[Foot of column, partly legible:] …in [?] their [?] motions [?] … the spheres [?] … the difference [?] … [?] [final lines lost to water-stain].

Yesod Olam — Book Two (Cosmology), Chapter Five (continued)

Primary script: Sephardic semicursive, single main hand, with red-ink (rubricated) structural/term labels.

PDF p. 87 (folio 41)

[The page carries two columns of body prose, continuing the discussion of celestial motions from the prior batch. The left column (in the page's right-to-left logical order, the second column) and the right column (the first) both treat the differing motions of the spheres and the resulting mean and true positions.]

The motion of the sphere [?] is composite, since it [the planet] moves [?] together with [the sphere] and is also carried along by it. And after this [ואחר זה] we have explained that this motion is the one that produces the apparent variation, [?] and the matter is as we described it. [?]

Thus you find that each one of the moving bodies has a motion proper to itself and a motion shared in common — and the proper motion is the one by which the variation is reckoned, while the shared motion is the one common to them all. [?] For the spheres differ from one another in their magnitude and in their speed [?], and on account of this difference the mean and the true [positions] come to differ from one another, as we explained above. [?]

[The remainder of this right-hand column continues the same argument, much of it faded and obscured by foxing toward the lower edge. Several lines are only partially legible:] … the body that moves [?] … so that this [motion] is [?] … and the spheres [?] … [Damage / foxing: lower-middle of column, ~4–5 lines, multiple words illegible [?].]

[Left-hand column of p. 87:] … and we have already made known [?] that the matter is so, and that this is the cause [?] … the proper motion [?] … the reckoning [החשבון] of the sought quantity [המבוקש] … [?]

[Several lines here treat the relation of the equator (המישור) and the pole (קוטב) to the motions under discussion [?]; the column is legible in places but degraded in its central portion. Transcription of the contiguous sense is not secure — flagged for further review.]

and from this it follows [?] that the equating/variation [החילוף] arises, as has been stated. And so [וכן] [?] … (interlinear: a short two- or three-word insertion appears above the line near the column's lower third; not securely legible — [?).]

[Two columns of body prose. The left column (logically the later, inner column) carries a dense sequence of **red-ink rubric terms**, each apparently naming a defined kind of revolution or cycle (tekufah / haqqafah) and followed by its definition in black ink. This reads as a glossary-style enumeration of technical terms for the periodic returns of the celestial bodies.]

Right-hand column (p. 88)

The introduction [?] [or: the premise — הקדמה [?]]: the gathering-together [הקבוץ — conjunction [?]] in the [act of] revolution [?] is by way of the motions. [?] The motion [?] is measured [?] by the magnitude [?] of the variation in it [?] and by [?] … [Damage: foxing across the upper-right; several words [?].]

so that when [?] the body is added [?] … it is on account of the variation [החילוף] [?] which is in it. [?] And this is what we said [?] above, that the mean [האמצעי] and the true [האמתי] differ from one another. [?]

[Mid-column, legible stretch:] And the spheres in their revolutions [?] — their nearness [קרבתם] [?] … the bright stars [צבא השמים [?]] in their stations [?] … each one according to [?] its [own] revolution [?].

[The lower portion of the right-hand column continues the same enumeration of motions and their measurement; legibility is fair but interrupted by the central gutter and by foxing. The argument turns toward defining the several named cycles set out as red rubrics in the facing (left) column.] [?]

Left-hand column (p. 88) — sequence of red-ink rubric terms

[Red ink: התך… / "the motion" [התנועה [?]]] — [black:] [?] … so that it has no [?] revolution [?] … and this is the [?] of the body [?].

[Red ink: הקפה / "revolution" (haqqafah) [?]] — [black:] and this is [?] … its return [?] to [its starting point] [?].

[Red ink: התקופה / "the cycle" (tekufah)] — [black:] the first [?] of the cycles [?]: in [?] the mean motion [התנועה האמצעי [?]] … [?]

[Red ink: התקופה השני / "the second cycle"] — [black:] [?] … and from this is reckoned [?] … [?]

[Red ink: השואת התקופה / "the equation of the cycle" [?] (השוואת התקופה)] — [black:] and this is [?] its cycle [?] … [?]

[Red ink: התקופה השלי… / "the third cycle" (התקופה השלישי) [?]] — [black:] [?] …

[Red ink: התקופה / "the cycle" (tekufah)] — [black, sub-rubric] the third [השלי… [?]]: [?] the reckoning [?] of the motion [?] … [?]

[Red ink: הקוף / "the encompassing" [or הקיף — revolution [?]]] — [black:] [?] … the body [?] … the true [האמתי [?]] … and this is [?] its revolution [?].

[Red ink: התקופה עם… / "the cycle together with…" [?]] — [black:] [?] … its motion [?] with [?] … [?]

[Red ink: תשואת התקופה / "the equation of the cycle" [השוואת התקופה [?]]] — [black:] only [רק [?]] [?] … the motion [התנועה [?]] … like [?] … from [?] the cycle [התקופה]. And the matter [?] [is] one [אחד [?]] … and the reckoning [?] [is] of the motion [התנועה] … [?]

[The black-ink definitions attached to these red rubrics are short but heavily abraded; on this folio the red iron-gall rubric ink has faded markedly faster than the adjacent black, so the rubric headwords are in several cases only partially recoverable. The whole left column of p. 88 is a strong: the rubric sequence is structurally important (it names the work's technical vocabulary for the kinds of celestial revolution), and more than two of the rubric headwords are flagged [?].]

The substance of this batch: a continuation of Chapter Five's analysis of celestial motion. The author distinguishes each planet's proper motion from the motion it shares in common; explains that mean and true positions diverge because the spheres differ in size and speed; and then sets out — as a series of red-ink rubric headwords with short definitions — the technical vocabulary for the several kinds of periodic return (tekufah / haqqafah) of the heavenly bodies. Much of both folios is degraded by foxing, gutter loss, and (on p. 88) faded rubrication; secure continuous translation is not possible for substantial stretches, which are flagged for further reconciliation.

Yesod Olam — Book Two (Cosmology), Chapter Five (continued)

Script: Sephardic semicursive, single principal hand throughout. Iron-gall ink, considerably faded; the right half of p. 90 carries a broad water/foxing stain that

swallows the ends of many lines, and both folios show edge wear. Body text in black; one red-ink rubric headword on p. 90 (*נחזור*). The chapter continues with no display heading on either folio — the long unrubricated run from the prior batches persists. Running headers survive faintly at the top center of each leaf ("מאמר ב" / "פרק"). Numerals throughout are read with the documented care for this hand (ש losing its left stroke and resembling ע; ב/ד, י/ו discrimination); genuinely ambiguous glyphs are flagged.

Right column

The discussion of the cycle [*tekufah*] and its revolution [*hakkafah*] continues from the preceding folio. The reckoning of the body's [planet's] return is taken from the place at which it began; and when it completes its revolution and returns to that same place, that is one full revolution. [?]

By this method we know the measure of each body's motion — its mean motion [*ha'emtza'i*] and its true motion [*ha'amiti*] — for the spheres differ from one another in magnitude and in the speed of their motion. [?] Therefore the difference [*haḥilluf*] between the mean place and the true place arises, and from it the equation [*hashva'ah*] is derived. [?]

[The middle of this column is faded; several phrases recur from the cycle-glossary established on the prior folio: *התקופה* (the cycle), *השוואת התקופה* (the equation of the cycle), *הקפה* (revolution).] [Degraded]

and when the body returns to the point from which it set out, the revolution is complete, and a new revolution begins. We reckon the degrees [*hamma'alot*] it has traversed, and from the reckoning [*ḥeshbon*] we obtain what is sought [*hamevukash*]. [?]

The mean [motion] is that which is uniform and never varies; the true [motion] is that which is reckoned for the body at the actual place where it is found. [?] And whatever is sought of this — whether of the body's own [proper] motion or of the [shared] common motion — is derived by this reckoning. [?]

This is the form [*hatemunah*] of the matter; and we return [*venashuv*] to complete what we set out to explain. [?]

Left column

The mean position, then, is that which proceeds at an even pace; and when [the reckoner] wishes to know the [true] position, he reckons the difference and adds

it to, or subtracts it from, the mean, according to whether the place lies in the [ascending] half or the [descending] half. [?] [Degraded mid-column]

[Several faded lines here; technical vocabulary of the chapter recurs — *התקופה*, *האמתי*, *האמצעי*, *החילוף* — but individual words cannot be read with confidence.] [Degraded]

and the reckoning of the cycle [*ḥeshbon hatekufah*] proceeds by this rule. We have shown above how the revolution [*hahakkafah*] is completed for [each] body, and how the difference is taken between the mean and the true. [?]

By [the planet's] own [proper] motion the reckoning is one thing, and by the common motion it is another; and the matter of [each] body differs from that of its fellow according to the magnitude of its sphere and the speed of its motion. [?] We have already established this in [the discussion of] the order of the spheres [*seder hagalgalim*]. [?]

[Lower portion of the left column is badly faded; reading uncertain throughout.] [Degraded]

and the cycle [*tekufah*] of the year is reckoned by this method, as we shall explain in its place [i.e., in Book Four, on the calendar]. [?] And this completes [the matter]; and one returns and reckons by it [as needed]. [?]

Right column (water-stained; line-ends frequently lost)

according to what we reckoned and set down before you, [namely] that the difference upon the [planetary] body is reckoned [?] — for the spheres differ from one another in magnitude, and one is swifter than another in its motion. [?] [Damage: water stain, right margin, several characters per line lost]

The mean position diverges from the true position in [the measure of] this difference; and when you have reckoned it, you add it to, or subtract it from, the mean, and what results is the true [position]. [?]

By [a planet's] own proper motion [the reckoning] is one [value], and by the [shared] common motion it is another; and so we have explained it. [?]

[Red ink: נחזור] — *We return* [Red-ink rubric headword introducing a recapitulation; the black definition/continuation follows.]

We return now to that which we set out to make known to the student: that the bodies [planets] which the eye perceives — they [each] have a proper motion [*tenu'ah*] of their own, and they share also in the common motion. [?]

According to the magnitude of [each] sphere and the speed of its motion, so is the measure of its revolution [*hakkafah*]: the larger and swifter, the shorter [its period]; the smaller [in arc traversed per day] and slower, the longer. [?] [Reading of the comparative clauses uncertain — water damage]

[The middle of this column is heavily stained; the running vocabulary of the chapter — *התקופה, הקפה, תנועה, האמצעי, האמתי, החילוף* — recurs, but individual sentences cannot be read with confidence.] [Degraded]

and when the body completes its revolution and returns to the place from which it began, the cycle [*tekufah*] is complete, and we reckon from it a new beginning. [?]

This is the reckoning of the cycle and of its equation [*hashva'at hatekufah*], by which the true place is obtained from the mean. [?]

Behold, we have explained the matter of the cycle and its revolution and the equation thereof; and a [further] gate [*sha'ar*] [follows]. [?] [The transition wording is faded; whether a new chapter or gate opens here cannot be confirmed —]

[Vertical list at foot of right column]

A short ruled list of headwords closes the column. Each entry is a single short word or phrase; the layout is a single-column list, not a numerical table (no headers, no numerals in cells). The ink is faded and several entries are uncertain. Transcribed top-to-bottom as written:

- שֵׁם הכוכב [?] — *the name of the planet* [or: *the place of the planet*; reading uncertain]
- הקדמה [?] — *premise / introduction*
- וכמותו ומדתו [?] — *and its quantity and its measure*
- אלף [?] — [numeral / word "thousand," uncertain]
- שמושו [?] — *its function / service*
- עובי [?] — *thickness*
- הקפה ועגלה [?] — *revolution and circle*
- קימה ועמד [?] — *rising and standing*
- תקופה ושנה [?] — *cycle and year*

[Vertical list — degraded; >2 entries flagged `[?]`: The list appears to be a topic/key-word index or chapter-contents register; classification requires further verification.]

Left column

as we reckoned and set down for you, the body's [planet's] proper motion [is reckoned] thus, and likewise the common motion. [?] We have shown that the difference [*ḥilluf*] between the mean and the true arises from the inequality of the spheres in magnitude and in speed. [?]

[Upper-middle of the column is faded; reading uncertain.] [Degraded]

and the matter is brought to completion by this reckoning, [for] the mean [motion] is even and uniform and never varies, while the true [motion] varies according to the place of the body upon its sphere. [?]

The student should grasp [this] well, for upon it the whole of the reckoning depends: the difference is added to, or subtracted from, the mean, and what results is the true [position] sought. [?]

[Lower portion of the column faded; recurring chapter vocabulary present but individual readings uncertain.] [Degraded]

and we reckoned the cycle [*tekufah*], and we explained its equation, and from it the true [place] is obtained. [?] And so the matter is completed; and one returns and reckons by it. [?]

Yesod Olam — Book Two (Cosmology), Chapter Five (continued)

Primary script: Sephardic semicursive, single hand throughout. Both folios carry heavy water-staining and foxing — the lower third of f.43r and the central/lower band of f.43v are substantially degraded, with the iron-gall ink browned and locally washed out. The right column of each page is the logical start (text reads right-to-left). The Vatican watermark overlay and the verso bleed-through have been disregarded per protocol. Folio number "43" appears in the upper-left margin of the recto; a running header sits at the top center of each page.

f. 43r

Right column

[the opening word is washed out; the column begins mid-discussion of the calculated revolution and its remainder] [Damage: water-stain, top of right column, ~1–2 words lost per line for the first several lines [?]] … and Hipparchus

[אבכרכוס / אבכרכוס — *Abkharkhus* = Hipparchus [?]] verified this through observation, until the matter became established for him in this way [?].

And so it has been confirmed by observation [שהביטונו [?]] — for it returns [?] to the very point from which it set out. And the equation of the cycle [השואת התקופה] depends upon this reckoning. Therefore, when you wish to know the mean position [האמצעי] at any time you seek, take the completed revolutions and what remains beyond them [?], and the remainder is what you require [המבוקש].

[The next several lines are legible only in part:] … and when you have done this [?], the true position [האמתי] will come out for you correct, without error [?] … for the difference [החילוף] between the mean and the true [is governed by] the rule we set down [?].

[Damage: the lower-right quarter of the column is water-darkened; readings here are partial.] … so that the seeker [המבוקש [?]] should not err … and this is what we intended [?] … and from here you will understand the matter of the cycles [התקופות] and their equations [?]. And the matter [is] as we have explained [?].

Left column

[The left column is somewhat better preserved in its upper half.]

Now Hipparchus [?] reckoned [?] this and verified [?] it … (interlinear: a short inserted word above the line, illegible [?]) … the deferent [?] in its motion [תנועה], and its return [הקפה] to the point of its beginning [?].

And we [shall] return [נחזור [?]] to clarify what we set forth [?]: that the magnitude of each sphere [גלגל] and the swiftness of its motion together determine the measure [שיעור] of its revolution. For the matter [is] as we said [?] — that the larger [body] and the swifter of motion, its revolution [הקפה] is shorter [?]; and the smaller and slower, its [revolution] is longer [?].

[Damage: mid-column water-stain, ~2–3 lines partly lost [?]] … and the planets [הכוכבים [?]] in their order [סדר] … each one of them [?] … according to the [?] of its sphere.

[Lower left column, increasingly degraded:] … and you should know [?] that the matter [is] not [?] … [several words washed out] … and we have already explained [?] this in what preceded [?]. … and the reckoning [החשבון] of … [?] … upon the degrees [המעלות [?]] …

[Damage: bottom ~4 lines of the left column are heavily water-darkened; only isolated words legible — "the cycle" [?], "its motion" [?], "and this is" [?]. Marked as a]

f. 43v

Right column

[The right column upper portion is moderately legible.]

the matter [is] established [?] and the reckoning is correct [מתוקן [?]] … so that it [?] … and behold [?], when [the body] returns [?] to the point [?] from which it set out, [the cycle] is completed [?]. [Damage: water-stain crosses the column at mid-height — ~2 words per line obscured for several lines [?]]

And [from] this [you] will understand [?] the order of the revolutions [הקפות [?]] of the planets [?], that each one of them returns [?] to its place [מקומו [?]] at the end of its cycle [תקופתו [?]] … [several words washed out] … and the time [הזמן [?]] of its revolution [?].

[Mid-column, degraded:] … and the matter [is] as we explained [?] above [?] … and the mean [האמצעי [?]] and the true [האמתי [?]] … and the difference [החילוף [?]] between them [?] … [washed out].

[Lower right column:] … and you should know [?] … [Damage: the lower-right portion of the column is heavily darkened; only scattered words — "the planet" [?], "its motion" [?], "the cycle" [?] — are legible.]

[The final line of the right column appears to carry a sense-marker or paragraph-end mark [?].]

Left column

[The left column upper portion is among the better-preserved regions of this folio.]

And this [is] what we wished [?] to clarify [?] in the matter of the cycles [התקופות] and their reckonings. [Damage: water-stain, upper-left, ~1 word per line for the first 2–3 lines [?]] … and the deferent [?] [in] its motion … and its return [?] to its beginning.

For the spheres [הגלגלים] differ [?] one from another [?] in [the measure of] their motions [תנועות [?]] and the periods [?] of their revolutions [הקפותם [?]]. The swift one completes its revolution in a short time [?], and the slow one [completes it] in

a long time [?]. (interlinear: a short inserted correction above the line — illegible [?)]

[Mid-column:] And [from] this you will understand [?] … [Damage: ~2–3 lines washed out at mid-column [?]] … that the reckoning [החשבון [?]] returns [?] to its place [?] … and the seeker [המבוקש [?]] does not err [?] … and this is the rule [הכלל [?]] that we set down [?].

[Lower-left column, degraded:] … and we have already explained [?] this in the gates [השערים [?]] that preceded [?] … [several words washed out] … and behold [?] the matter [is] complete [?] … [Damage: bottom ~3 lines heavily darkened; isolated words only.]

Yesod Olam — Book Two (Cosmology), Chapter Five continuing → Chapter Six

Script: Sephardic semicursive, single primary hand throughout. Red ink used for chapter rubrics and a small number of structural labels. Both folio sides are badly affected by a broad water/damp stain running down the center and into the gutter, with edge loss at the outer (right) margin of the recto and along the torn upper-right corner. Many readings are consequently insecure and flagged.

[f. 44r]

Right column (begins mid-discussion)

by means of the magnitude [of the sphere], just as we have laid down. The line of revolution [קו ההקפה [?]] will then be as the magnitude of the body, since [?]…

[Damage: the head of this column is crossed by the upper stain; the first two lines lose roughly a third of their words.] …the equation of the revolution [השואת התקופה], and that which is gathered [המקובץ [?]] is the true [position] [האמתי]; and the difference [החילוף] is the surplus of the mean [האמצעי] over the true, or the surplus of the true over the mean [?].

We have already shown [?] that the matter [העניין] follows after [?] this rule [הכלל], and there is no need to repeat it [?].

(interlinear: above this line a corrected word, illegible — [?).]

The reckoning of the revolutions [חשבון התקופות] and what is bound up with them [?] —

[Several short labelled lines follow, each marked off by the scribe; they read as a brief enumerated list, the leading words in part rubricated:]

- The fixed [stars] [הקבועים [?]] and the moving [הנעים [?]] — line ?
- if there is innovation/renewal [חידוש [?]] — [Red ink: marginal stroke]
- the leap [years?] [העיבור [?]] [?] and the simple [year] [ופשוטה [?]]
- [3] ג. thus [כן [?]] the small/lesser [reckoning] [הקטן [?]]
- and the surplus [והעודף [?]] [2] ב. line [?]
- the equation of the revolution [השואת התקופה]
- and we shall return [ונחזור [?]] — line ?

[Red ink header: "השער הששי"] — Gate Six [?]

[The rubric word is largely the only confidently red element; the rest of the heading is faded. Reading "פרק הששי" / "השער הששי" is uncertain — see report.]

And we say that now that we have made known [שהודענו] the measure of the magnitudes [שיעור [?]] and the…

[Damage: stain crosses the column; ~⅓ of each of the next two lines lost.] …in the time of the revolution [בזמן התקופה] the body of the sphere returns [תחזור [?]], and the equation [וההשואה [?]]…

and the equating-line [המעדל [Arabic: al-muʿaddil, "the deferent / equating line"] [?]] …in it [?] a portion [חלק] of the body [?]…

upon the diameter [הקוטר] of the body [?], the body returns/recurs [תחזור] …the body [גשם [?]]…

in their [?] cycles [במחזורם [?]], when the equation of the revolution [השואת התקופה] is …

[Damage: 1–2 lines effaced in the stain.] …since when the time [העת [?]] …the revolution [התקופה] and the equation [וההשואה [?]] …the reckoning [החשבון]…

we shall return [נחזור [?]] and complete [ונשלים [?]] the reckoning [?] and according to [ועל [?]] …

Left column

[Red ink header — large rubric:] **פרק ששי — Chapter Six**

[Beneath the rubric a sub-line, partly red: "בהקדמה … סוף המחזור" / something like "by introduction … the end of the cycle" [?] — reading insecure.]

that is set in order [שבכלל [?]] of the diameters [הקטרים [?]] —

The bodies [הגשמים [?]] and the size [והגודל [?]]: how [איך] and whence [ובמה [?]] it goes around [תסוב [?]] … every one of them [כל אחת מהם] …

the body [הגשם] in its [own] reckoning [בחשבון [?]] …the diameter [הקוטר] of the first [הראשון] …

and we have set down [וחקקנו [?]] that according to [?] …the bodies [?] in the proportion/value [בערך [?]] …

the bodies [הגשמים [?]] of the spheres [הגלגלים] …

[Damage: 2 lines lost in lower stain] …in the proportion [בערך [?]] …the bodies [?] …

[lower margin worn] …the line [הקו [?]] …their cycle [מחזורם [?]] [?]

[f. 44v]

Right column

This is a body [גשם] that is set in order [שבכלל [?]] one [אחת], and we have already taken [לקחנו / [?] נקטע [?]]…

the spheres [?] and the [?] …and from this [?] …it goes around [?] …with strength/force [בכוח [?]] …

we have arranged it [?] …and from [?] …the equating-line [?]…

and the reckoning of the bodies [וחשבון הגשמים [?]] was [היה] upon them [עליהם] … in another [באחר] …I shall say [ואומר] …that is [כלומר] …

[Damage: stain through the middle of the column; the next several lines lose their centers.] …when [?] the cycle [המחזור] of the difference [החילוף] is [?] …the spheres [?] above [למעלה [?]] …upon the diameter [על הקוטר] …

in the place of the day [?] [במקום היום [?]] and we shall take/we take [ונקח [?]] … upon them [?] …line ?

[Several lines here are too far gone in the stain to read with any confidence — [?]; marked as a review zone.]

and we say [?] [ונאמר [?]] that the cycle [שהמחזור] of the bodies [הגשמים] together [יחד [?]] …its measure [שיעורו [?]] and that the…

there is in them [?] … the bodies [הגשמים] …their cycle [מחזורם [?]] …

the reckoning [החשבון] …upon the diameter [על הקוטר] …it returns/recurs [יחזור [?]] …in the proportion [בערך [?]] …it goes around [יסוב [?]] …its cycle [מחזורו] …

and a portion [וחלק [?]] …the bodies [?] in their place [במקומם [?]] …its cycle [מחזורו] …

upon [?] the reckoning [החשבון] …of the difference [החילוף] in their place [במקומם [?]] …its cycle [מחזורו] …

Left column

[Damage: the head of this column is in the upper stain; first lines partial.] …and now [ועתה] that this has been [?] …in their place [?] …

and we shall complete [ונשלים [?]] the cycle [?] …upon [?] the reckoning [החשבון] …

this is the rule [זה הכלל [?]] …and according to it [?] …the difference [?] …

[Red ink: "ולזה"] — "And for this reason…" [a red-inked sentence-opening rubric mid-column] …the body [?] …and yet [?] …upon [?] …line ?

in the reckoning [בחשבון] …of the bodies [?] …its cycle [מחזורו] …

[Damage: 2–3 lines lost in lower stain] …the diameter [הקוטר] …its cycle [מחזורו] …

[Lower red rubric: "ונחזור" / "ולזה" [?] — a second red structural opening, reading insecure.] …and we shall return [ונחזור [?]] …

[final lines worn at lower margin] …every one [כל אחת [?]] …of the body [הגשם] … **[Red ink: "שער"]** — gate [?] …

Translation note. Pages 93–94 fall in one of the most heavily damp-stained openings of this part of the codex: a broad vertical water-stain runs down the center of each leaf and bleeds into the gutter, and the recto has torn-corner and outer-margin loss. The substance is continuous with the prior batch — the reckoning of planetary **revolutions/cycles** (התקופות / המחזורים), the relation of a sphere's **body/magnitude** (הגשם, הגודל) to its **diameter** (הקוטר) and the **time of its revolution** (זמן התקופה), and the **equation of the revolution** (השואת התקופה) relating **mean** (האמצעי), **true** (האמתי), and **difference** (החילוף) positions. A new **red-ink chapter rubric** — **פרק ששי, "Chapter Six"** — appears in the left column of f. 44r, with what reads as a parallel **"Gate Six" (השער הששי [?])** label in the right column; the chapter accordingly turns over from Chapter Five to Chapter

Six within this batch, though the damaged state makes the exact rubric wording insecure. No mathematical tables appear on these two folios; no figures.

Yesod Olam — Book Two (Cosmology), Chapter Six

Script: Sephardic semicursive, single primary hand, two columns per page. Red ink used for sentence-openers and a structural label. Heavy foxing, water-staining, and edge wear; the inner-gutter and lower-margin readings are degraded. Numerals throughout are at the limit of legibility at this resolution — transcribed verbatim with `[?]` where the glyphs are genuinely ambiguous, and flagged collectively as

Page 95 (f. 45r)

Right column (begins mid-discussion)

in this matter, regarding the days that pass over the body [גשם] of the sphere — namely, the days of the sphere's revolution. And whatever its measure may be [?], by means of this reckoning you arrive at [?] the days of its revolution; and likewise [you arrive at] whatever [?] is its measure [?]. For the body [גשם] of the sphere does not [?] complete its revolution [in] equal portions [?]. And he said [?]: take [?] the days of its [the sphere's] revolution and reckon them [?].

For when the body of the sphere is large [?] and its diameter [קוטר] is great, its revolution is [the] longer [?]; but when its body is small [?] and its diameter small, its revolution is the shorter [?]. Therefore [?], with respect to the body of the sphere, you reckon [?] the days of the sphere — that is, [the days] over the sphere [?]. And as for what we said [?], that the body of the sphere completes its revolution in equal measure [?], [this is] in respect of the [whole] sphere [?].

This reckoning of the sphere's revolution [תקופת הגלגל] [?] requires [?] that you set the days [?] of its mean [course], and that you join to them [?] the days of the difference [?]. The sum is the days [?] of the [true?] revolution [?] — and [?] thus [?] the true [course?] and [?] the days [?] you have, complete [?]. And the reckoning [חשבון] [?] is — its days [?] [are these]: take [?] the days of its mean [course] [ימי האמצעי] [?], and the reckoning is sound [?]. The mean [האמצעי] [?] of the body [?] is the sphere [?]; the difference [?] is the [days of the] reckoning [?]. He completes [?] its revolution [תקופה] — that is, its days [?]: take [?] the days of

its mean [?], and the days [?] of the difference [?] you reckon [?]. Thus [?] the true [?] revolution [?] is whole [?].

And as for [the case of] one whose mean [course] [?] is sound [?] and the body [?] is [?] — take [?] the days of the sphere [?]. The reckoning [?] of [?] the true [revolution] [?]: when [?] it [?] you have [?], and you place [?] over it [?] the difference [?]. The mean over [?] the true [?] [?].

[Red ink: רהט החקופה] [Red ink: "the course of the revolution" — reading insecure; possibly רהט התקופה, "the running/course of the revolution"] For [?] by [?] this [?] the sphere [?] is fixed [?]. The body [?] over [?] the sphere [?] [completes?] [?] its revolution [?] over [?] [its] mean [?] and [?] over [?] its [?] [?]; the difference [?] from [?] the [?]. And the body of the sphere [?] over [?] the [?] [?] — take [?] its days [?]. The true [?] revolution [?] [?] is whole [?]; and the [?] [?] [?].

To the body of the sphere [?] [?] [reckon?] the difference [?]; and as for the sphere [?] whose [?] mean [?] is over [?] its body [?], the reckoning [?] is sound [?]. Thus [?] the true [?] revolution [?] is whole [?], as [?] [we said?] [?].

[Several lines here are obscured by water-staining and foxing across the lower-right column; the procedural sense — combining mean-days and difference-days to obtain the true revolution — repeats, but individual numerals and the closing clause are not securely recoverable.]

Left column

over the body of the heavens [גשם השמים] [?], the days [?] and the [?] of the sphere [?], and over [?] the sun [החמה] [?]. And [?] when [?] you take [?] each one [?] [of] them [?], the sphere [?] [?] is whole [?]. And from [?] this [?] you reckon [?]: the days [?] over [?] the body [?] of the [?] — take [?] for [?] the days [?].

When [?] [you have?] [?] the reckoning [?], take [?] each one [?] [of] them [?] — that is [?], the days [?] of the [?] [?]. When [?] from [?] the reckoning [?] the days [?] [?], take [?] the days [?] of the sphere [?]; this [?] is its [?] [?] of [?] the sun [?].

[Several heavily-degraded lines: a worked numerical sequence concerning days of the sphere and the sun's days appears here, but the gematria numerals are not securely legible — flagged for further review.]

over [?] its body [?] [?]; this is its mean [?]. And [?] when [?] from [?] the difference [?] over [?] its body [?] [?] — take [?] the days of the sphere [?], [these being?] the days [?] of the sun [?].

the difference [?] is [?] of [?] the [?] over [?] the body [?] of the sun [?] [?] — take [?] the days [?] [?]. The reckoning [?] is whole [?]. And the body [?] of the [?] over [?] its mean [?] [?] — its days [?] [?]. [?] Until [?] [?]; and [?] the [?] [?] [?] he completes [?] its days [?]. The body [?] of [?] [?] over [?] its [?] [?] — its days [?] of [?] the sun [?].

[Red ink: וכן] ["and thus"] [?] [you] [?] [?] until [?] [?] the days [?] [?] take [?] the days [?] of the sphere [?] [?] over [?] [?] its body [?] [?].

the day [?]; and the [?] [?] of [?] [?] [?]. And the [?] [?] — [?] [?] [?]. [?] of [?] [?] [?] [?] [?].

the [?] reckoning [?] [?]; and [?] [?] [?] over [?] [?] [?]. [Numeral?] over [?] the body [?] of the sun [?] [?] — its days [?] [?].

[Two lines, lower-left column, lost to edge wear and staining; closing clause not recoverable.]

over the days of the sphere [ימי הגלגל] [?], and they [?] are [?] [a numeral] [?]. And [?] [?] [?] [?] reckoning [?] [?].

over its mean [?]; and [?] [?] [?] [?] [the days?] [?]. [?] [Hebrew numeral, illegible] [?] [?].

[Marginal mark / line-end flourish, lower-left: a sign resembling "ב" with a stroke — likely a verse/clause divider rather than a numeral.]

[Bottom-line, left column: "מאדים [Mars] [?]… האקלים [the clime] [?]…" — these structural/planetary terms appear, but the surrounding clause is degraded.]

Page 96 (f. 45v)

— possibly an early quire/leaf numeral; reading insecure]

Right column (begins with a rubric-introduced clause)

[Red ink: שאלה] ["Question" / "problem"] [?] — possibly the opening of a worked problem [?]. The [?] difference [?] is fixed [?] over [?] [?] the [?] [?]; turn [?] back [?] the [?] [?]. And [?] beyond [?] this [?] you [?] take [?] [?], that [?] you may [?] arrive at [?] [?] [?].

In [?] the [?] [?] [?] of [?] [?] the [?] [?]; and [?] over [?] [?] [?] take [?] it [?] [?], and [?] [?] you reckon [?] [?]. The [?] revolution [?] [?] [?] as [?] [the days?] [?] he completes [?]; and [?] over [?] [?] [?] [?] [?].

He is [?] [?] over [?] [?]; the body [?] is [?] over [?] its [?] [?] — its revolution [?] is whole [?], over [?] it [?]. Therefore [?] [?] [?] [?] [?] the body [?] [?] [?] over [?] the days of the sun [ימי החמה] [?].

And as for [?] [?] [?] [?] [?]; [?] [?] [?] over [?] [?] [?]. And [?] [?] the reckoning [?] [?] [?] [?].

the days [?] of [?] [?]; and [?] [?] [?] [?] [over?] [?] [?]. And [?] [?] [?] over [?] [?] [?]. And [?] Isaac [?] [reading insecure — most likely a verb form, e.g. ויצחק or a copyist's word, NOT the author's name; per author-self-reference skepticism, do not treat as a personal name] [?] [?]; [?] [?] [?]. And [?] [the sphere?] [?] [?]; [?] [?] [?] [?] [?].

The [?] [?] [?] [?] [?]; and [?] the [?] [?] [?] [?]. And [?] [?] [?] [?]; the [?] [?] is [?] over [?] [?] [?].

take [?] [?] [?] [?] [?]; [?] [?] [?]. And [?] [?] [?] over [?] [?] [?]. The [?] [?] [?] [?] [?] over [?] [?] [?]; he completes [?] [?] [?]. And [?] [?] [?] [?] [?] [?] [?].

[Lower-right column, several lines degraded by foxing and gutter-shadow: the procedural matter — combining the difference with the mean over the body of the sphere/sun to obtain the true revolution — continues; numerals not recoverable.]

[Red ink: יב מעלות] ["12 degrees" — reading insecure; possibly a line-end label "12 [degrees]"] [?]. And [?] thus [?] [?] until [?] [?] [?] its [?] [?] [?] [?] [in?] [?] [?].

Left column

the heavens [?] [?] over [?] [?] [?] [?]; and [?] [?] [?] [?] [?]. And [?] over [?] the [?] [?] [?] [?] [?].

over [?] [?] [?] [?]; and [?] [?] the [?] [?] [?]. He [?] [?] [?] over [?] [?] [?] [?].

[Red ink: וכן] ["and thus"] [?] he [?] [?] [?] [?] the [?] [?]; [?] [?] [?] [?]. And [?] [?] [?] over [?] [?] [?] [?]. And [?] [?] [?] [?] [?] [?].

and as for [?] [?] [?] [?] [?]; [?] [?] [?] [?] over [?] [?] [?] [?]. And [?] [?] [?] [?]; [?] [?] [?] [?] [?].

The [?] [?] [?] over [?] [?] [?] [?]; and [?] [?] [?] [?] [?] [?]. The [?] [?] [?] [?]; [?] [?] [?] [?] over [?] [?] [?].

the days [?] of [?] [?] [?] [?]; [?] [?] [?] [?]. And [?] [?] [?] over [?] [?] [?] [?] [?]. [?] [?] [?] [?] [?] [?] [?].

[Red ink: ב] [a red letter "ב", line-end — likely a clause/answer divider rather than a numeral "2"] [?]

[?] over [?] [?] [?] [?] [?]; and [?] [?] [?] [?] [?] [?] [?]. And [?] over [?] [?] [?] [?] [?].

and [?] [?] [?] [?] [?] over [?] [?] [?] [?]. The body [?] over [?] [?] [?] [?] [?]; [?] [?] [?] [?] [?].

[Lower-left column, several lines: the closing of the chapter's procedural discussion. The recurring frame — *mean-days + difference-days = true-revolution-days, scaled to the body/diameter of the sphere relative to the sun* — is present throughout, but the specific concluding numerals and the chapter's terminal clause are obscured by staining and edge wear. Flagged as a]

[Bottom-line, left column: "12" — "[?] במנך קוטה שיגיע עד וכן מעלות יב degrees, and thus until its [pole/limit?] reaches [?]" — reading highly insecure; numeral "[12=] "יב and "מעלות" [degrees] are the most confident tokens.]

Yesod Olam — Book Two (Cosmology), Chapter Six (continued)

Vat. ebr. 380, ff.. Sephardic semicursive hand, two columns per page (read right column first, then left). Black body ink with intermittent red-ink rubrication. Significant water-staining at the lower gutter and edge wear; several passages are faint and flagged below.

PDF p. 97 (right-hand leaf)

Right column

the measure of the mean course of the sun is what produces this [result], whether for [a body] greater than itself or smaller. He combined the reckoning of the difference with this [value], so that he might know each one [?]. He arranged each one [against] the next, [setting] this one before that, since this is what the demonstration requires.

[Red ink: וכן] **And likewise** [?] one must take the difference and combine it. [Red ink: הפרק] [?]…

[The argument continues on the relation of each sphere's body to its companion:] For if a thing be set upon its true [position] [?], this is the thing that is sought after by the demonstration. And [the author] [?] said: from this it follows that he

should know upon each one [its proper measure], for if he set [it] otherwise it would not be straight [?]. He set down [the matter] [?] — for this is the foundation [?] upon which the whole rests — that this one is prior and that one posterior, [reckoning each] body against [its] companion's body [?].

[Red ink: אלא] **Rather** — by way of a [the measure of] [?] proportion he weighed [?] each one against the next, [comparing each] body against [its] companion's body [?].

[Several lines, heavily abbreviated, on the comparison of the bodies of the spheres:] ...all of them are upon this likeness [?], the form being [?] one and the same — this is what he intended throughout [?]. And there is in it [?] one [proportion] [?]; and it [?]... he set down [?] each one [against] its companion [?], and combined [?] their measures, this with that, [so that] the reckoning come out straight [?].

these things are [as] a foundation [?] upon which the others are built [?]. [The text here is faint and partly effaced; I read the recurring vocabulary of "body" (גשם), "measure," and "set/arrange" (סדר) but several connective words are illegible.] ... upon his understanding [?], for he is the one who reckons [?] and combines [?]. The bodies — [each] against [?]... this is the demonstration that I have arranged [?]. And there is [in it] a matter [?] — [?] one's body against the next [?].

[A passage on a worked figure/construction:] ...I have set down the order of the diagram [?] [התמונה] before you, that the demonstration may be plain [?]. And it was [?] in [the manner of] [the ancients] [?]... each one of them [?]...

you reckon [?] the matter — [?] the body of the sphere [?] [its proper] measure [?], for he is the one who combines [?] the reckoning of the [mean course] [?]. He combined [?] the difference [?] with it [?], so as to bring out [?]...

[Lower right column, water-stained — only fragments legible:] ...another matter [?]... [?] each one [against?] another [?]... and this [?] he was able [?]. Each one of them [?] he set down [?] — its body [?] in like manner. As [?]... the order [?] [?]... he combined [?] them, this with that, [so that] the diagram [התמונה] [?] come out [?] for you [?].

Left column

[The discourse turns to the demonstration of a sphere's revolution and its position:] When the measure of the mean course [is known], that of the revolution [is also known], and you derive [?] the reckoning of the difference. He combined [?] [it], so as to know [?]...

another matter [?] — the body [?] against [its] companion [?].

[Red ink: ונגה] **And Venus** — [?] [it took] this [as] another [companion] [?]. He set down [?]…

The matter is [as follows] [?]: when this [body] is upon [?] its true [position?], the thing that is sought after — that he should know [?]. He set down [?] each one [against] its companion, and combined [?]; for [if he did] otherwise [?] it would not [come out] straight [?].

[A demonstration that one body is greater than another:] …upon this his statement that one [body] is greater than the other [?]. [The text reasons that] if one [sphere] is greater [?] than its companion [?], its body too [?]… upon the order [?]. And [if] you reckon [?] the proportion [?] of this against that [?]…

[Heavily abbreviated lines on the proportional comparison continue. The recurring terms are גשם ("body"), קוטר ("diameter"), and יחס ("proportion"); several intervening particles are faint.] …its diameter [קוטר] [?] against [the diameter of] the other [?]… upon the proportion [?]. And this is the thing [that follows] [?]: that the greater body [?] [has] the greater diameter [?]. And so [?] each one [against] its companion [?].

And there is in it [?] one [proportion] [?] — [?] the body [?] of [this] against [that] [?]… he set down [?] the order [?]. And he combined [?] the reckoning [?], this with that [?], so as to bring out [?] the [sought] matter [?].

[Red ink: ועתה] **And now** [?] — I will set before you [?] the [order of the] [?] reckoning [?].

[The chapter closes its present argument with a recapitulation:] And these [are] the matters [?] that establish [?]… each one [against] another [?]. [I read recurring "set down" (יסד/ישים), "body" (גשם), and "diameter" (קוטר), but the line-ends are abraded.] …and you combine [?]… [?] from the order [?] of the bodies. [?] he combined [?] them — this with that — [so that] the diagram [התמונה] [?] come out straight for you [?]. And so [?] each one [against] the next, [comparing each] body against [its] companion's body [?].

PDF p. 98 (left-hand leaf)

Right column

[The discussion continues on the proportional ordering of the celestial bodies:] In your reckoning [?] of the matter [?] — [?] the body [?] [of] the [greater] [?]… upon

the order [?] of the bodies [?]. [The text reasons through the comparison body-against-body, several connectives faint.] …upon this likeness [?]… each one [against] its companion [?]. And if [?] you set [?] this against that [?], [?] its body [?] in like manner.

this is the thing [?] that the demonstration [?] sought after [?]. [?] he set down [?] the order [?] — [?] and combined [?] this with that [?].

[A passage on the proof that the bodies stand in fixed proportion:] …upon the proportion [?] of this against that [?]… [?] the body [?] of [this] against [that] [?]. And this is [?]… upon the order [?] of the spheres [?] [הגלגלים]. [?] each one [against] another [?] — [?] its body [?], its diameter [קוטר] [?] in like manner. [The matter is then said to "follow from the demonstration."]

and there is [?] one [proportion] [?] in [?] them all [?]. [?] he combined [?] the reckoning [?], this with that [?], so as to bring out [?] the [sought] matter [?]. [Several lines abraded at the gutter.]

[Lower right column, faint:] …upon his understanding [?]… [?] the body [?] of the [sphere] [?]… [?] each one [against] its companion [?]. [?] he set down [?]… the order [?] [?]… and combined [?] them [?], [so that] the [matter] [?] come out [?] for you [?].

Left column

[Red ink: ועתה] **And now** [?] I will set before you [?]… these matters [?].

And these [are] the things [?] that establish [?]… each one [against] another [?]. [I read recurring "establish/set down," "body," "proportion," and "order," but several line-ends are abraded.] …upon the proportion [?]…

[A passage on the figure and its arrangement:] …in your reckoning [?] of the matter — [?] the body [?]… [?] each one [against] the next. [?] he set down [?] the order [?] of the bodies [?]. And [if] you reckon [?] this against that [?], [?] its measure [?] in like manner. [?] this is [?] the foundation [?] upon which [?] [the demonstration rests] [?]. [The reckoning is said to "come out straight" thereby.]

[A clause on capacity / what one "is able" to derive:] …[and from this] he is able [?] [to know it]. [?] he set down [?] the diagram [?] [בתמונה] [?] before you [?], that it may be plain [?]. And [it was] [?] each one of them [?]…

[A line introducing a measured value:] …its diameter [קוטר] [?] [?] the measure of [?]… [?]. [I read קוטר ("diameter") and a following numeral that is too abraded to transcribe with confidence]

upon the proportion [?] of [?] each one against [?] its companion [?]. [?] he set down [?] the order [?]… and combined [?] the reckoning [?], this with that [?]. [?] this is [?] the matter [?] that the demonstration [?] requires [?]. [?] each one [against] the next [?].

[Red ink header — display position, centered: **פרק שמיני** — "Chapter Eight" [?]]

[Note: the rubric word that follows פרק is read as שמיני ("eighth"). This is a coarser-grained chapter heading than the running-header "פרק" of p. 97; the relation of this body-heading numeral to the chapter-six context of this batch is unresolved and surfaced under Numbering anomalies below. Trust this body heading verbatim per the rules; do not normalize. The numeral שמיני is partly faded and is flagged [?].]

The premise [ההקדמה] [?] of this chapter [?]: [the text opens] — [?] the measure of [?]… [?]. [The chapter's opening line is abraded at the right margin; I read "premise" (ההקדמה) and "chapter," followed by a clause on a measure/proportion that is too faint to render confidently.]

Yesod Olam — Book Two (Cosmology)

Manuscript witness: Vatican Library, Vat.ebr.380. Sephardic semicursive hand. Translation from this manuscript directly, not the Berlin printed edition.

[f. 47r]

[Foliation in upper-left margin: "47". Running header at top of page partly effaced — a small word over the gutter, illegible [?].]

The two-column layout continues the discussion carried over from the preceding folio. The argument concerns the bodies (גשם) of the spheres, their measured proportions, and the way each sphere's motion is derived from its mean course together with the difference (החילוף), so that the reckoning of their order comes out correctly.

Right column (f. 47r):

and their figures (צורות), and the rest of their dimensions and their measures [?]. Moreover, the investigator [?] has already discriminated [?] every matter from

what is observed of them, and brought it near to the intellect. Therefore he set up [?] another reckoning, drawn from [?] what is observed [?], so that nothing of it should fall outside [?] the bounds of [?] truth [?]. [The right-column opening here is cramped and faded in the upper lines; several tokens uncertain [?].]

He set down the matter [?] upon its proper foundations, and made it [?] depend upon the measures [?] that are sound [?]. And there is no doubt [?] concerning this in the investigation [?], for the investigation [?] rests upon [?] the foundations of [?] the measures [?] that have been verified [?] regarding them, and it returns [?] every matter [?] to its place [?].

the one [?] from the other [?], and he draws it near [?] to the intellect, so that nothing of it falls [?] outside [?] the bounds of [?] the place. He [?] set the body [?] of this [?] in its place [?], a known place [?]. And he sets down [?] the difference [?] in this [?], and gathers [?] the line of [?] the circumference [?] to it [?] — that is, [?] the measure [?] of [?] the difference [?] — and draws [?] near [?] this [?] in the investigation [?], so that nothing [?] of it [?] falls [?] outside [?] this [?] in the matter [?]…

[Several lines in the lower right column are degraded by a water-stain plume rising from the lower margin; readings here are low-confidence [?]. The discussion continues on the proportional reckoning of the spheres' motions and their mean (האמצעי) and true (האמתי) positions.]

upon [?] the measures [?] that have been set [?], and the proof [?] of [?] this is [?] from [?] the difference [?] of [?] the bodies [?]. And the body [?] is greater [?] than [?] the body [?]…

Left column (f. 47r):

they have already begun [?] from the foundations [?] of the sphere [?], and from [?]…

[The left-column opening lines are likewise cramped; the running thread concerns the order of the spheres and their motions.]

The investigation [?] and the reckoning [?]: this [?] is the foundation [?], in the discrimination [?] of the matter [?]. And the body [?] is set down [?] in its [?] measure [?]…

in the round [?] body [?], and in [?] the measures [?], in their [?] proportion [?]. And the place [?] is the body [?]…

[A marginal/interlinear stroke appears at the head of several left-column lines, functioning as a constructive helper marking the line — verbatim content not separately legible; no named authority discernible. Default: marginal helper marks, not an attribution; further verification required.]

the reckoning [?] of the line [?] of the circumference [?], in the round [?] body [?]. And it begins [?] from [?] the body [?] in [?] its [?] place [?]…

and the proof [?] of [?] this is another [?], drawn near [?] to the intellect [?]…

the [?] measure [?] in this [?]. The reckoning [?] is another [?], upon [?] the measures [?] that are sound [?]. Behold [?] the body [?] in its place [?], and so [?] the body [?]…

the reckoning [?] is set down [?] in its place [?], and the proof [?] of [?] this [?]. And the body [?] is greater [?] than [?] the body [?] in [?] the round [?] body [?]…

[Lower left column, ff. 47r:] …the foundation [?] in the measure [?] of [?] the sphere [?]. The foundation [?] is the [?] place [?], to the spheres [?], in the reckoning [?]. And the body [?]…

The later [?] one [?], and his words [?] in the matter [?] are sound [?] upon [?] this [?] in [?]…

[Final lines of f. 47r, lower margin:] …if [?] the year [?] returns [?] in [?]… so that the calendar [?] [התקופה — "the season/cycle"] comes out [?] straight [?] …

[Note on f. 47r as a whole: this recto is the most degraded surface in the batch. The hand is small and the ink has feathered in the upper lines of both columns; a water-stain plume occupies the lower-right quadrant. The semantic thread is clearly the proportional-reckoning argument carried over from batch 049 (bodies גשם, diameters/lines-of-circumference, mean האמצעי vs. true האמתי, the difference החילוף), but the great majority of individual tokens cannot be committed with confidence. **Marked as a — see report. The translation above is a best-effort skeleton; do not treat its uncertain spans as settled readings.]

[f. 47v]

Right column (f. 47v):

the discipline [?] [התכונה, "astronomy"] from this [?]. And so [?] the discriminator [?] discriminates [?] the [?]…

[Upper-right lines cramped; the column continues the discussion of how the astronomical reckoning is established.]

in [?] this [?]. There is [?] also [?] in [?] every [?] reckoning [?] a fixed measure [?] up to [?] where [?] it goes [?]. For [?] this [?] [is] from [?] the difference [?]; and so [?] it goes out [?] from [?] the place [?]…

and afterward [?] it returns [?] to [?] the place [?]. And so [?]…

and there is no [?] doubt [?] in [?] this [?]; and so [?] the body [?]…

in [?] the reckoning [?], and so [?] in [?] the measures [?]…

[Mid-right column:] …and so [?] every [?] reckoning [?] and [?] every [?] difference [?] in [?] the matter [?], from [?] the place [?]; for [?] the matter [?] in [?] the reckoning [?] is [?] sound [?]…

[A red-ink in-line discourse marker appears mid-column — likely a connective rubricated for emphasis (cf. batch 049's ועתה / אלא / וכן pattern). Verbatim word not separately legible against the fading [?].]

[Lower-right column, f. 47v:] …the body [?] in [?] its [?] place [?], and the [?] measure [?] in [?] the reckoning [?]. And the proof [?]…

and so [?] every [?] body [?] in [?] the round [?] body [?]; for [?] the body [?] is greater [?] than [?] the body [?]…

and so [?] it [?] comes out [?] straight [?] in [?] the reckoning [?]; and there is no [?] difference [?] in [?] this [?]…

Left column (f. 47v):

[Upper-left, immediately above the red rubric, the previous chapter closes:] …and the matter [?] in [?] this [?] is [?] sound [?] in [?] the measures [?]. And so [?]…

it does not [?] return [?] to [?] the place [?], and it does not [?]…

the matter [?] in [?] this [?]. He has already [?] set down [?] the order [?] of [?] the spheres [?], and [?] the matter [?] is [?] sound [?]…

the order [?] of [?] the spheres [?], and [?] the reckoning [?] comes out [?] straight [?]. And so [?] every [?] body [?]…

[Then a prominent red-ink display rubric, centered, opening a new chapter:]

[Red ink header: פרק] **[Red ink header: Chapter — ordinal effaced/uncertain [?]]**

[The chapter ordinal beside פרק is rubricated and partly faded; it cannot be read with confidence. Given the prior batch's tentative פרק שמיני ("Chapter Eight") at the foot of f.46v, this rubric on f.47v is the **next** display chapter heading. Whether it reads "ninth" (תשיעי), continues an "eighth," or is a differently-numbered ordinal cannot be determined from the glyphs as rendered — *].]

[Red ink, sub-rubric / opening line of the chapter, also rubricated:] On the measures [?] of the bodies [?] [גשמי] [?] בשעור [?] / "concerning the measure of the bodies"] — [the topic-line of the new chapter, naming the bodies of the spheres or the planets as its subject; tokens uncertain [?].]

Chapter opening (black ink, beneath the red rubric):

The dimensions [?] [מדות] of the spheres [?] are three [?] [השלש [?]]: … [The chapter opens by enumerating dimensions or categories — the round numeral "three" [שלש [?]] appears in the opening line, governing an enumeration of the spheres' or bodies' measures. Reading low-confidence; verify at further review.]

The sphere [?] [הגלגל] … upon [?] the [?]… measure [?] … the body [?] [גשם] … in [?] the round [?] body [?]…

the body [?] is greater [?] [גדול] than [?] the body [?]; and so [?] one [?] from [?] another [?]…

[The new chapter continues the cosmological-proportion theme: enumerating the dimensions/measures of the spheres' bodies and ranking the bodies one against another by fixed proportion. The black-ink body text beneath the rubric is somewhat clearer than f.47r but the column remains small-hand and the readings of the technical nouns rest on the established glossary (גשם "body," גלגל "sphere," מדה "measure/dimension," גדול "greater") rather than on independently certain glyphs. Individual numerals beyond the opening "three" [?] are not securely legible.]

[Second red rubric / discourse marker mid-left-column:] [Red ink: connective — verbatim not separately legible [?]] — introduces the continuation of the enumeration.

the dimension [?] of [?] the sphere [?] … the body [?] in [?] its [?] place [?] … and so [?] every [?] body [?] … one [?] greater [?] than [?] one [?]…

the matter [?] in [?] this [?] is [?] sound [?]; and the proof [?] of [?] this [?] is from [?] the difference [?] of [?] the bodies [?] in [?] their [?] order [?]…

[Lower-left column, f. 47v, closing lines:] …and so [?] the reckoning [?] comes out [?] straight [?] in [?] the order [?] of [?] the spheres [?]…

Yesod Olam — Book Two (Cosmology)

Continuing the chapter on the measures and proportional reckoning of the bodies of the spheres, opened at f.47v.

[f. 48r]

[The opening of this column is heavily faded; the argument continues the proportional reckoning of the sphere-bodies from the prior folio.] …the sphere [?] which [?] in its measure [?]. [Damage/fading: ~2 lines, several words lost.] And it has already been said that [?] the higher sphere [?] is larger [?] in its body [?], and the reckoning comes out as required [?].

For if this were not so [?], the order [?] would not [?] be sound, and the measures [?] of the bodies would not correspond [?] one to another [?]. Therefore the reckoning of [?] comes out straight, each body [?] according to its order [?].

And so [?] every body [?] of the spheres [?] is proportioned [?] to the body above it and to the body below it [?] in a fixed proportion [?]. [Several words effaced.] … and this is what was sought [?].

[The remainder of this column is faded; the discussion appears to continue with the comparison of one sphere-body to another and the demonstration that the proportions are consistent. ~6–8 lines too faded for confident reading — see Readability. Recurrent legible terms: הגלגל ("the sphere"), גשם ("body"), חשבון ("reckoning"), הסדר ("the order"), כמו ("as/like"), המבוקש ("that which is sought").]

[This column is somewhat more legible in its upper portion.] And from this [?] you will understand [?] that the body [?] of each sphere [?] bears a proportion [?] to that which is above it [?].

For the reckoning [?] of the bodies [?] is built [?] upon the order [?] of the spheres [?], and upon the measure [?] of the distance [?] between one [sphere] and another [?].

And when [?] you reckon [?] thus, the matter [?] comes out [?] sound [?], and there is no confusion [?] in it [?]. (interlinear: a short correction appears above this line; ~1–2 words, illegible — see Readability.)

[Mid-column:] And he said [?]: this is [?] the way [?] of the reckoning [?], that you take [?] the body [?] of the lower sphere [?] and compare it [?] to the body [?] of the [sphere] above it [?]; and likewise [?] for each [?] of them [?].

[Lower portion of column:] …and the proportion [?] is fixed [?] in all of them [?], and from it [?] is known [?] the measure [?] of each body [?]. [Several words effaced.]

And he said [?]: it has thus been demonstrated [?] that the order [?] of the spheres [?] and the reckoning [?] of their bodies [?] go together [?], and [the matter is] sound [?].

[f. 48v]

[Upper portion, faded:] …until [?] it is fixed [?] in the reckoning [?], the body [?] being [?] the larger [?] the higher it is [?]. And he said [?]: when [?] you have set down [?] the proportion [?] between one body [?] and another [?], the reckoning [?] is complete [?] and there is no [?] doubt [?] in it [?].

For the [matter] requires [?] that the higher [sphere] [?] be greater [?] in its body [?] than the one below it [?]; and so [?] for each [?] one of them [?].

[Mid-column:] And he said [?]: behold [?], we have already [?] explained [?] this [?] and set it down [?] in its place [?]; and now [?] we shall add [?] to it [?] that which [?] is fitting [?].

[Several lines faded.] …the proportion [?] of the spheres [?], one to another [?], and the measure [?] of the bodies [?], and the order [?] which goes [?] with the reckoning [?]. [Words effaced.]

And from this [?] is understood [?] that the matter [?] is sound [?], and the reckoning [?] comes out [?] straight [?], as we have explained [?].

[Lower portion:] …and he said [?]: this [?] is what [?] we intended [?] to make known [?] concerning [?] the bodies [?] of the spheres [?] and their order [?] and their proportion [?]. [Remainder of column faded — see Readability.]

[Upper portion:] And [?] the matter [?] is [?] as [?] we have said [?]: that each [?] body [?] of the spheres [?] has [?] a measure [?] and a proportion [?] which is [?] fixed [?].

For [?] the reckoning [?] proceeds [?] from [?] the lowest [?] to the highest [?], each [?] according to [?] its order [?]; and [?] there is no [?] confusion [?].

[Mid-column, somewhat clearer:] And he said [?]: it is [?] proper [?] that you know [?] that the proportion [?] which [?] is [?] between [?] the bodies [?] is [?] like [?] the proportion [?] which [?] is [?] between [?] the distances [?] [i.e., between the spheres]. And [?] this [?] is [?] a great [?] principle [?] in [?] this [?] reckoning [?].

[Lower-mid portion:] …and from it [?] you [?] will reckon [?] the measure [?] of [?] each [?] body [?], and you [?] will find [?] it [?] sound [?]. [Words effaced.]

And he said [?]: and we [?] have already [?] made clear [?] all [?] this [?] in [?] the chapters [?] which [?] precede [?] [this one]; and [?] here [?] we [?] have only [?] added [?] a [?] little [?] to complete [?] the matter [?].

[Bottom of column — faded:] …the order [?] of [?] the spheres [?] and the reckoning [?] of [?] their bodies [?], that [?] it [?] is [?] sound [?] and [?] correct [?]. [Final line(s) effaced.]

Manuscript: Vatican Library, Vat.ebr.380. Sephardic semicursive hand. Two columns per page, read right-to-left (right column first, then left). Folio numbered "49" in the upper margin carries a faded running header. Both leaves show edge loss at the outer (fore-edge) margin, water staining through the lower half, and substantial ink fading. Bleed-through from the facing side is present and ignored.

PDF p. 103 (folio "49")

Right column

The sun, when it is in the apogee of its eccentric sphere, [is] at its greatest distance from us; and likewise [for] the other planets. The body that is higher up

is [seen as] smaller, and the lower one larger — for the nearer a body is to the eye, the larger it appears, and the farther, the smaller. [?]

When you reckon the proportion of one body to another and what is between them, [you find that] the higher body is greater than the one below it. [?] And so for every one of them: the sphere that is above [another] is larger in its body than the one beneath it. [?]

the measure [?]. And the figure [התמונה] [shows] that which is sought [המבוקש]. [?]

[Several lines here are heavily faded and partly lost to fore-edge damage; reading is uncertain throughout this stretch.]

and the reckoning [החשבון] of this is established and there is no doubt in it [?]. For the matter requires that the higher sphere be greater in its body, and the proportion [holds] between one and another. [?]

[Damage: water stain and fading across the lower-right of the column, ~several words per line uncertain.]

the figure of [?] and what is between them [?]. [?]

Left column

[The upper portion of the left column continues the prose of the preceding discussion; many words are faded.]

and the upper [sphere], its circuit [הקפה] [?]; for the higher one is greater in its body, and the figure makes clear that which is sought. The reckoning is established and there is no doubt in it. [?]

[Red ink: וחט המחבר — "And the author said:"] [Reading of the rubric is partly faded; וחט is read for ואמר / ויאמר, "and (he) said."] [?]

The author said: Since we have investigated this matter and verified it, all this is so. [?] The investigation is now complete, and the figure is established [?].

[Damage: fore-edge loss along the left margin of this column; ~2–4 characters lost at the end of several lines.]

And I have stated, as to this, that the nearer [bodies] [הקרובים] [?] are [seen larger?] … [?] for in their substance [בעצם] they [?]. There is no [?] their measure [?]. [?]

all the spheres [הגלגלים], according to what we have made clear, [?] in this matter. [?]

[The final lines of the left column are faded and partly lost; they appear to close the chapter's discussion of proportional sphere-sizes, but the reading is too uncertain to render. [?]]

PDF p. 104 (recto/verso per running header; folio number not clearly visible)

Right column

[The top of the right column continues prose on the measures/proportions of the spheres and the planetary bodies. Heavy fading; reading uncertain.]

the measure [?] of the sphere [?], to make known to us [?] its body and its figure [?]. The measure [?] of the deferent [?] [המעדל] [?] is established. [?]

the proportion between one body and another [?]; and the body of the higher [sphere] [?] is greater than the body of the one below it. [?]

[Several lines faded; the discussion concerns reckoning sphere bodies and their proportions. Individual numerals are not legible here. [?]]

the figure [התמונה] [?] of the planet [הככב] [?]. And so for every one of them [?]. [?]

[Damage: water staining through the middle of the column; ~several words per line uncertain across this stretch.]

the sun [חמה] [?] … [?] the proportion [?] … and the reckoning is established. [?]

the substance [בעצם] [?] … not [?] … [?] the measure of the sphere [?]. [?]

[The lower right column is heavily faded; the reading is too uncertain to render reliably. [?]]

Left column

and the love of [?] and their order [?] and their deeds [?]; the matter is upon them [?] for the inquirers [החוקרים] [?]. [?] There is no end to it [?]. [?]

[Damage: fore-edge loss, left margin, ~2–4 characters lost at line-ends for several lines.]

the measure [?] was [?], and there is no [?] above it [?]; the whole is in the hands [?] [of those who reckon?]. [?]

[Red ink header: פרק שירי — chapter heading. The ordinal is read as "שירי" but is uncertain; it does not match the expected numeral sequence and may be a misread of a ר/ד or another ordinal. [?]] [Interlinear / above the rubric: כפשר [?] / עניין [?] — a faded gloss above the rubric line, reading uncertain.]

Chapter [?]: As for the [?] day and the night [?] — [?]

[The chapter opens a discussion concerning the day and the night and their reckoning. The opening lines are partly legible:]

the reckoning [חשבון] [?] … and [?] [?] … the day [היום] [?] … [?] So-and-so [?] [?]. [?]

The day [היום] [?] is [?]; and there is in it [?]. [?] When the sun [?] [is] in [?] [?], the day [היום] is [?] hours [?] [שעות] [?]. [?]

[?] the firmament [הרקיע] [?] takes [?] from one [?] to another [?]; and behold this is the [?]. [?]

[Damage: water stain across the middle-left of the column; several lines uncertain.]

the [?] hours [שעות] [?]; and there is between [?] [?] equal [שווה] [?] or unequal [?]. [?]

So-and-so [?] hours [שעות] [?], the figure [?] makes clear that [?]. The reckoning [?] there is no doubt in it [?]. [?]

[Damage: fore-edge loss and water staining across the lower-left column.]

the night [הלילה] [?] … [?] the day [היום] [?] … [?] So-and-so [?] hours [?]. [?]

[?] the day [היום] is [?] and the night [הלילה] is [?] hours [?]; and so for [?]. [?]

[The remaining lines of the left column are faded and partly lost; they continue the reckoning of the lengths of day and night. Numerals here are not legible and are not rendered. [?]]

Yesod Olam — Book Two (Cosmology), continued

Sephardic semicursive hand, single scribe throughout. Two text columns per page; each column reads right-to-left, and the right column precedes the left. Both folios are substantially faded, with water-staining toward the gutter and lower margins

and a diagonal Vatican watermark crossing the writing; many readings below are necessarily tentative. The chapter on the reckoning of day and night and the length of their hours continues from the previous batch.

PDF page 105 — right column

and we shall now make clear concerning the day, where its beginning lies [?]. For this matter has [several] aspects [?]: the natural day, and the day that is [reckoned] by usage [?], in [each] place differently. The reason is that the people of every nation reckon by usage [each] according to their custom [?].

And there are those who begin [the count of] the day from the rising of the sun [?], reckoning it until the sun rises [again] the following [day]; and there are those who begin it from sunset [and reckon] until it sets [again] the next [day]; and there are those who reckon from midday [?] until midday [of the following day]; and there are those who reckon from midnight until midnight [?].

The natural day [?], however, is what is bounded by the revolution of the [celestial] sphere [?] — that is, the time in which the sphere completes a single rotation [?] together with the additional arc [?] that the sun traverses [in that interval], for the sun does not stand still [but moves] against the order of the [daily] motion. [Therefore this day] is longer than the time of a single rotation of the sphere alone [?].

[Several lines here are badly faded and crossed by the watermark; partial sense only:] …and the additional [arc] is the measure of [the sun's] proper motion [?] in one day [?]… and the time of the [whole] revolution [?]… [and] the place [from which it began?] [?]…

And we have already explained [?] that the [daily] motion [?] is [the motion proper to] the sphere [?]… [≈2–3 words illegible] … and the natural day is not equal [in length throughout the year], by reason of two causes [?]. [The remainder of this column — roughly the final 6–8 lines — is too faded beneath the watermark and water-stain to read with confidence: it appears to continue enumerating the causes of the inequality of the natural day (the obliquity of the zodiac and the non-uniform proper motion of the sun), but I cannot recover the wording. Flagged as a]

PDF page 105 — left column

[Top of column, faded:] …the words of the master [?] … the day of [its?] beginning [?] and its end [?]…

[The opening lines are crossed by the watermark; partial sense:] …And [as for] the day [reckoned] by usage [?], every nation [reckons] according to [its custom] in [each] place [?]… [the sun's] rising [?] upon the [horizon? / inhabited world?] [?]…

the [daily] motion of the sun [?] toward the place from which it set out [?]; and this is in addition [to the rotation of the sphere] [?]. [Several words illegible.] … and we have computed [?] … the [place?] from which it set out [?], and the [time of the?] revolution [?].

[Rubric-like phrase, faded:] [Red ink?: "סימן" — "section/sign" [?]] — *uncertain whether this is a structural marker or an ordinary word ("the sign"); reported but not treated as a heading.*

[A passage on the reckoned (conventional) day:] The day [reckoned] by usage [?] is what the people [of a place] reckon, and it differs from one [place] to another [?]. There are those who [begin] it from [sunset?] [?]… and there are those [who reckon] from day to day [?] … and [some] from [one] sabbath [eve?] to [the next] [?]; and [some begin] it from [the] day [?]… [the wording of these clauses is faded and the place-references are uncertain].

[the?] words of [a?] sage [?] [— most likely the indefinite "one of the sages," not a named authority]. And the day [?] in which the sun [completes?] [?] … [its course] is the [natural?] day [?].

[A worked statement, badly faded but apparently giving figures for the day's length and its excess:] …and the day [?] … [a numeral here is illegible — possibly the customary 24 hours, but I cannot read it] … and the additional [portion] [?] … [a second numeral, illegible] … [Two short numerical tokens appear in this stretch but are too faint beneath the water-stain to transcribe; flagged.]

[The lower third of this column is the most damaged region on the page — water-stain plus watermark plus fading. Roughly the final 8–10 lines cannot be read with any confidence. They appear to continue the discussion of the day reckoned "from sabbath [eve] to sabbath [eve]" and the differing customs of the nations, closing the column. Flagged as a]

PDF page 106 — right column

the day [?] together with the night [?] is the [whole] time [in which] the sun [completes its circuit] [?] … and it returns [?] to the place [from which it set out], at [that same] place [?] … [and so] the night [?] is the [remaining portion] [?].

[A statement on the equality of day and night at the equinoctial circle:] When the sun is [upon?] the [celestial] equator [?] [— "the equalizer," המישור], then day and night are equal [?] … [≈2 words] … in every place [?]. [And] the day [is then] like [?] the night [?], [each] twelve [hours] [?] — *though the explicit numeral "twelve" is faded here and is inferred from context rather than securely read; flagged [?].*

but when the sun departs [from the equator] toward the north [?], the day lengthens and the night shortens; and when it departs [toward] the south [?], the night lengthens and the day shortens [?] — [each] according to the measure of its [the sun's] declination [?] and according to [the latitude of the] place [?].

[Several lines, faded:] …[the?] difference [between?] day and night [?] … this is called [?] … [the half-difference of the half-day? — the technical term is not securely legible] … and [its computation?] [?] …

and we shall make this clear [?] … by way of [calculation?] [?] … [≈3 words illegible] … upon [its?] foundation [?] … to [give? / find?] the [length of the] day [?] at [its?] [longest?] [?] … in [each] place [?].

[A clause that names the hour-reckoning:] …[reckoned] in [equal? / temporal?] hours [?] … upon the [horizon?] [?] … [and] until [?] … [the wording of the contrast between equal (equinoctial) and seasonal/temporal hours is present here but too faint to render with confidence — flagged].

[The remaining lines of this column resume the contrast of the day at the equator versus elsewhere, with the night as complement, but the lower portion is faded; partial sense only.]

PDF page 106 — left column

[A passage on the temporal (seasonal) hours and their division:] …and we divide [?] the [arc of the] day [?] into twelve [parts] [?], and [likewise] the night into twelve [parts]; and each [part] is one hour [?] of the [temporal] hours [?] — [and these] differ [in length] according to the [length of the] day and the night [?] in [each] place [?].

[A worked example, faded:] …and [as] an example [?] … [a numeral here is illegible] … hours [?] … [and] the [remainder?] [?] … [a second numeral, illegible]. [The two figures in this example cannot be read beneath the water-stain]

and [as for] the equal hours [?] [— the equinoctial hours], they do not differ [?]; [each] is [a] fixed [measure] [?] in every place and at every season [?] … [≈2

words] … for [it is] the [twenty-fourth?] part [?] of the day-and-night [together] [?] — *the explicit numeral is not securely legible; flagged.*

[The middle of this column, lower down, is heavily water-stained and largely illegible — roughly the central 6–8 lines. A short passage of faded text appears here (lighter than the surrounding writing), partly obscured by the stain; it seems to continue the comparison of temporal and equal hours, but cannot be read with confidence. Flagged as a]

[Lower block of the column, set off after the blank/illegible band — slightly clearer:] …for [in] the tenth [climate?] [?] … and we have set forth [?] … [that] in [the] place [?] [where] day and night are equal [?] … [there] the temporal hour [?] equals [?] … the equal hour [?] … and we have computed [?] … the [length of the] day [?] at [its?] season [?]; and [thus] the matter [is established? — the chapter appears to conclude here, but the closing clause is faded].

[Quire signature / numeral at foot of left column, red-ish faded mark — a small flourished letter, possibly a quire signature; verbatim form not securely legible.]

Script: Sephardic semicursive, single hand throughout, black carbon ink with red rubrication for chapter headings. **Layout:** two columns per page, read right-to-left (right column first, then left column).

Right column

Therefore, when you wish to know this [quantity], take the [value] you have and add it accordingly; and this is what is meant by the proportion of the place [?]. And when the day [?] is short or long, this varies [from place to place] [?].

It follows from this that the longest day and the longest night [at a given locality] correspond to one another. When the day [?] reaches its maximum, the night reaches its minimum at that same place; and the measure by which the day increases at the [summer] solstice is the measure by which the night decreases — [their sum remaining constant]. [?]

The reason for this is as we have explained: that the increase of one is the decrease of the other, since together they complete the full revolution [of the sphere]. [?] And therefore, whoever knows the length of the longest day in any place knows from it the length of its shortest day as well, for what is added on the one [day] is subtracted on the other. [?]

[Several lines here treat the symmetry between the longest summer day and the shortest winter day at the same latitude, and the corresponding values for night.

The arithmetic depends on the principle that day + night = a complete revolution (24 equal hours / 360 time-degrees). Some readings are uncertain — see QA.]

And likewise the reckoning is done [?] by calculation, so that you may find for any place its [proper figure]. [?]

Left column

And [there is] not [?] a [fixed] measure for all places alike; rather it varies [?], and one [place] differs from another with respect to this. The fixed point [?] is the equator [המישור?], where day and night are [always] equal; and the [further] one moves from it [toward the poles], the greater the difference [between the longest day and the shortest]. [?]

[The text continues, explaining that at the equator day and night are perpetually equal (twelve hours each), and that as one's latitude increases the disparity between the longest and shortest day grows; this disparity is what one computes for each clime (אקלים).] [?]

And when the longest day [?] is [known], the shortest day [is its complement], and from one you reckon the other; [thus] one fixed [value] and the [variable] difference [together yield the result]. [?]

[Several lines treat worked examples for specific localities, giving day-length figures in hours. The numeral readings are not securely legible at this resolution and are flagged below; the procedure is: take the half-difference of longest and shortest day, apply it to the twelve-hour mean, and obtain the day-length for the place in question.] [?]

and Jerusalem [ירושלם] [is named here as a worked locality] [?]: … the longest day there is [N] hours [?], and so forth for one place after another. [?]

[Near the foot of the left column the procedure is summarized: each locality has its own longest-day figure, from which everything else for that place follows.] [?]

Right column

And he already explained [?] that [the day-length] is [so] at [such-and-such a place] [?]; for in the seventh clime [באקלים השביעי?] the day [reaches its greatest length] [?]. [So too in the other northern climes, each according to its latitude.] [?]

And the reckoning of [the day] is [?] [thus]; for the [inhabitants of those regions] have, on the day [of the summer solstice], a very long day — and on the [winter] day, a very short one; and this is reversed [for the opposite season], the long

becoming short and the short becoming long. [?] So too the matter stands [in general]. [?]

[Red ink header:] **פרק אחד עשר — Chapter Eleven**

[Sub-rubric, black ink, immediately below:] This is its content [?] / [the chapter's heading-gloss]. [?]

This chapter [comes] to make clear [?] the calculation [?] used [in determining] the [position / ascension] [?] [of the sun and the divisions of day]. [?]

Know that the day [?] [is divided] and that [the hours of the day] are [reckoned] from [the rising of the sun to its setting] [?]; and the [hour] is [the basic unit] [?] from which everything [else] is computed. [?]

[The chapter opens by defining the terms it will use: the natural day (from sunrise to sunset for the daylight portion), the equal (equinoctial) hour, and the seasonal hour, and how they relate. The detailed wording is partly degraded — see QA.] [?]

And when [the sun] is [in such a position] [?], the [hours] are [equal]; but when [it departs from the equator], the [seasonal hours] [of day and night become unequal]. [?]

the [seasonal] hour [שעה זמנית?] is [a twelfth part of the daylight], whether the day be long or short; whereas the equal [equinoctial] hour [שעה ישרה / שוה?] is a fixed measure [one twenty-fourth of the full revolution] that does not vary. [?]

[The remainder of the right column elaborates the relation between seasonal and equal hours and gives the rule for converting one to the other. Several technical terms recur (the established forms — the equator המישור, the revolution, the degrees המעלות) and are read by lexicon lock-in; specific numeral values are flagged below.] [?]

Left column

[The left column continues the eleventh chapter, working through the conversion between seasonal and equal hours.]

And he already said [?] that [the day at such a place] is [N] hours [?] — [and the night its complement] — and this is [clear] [?]. [?]

[For the matter] is [established] [?] from what we [demonstrated] [?] above [?], that the [day and night together] complete [the full revolution]; [and so the

seasonal hour and the equal hour] [relate to one another by a known proportion]. [?]

[The argument proceeds: since the daylight of the longest day exceeds twelve equal hours, each of its twelve seasonal hours exceeds one equal hour, and conversely on the shortest day; the magnitude of the excess is determined by the place's latitude and the sun's declination.] [?]

And [therefore] you [take] [?] the [day-length in equal hours] [?] and [divide it] by twelve, [obtaining] the length of the seasonal hour [for that day]; [and likewise for the night]. [?]

[The lower portion of the left column applies this to worked figures. The numerals are not securely legible at this resolution; the method is the standard one — equal-hour day-length ÷ 12 = seasonal-hour length.] [?]

[and the result is] [?] [so-and-so], and this [completes the matter] [?]. [?]

QA / Batch Report

Yesod Olam — Book Two (Cosmology), Chapter Eleven (continued) → Chapter Twelve

General readability note (whole batch): Both folios are significantly degraded. The right column of p. 109 and the right column of p. 110 are affected by a broad water/foxing stain that fades the ink toward the outer (right) margin, and there is edge loss along the torn outer corners. Iron-gall ink in the body has browned and several lines are only partially legible at this resolution. Bleed-through from the facing folio is visible but has been ignored per the transcription rules. The two red rubrics survive but the red iron-gall ink has faded more than the surrounding black. Many readings below are flagged `[?]`; several stretches are marked as

Page 109 (recto)

Left column

in its [the heaven's] revolution, the distance between them [?] is always the same measure, since the time of the equal (equinoctial) hour is constant [?]. By this you may know the relation [?] of the seasonal hour to the equal hour, and the relation of the equal hour to it [the seasonal]. [?]

The seasonal hour, then [?], and the equal hour — their measure [?] is according to [the length of] the day, [as] you compute [?] when you take the measure of the day [from sunrise to sunset] and divide it [?] … [Several words here are faded; the passage continues the rule established in Chapter Eleven, that the length of daylight divided into twelve parts yields the seasonal hour [?].]

[?] each one of them [?] is half [?] the seasonal hour, and we set [?] … the night [?] equal [?] always [?]. The seasonal hour [is] thus [?]: when the day [daylight] grows long, the seasonal hour likewise grows long, and the night['s seasonal hour] grows short by the same measure [?]; and when the daylight grows short, the [day's] seasonal hour grows short and the night['s seasonal hour] grows long, the one [increasing] by the measure the other [decreases] [?].

always [?] the equal hour [?] does not change [?]; rather it stands at one [constant] measure forever [?]. The seasonal hour [by contrast?] varies [?] always according to [the length of] the day [and the night]. [?]

and the proof [?] of this [?] is … on the day [?] of the equinox [?], when the day and the night are equal [?], for then [?] the seasonal hour and the equal hour are one [and the same] measure [?], because [on that day] daylight is divided into twelve [equal parts] and night into twelve [equal parts] [?]. … [text faded] …

[Lower left column, several lines, partly legible:] …upon the equal hour [?] … in [each of] the [twelve?] hours [?] of the day [?] … and likewise the night [?] … the seasonal hour [?] … with the equal hour [?] [the matching/comparison?] … the natural day [?] [is divided] into twenty-four [equal] hours [?] … [text faded] …

this [?] [is established?] … [the remainder of the left column is too faded for a continuous reading — see QA report].

Right column

[Upper right: a red rubric **[Red ink: מאמר]** ("Book"/"discourse") survives, but the surrounding black text and the heading numeral are badly stained. The rubric appears to function here as a structural label within Chapter Eleven rather than as the start of a new Book — the chapter content continues. [?] Whether this red word is part of a heading or an emphasized body word cannot be confirmed at this resolution.]

[The right column is heavily water-stained from the outer margin inward; only fragments are legible.]

this [?] … on the natural day [?] … is divided [?] … and the night [?] … [?]

[Red ink: מאמר] [?] … on the fifth [?] … [the matter discussed?] … [?]

for in [?] … the [seasonal?] hour [?] … one [?] … therefore [?] he [the author] said [?] … from the [?] … [text faded] …

[The remaining lines of the right column are obscured by the stain and torn outer edge; only isolated technical words — "the hour" (השעה), "the day" (היום), "the night" (הלילה), "[?]equal" — can be made out. No continuous translation is recoverable here.**]

Page 110 (verso)

Right column

[The right column is again stained toward the outer margin; the inner half is more legible than the outer.]

This [?] is the natural day [?] … on the day [?] of the [?] equinox [?] … [?] … and now [?] [we shall make clear?] … the matter [?] of the [seasonal?] hour [?].

the day [?] which is [?] … [for] every [?] … because [?] the [equal?] hour [?] … [?] … and the night [?] … and likewise [?] … always [?]. [?]

[so that] the day and its night [together] are [?] twenty-four [?] equal hours [?]; and the seasonal hours [number] twelve [for the day] and twelve [for the night] [?], whether the day be long or short [?].

[?] the equal hour [?] … one measure [?] … and the seasonal hour [?] varies [?] … [text faded] …

and the proof [?] of this [?] … from the equinox [?] … when the seasonal hour [?] equals [?] the equal hour [?] … because [on the equinox] the day [daylight] is divided into twelve and the night into twelve, [and the day and the night are equal] [?].

[Lower right column, partly legible:] …the day [?] … the seasonal hour [?] … and the equal hour [?] … and [?] … [the matter is now] explained [?]. [?]

Left column

[The left column is the more legible of the two on this folio.]

in the heavens [?], its [?] revolution [?] … this [?] … [text continues the comparison of the hours] … [?]

and likewise [?] [if] you wish [?] to know [?] the matter [?] of [?] … [the conversion?] between [the equal hour and the seasonal hour] [?] … [text faded] …

[when] the day [?] is at its longest [?] [in the seventh clime?] … and likewise its night [is at its shortest] [?] … [text faded] …

[Red ink: פרק שנים עשר] — Chapter Twelve

[Red rubric, mid-left column: **[Red ink: פרק שנים עשר]** ("Chapter Twelve"). Faded but legible. (שער/פרק share a single counter in this manuscript; only פרק is written.)]

And now we shall make clear [?] this [?] matter [?] [more fully?] in the manner of demonstration [?] [explanation?] … [the chapter opens, but the first lines are faded].

and [the twenty-four?] equal hours [?] … another [?] … [text faded] … on the day [?] of the equinox [?] … and the seventh [?] … [?]

in the [?] season [?] … and the night [?] … the seasonal hours [?] … [?] … the equal hour [?] … [text faded] …

[?] when [?] he [the author] explained [?] … the matter [?] … always [?]. [?]

this [?] [is the case] in the seventh clime [?] [Jerusalem?] … [?] … [text faded] …

this [?] is [?] the seasonal hour [?] … in the natural day [?] … always [?]. [?]

[Lower left column: a few faded lines continue Chapter Twelve; no continuous reading recoverable.**]

Yesod Olam — Book Two (Cosmology), Chapter Twelve (continued)

Page 111 (folio 53r)

The folio is laid out in two columns. By the logical right-to-left reading order of this manuscript, the right-hand column is read first, then the left-hand column.

Right column

it has already been explained that the [?] of the line [?], and the computation [?] established [?]. And every degree [of the?] [?] one degree [?] [?] [?] [?] [?]. [Several lines here are faded to the point that only isolated technical tokens — "degree"

(מעלה), "computation" (חשבון), "the equation/equating" — can be read with confidence; the connecting prose is [?].]

Therefore the matter [?] required [?] before [?] [?]; and when its measure [?] is as we said, [?] the position [?] [?] upon the line [?] [?] degrees [?].

And if this [?] then [?] [?]. So too the [?] of [?] is established [?]; and the measure of [?] is as [?] [?] [?] [?]. And the matter that [?] [?] established by these computations [?] [?].

and behold, [?] when [?], and [?] for [?]. Thus [?] the heart [?] [?] this thing; and [?] [?] [?] [?].

(interlinear: [?) — a short interlinear addition of one or two words appears above this line in the same hand, too faded to read.]

Within [?]; and if [?] the position [?] [?] [?]. The position [?] [?] [?] established, and the position [?] [?] [?] established [?] [?] [?]. So too the [?] [?] established [?]. For [?] [?] [?] [?] [?] established the [?] [?] computation [?] [?] [?] [?] [?].

[?] when [?] there is to it [?] [?] [?], and the [?] [?] [?] [?] [?].

[?] and [?] them [?] [?] [?]; behold, [?] this [?] [?] [?] [?] [?] [?] [?].

Left column

[The opening lines of the left column are partly legible; the connective prose is faded.]

[?] [?] there the [?] [?]; and behold, [?] established [?] [?] [?] [?]. And when [?] established [?] established [?] [?] [?].

[Red ink: וְאִם] [="and if"; this appears written in red and may function as a structural/emphatic marker introducing the conditional clause that follows, or may simply be a rubricated connective. Recorded under the batch report as a convention candidate.] …and when [?] [?] [?] [?]; for in [?] [?] [?] [?] of the [?] not [?] [?] [?].

The computations of the [?] [?]; and when the line [?] [?] not [?] [?] [?] [?]. [?] [?] established [?] [?] [?] [?] [?].

another [?]. [?] [?] [?] [?] [?] established [?] [?] computations [?] [?]. And behold, [?] established [?] [?] [?] [?].

[The lower portion of the left column — roughly the final third of the column — is severely water-stained and faded; only scattered words are recoverable: "computation," "the position," "degree," "established." The continuous sense cannot be recovered at this resolution.]

[?] [?] [?] established [?] [?] [?] [?] [?] [?] [?].

[Lower-left marginal/footer region, in a smaller hand:] [?] which is established [?] [?] [?] another [?] [?] [?] [?] [?]; [?] [?] [?] established [?] [?] like the first [?] [?] [?]. [This block is in the same hand as the body but smaller and badly damaged — most likely a continuation of the body text wrapping at the column foot rather than a true marginal note.]

Page 112 (folio 53v)

Two columns; right column read first.

Right column

[?] [?] a [?] is a day [?] one [?] one of the computations [?] [?] [?]. And when [?] the [?] [?], and [?] [?] [?] [?] [?] [?].

and from [?] [?] [?] [?] [?]; and [?] [?] [?] [?] [?] [?] of the [?] [?] [?]. Behold, [?] [?] [?] [?]; for this computation [?] [?] until [?] [?] established [?].

within [?] [?] [?] [?] [?]; and [?] [?] [?] [?] established [?] [?] [?].

the [?] [?] [?] when [?] established [?] [?] [?] upon [?] [?] [?] [?] [?] [?] [?].

[?] [?] established [?] [?] [?] [?]; and [?] there is [?] [?] established [?] [?] [?].

[?] [?] not [?] [?]; behold, [?] this [?] is [?]. [?] [?] established [?] [?] [?] [?] [?] [?].

The [?] [?] [?] [?] this [?] gate/chapter (שער) [?]. [The word שער "gate/chapter" appears mid-line here; given its non-display position (mid-line, no line break, no enlarged script) and the chapter's continuing flow, this is body prose ("the gate/measure"), NOT a structural rubric. Recorded per the rubric-restraint rule.] [?] [?] [?] [?] day [?] day [?] [?] [?].

[?] established the [?]; and [?] this [?] [?] [?] [?] [Mars? — מאדים: a planet-label-like token appears, but the surrounding prose does not clearly discuss a named planet; read with caution as [?]]. Behold, [?] [?] [?] [?] [?] established [?] [?] [?] of the world (העולם) [?].

and [?] [?] [?]; behold, [?] [?] [?] [?] established [?] [?] of the [?] [?] [?].

Left column

[?] [?] [?] [?] [?] [?] [?]; and behold, [?] established [?] [?] [?] [?].

another [?]. The computations of the [?] [?] [?]; and [?] [?] [?] [?] established [?] [?] [?].

within [?] [?] [?] [?] established [?] [?] [?] [?]; for [?] [?] [?] [?] [?] [?] [?].

and behold [?] [?] [?] established [?] [?]; the position [?] [?] [?], and the position [?] [?] [?] established.

the [?] [?] [?] [?] [?] established [?] [?] [?]; and the measure of [?] is [?] [?] [?] [?] [?].

[?] [?] established [?] [?] [?] [?]; for in [?] [?] [?] [?] not [?] [?] [?] [?].

another [?] [?]. And behold [?] [?] [?] [?] established [?] [?] [?] [?]; the [?] [?] [?] [?] [?] established [?] [?].

[The lower third of both columns on this page is faded but somewhat more legible than the corresponding region of p. 111. Recoverable technical vocabulary throughout: "computation" (חשבון), "the position," "degree" (מעלה), "established," "the line," "the measure." The connective prose binding these terms is largely [?].]

[?] [?] [?] established [?] [?] [?]; and [?] [?] [?] [?] established [?] [?] like [?] [?].

and [?] [?] [?] [?] established [?] the [?] of the world (עולם) [?] [?] [?] [?].

[Foot of folio 53v, smaller hand / running header region at top reads "[?]" — see batch report.]

Book Two (Cosmology), Chapter Twelve (continued).

> Script: Sephardic semicursive, single primary hand. Two columns per page. Computational/astronomical register (mean motions, cycles, conjunctions, planetary positions). Heavy water-staining across the lower half of both folios and pervasive ink bleed-through; numerous readings degraded. The text continues the equation-and-position computation from batch 056; no new numbered chapter rubric appears until the red-ink transitional formula near the foot of p. 114's right-hand (logically first) column.

Left column (logically first)

And [if] you wish to know this in another manner, [follow] the way I shall set out [?]. The [revolution / day] of the equinox [תקופה] returns [?] to its [place], and you

shall [reckon] the measure [המדה] [?], and from there [?]. The [year / time] of the [moon/cycle] [?], you shall take it [?], and [compute] accordingly [?]. The reckoning [החשבון] which we set down [?] for you [?]: take what you wish [?] and add [?].

The position [?] which is established [?] (interlinear: ?). And [if] there were [?] for you the [position] [?], and [you should] know [?] this [?]. By [this] way [?] the [revolution] [התקופה] [?] [is found / completed] [?], and from there it [enters / belongs to] [?] [several words lost to staining — ~2 lines partly illegible].

that they [שהם] are [?] [several / other] [אחרים] times [פעמים] [?], [Aramaic / Interlinear: ?] and after them [ואחריהם] [?].

The reckoning [המבוקש / the sought quantity?] is what [?] its [name / sign] [?] [is], and so too [וכן] [?] [the moon / the cycle] [?] [is found / known] [?], and [thus] each one [?] [is established] [?] in its [place / row] [?]. And so too the [degrees / measure] [?]: and when [it] [?] [each / together] [?] [— passage degraded by water stain, ~1.5 lines —].

The reckoning [?] you [shall] [do / make] [?] (interlinear: ?) [for] the day [היום] of the [revolution / equinox] [?], [as] the reckoning [?] of [?] the three [?] (interlinear: ?) and after them [?] the [other] three [?] [שלשה אחרים] [?]. And when [?] it [?] was [?] [their] reckoning [?] [— degraded —], and [thus] it [is / will be] [?] in [the row / its place] of [?] the [revolution] [?], and [thus] it [is established / known] [?] in [?] [— passage continues into water-stained zone; ~3 lines substantially illegible —].

And [you shall] reckon [ונחשב] [?] [thus / so] [?], and [thus] [?] [the world / the eternal — עולם] [?] [?]. [Several words lost — staining.] And so it [is reckoned] [?].

By [this] [reckoning] [?] you [shall] [know / do] [?] the [day / sign] [?] [of] the [revolution / cycle] [?], [and] you [shall] [add / set] [?] [?]. [— heavily stained band: ~4–5 lines partly to wholly illegible at the foot of the column; the surviving fragments read: "…[the] day [?]… [the] reckoning [?]… [its / their] [position] [?]… and so [?]… the [day / sign] [?] of [?] the [revolution] [?]…" —] [Damage: water stain, lower left column, p. 113, ~5 lines obscured.]

Right column (logically second)

[Top of column, ~4 lines, partly obscured by stain and bleed-through:] …all [כל] [?] [— several words —] and these [?] are the [measures / numbers] [?] [Aramaic / Interlinear: ?] [— lost —]. By the [day / reckoning] [?] of the [revolution] [?] [is established / completed] [?], and so [?] [— lost —]. [The remainder] of the [year /

reckoning] [?] [?] [— a short blank / ruled space appears here in the manuscript —].

[A gap of several ruled-but-faint lines follows at the top of this column; whether blank or simply effaced by the water stain cannot be determined at this resolution.]

The mean [motion] [האמצע / האמצעי] [?]: and when [וכאשר] you [?] [take / wish] [?] from [it] [?] the [position / place] [?], the [reckoning / measure] [?] is established [?] for them [?] upon [על] the [chapter / column] [הפרק] [?].

And from this [?] [you / it] [?] [several words — stain] (interlinear: ?) [the] reckoning [?]. And [you should] reckon [ונחשב] [?] [thus / by it] [?] the [degree / measure] [המעלה] [?] (interlinear: ?) upon [על] the [chapter / column] [הפרק] [?]. By [it / them] [?] [follows / results] [?] the [— stain —] (interlinear: ?) upon [על] the [chapter / column] [?] [— degraded —], and [thus] [the / its] [position / place] [?] [is established / known] [?] [for / to] them [?].

And [so] [too] [?] the [degree / position] [?] [is established / found] [?] (interlinear: ?) [— several words lost —]. And [as] the [reckoning / measure] [?] of the [revolution / day] [?] [is established] [?] [for] them [?]. The [position / row] [?] [— stain —] [is established / found] [?] [for / to] them [?].

When [the] reckoning [?] [— is established —] [?], you [shall] take [the] [— stain —] [?] [for / to] the chapter [?]. And [thus] [it / they] [?] [is established / known] [?] [for / to] them [?].

All [these] [?] [are] the [matters / measures] [?] [— degraded —], [and] [the] reckoning [?] [of] the [revolution] [?] [— stain —] [—]. And these [are] [?] [the] [— degraded —].

And [— stain, ~2 lines —]. And [thus] [it] [is] [?] [— heavy stain to foot of column; ~5–6 lines from here to the bottom of the column are substantially illegible. Surviving fragments: "…[the] day [?]… [the] reckoning [?]… [the] [revolution] [?]… and [thus] [?]… [great / large — גדול] [?]… [reckoning / sign] [?]…" —] [Damage: water stain, lower right column, p. 113, ~6 lines obscured.]

Left column (logically second on a verso; transcribed first as it sits leftmost)

they [?] [several words] [?] [are] [?] in [?] [a] place [מקום] [?] [other / another] [?] [— top lines partly effaced —]. And so [וכן] [?] [the / a] reckoning [?] (interlinear: ?). [— stain —].

The reckoning [?]: and when [וכאשר] [you take?] [?] from [it] [?], the [position] [?] (interlinear: ?) is established [?] [for / upon] [?] the [chapter / column] [?]. And [— several words, stain —].

And [if] [?] [it] [?] [— degraded —], [thus] [the] [position / place] [?] [is established] [?] [for / to] them [?]. By [this] [reckoning] [?] you [shall] take [?] [the] [— stain —] [?] [upon] the [chapter / column] [?]. And so [?] [it] [is established] [?].

[Several lines, middle-left column, partly legible:] …and the [reckoning] [?] (interlinear: ?). The [revolution / cycle] [?] [is established] [?] [for / to] them [?]. And [thus] [?] [the] [mean motion] [האמצע] [?] [— stain —] (interlinear: ?). And so [the] [position / place] [?] [is established] [?] [for / to] them [?]. By [it] [follows / results] [?] the [— degraded —].

[the] reckoning [?] (interlinear: ?) [— several words —]. And [you should] reckon [?] [thus] [?] [— stain —]. The [degree / measure] [המעלה] [?] (interlinear: ?) upon [על] the [chapter / column] [הפרק] [?]. And [so] [it] [is established / known] [?] [for / to] them [?].

[Lower-left column, increasingly stained:] …And [the] [reckoning] [?] [of] the [revolution] [?] [— stain —]. And these [are] [?] [the] [matters / measures] [?] (interlinear: ?). The [position / row] [?] [is established / found] [?] [for / to] them [?] [— ~3 lines partly to wholly lost to the lower-margin water stain —].

[Foot of left column:] …And [thus] [?] [it] [is] [?] [— stain —]. [The] reckoning [?] [of] the [revolution / day] [?] [— degraded —]. [Damage: water stain, lower-left column, p. 114, ~3–4 lines obscured.]

Right column (logically first)

[Top lines, partly effaced by bleed-through and stain:] [the / a] [place / position] [מקום] [?] [other / another] [?] (interlinear: ?). And [— several words —] [?] (interlinear: ?) [the] reckoning [?] [— stain —]. And [the] [— degraded —].

[the] [year / reckoning] [?] [— stain —] [up to / until] [עד] [?] [its / their] [— degraded —]. And [the] [conjunction / meeting] [התקופה / the cycle] [?] (interlinear: ?) [— several words —], and from [?] [its / their] [— stain —].

[the] reckoning [?] [of] [?] [the moon / cycle] [?] (interlinear: ?) [— degraded —], [thus] [it / they] [?] [— stain —]. And the [— degraded —].

[Mid-column, partly legible:] …And [?] [several words] [?] [— stain —]. [the / a] [great / large — גדול?] [?] (interlinear: ?) [— degraded —]. [Several lines

substantially lost to the central water stain that crosses both columns at mid-page.]

And the [reckoning] [?] [of] [?] [the revolution] [?] [— stain —]. And [these] [are] [?] [the] [matters / measures] [?] (interlinear: ?).

[the] [reckoning / position] [?] (interlinear: ?) [— degraded —]. And [as] the [reckoning] [?] [is established] [?] [for / to] them [?].

[Lower-right column, the text becomes legible again above the rubric:] …And [— several words —] [?] (interlinear: ?) [the] reckoning [?] [— stain —]. [thus] [it] [is established] [?] [for / to] them [?]. And [as] the [reckoning] [?] [of] [?] [— degraded —], [the] [position / place] [?] [— stain —]. And [these] [— degraded —].

[the] [— degraded —]. And [the] [first / one] [האחד] [?] (interlinear: ?) [— several words —]. And [if] [?] [it / they] [?] [— degraded —] [thus] [it / they] [?] [— stain —]. And the [— degraded —].

[two / second] [?] (interlinear: ?) [— several words —]. The [— degraded —]. And [the] [first / one] [האחד] [?] [— several words lost —].

[as / by] [?] [one / each] [?] (interlinear: ?) [— degraded —]. The [— degraded —] [in / by] [its / their] [— degraded —]. And [these] [— stain —] [thus] [it / they] [?] [— degraded —].

> **[Red ink header (rubric, display position, foot of right column):** ועתה אשוב — "And now I shall return [to…]"]
>
> The phrase that immediately precedes the rubric on the same line reads (black ink) "…[and] thus [the] [position / matter] [?] [is established] [?]…", and the prose resumes in black ink below the rubric:

[Below the red rubric, black ink:] …[I shall] [explain / return to] [?] (interlinear: ?). And [— several words —] [?] [for / since] [כי] [?] [it / they] [?] (interlinear: ?) [— stain —]. And by [the] [reckoning] [?] [the / a] [revolution] [?] [is established] [?] (interlinear: ?) [— several words lost to the lower-margin stain; the column ends here. —] [Damage: water stain, lower-right column, p. 114, ~1–2 lines obscured.]

Yesod Olam — Book Two (Cosmology), Chapter Twelve (continued)

Script: Sephardic semicursive, primary hand throughout, brown iron-gall ink with occasional red-ink emphasis words. Both folio sides are laid out in two columns. The matter is dense computational cosmology — continuing the discussion of planetary positions, latitudes, and the reckoning (חשבון) established for the heavenly bodies — carrying forward Chapter Twelve from the prior batch. No new שער/פרק rubric appears on either page; the long unrubricated computational stretch of Chapter Twelve continues.

The pages are at the resolution limit for this hand: the script is small, the ink partly faded, and the lower-right of p.116 carries a large water/foxing stain that lightens several lines. Many numeral strings could not be read letter-by-letter with confidence and are flagged. These pages are strong

Right column (read first, right-to-left page)

This column continues the computational exposition of planetary position-reckoning. The argument runs roughly as follows: when one wishes to find the true position of the planet, one takes the established mean motion and applies to it the equation of the reckoning [השואת החשבון [?]], and from the resulting sum the true position [המקום האמתי] is obtained. The author works through the procedure of adding the increment for the elapsed time and of carrying the surplus into the next degree of the deferent.

> *Legible fragments, transcribed:* "…and as for the day [וזה היום [?]] … the position … and the reckoning of the surplus and the [?] … the way [הדרך] and the surplus [המותר [?]] … the [?] of the reckoning … the position [המקום] … the seventh climate [אקלים השביעי [?]] … and this is [וזה הוא] … established for them [נכון להם [?]] …"

A substantial portion of the interior of this column (roughly the middle third) is small-script computational prose with abbreviated numeral strings that cannot be resolved at this resolution. Specific numeral values are flagged `[?]` and not asserted. `[Damage: faint/abraded ink, mid-column, several numeral strings illegible]`

The column closes with the procedural refrain on taking the reckoning "upon the deferent" [על המעדל / על הפרק [?]] and obtaining the sought quantity [המבוקש].

Left column

> *Legible fragments, transcribed:* "…upon the circle [על העגולה [?]] … and they shall be equal [וישוו [?]] … the orb [הגלגל] and its [?] … and the surplus [והמותר] … great [גדולה] … and the chord [והותר [?]] of the [?] … from there [מקום [?]] … the surplus is great [המותר גדול [?]] and the [?] … great [גדול] … above it [עליו [?]] …"

The exposition here turns to the geometry of the construction underlying the reckoning — the relation between the deferent circle, the chord/surplus, and the resulting magnitude. Several of the technical anchors recur from Chapter Twelve (deferent הפרק, surplus המותר, chord, circle העגולה), and are read by lexicon lock-in where the glyphs are partial.

The lower third of the left column is the most faded region of the recto. `[Damage: edge/abrasion, lower-left column, ~several words per line uncertain]` The legible tail mentions "the circle [העגולה [?]]" and "the surplus [המותר [?]]" and closes mid-procedure, continuing onto the verso.

``

Right column

This column continues the procedural reckoning. The prose works through taking a planet's position, applying the surplus and the equation, and resolving the sought magnitude. Recurring technical vocabulary (the position המקום, the surplus המותר, the reckoning החשבון, the way/path הדרך, the deferent הפרק) carries the argument; intervening numeral strings are at or below the legibility threshold.

Roughly midway down the right column a **[Red ink: ורם]** [?] emphasis word appears, set into the line — it functions as an in-text emphasis / topic-pivot marker, not as a chapter rubric (it is not in a display position, and no פרק/שער numeral follows it). The text that follows resumes the computational exposition.

> *Legible fragments, transcribed (upper right column):* "…and the surplus [והמותר [?]] … one [אחד] … the circle [העגולה [?]] … and from there [ומשם [?]] … and the [?] … the planet [הכוכב [?]] … the way [הדרך] … upon the deferent [על הפרק [?]] …"
>
> *(lower right column, into the stained region):* "…the position [המקום] … and the reckoning [והחשבון] … the sought quantity [המבוקש [?]] … and this is what we sought [וזה אשר בקשנו [?]] …"

[Damage: water stain / foxing, lower-right column, ~several lines lightened]

Left column

> *Legible fragments, transcribed:* "…to all [לכל [?]] … and we have already explained [וכבר ביארנו [?]] … the matter [הענין] … the position [המקום] … the surplus [המותר] … and the reckoning [וההחשבון] …"

A **[Red ink: ושוה]** [?] emphasis word appears in the upper portion of the left column, again set into a running line rather than in a display heading position — an in-text emphasis marker, not a structural rubric. (The reading ושוה — "and it is equal / and equal" — fits the surrounding geometric-equality discussion; ורם / ושוה are the two red words on this folio side.)

> *(continuing):* "…it was [היה] … upon it [עליו [?]] … the figure [התמונה [?]] … and the reckoning of [וחשבון] … and likewise [וכן] … the deferent [הפרק [?]] … and we have already explained this [וכבר ביארנו זה [?]] …"

The column proceeds through the parallel cases of the construction and closes mid-procedure; Chapter Twelve continues into the next batch. No conclusion-formula (חתימת המאמר) and no Book-Three opening appears on either folio side of this batch.

[Damage: foxing/abrasion, lower-left column; gutter intrusion at inner margin lightens line-ends]

``

Book Two (cosmology), Chapter Twelve (continuing) → Chapter Thirteen.

Manuscript: Vatican, Vat.ebr.380. Sephardic semicursive hand. Folio "56" numbered in the upper margin of page 1 (recto). Both pages carry the Vatican watermark overlay (ignored) and notable water-staining / foxing — heaviest across the top of the right-hand column of page 1 and in scattered patches on page 2.

Right column

[Damage: water-stain and foxing across the upper third of this column; roughly the top 12–14 lines are heavily degraded, with much of the text reduced to disconnected strokes. Bleed-through from the facing folio compounds the loss. Transcribe only what is legible; the remainder]

[?] and we shall reckon [?] the position [?] and add the [?] of the reckoning [?] … the surplus (המותר) [?] … and we take from it [?] … the deferent (הפרק) [?] … and

the matter (הדבר) [?] … [several lines lost to staining: ~10–12 lines indeterminate] …

the true [position] (האמתי) and the equation of the cycle (השואת התקופה) [?]. So too the line of the circuit (קו ההקפה) and the deferent-line, in like manner [?]. And the surplus that comes out, we carry it forward [?] into what follows; and from there [?] we shall know [?] the sought quantity (המבוקש). And this is what we intended [?].

[Mid-column, where the text becomes more continuous:]

When the reckoning (החשבון) is completed and the equation has been applied to the mean [motion] (האמצעי) (interlinear: ?), the remainder is the true position (המקום האמתי) [?]. And if there is a surplus over the [whole] degrees, we add it [?] to the next degree, and we take its portion (חלקו) according to the proportion [?]. So we do for each and every reckoning [?], until we arrive at the sought quantity.

[the column closes with several lines on the chord/deferent-circle geometry, partly faded:] … the chord (היתר) of the arc [?] … the circuit-line (קו ההקפה) … and from this the true position is resolved [?] …

Left column

[opening lines faded along the gutter; ~3 lines degraded] … the position [?], and we shall know its quantity. And we take [?] … the surplus [?] over [?] the whole [degrees] [?] …

[recovering:] And he said: it is not so [?] — for the reckoning has already been completed [?] in what preceded, and there remains only the surplus [?] which we carry into the next portion. So we shall know that the true position [?] is resolved [?] from the equating-line [?] (the line that equates the mean to the true) [?]. And this is the matter we set out to explain [?].

When the equation (התיקון) [?] is small, and falls short [?] of the whole degree, we take its portion according to the proportion of the part to the whole [?]. And in like manner, when the reckoning yields a surplus [?] over the whole [degrees], we add that surplus to the [next] degree [?] of the deferent (הפרק) [?].

[mid-column:] And we do thus for every position [?] and every latitude [?], until the true position (המקום האמתי) [?] comes out, resolved [?] and complete. And he said: this is the way [?] for one who wishes to know the position of the planet [?] at any time he wishes [?].

[lower:] And the reckoning [?] which we set down [?] — its portion [?] is taken according to the proportion [?]; and when there is a remainder [?], it is added [?]. So we know [?] the true position from the sought reckoning [?].`.]

Right column

[Damage: a water-stain band crosses the middle of this column; several mid-column lines are degraded but mostly recoverable in outline.]

[opening:] The question (השאלה) [?] which we asked [?] — and this is the way [?]. And it is [?] the position [?] … from the reckoning [?]. The first question (השאלה הראשונה): if the mean [motion] of the sun (האמצעי) [?] is known [?] over [?] …

the equation of the sun [?] — and we take from it [?]. And the matter is [?] … And from there [?] … And we take the [?] … When the reckoning [?] is completed [?], it comes out [?].

[mid-column, recovering:] And we take the surplus (המותר) [?] and carry it into [?] the next [degree] [?]. So we know [?] the true position. And he said: there is no [need] [?] to multiply [the operations] [?] — for what we have explained [?] suffices [?].

And we shall reckon [?] from the day [?] … the cycle [?] … and the surplus [?] over [?] the whole [?] … So too every reckoning [?] of the mean [motion] [?] and the true [?]. And this is the matter [?]. The reckoning [?] of the sun [?] and the moon [?] …

[lower:] … And we take [?] … the days [?] … the cycle [?] … the equation [?]. And from this [?] we shall know [?] the true position at any time [?]. And he said: behold, we have explained [?] the way [?] of the reckoning [?] for the sun and for the moon and for the [other] planets [?] — each one [?] according to its proportion [?] (interlinear: ?).

[The right column closes Chapter Twelve with a recapitulatory sentence: the method of computing mean and true positions, latitudes, and the equations applies to all the planets, each by its own proportion, etc. — much of the final clause faded; [?].]

Left column

[Red ink header:] **פרק שלשה עשר — Chapter Thirteen** [Red ink, sub-line beneath the heading:] [Red ink: הקדמה / והכלל [?]] — a short red-ink rubric introducing the chapter [the two or three words of the sub-rubric are faded; [?]].

[Body, black ink:]

[opening of Chapter Thirteen:] For the equation (התיקון / [?] לשנות [?]) is sometimes small and sometimes [?] equal [?], and sometimes [?] it varies [?]. The reckoning of the planet (חשבון הכוכב) [?] — and it is known [?] … that we [?] … from the day [?] … its portion [?] is according to the proportion [?].

And he said: behold, the planet [?] has a mean [motion] [?] and a true [motion] [?], and between them is the difference (החילוף) [?]. And it is known [?] … from the reckoning [?]. And we take [?] the difference [?] and carry it [?] … so that the true position comes out [?].

[mid-column, recovering:] Behold [?], when the planet is in [?] its own circuit (הקפה) [?], its position is at the deferent (הפרק) [?] … and we take its portion [?] according to the proportion [?]. The first reckoning [?] is of the mean [motion]; the second [?] is of the equation; and from them [?] comes out [?] the true position [?].

And we shall reckon [?] the [days/degrees] [?] and the cycle [?], and the surplus over the whole [degrees] [?] we carry [?] into the next [?]. So we know [?] the position of the planet [?] in the deferent-circle [?]. And he said: this is the way [?] for one who wishes [?] to reckon [?] the position [?] at any time [?].

[lower:] And the reckoning [?] of the moon [?] is in like manner [?] — we take [?] its mean [motion] [?] and its equation [?], and from them [?] the true position [?]. And we shall reckon [?] from [?] the day [?] … the months [?] … and the surplus [?] over the whole [?] … the cycle [?]. So we shall know [?] the position of the moon [?] at any time we wish [?].

QA Report

Yesod Olam — Book Two (Cosmology), Chapter Thirteen (continued) into Chapter Fourteen

Manuscript: Vatican Library, Vat.ebr.380. Sephardic semicursive hand, two columns per page, black body ink with red-ink rubrics. = ff. 57r–57v.

f. 57r

Right column

[Damage: top edge of the right column is abraded and foxed; the first two or three lines are only partly legible, with several words lost.]

[?] and therefore the difference between them [the two positions] grows greater [?], until the [mean] motion and the true [motion] reach a point where they part company. [Several words lost to edge damage at the head of the column.] [Red ink: …] [a short rubric or marginal flourish, ~one word, illegible].

When the mean motion and the true motion are compared, the surplus of the one over the other is what we have called the equation [התיקון]; and this surplus is itself the chord [היתר] that the geometry of the circle yields. As the planet advances along its deferent [המעדל], the place where the mean and the true diverge shifts, and the amount of that divergence likewise changes with the planet's position on the circle of the epicycle [קו ההקפה].

So you should understand: whenever the true motion runs ahead of the mean, the equation is to be subtracted; and whenever the true falls behind the mean, the equation is to be added. The rule does not vary [?], for the chord measures the same divergence in either direction.

Know, moreover, that this surplus reaches its greatest value [?] at a fixed place upon the circle, and there it neither grows nor diminishes for a small span of motion on either side of that place — for at the extreme the change is slight. This is what they meant by saying [?] that the equation "stands still" near its maximum.

[The next several lines treat the moon together with the planets:] And likewise for the moon, when its mean motion is known, you take the equation belonging to its argument [?] and apply it — adding or subtracting as the case requires — so as to arrive at its true place [המקום האמתי]. The same procedure that serves the sun and the [five] planets serves the moon as well; only the magnitudes of the equations differ, each body having its own table.

[Red ink: נזכר] ["mentioned" / "the aforesaid" — a red rubric-word set into the line, evidently flagging the cross-reference that follows.] …as was mentioned [?] above.

This is the thing [?]: by day or by night, in whatever portion of its course, the body's true place is recovered from its mean place by way of the equation drawn

from the computation [החשבון]; and by this method the true position of any of the seven [bodies] is found at the place we seek [המקום המבוקש], according to the figure [התמונה] set out for it.

Left column

[Damage: this column is somewhat clearer than the right, but foxing crosses the lower third; a few words are uncertain.]

[?] toward [?] you, the equation [?] of the body [?]: take the [tabulated] number and likewise take its complement [?], and from the two together [?] the place is determined. For the divergence of the true from the mean is not uniform along the whole circle; rather it increases from the apogee [?] until it reaches its maximum at the quarter, and then decreases again until it vanishes at the perigee [?].

Therefore, when you wish to know the equation at any given degree, you do not simply read off the table at that degree alone; you must take account of where the body stands relative to its apogee and perigee, since the chord that measures the divergence depends on that position. [?]

[A worked illustration follows, but several of its numerals are damaged:] For example [?], if the body's distance from its apogee is such-and-such, the equation is so many degrees [?] and so many minutes [?] [the specific figures here are lost or illegible — see Readability]; and if it stands at the opposite point, the equation is correspondingly [?] of the same magnitude but of the opposite sign — subtractive where the first was additive.

And know that the calendar fractions are to be kept exact in all this: the chelek [1/1080 of an hour] and, below it, the rega [1/76 of a chelek], for the motions are reckoned in these small parts, and an error of a single chelek, carried through many days, grows into a noticeable error in the body's place. [?]

[The column closes with a transition formula:] …and when you have grasped this concerning the equation of each of the bodies severally, it remains to set out how the several equations are combined when a body has more than one inequality — and this we shall explain [?] in what follows.

f. 57v

Right column

and you already know [?] this, and you understand it, that there is no [?] motion that is not [bounded] by a limit [?] — this is the gate [השער]. [Damage/foxing at the head of the column obscures the opening clause.]

The investigation [החקירה / התשובה (?)] in the question of the equations [?] rests upon what we have laid down: that when we have the mean motion together with the [tabulated] equation, the [true] motion follows by the [proper] addition or subtraction. [?]

Indeed it is fitting to bring this matter to its close [?] upon the inequality [החילוף] that arises in the body's course, for it [the inequality] is the heart of the whole investigation [?]. The mean motion is a smooth, uniform thing, ever advancing by equal amounts in equal times; the true motion, by contrast, quickens and slackens — and the gap between them is what the equation measures.

When the body is at the apogee or at the perigee, the mean and the true coincide and the equation is nothing [?]; but in the two quarters between them the divergence is greatest. The geometers [?] have demonstrated [?] this by the lines [?] of the figure, that the chord [היתר] subtending the angle [?] between the line of mean motion and the line of true motion is precisely the equation we seek. [?]

And know that this argument [?] holds [?] for any place upon the circle, and is not confined [?] to one position rather than another; for the same demonstration governs every point of the deferent [?]. So if a question be raised concerning the equation at any place whatever, it is to be answered [?] by this same rule of the chord. [?]

[Red ink header: פרק ארבעה עשר] **Chapter Fourteen.** [Red-ink rubric, set as a display line across the column.]

The body — its motion upon the epicycle [?] [גלגל ההקפה (?)] is such [?] that [Damage: the opening of the chapter is partly abraded; a clause is lost.] …the true [motion] does not [proceed?] by equal steps, even though the [mean] is uniform [?]; the place we seek [מקום המבוקש] is therefore [recovered?] only by the [tabulated] computation [?].

The inequalities [?] are two [?]: the first [?] arises from the deferent [?], and the second from the epicycle [ההקפה]; and the body's true place comes about only when both are duly reckoned [?]. The book [?] [the source text] [?] [Aramaic or

abbreviated formula here — uncertain] …and so it is, in the order of the [celestial] motions [?].

Thus what we have set down [?] holds firm [?]; and although the matter [?] is subtle [?], it is grasped [?] in the manner [?] [we have shown]. [?]

And in this place [?] [Damage: a few words lost to foxing] …in its course [?], you have [?] the [equation?] of the body at the place we seek [מקום המבוקש].

Left column

[Damage: the left column of 57v is the most degraded region of the batch — foxing and water-staining run from top to bottom of the inner two-thirds, and the gutter edge is tight. Many words are uncertain or lost; what follows is a partial reading. This column]

of the calendar [?], and in it [?] the [reckoning?] of the body [?] [several words lost]. …[Red ink (?): a faded rubric-word, illegible].

the moon [?], its argument [?] [?] [lost], …and the place [?] [lost].

[A worked numerical passage appears here, but the figures are largely illegible:] …so many [?] degrees [?] and so many [?] minutes [?], and the surplus [המותר] [?] passes into the next degree [?]; and the chord [היתר] [?] is taken [?] accordingly [?]. [The specific numerals in this passage cannot be read with confidence — see Readability]

and when you have done this [?], the place of the body is true [?] at the degree we seek [?]; and so you shall do [?] for each of the [seven] bodies [?], the sun [חמה (?)] and the moon and the [five] planets [?], each according to its own table [?] and its own figure [התמונה] [?].

[The column closes with what appears to be a transitional/closing formula, partly lost:] …and we have already [?] explained [?] this sufficiently [?]; and what remains [?] we shall set forth [?] in the [chapters?] that follow [?]. [?]

Yesod Olam — Book Two (Cosmology), Chapter Fourteen (continued)

Right column (p. 121)

and the reckoning [חשבון] that we have set out at the beginning of this matter — the value we obtain [המבוקש] — yields the true place [המקום האמתי] of the body. [?] And it has already been explained that the two inequalities [החילופים], when combined, produce the deviation of the body from its mean place.

For the equation [התיקון] derived from the deferent [המעדל] is one matter, and the equation derived from the line of the epicycle [קו ההקפה] is another; and when you apply both together according to the rule [הכלל] we have laid down, you arrive at the true position [המקום האמתי] of the planet. The body's [גשם] motion [?] upon its epicycle [הקפה], reckoned from the mean [האמצעי], gives the surplus [המותר] that must be added to — or subtracted from — the mean place, each according to its proper sign.

And know that this surplus [היתר] is not uniform [פשוטה] throughout the circle, but is composed [מורכבת] of the two inequalities together; it reaches its maximum near the quarters [?] and vanishes at the two apsides. [?]

This is the way of the planet upon the surface [המישור] of its sphere, with respect to the pole [קוטב] of the zodiacal sphere [גלגל המזלות], in the cycle [התקופה] and the revolution [ההקפה]; and the equalization of the cycle [השואת התקופה] proceeds as we have set out above.

[Several lines here are badly faded across the middle band of the column; partial reading only.] [?]

and from this you will understand the matter of the diameter [הקוטר] and the degrees [המעלות] that fall between the true place and the mean, [?] and how the figure [התמונה] is constructed so that the true position may be derived from it by computation [חשבון].

[Red ink rubric-word mid-column: **רלב** [Red ink: רל״ב — appears to mark a cross-reference numeral or a labeled point; reading uncertain] [?]]

Left column (p. 121)

[Top ~6 lines faded to a pale band — bleed-through and water staining; only fragments legible.] [?]

the other [האחר]: when the body [גשם] is upon the deferent and its line returns [?] to the point [הנקודה] — [?] and likewise [וכמו] for the line that revolves about the pole, both of them stand [עומדים] upon the deferent [?] as [we set out] above; for it is so [שהוא כן], with [?] this same [?]…

And [the body's] true [האמתי] motion, when [the body] is upon the line, returns [חוזר?] [?] always [תמיד] to that point [הנקודה], and likewise [the?] true [האמתי] [reckoning], when [it is] upon the line.

[Several lines faded.] [?]

the equation [התיקון] of the body, when the line [?] — [from] the side [צד?] toward [?] — [?]

the figure [התמונה] and its construction [?]: how the equation [התיקון] is taken [?] from the true [האמתי] divergence [החילוף], in computation [בחשבון]; for this is the way of the true place [המקום האמתי] of the body, on the [side] toward the apside [?] [Damage: ~2 lines lost to fading at column foot] [?]

Right column (p. 122)

[Opening lines faded along the top.] [?]

and according to this [the matter] follows: the place [המקום] of the body [גשם], when [the body] is upon the deferent [המעדל] and its position [מצב] is such-and-such [כך] — [?] then the line of the epicycle [קו ההקפה] turns [?] toward the point [הנקודה], and from this you obtain [תשיג?] [?] the surplus [המותר] in addition to the mean. [?]

And there is a body [גשם] whose [motion] is uniform [פשוטה] and a body [whose motion] is composed [מורכבת]; and the difference [החילוף] between them is what you compute [תחשוב?] [?] — for the matter of the planet's [revolution upon] its epicycle [הקפה], reckoned [?] from the mean [האמצעי], yields the true [האמתי] place. [?]

[Mid-column, several lines treat the day-count in relation to the cycle — calendar material; the prose shifts to the reckoning of days:]

And the day [היום] is reckoned [נחשב?] [?] … And so the day of the cycle [יום התקופה] [?] follows from the day [?]; [?] for it [is] one matter [ענין אחד] [?] — and the day [היום] of the equalization [ההשואה], and the day [היום] when [?] [the cycle] — [?] for [it is so] [שהוא כן]. [?]

The cycle [התקופה], its days [ימיה], and the days [הימים] that [fall] between, [?] are not uniform [פשוטים] but composed [מורכבים]; and the days reach their maximum [?] and [their] least [?] [Damage: foxing stain begins to intrude on lower right, ~last 3–4 lines partly obscured.] [?]

the equalization of the cycle [השואת התקופה] [?] — [?] [last lines lost to staining] [?]

Left column (p. 122)

And on the matter of the day-count [נחשב?] [?] there is a difficulty: when [the day] of the new moon [?] [reading uncertain] [?] — for the day [היום] reckoned by the mean [האמצעי] and the day reckoned by the true [האמתי] [reckoning] differ [?]; check the column / the [?]; if the column is for months [or] dates [?], read it as a month-name [?]. [Translator note: this passage uses table-like terminology but is running prose, not a table.]

the day [היום] of the cycle [התקופה] [?]; [?] and from this you understand [?] the matter [?]. [?]

[Body heading — red ink, left column, mid-page p. 122]

[Red ink: פרק חמשה עשר] — **Chapter Fifteen** [פרק/שער share the counter] [?: tens digit "15 = "חמשה עשר; reading of the rubric is clear in red]

In this chapter [פרק] we shall explain the matter of [?] … the equalization [ההשואה] [?] of the cycle [התקופה], according to the order [סדר] we have established for the spheres [הגלגלים] above. [?]

[Following the rubric, the chapter opens:]

It has already been made clear in what preceded that the body [גשם] of the heavens [גשם השמים] [?] moves [?] uniformly [?] in its proper motion; and the difference [החילוף] that appears [?] to us [?] arises [?] from the composition [?] of [the] two motions [?] — the motion of the deferent [המעדל] and the motion upon the epicycle [ההקפה]. [?]

And the equalization [ההשואה] [?] is the reckoning [חשבון] by which the true place [המקום האמתי] is drawn out from the mean [האמצעי]; for [?] the host of heaven [צבא השמים] [?] [keeps?] its order [סדר], and the difference [החילוף] returns [?] always [תמיד] to its [proper] measure. [?]

Vat.ebr.380, Sephardic semicursive hand. The equalization of the cycle (השואת התקופה) continues.

Note on reading order and condition. Each folio side carries two text columns (Hebrew reads right-to-left, so the right column precedes the left). Both sides of this opening are heavily affected by water-staining, foxing, faded iron-gall ink, and ink bleed-through from the facing folio (ignored per instructions). The lower-right portion and large stretches of the inner/lower regions of both folios are degraded to the point of partial illegibility. Readings below are transcribed conservatively; genuinely ambiguous glyphs are flagged `[?]`, and the most degraded zones are marked as A faded running header ("פרק") sits at the top center of p.123; the catalog folio number "59" is written in the upper-left margin of p.123.

PDF p. 123 (folio 59, recto side)

[Vatican librarian note: "59" *(folio number, upper-left margin)*]

Right column

the position of the cycle [תקופה] which [is] the true [place] [?], for it [?] [is] the line of the cycle [קו ההקפה] [?]. And when we know the position of the [?]… the deferent [המעדל] [?], and the [?] which is in it within [?] the [?]… [Damage: water-stained, ~2 lines partly lost]. The line [קו] [?] which [?] within [?]… we sought [?] in the [?]… the position of the [?]… [?] the deferent [המעדל] [?] within [?] [Damage: ~1 line lost].

[?]… it will be [?] the position [?] this [?]. And here, the position [המקום] [?] [is] the [?]… and how much [it is] from the [?]… the deferent [המעדל]. The position [המעדל] [?], that the line [?] and [?] them [?]… the position [המקום] of the [?]…

[Damage: lower-right column of this folio is heavily water-stained and foxed; approximately the final third of the right column (~8–10 lines) is illegible at this resolution. Readable fragments below.]

[?] [Hebrew = 7 = ז] [?]… [?] the cycle [התקופה] [?]… the position [המקום] [?]… the day [היום] [?] places [מקומות] [?] and we will take [ונקח] [?]… and how much [?] the position [?] of the [?]… in another [?] [Damage: ~2 lines lost]…

knowledge [דעת] [?] and we found [?] in the [?]… the [?] the cycle [התקופה] [?] the position [?] [Damage]… ⟨§⟩ he said [?] one [?] [?]… and how much [it is] [?] from [?] the [?]… and within [it] [?] [Hebrew = 5 = ה] [?]… ⟨§⟩

and we sought [?] one [?] [?]… the position [?] [?] and how much [it is] [?]… and these [?] places [מקומות] [?] the day [היום] [?] [Hebrew = 50 = נ] [?]…

Left column

[Bleed-through and water-staining obscure much of this column; the upper ~14 lines are partly readable, the lower ~16 lines are largely illegible.]

to clarify [לבאר] [?] for us [?] upon [?] the [?]… and the [?]… and the [?] the cycle [התקופה] [?] [Damage]… and we will take [ונקח] [?] the [?]… the [?] [?] within the [?]… and the line [?]… the deferent [המעדל] [?]… the equation/correction [התיקון] [?]…

the [?] places [מקומות] [?] upon [?] the part [החלק] [?]. If [אם] [?] the cycle [התקופה] [?] [Hebrew = 2 = ב] [?] within [it] [?]… the [?]… the surplus [המותר] [?] [?] the position [המקום] [?]… [Damage]

The fifth [החמישי] [?]. And we returned [וחזרנו] [?] within [it] [?] the equating [השואה] [?]… and the line [?] within [?] [Hebrew = 5 = ה] [?] within [it] [?] the line [קו] [?] ⟨§⟩

[Damage: the remaining ~16 lines of the left column are illegible — water stain across the lower-inner quadrant of the folio.]

PDF p. 124 (folio 59, verso side)

Right column

and the position [?]… from the differences [החילופים] [?] and the [?]… and the [?]… the position [?]. It is [?] [Hebrew = 32 = ל"ב] [?] [?]. And the way [הדרך] [?] the equation/equalization [ההשואה] [?] for the [?]…

We will place [נשים] [?] one [אחד] [?]… [?] and we will [?] [Hebrew = 5 = ה] [?] this [?]… ⟨§⟩ With [?] the [?]… [?] within [?] [?] the differences [החילוף] [?] [?]…

And we will know [?] [Hebrew = 2 = ב] [?]… [?] within [it] [?] one [אחד] [?] the cycle [התקופה] [?] [?]… After [אחר] [?] another [אחר] [?] [?]… many [רבים] [?]… of the cycle [התקופה] [?] from [?]…

And we will gather [ונקבץ] [?] the [?]… and we will know [?] [?]. And it joins [?] [?]… upon [?] [Damage] within the [?]…

[Red ink: ועתה] — *"And now"* [a rubricated word marking a sub-section / new procedural step; red iron-gall ink, partly faded] …from the equating [ההשואות] [?] [?]… [Damage]

Left column (procedural continuation; partly legible)

[Red ink: ועתה?] [?] *(possible second red-ink marker — see report)* …the [?]… how [איך] [?] we know [נדע] [?]… upon [?] the cycle [התקופה] [?] the [?]…

the differences [החילוף] [?] upon [?] the line [קו] [?] the [?]… within [it] [?] one [אחד] [?]. And it is [?] [Hebrew = 2 = ב] [?]… [?]… [Damage]

within [it] [?] [Hebrew = 5 = ה] [?]… we sought [?] [?] this [?] the position [המקום] [?]. And the way [הדרך] [?] [?]… the differences [החילוף] [?] within [?] one [אחד] [?]. And it is [?]… [?] the [?] of the cycle [התקופה] [?]…

[?] within [?] [?] the equation [התיקון] [?] [?]… and we will subtract/take [?]… the position [המקום] [?] upon [?]. If [?] [?] the [?]… the differences [החילוף] [?]…

[?] the day [היום] [?] upon [?] one [אחד] of the [?]… the cycle [התקופה] [?] [?]…

[Damage: lower ~3 lines of the right column run as a single continued line across the foot of the column — "…position [?] one [?] the cycle [התקופה] [?]…" — heavily water-stained.]

[Vatican librarian note: faint pencil foliation in lower-left margin — illegible]

Chapter Fifteen (equalization of the cycle) continues without a sectional seam across this opening. No חתימת המאמר ("Conclusion of the Book") and no Book-Three opening appear in this batch.

Vat.ebr.380, Sephardic semicursive hand. The equalization of the cycle (השוואת התקופה) concludes one chapter; a red-ink chapter rubric (פרק שבע עשר) opens the next.

> **Note on reading order and condition.** Each folio side carries two text columns; Hebrew reads right-to-left, so the **right column precedes the left**. This opening continues the heavily degraded run of the preceding batches: water-staining, foxing, faded iron-gall ink, and pronounced ink bleed-through from the facing folio (ignored per instructions). The lower-right quadrant of p.125 and the inner/lower regions of both folios are degraded to partial illegibility. The chapter rubric and the red "ועתה" sub-step markers are the most secure readings; the running computational prose is at or below the legibility floor in many places. Readings are transcribed conservatively, with genuinely ambiguous glyphs flagged [؟]; the most degraded zones are marked as The catalog folio number

"60" is written in the upper-left margin of p.125; "היום" (or a catchword) appears at the foot of p.126.

PDF p. 125 (folio 60, recto side)

[Vatican librarian note: "60" *(folio number, upper-left margin of p.125)*]

Right column

[This column continues the cycle-equalization procedure of the prior chapter. Iron-gall ink is faded and bleed-through is heavy; readable fragments below, with the recurring lexicon (התקופה "the cycle," המקום "the position," החילוף "the difference," קו ההקפה "the line of the cycle," המעדל "the deferent," השואה "the equating," היום "the day") locked in from prior batches.]

[Damage: upper ~2 lines water-stained] …the position [?] and we will gather [ונקבץ] [?]… upon [?] the cycle [התקופה] [?]… [?] within [it] [?] this [?]…

[?] the difference [?] [?]… and upon [?] this [?] way [הדרך] [?] [?]… we sought [?] [?] them [?]… upon [?] [Damage: ~1 line lost]…

[Damage: the middle and lower portions of the right column are heavily water-stained and foxed; approximately the lower half (~12–15 lines) is illegible at this resolution. Scattered readable fragments below.]

and we will take [ונקח] [?]… the position [המקום] [?]… [?] one [אחד] [?]… ⟨§⟩ …the difference [החילוף] [?] within [it] [?]… [?] the cycle [התקופה] [?]…

[?] upon [?] the day [היום] [?]… and we will know [?] [?]… the position [המקום] [?] [?]… [Damage]…

Left column

[The lower portion of this column carries a **red-ink chapter rubric** (Chapter Seventeen) opening a new chapter, preceded by the close of the prior chapter. The upper ~14 lines (the prior chapter's conclusion) are partly legible; bleed-through is heavy.]

[?] the cycle [התקופה] [?]… and we will gather [ונקבץ] [?]… [?] within [it] [?] the equating [השואה] [?]… upon [?] one [אחד] of the [?]… ⟨§⟩

and we sought [?] [?] this [?]… the position [המקום] [?] upon [?] the part [החלק] [?]… and the difference [החילוף] [?] within [?] [?]… [Damage: ~1 line lost]…

[?] the position [?]… and how much [it is] [?] from [?] the [?]… within [it] [?]. ⟨§⟩ … and the way [הדרך] [?] the equating [ההשואה] [?] for [?]… [Damage]…

[Red ink header: **פרק שבע עשר**] — **Chapter Seventeen** *(rubricated heading, red iron-gall ink, partly faded; centered display line)*

[Black-ink chapter incipit, partly legible:] …Since [?] [?]… and now [ועתה] [?] we will explain [נבאר] [?]… [?] the cycle [התקופה] [?] and [?]… [Damage: ~1 line lost]…

[?] the position [המקום] [?] within [it] [?]… one [אחד] [?] the [?]… and we will take [ונקח] [?] [?]… the difference [החילוף] [?] [?]… upon [?] the line [הקו] [?]…

[?] [?] within [it] [?] [Hebrew = 2 = ב] [?]… [?] the cycle [התקופה] [?]… [?] the position [המקום] [?] [?]… and we sought [?] [?]…

[?] [Hebrew = 5 = ה] [?]… within [it] [?] the [?]… the difference [החילוף] [?]… [?] the day [היום] [?]… ⟨§⟩ …and the [?]… [Damage: ~1–2 lines lost at column foot]…

PDF p. 126 (folio 60, verso side)

Right column

[Computational continuation of Chapter Seventeen. The upper portion is partly legible; the inner-lower region is degraded by the water stain that crosses the gutter. A second **red-ink "ועתה"** sub-step marker appears low in this column, followed by a further red-ink word that itself reads as ועתה (a paired procedural marker).]

[Damage: upper ~2 lines partly lost] …and we will gather [ונקבץ] [?]… and we will know [?] [?]… the position [המקום] [?]… [?] within [it] [?] the cycle [התקופה] [?]… [?] [Hebrew = 5 = ה] [?] within [it] [?]…

the day [היום] [?]… and we returned [וחזרנו] [?] within [it] [?] the equating [השואה] [?]… upon [?] one [אחד] [?]… ⟨§⟩ …and how much [it is] [?] from [?] the position [המקום] [?]…

the difference [החילוף] [?] [?]… upon [?] the line [הקו] [?]… [?] within [it] [?] [?]… we sought [?] [?] this [?]… the position [?]. ⟨§⟩

and the way [הדרך] [?] [?]… the cycle [התקופה] [?] [?]… within [it] [?] one [אחד] [?]… [Damage: ~1 line lost]…

[?] the difference [החילוף] [?]… and we will take [ונקח] [?]… the position [המקום] [?] upon [?]… ⟨§⟩

[Red ink: **ועתה**] — *"And now"* [rubricated sub-step marker; red iron-gall ink, partly faded] …[?] from the equatings [ההשואות] [?] [?]… how [איך] [?] we know [נדע] [?]… the position [?]… [Damage]…

[?] [Hebrew = 2 = ב] [?]… within [it] [?] one [אחד] [?]… and it is [?] [?]… the cycle [התקופה] [?]… [Damage: ~2 lines lost at inner-lower margin]…

Left column

[Procedural continuation; upper ~14 lines partly legible, lower ~16 lines largely illegible (water stain across the lower-inner quadrant).]

and we will explain [ונבאר] [?]… upon [?] the cycle [התקופה] [?]… [?] within [it] [?] the difference [החילוף] [?]… the position [המקום] [?] [?]… ⟨§⟩

and the line [והקו] [?] within [it] [?]… [?] one [אחד] [?]… the deferent [המעדל] [?] [?]… and we sought [?] [?]… upon [?] the part [החלק] [?]…

[?] [Hebrew = 5 = ה] [?]… within [it] [?] this [?]… the difference [החילוף] [?]… and we will take [ונקח] [?] [?]… the position [המקום] [?]… [Damage: ~1 line lost]…

[?] the equating [ההשואה] [?]… upon [?] one [אחד] of the [?]… the cycle [התקופה] [?]… and how much [it is] [?] from [?]… ⟨§⟩

[?] the day [היום] [?] upon [?]… within [it] [?] [?]… the difference [החילוף] [?]… [?] the line [הקו] [?]…

[Damage: the remaining ~16 lines of the left column are largely illegible — water stain across the lower-inner quadrant of the folio, compounded by bleed-through.]

Yesod Olam — Book Two (Cosmology), Chapter Seventeen (continued)

Sephardic semicursive hand, single scribe, two columns per page. Folio "61" written in the upper margin of p. 127. This batch continues Chapter Seventeen of Book Two; the topic is the order of the seven planets as rulers of the days of the week and of the hours, and the arithmetic by which one reckons which planet governs a given hour and a given day. No "Conclusion of the Book" (חתימת המאמר) seam and no Book Three opening appears in this batch — the chapter runs continuously across both folios.

[The discussion of the planetary rulership of the days and the hours continues from the prior folio.] Since the matter rests upon what we have already established, you will find that the order proceeds in this fashion. If you say that a given planet rules at the beginning of a day, that same planet does not [again] rule [at the same point of the following day]; rather, the rulership shifts according to the reckoning that the earlier sages set down [?]. This is what the masters of this science have said, [though] their words on the matter are few [?].

Now [the principle is this]: the day contains twelve hours of daylight and twelve hours of night, and the rulership of each hour is assigned to one of the seven [planets] in their order. When you have completed the seven, you return [?] to the first and continue. Because the count of the hours of a full day-and-night (twenty-four) is not evenly divisible by seven, the planet that rules the first hour of one day is not the planet that rules the first hour of the next day; rather, the rulership advances by a fixed amount [?]. And this matter is not difficult, [for] each day [is governed in turn].

The [planet ruling at the] beginning of the day [?]: take the [hours] and reckon them by sevens, and what remains [?] to you — [count] from it [onward through the order], and you will arrive at the [ruler]. (interlinear: ולא — "and not") [?]

[The text proceeds through the worked reckoning:] reckon the hours that have passed [?]; cast out the sevens [?]; and the surplus [?] — [count from it] in their order [of the planets], hour by hour [?]. And [?] —

Now reckon [?]: [for] the rulership of the hours of the day-and-night, [proceed] in their order, hour by hour [?]. And so [?] when you have completed [?] the order of the seven, [you begin again from the first] hour by hour [?], for they [the planets] rule in the order [?] hour by hour [?]. Each day [?] —

[The remaining lines of this column carry the same procedural reasoning, naming the surplus left after casting out sevens and stepping through the planetary order; the wording is partly abraded:] and from this [surplus] you proceed [?] in their order until you reach [?] the [planet] sought, day by day [?].

So far concerning [?] the rulership and the order [of the planets over] hour by hour [?]. And when [?] you have completed [?] the order, [you return to the beginning] [?].

[A line is largely effaced here by foxing along the column's lower third — approximately one line lost to the stain.] [?]

[The teaching is restated:] when you wish [to know the ruler], take the [hours] that have passed and the [hours] yet to come [?], and the rulership [will fall to such-and-such a planet] in their order [?]. And the masters of this craft [?] have already explained this [?], that the [planet's] rulership over the day and over the hour [proceeds] in this manner [?]. And [?] —

[Red ink: ועתה] **And now** [we turn to the order itself]:

He said [?]: the order [of the planets in their rulership] is as follows [?]. In them [?] — [the heavens?] [?] are seven [?] [planets], and they [the days] are named after them, each one [day] after its [ruling planet] [?]. [The text then begins to set out the order of the seven planets and the days assigned to them, but the lines are cramped and partly faded — the planet names that would here be rubricated are not legible as red labels on this folio.] [?]

[The reckoning of the planetary hours continues.] And you already know that the day contains twelve [hours] and the night [contains] twelve [hours] [?]. So it was [established]: [?] —

[The procedure for stepping from the day-ruler to the hour-ruler:] [count?] the hours [?]; cast out [?]; and so [?] in their order [of the seven planets] [?]. And he said [?]: [thus you arrive at] the hour [whose ruler is sought] [?]. Each [?] — [there is yet] another day [?]. [Interlinear / second hand: a brief gloss in the upper margin, "[?]כתיב" — not securely legible.] [?]

[The text continues:] therefore [?] the [planets] rule, and the order [holds] in their order hour by hour [?]. The day [?]: when it [?] is [?] the surplus [?] of the hours [?] [is reckoned] in their order [of the planets] [?]. And so [?] the day-and-night [?] in their order [of the planets], hour by hour [?].

[Red ink sub-step marker is faintly indicated here, possibly ועתה — uncertain.] [?] [The worked example proceeds:] reckon [?] the [hours] that have passed, [casting out] sevens [?], and the surplus you find [?]; and [count] from it in their order [of the planets], and you reach [?] the [ruler] sought [?].

[Mid-column, the masters' teaching is again invoked:] the masters of this craft [?] have explained [?] the rulership of the [planet?] over the hour [?], hour by hour [?]. And so [?] the rulership [?] over the day [?]. So far concerning [?] the rulership and the order [of the planets over] hour by hour [?].

[Lower in the column the same template recurs:] when [?] [you reckon] the surplus [?] [after casting out] sevens [?], hour by hour [?], [you arrive at] the

[ruler] [?]. And so [?] the rulership [?] [over] the day-and-night [?] in their order [of the planets], hour by hour [?].

[The chapter does not close in this batch; the column runs to its foot still within the procedural exposition of planetary hours.] [?]

Yesod Olam — Book Two (Cosmology), Chapter Seventeen (continued)

PDF p. 129 (folio recto)

Right column

[The column opens mid-procedure, continuing the rulership reckoning of weekday and nighttime hours from the prior batch.]

on a given day, you already know what the day is and what hour of it you seek. Take the planet that rules the first hour of that day and count forward from it in their fixed order, hour by hour, until you reach the hour you are seeking; and the planet that falls on that hour is the one that rules it.

[Red ink: ועתה] And now [a sub-step marker], take note of this rule: the ruling planet of the first hour of any day is itself the ruler of that whole day, and from it the night-hours are reckoned in continuous order after the twelve hours of daylight have passed.

[?] When you wish to know which planet rules a particular hour of the night, count from the planet that rules the first hour of that night in their order, hour by hour, until you reach the hour you seek; the planet falling there is its ruler. [The next several lines are repetitive procedural restatement of this counting method — "count in their order, hour by hour, the surplus after casting out the sevens" — partly obscured by water-staining at the column's lower middle.]

and from this you may always find the ruler of any hour you wish, whether by day or by night, once you know the ruler of the first hour of the day. [?]

[Mid-column, several lines degraded by a vertical water-stain: the text continues to expound the order of the seven planets as they govern successive hours, "and afterward it returns to the first of them," i.e., the cycle of seven repeats through the twenty-four hours.] [?]

Left column

[Red ink: ולמה] And why [opening of a new explanatory sub-step — partly red]… the reason that the planets rule the days in the order they do — Sun, Moon [?], and so on — follows from the order of the hours: when you count the twenty-four hours of one day by sevens, the ruler that lands on the first hour of the next day is the one set three places onward in the planetary sequence. [?]

[The argument here is the classical derivation of the weekday-ruler sequence from the hour-ruler sequence: 24 hours = three full cycles of seven plus three, so each new day's first-hour ruler advances by three positions in the descending planetary order. The manuscript works this through in words.] [?]

If you wish to verify [?] this, count out the hours from the first hour of one day to the first hour of the day after it, and you will find the surplus — after casting out the sevens — to be three; therefore the day's ruler advances by three in the order each day.

[several lines, lower left, obscured by edge-darkening and water damage] …in the order [?] of the days of the week, and the matter comes out correct in every case. [?]

[Bottom of column, ~4 lines, badly stained:] …take the ruler of the first hour… count… and so likewise for the hours of the night… [largely illegible] [?]

PDF p. 130 (folio verso)

Right column

or the reckoning, since it is all one matter in respect of the order of the world [?]. For the seven [planets] revolve and recur, and there is no end to their order [?].

A gate [?] / principle: when the [?] hour comes round to a given planet, take the one whose turn it is; count forward the hours, one by one, until [you reach] the hour you seek, and observe the planet that lands upon it — that is the ruler of the hour.

The reckoning of this comes out true, with God's help [?] — once you know the ruler of the first hour of the day, you may derive [the ruler of] every other hour through it. [?]

[Mid-column the text turns to the night-hours specifically:] When the twelve hours of daylight are completed, begin from the planet that follows, in the order,

the ruler of the last daytime hour; that planet rules the first hour of the night. Count forward from it, hour by hour, until you reach the night-hour you seek, and the planet falling there rules it. [?]

and so the matter continues without interruption from day into night and from night into the following day, the seven [planets] succeeding one another in their fixed order. [?]

[Lower right column, ~5 lines, water-damaged:] …and this is the rule for all the days and all their hours, by day and by night alike… [partly illegible] [?]

Left column

until you reach the hour, and the planet of [?]… [opening lines partly obscured at the gutter].

So too for the days [?]: each day is ruled by a planet, and from the ruler of the day you know the ruler of its first hour, and from that you know the ruler of every hour of it [?].

[Red ink: ועתה] And now [a sub-step marker], understand that this reckoning by sevens [?]… the [seven] planets are seven, and the days of the week are seven, and the hours [of day and night] are governed by the same seven in continuous rotation; hence the whole scheme returns upon itself and is consistent. [?]

[Mid-column, several lines, stained:] …count the hours… cast out the sevens… and take the surplus… [procedural restatement, partly illegible] [?]

and from this rule you will always arrive at the planet you seek, for any hour of any day, with God's help. [?]

[Lower left column, ~6 lines, badly water-stained and darkened toward the foot:] …the ruler of the hour… in their order… and so the reckoning is completed for every hour… [largely illegible] [?]

Yesod Olam — Book Two (Cosmology), Chapter Seventeen

Script: Sephardic semicursive, single primary hand. Black carbon body ink with red-ink structural markers (a chapter rubric on p. 131; a red sub-step word **ולמה** on p. 132). The scribe's ש frequently loses its left stroke and can resemble ע; numerals are read with care and flagged where genuinely ambiguous. A large

diagonal Vatican Library watermark crosses both pages and is ignored throughout, as is faint bleed-through from the facing folio.

Readability caveat (load-bearing): Both folios in this batch are heavily abraded and water-stained across the central and inner-margin panels, and the cursive is closely written. At this rendering resolution the connected body prose is recoverable only in fragments; the structural anchors read with far more confidence than the surrounding sentences. I transcribe the secure structural elements and the partially legible prose, mark the rest [?], and flag **both pages as for higher-resolution recovery. I have deliberately not manufactured fluent sentences over readings I cannot support —

The folio is laid out in two columns; in the manuscript's right-to-left order the right-hand column precedes the left. The continuous argument belongs to the discussion of the planetary rulers of the hours carried over from the preceding pages: the seven planets (Saturn, Jupiter, Mars, Sun, Venus, Mercury, Moon) succeed one another in their fixed order as rulers of the successive hours, and the ruler of the first hour of a day is the ruler of that day.

Right column (p. 131)

The top lines concern the season [תקופה] of the day in question and the reckoning [חשבון] of the planetary houses; the line-ends at the top-right edge are abraded. [Damage: edge abrasion, top-right, ~1–2 words per line lost over the first few lines] [?]

The thread of the passage is that the reckoning is thereby established [נתקיים?], so that one finds the matter confirmed. What is sought [המבוקש] is the ruler [המושל] of the given hour; once the ruler of the first hour is known, the ruler of every other hour is known from it, since the seven rulers follow one another in order, one after another [זה אחר זה]. [Remaining clauses of this stretch are abraded.] [?]

The lower right column carries what is, on this page, the clearest structural element:

[Red ink header: **פרק שבעה עשר** — "Chapter Seventeen"] [?] *(The red rubric reads פרק followed by a number-word; the number-word is consistent with "seventeen" (שבעה עשר) and with the batch's structural position within Chapter Seventeen. Number-word reading flagged for further confirmation.)* [?]

He has already said [כבר אמר] … [the chapter opening follows in the lower-right of the column; the line-ends are abraded and only fragments — "over…," "to [do something to] them," "after…" — are recoverable]. [?]

Left column (p. 131)

The left column continues the same procedural demonstration: deriving the ruler of any hour from the ruler of the first hour, with the seven rulers rotating in their fixed order through the houses [הבתים]. The inner (left) margin line-ends are faded. Recoverable fragments include references to the house [בית] and the sun [השמש], to "what is sought" [המבוקש] in the matter, to the reckonings [החשבונות], to "there is no man" [אין אדם] who…, and to "the order" [הסדר]. The connective tissue between these fragments is not legible at this resolution. [?]

[Damage: water-staining and abrasion across the central and lower panels of both columns; multiple words per line lost.] [?]

Two-column folio. The right-hand column continues the chapter; a red sub-step marker opens a question step in the upper right. Heavy water-staining crosses the right column mid-page, and the inner and lower margins are abraded.

Right column (p. 132) — upper panel

The opening lines refer to the matter of the world [העולם?] and to the reckoning [חשבון] of the day; the line-ends are abraded.

[Red ink: **ולמה** — "and why," an in-text sub-step marker opening a question/answer step, consistent with the red ולמה / ועתה markers noted in the prior batch.]

The step that follows concerns the ruler of the hour [המושל בשעה] and refers back to an earlier explanation ("for we have explained…"); the body of the answer is largely abraded. Recoverable tokens include "the reckoning" [החשבון] and "you will find" [נמצא/תמצא]. [?]

(A blank, water-stained band crosses the right column below the upper panel; no text is recoverable there.) [?]

Right column (p. 132) — lower panel

The lower panel returns to "the matter of the world" and to "the reckoning that we found" [החשבון שמצאנו?], continuing the demonstration of the hour-rulership. The line-ends are abraded and the connective prose is not legible at this resolution; only scattered tokens ("after…," "from the…," "and we know…") are recoverable. [?]

Left column (p. 132)

The left column continues the chapter's argument on the planetary rulers and the hour-reckoning, with recurring references to the ruler [המושל] and to men / people [בני אדם]. The closely written text with abraded inner-margin line-ends is recoverable only in fragments at this resolution. [?]

[Damage: abrasion and staining along the inner and lower margins of both columns; multiple words per line lost.] [?]

Yesod Olam — Book Two (Cosmology), Chapter Seventeen (continued)

*Vatican, Vat.ebr.380 — Sephardic hand. Batch 067, *

PDF p. 133 (folio "64" in upper-left margin)

Right column

[The right column continues the discussion of the planetary rulers of the hours from the preceding batch. Heavy fading and a water stain along the right edge make much of the upper portion difficult.]

the reckoning of the rising [of the sun] over the hours of the day [?], for this is [?]… and you will find by it [?] the planet that rules in the desired [?] hour. So too, when you wish to know which planet rules at the start [?] of any hour…

So it is with this great [?] principle, and you should understand it well [?]. By it you will know [?] the ruler of each and every hour of the day [?], and likewise [?] for the hours of the night [?]. But take heed [?]: do not let it slip [?] from you, [?] for the order [?] of the planets [?] runs continuously [?] without interruption [?] — neither does it skip [?] one of them, nor does it return [?] to begin again [?] from the first [?] until all of them [?] have been completed [?] in their order [?].

[?] and so [?] each one [?] takes its turn [?]. Once they have all completed [?] their cycle [?], they begin [?] again [?] from the first [?] of them [?].

And now [Red ink sub-marker: ועתה [?]] take heed of [?] another matter [?]. Know [?] that just as [?] each and every [?] planet [?]… rules [?] in the hours [?] of the day [?] and [?] of the night [?], so [?] in the hours [?]… each of them [?] takes its [?] turn [?] in ruling [?].

Understand [?]: [?] for [?] the order [?] of the planets [?] [is fixed] [?] and does not change [?]. Each [?] hour [?] has its [?] ruler [?], and likewise [?] each [?]…

for [?] from the [first-hour] ruler [?] you may derive [?] the ruler [?] of every [?] hour [?] thereafter [?], up to [?] the completion [?] of the day [?] and [?] the night [?]…

[The remaining ~8 lines of the right column are heavily faded with water-stain intrusion at the lower right; legible only in fragments — degraded]

[?] until [?]… [?] and afterward [?]… [?] the ruler [?]… [?] the day [?]… [?] and the night [?]… [?] in their order [?]…

[?] and as for [?] the ascension [?] of the planet [?]… [?] from this [?]… [?]

Left column

[The upper portion of the left column continues the same theme, then a new sub-section opens with a red rubric.]

upon [?] their order [?] just as [?] we have explained [?]. [?] And we will [?] add [?] to this [?]… [?] the matter [?] of [?] their ascension [?] over [?] the hours [?] of the day [?], for [?] this is [?]… [?]

and they will return [?] to begin [?]… [?] and they will [?] revolve [?] in their [?]… [?] over [?] the rising [?]…

and you will find by them [?] the cycle [?] of [?] the planets [?] over [?] the hours [?]… [?] until [?] the completion [?]…

[?]…and we [?] have [?] explained [?] it [?]… [?] understand [?] it [?].

[Red ink rubric: וחשוב] — *And reckon* [opening a new computational sub-section] —

the matter [?] of the reckoning [?] which [?] occupies [?]… [?] (interlinear: ?) and you shall know [?] that the seven [planets] [?]… and others [?] are obligatory [?] [?].

and we shall [?]… the matter [?]… [?] and in [?]… [?] their rising [?]… [?] [is] [?] the day [?]…

between [?] them [?]… [?] their [?]… [?] and afterward [?] they [?]…

the beginning [?] of the rising [?]… [?] this [?] and that [?] over [?] the order [?]…

and from [?]… [?] for [?] these [?] are [?] the rulers [?]… [?] and that [?] over [?]…

the reckoning [?]… [?] for [?] it [?]…

and so it is [?] with [?]… [?]… [?] there is [?] in it [?]… [?] for [?]…

and likewise [?]… [?] also [?]… [?] the matter [?]… [?] for in it [?]…

the reckoning [?]… [?] the other [?]… [?] in [?] the matter [?]…

[The lower third of the left column is severely faded and water-stained — many lines reduced to isolated legible words. Degraded]

[?] another [?]… [?] in its place [?]… [?] and [?]… [?]

[?] the rising [?] of the planet [?]… [?] this [?]… [?]

Right column

the hour [?] of the day [?] and [?] the night [?]. [?] And in all of them [?]… [?] each one [?]…

[?] in their time [?] and their [?]… [?] for [?] the day [?]… [?] and the night [?]…

and [?] also [?]… [?] their [?] rising [?]… [?] over [?]… [?]

that [?] we have [?] derived [?]… [?] [?] for [?] this [?]… [?] is [?]…

[The upper-center of the right column is crossed by a water stain; several lines are legible only in part.]

[?] in [?] the start [?] of the hour [?]… [?] this [?] and [?]…

it was [?] in [?] the place [?]… [?] of the planet [?]…

and [?] the reckoning [?]… [?] which [?]…

and so [?]… [?] you shall [?] take [?]… [?] the matter [?]… [?]

[?] the ruler [?]… [?] of the hour [?]… [?] in [?] its order [?]…

and [?] when [?] you [?] wish [?]… [?] to know [?]… [?] the ruler [?]…

[?] then [?] the planet [?]… [?] over [?]… [?]

and [?] this [?] is [?] the [?] day [?]… [?] and the night [?]…

[Lower right column: ~6 lines, faded, fragmentary]

[?] and so it is [?] with [?] the reckoning [?]… [?] of the day [?]… [?] and the night [?]…

[?] until [?] the completion [?]… [?] in their order [?]…

Left column

the planet [?]… [?] of the day [?] and the night [?]. [?] And in all of them [?]… and likewise [?] each one [?] of them [?]…

by [?] their [?] reckoning [?]… [?] for [?] this [?]… [?]

and we [?] have [?] explained [?]… [?] in [?] the matter [?]… [?]

and the hour [?]… [?] revolves [?]… [?] and there is [?] from [?]…

to [?] understand [?] it [?]… [?] this [?]… [?]

the [?] hours [?] of the day [?]… [?] and [?]…

and afterward [?]… [?] the ruler [?]… [?] over [?]…

until [?] the completion [?]… [?] of [?]… [?]

and [?] we [?]… [?] the matter [?]… [?]

[Lower-left column heavily water-stained and faded — many lines fragmentary. Degraded]

[?] this [?]… [?] and so [?]… [?]

[?] the reckoning [?]… [?] over [?] the hours [?]… [?] the day [?]…

[?] until [?] all of them [?]… [?] in their order [?]…

[Quire-signature/foliation mark at foot, faded — illegible.]

Yesod Olam — Book Two (Cosmology), Chapter Seventeen (continued)

PDF page 135 (recto) — folio numbered "65" in upper margin

[Right-hand column]

and likewise the day and the night [together] complete the [full] day [i.e. the twenty-four-hour day], in such a way that [each] ruler governs throughout the

day. And reckon thus: in the same manner go back [?] from [?] every ruler, just as the hours [are reckoned]. And when the matter [?] is set in order for you, you will find the ruler of the day and the ruler of the night [each] in its [proper] place. The ruler [?] over [?] each hour [?] is the ruler whose turn it is at that hour [?]. And know that [?] the ruler of the hour [?] precedes [?] [the others]. He [?] proceeds [?] for you [?] over [?] the hours [?] one by one [?].

And reckon [?]: take its [?] place [?] and complete [?] for it [?] the ruler [?]. The ruler of the [?] hour [?], the seventh [?] [reckoning] from its [first ruler?] — [Red ink: וחשוב ("And reckon")] [?]

[The next several lines are heavily degraded by water-staining and bleed-through. Continuous sense is lost; legible fragments follow:]

and the night [?] … and night [?] … take [?] the ruler [?] … at the hour [?] … the planet [?] … the night [?] … in this [?] he [?] proceeds [?] [Red ink: וחשוב? ("and reckon")] [?] …

[?] for there is [?] in this [?] the ruler [?]. The hour [?], write down [?] the ruler [?] [?] … and you have learned [?] the ruler [?]. And reckon [?]: the ruler [?] … so [?] go [?] … [there is] in it [?] the ruler [?]. The first-hour ruler [?] of the night [?] … so [?] [Red ink: וחשוב ("and reckon")] [?] when [?] you reckon [?] from [?] …

[?] and the planet [?] … in the calculation [?] … the ruler [?] of the day [?] and [?] the ruler [?] [there is no?] sequence [?] [until?] you reach [?] … [?] and reckon [?] is the ruler [?] and there is [no?] [?] … for there is [?] from [?] the place [?] and [?] the ruler [?]. This [?] is [?]…

the heavens [?]. He set [?] the order [?] of the ruler [?] and the heavens [?] complete [?]. [?] is no [?] … the ruler [?] from [?] the day [?] [from?] the ruler [?] — [Red ink: וחשוב? ("and reckon")] [?]

[the planet?] of the seventh [?] is [?] the ruler [?] of the day [?] in the [?] hour [?]. And [Red ink: וחשוב ("and reckon")] [?] [?] … the seventh [?] the ruler [?] in the [?] hour [?]… [?]

[heavily degraded — lower right column, water-stained, ~4–6 lines largely illegible] [?]

[Left-hand column]

[Likewise faded; the upper lines are partly legible, the lower third water-stained.]

[?] and [?] the ruler [?] of the day [?] [?] … so that [?] he [?] is the ruler [?]. He [?] precedes [?] over [?] the hours [?] of the day [?] and reckon [?] [?] …

And reckon [?]: [?] the ruler [?] from [?] [Red ink: וחשוב? ("and reckon")] [?] the seventh [?] [reckoning] from the [first?] hour [?]. And reckon [?] [?] …

take [?] for it [?] the ruler [?]. The ruler of the hour [?], so [?] go [?] … in it [?] [is] the ruler [?]. The ruler of the day [?] and the ruler of the night [?] … you will [?] complete [?] [?] … and the ruler [?] of the night [?] … and reckon [?]…

[The bulk of the lower-left column is degraded by foxing, water-staining, and bleed-through; continuous sense is not recoverable at this resolution. Legible fragments:]

[?] and the ruler [?] … the seventh [?] … the hour [?] … the day [?] … and reckon [?] … the night [?] … in the calculation [?] … the planet [?] … [?]

and after [?] this [?] … the [?] hour [?] … the ruler [?] of the night [?] … and reckon [?]…

[bottom several lines water-stained and largely illegible] [?] [Red ink: ? (cue-word at line end)] [?]

PDF page 136 (verso)

[Right-hand column]

At the hour [?] the Sun [Red ink: חמה (Mercury? no — Sun)] [?] in [?] the calculation [?] … the seventh [?] [reckoning] [?] one [?] from another [?]. And likewise [?] … the seventh [?] … and so [?] … the calculation [?]. He set [?] [?] complete [?] the ruler [?] over [?] the hour [?] [?] …

from the calculation [?] of the night [?], so that [?] you find [?] … [?] and the ruler [?] of the [?] [?]…

[?] he [?] complete [?] [?]. The first [ruler?] of the day [?], so [?] go [?] in another [?] … another [?] day [?]…

and after [?] the calculation [?] … the planet [?] … another [?] day [?] [?] …

[Red ink: וכמו כן? ("and likewise")] [?] … the seventh [?] [reckoning] one from another [?] … [?] also [?] … [?]

all [?] hour [?] [is] the ruler [?] [?]. In the calculation [?] of the night [?] [?] … the heavens [?] go [?] [?] … in the calculation [?] [?] … one [?] from another [?] [?]…

[?] complete [?] [the ruler?] until [?] the calculation [?] … there is no [?] [?] … and reckon [?] [?] [Red ink: ?] [?]

[Red ink: הנה? / a cue-word] [?] … the heavens [?] [?] … is no [?] [?] … the hour [?] [?] … the seventh [?] [?] … [?] the ruler [?] [?]…

in the calculation [?]. [Red ink: והנה? ("and behold")] [?] [?]…

you will find [?] [?] the calculation [?] … [?] the day [?] [?] … the ruler [?] [?] … and reckon [?] … [Red ink: ?] [?]…

the seven [?] [planets?] [?] … the heavens [?] [?] … and the ruler [?] of the day [?] … the seven [?] [?]…

and so [?] this [?] the [?] hour [?] … and the calculation [?] … on the day [?] [?]…

[Left-hand column]

and over [?] the ruler [?] [?] … and over [?] [?] [Red ink: ?] [?]

with [?] the ruler [?] [?] … so [?] … from the calculation [?] [?] … the heavens [?] [?] complete [?] [?]…

when [?] he [?] complete [?] for [?] you [?] … [?] until [?] you reach [?] [?] … [Red ink: ?] [?]

[Several mid-column lines partly legible:]

the calculation [?] … and the calculation [?] … so [?] he [?] … in the calculation [?] [?] … the ruler [?] [?]…

[?] he set [?] for the planet [?] [?] … [?] and so [?] [?] … the ruler [?] over [?] [?] … and he [?] [?]…

[?] the heavens [?] go [?] [?] … and the planets [?] you find [?] … and this [?] … [?]…

[A red-ink cue-word and what appears to be a short imperative clause follow; degraded:]

[Red ink: וחשוב? / a cue-word] [?] … [?] he [?] … [?]…

[?] another [?] one [?] [?] … the calculation [?] [?] … [?] [?]…

[The lower-left column is the most degraded zone on the verso — water-staining and bleed-through obscure roughly the final 8–10 lines. Continuous translation is not possible at this resolution; isolated legible tokens include "the calculation," "the ruler," "the day," "complete," and a closing red-ink cue-word. No חתימת

המאמר ("Conclusion of the Book") seam and no Book Three opening are legible in this batch.]

Yesod Olam — Book Two (Cosmology), Chapter Seventeen (continued)

> **Readability note.** Both folios are heavily faded throughout, with substantial water-staining across the lower-right quadrant of each page and brown foxing. The iron-gall ink has oxidized to a pale brown over much of the surface, and the cursive is cramped. Many words are recoverable only by context. The diagonal Vatican Library watermark and the bottom copyright bar are ignored as scan artifacts, as is the faint mirrored bleed-through from the facing folio. Numerous words below are flagged `[?]`; this batch should be treated as a in its entirety, with the lower-right of both pages the worst-affected zone.

[right column]

the matter of the calculation, and behold [?] in this [?] another planet [?]. And we have set out [?] for you that [?] the seventh [?] from the planet [?], [?] for which we sought the ruler [?]. And the planet [?] of [?] [?] [?], it is the ruler [?] of [?] that day [?]. And the rest of the hours [?] from it [?] and onward [?] are arranged [?] upon [the planets?] [?]. [?]

For this reason [?], when [?] you wish [?] to know [?] which [?] planet [?] rules over [?] [?] the night [?], [?] [?] [?] count [?] for it [?], and behold this is [?] [the planet?]. [?]

And we have said [?] that the planet [?] which [?] rules [?] over [?] the first hour [?] [?]: count [?] from it [?] [?] [?] from the planets [?], [?] [?] the ruler [?] [?]. [?]

That which we sought [?]: take [?] [?] the count [?] [and?] [?] the ruler [?] over it [?], [?] [?] this [?] chapter [?]. [?]

[Approximately 6–8 further lines in this column are too degraded by water-staining and ink loss to recover with confidence — procedural prose continuing the hour-rulership count (lexicon: השליט "the ruler," הכוכב "the planet," חשבון "count," שעה "hour").] [?]

[left column]

to all [?] [?] and we will return [?] [?] and [?] [?] not [?] [?] which [?]. [?] After [?] [?] this [?] in the matter of [?] [?] [?] [?] [?] one of [?]. [?] [?] [?] over them [?] [?] [?] [?] [?] [the seventh?] [?] and we shall return [?]. [?] [?] [?] over [?] [?] [?] [?] [?] [?] [?] [?].

And behold [?], it has already been explained [?] [?] [?] [?] [?] this [?] [?] [?]. [?]

And in this way [?] you should reckon [?] [?] [?] [?] [?] from the planets [?] [?]. [?]

[Several lines here continue the iterative rulership procedure — "count," "the planet," "the seventh from it," "the ruler" — but are faded to illegibility in the middle of the column.] [?]

And it will be turned over [?] [?]: this is the matter [?] and behold for you [?] [?] [?]. [?] [?] [?] [?] [?] another [?] [?] [?] and the matter [?] [?]. [?] [?] over [?] [?] you should reckon [?] [?] [?] [?] [?]. [?]

the matter [?] [?] [?] [?] [?] [?] [?] [?]. [?]

And another said [?] [?] [?] [?] [?] [?] [?] [?] [?]: the day [?] [?] [?] [?] the day [?] [?].

[Red ink: וחזר] — [Red ink cue-word: "And he returned / and again" — opening a new sub-step.] [?]

and behold [?] [?] [?] [?] also [?] [?]. [?] [?] [?] [?] the matter [?] [?] [?] [?] [?] [?] [?]. [?] [?] [?] [?] in the matter of [?] [?] [?] [?] [?] [?]. [?] And we shall complete [?] [?] [?] over [?] [?] [?] [?]. [?] [?] [?] [?] [?] [?] [?] [?] [?] [?] [?] [?] [?] [?]. [?]

[The final 3–4 lines of this column are largely lost to water damage at the column foot.] [?]

[right column]

[?] [?] [?] [?] [?] [?] [?] [?] [?] [?]. [?] [?] [?] [?] [?] [?] the planet [?] [?] [?] [?] in the [?]. [?] [?] [?] [?] [?] [?] [?] [?] [?] [?] [?] [?] for you [?]. [?] [?] [?] [?] [?] [?] [?] [?] [?] [?] [?] [?]. [?]

to those who calculate [?] in the [?] [?] [?] of [?] [?]. [?] And it returns [?].

These [?] [?] [?] [?] [?] [?] [?] [?] [?] [?]. [?] [?] [?] [?] in it [?]: and behold [?] the [?] is this [?] [?]. [?] [?] [?] [?] [?] [?] [?] [?] [?] and they [?] [?] [?]. [?] [?] [?] [?] [?] like [?] [?] [?] [?] [?] [?]. [?]

[Several lines of degraded procedural prose follow — lexicon includes החשבון "the calculation," השעה "the hour," השליט "the ruler" — too faded to render in full.] [?]

and it has been explained [?] [?] [?] [?] [?] [?] [?] [?] [?]. [?] The matter [?] [?] [?] [?] [?] [?] and not [?] [?] [?] [?]. [?] [?] [?] [?] which [?] is [?] [?] the [?] [?]. [?]

[Red ink header: ושער] — Gate / Chapter [new section]

[Red ink: ושער] — A new **gate (שער)** opens here in red ink. The shared שער/פרק counter applies; **no chapter numeral is legible** beside the red rubric (the numeral, if written, has faded with the red iron-gall ink). The opening words appear to be a fresh topic-setting sentence. [?]

There is [?] [?] [?] [?] [?] another matter [?] [?] [?] [?]. [?]

And behold [?] [?] [?] [?] [?] [?] the matter [?] [?] [?] [?]. [?] [?] [?] [?] [?] [?] [?] [?] [?] [?] [?] [?] [?] [?]. [?] The calculation [?] in it [?] [?] [?] [?] this [?] [?] another [?]. [?] [?] [?] [?] [?] and behold [?] the calculation [?] [?] [?]. [?] [?] [?] [?] [?] [?] [?] [?] [?] [?] [?] not [?] [?]. [?] [?] [?] like [?] [?] [?] [?] [?] also [?]. [?]

[A series of further lines continues the new gate's procedural exposition. The right edge of this column is partly lost to edge-fraying, costing a few characters per line.] [Damage: edge loss, outer margin, ~2–4 characters per line affected] [?]

and behold [?] [?] [?] [?] another [?] [?]. [?] [?] [?] [?] [?] [?] [?] [?] [?] [?] [?]. [?] [?] [?] another [?] [?] [?] [?] [?] [?] [?] [?]. [?]

And so [?] [?] [?] [?] [?] [?] [?] for [?] another [?]. [?] [?] [?] [?] [?] [?] [?] and so [?] [?] [?]. [?] The gate [?] [?] [?] [?] [?] [?] [?] another gate [?]. [?]

[The final lines of this column continue but are too faded at the foot to recover.] [?]

[left column]

[Top line partly lost to staining.] …another matter [?] [?] [?] [?] [?] [?] [?]. [?] This [?] [?] [?] [?] [?] [?] [?] [?] [?] [?] [?]. [?] The [?] [?] [?] in the matter of [?] [?] [?] [?] [?]. [?] [?] [?] arrived [?] [?] [?] [?] [?] [?] [?]. [?] [?] [?] [?] [?] [?] [?] [?] over [?] [?] [?]. [?] [?] [?] [?] [?] [?] [?] [?] [?] [?] [?] [?]. [?] [?] [?] [?] [?] [?] in it [?] [?] [?] [?] [?]. [?]

And behold this [?] [?] [?] [?] [?] [?] [?] [?] [?]. [?] [?] [?] [?] [?] [?] [?] [?] [?] [?] [?] [?]. [?] [?] [?] [?] [?] [?] [?] [?] [?] [?]. [?]

[Red ink: ועתה] — [Red ink cue-word: "And now" — opening a fresh procedural sub-step, consistent with the imperative cue-words noted in the prior batch.] [?]

and we shall explain [?] [?] [?] [?] [?] [?] [?]. [?] The day [?] [?] [?] [?] [?] [?] [?] in the calculation [?]. [?] [?] [?] [?] [?] [?] and [?] [?] [?] [?] [?] [?]. [?] [?] [?] [?] [?] [?] [?] [?] [?] [?] [?]. [?] The [?] [?] [?] [?] [?] [?] [?] [?] [?] [?]. [?] [?] in the matter of [?] [?] [?] [?] [?] [?] [?]. [?]

[?] [?] [?] [?] [?] [?] [?] [?] [?] [?] [?] [?]. [?] The matter [?] [?] [?] [?] [?] [?] [?] [?] [?]. [?] [?] [?] [?] [?] [?] [?] [?] [?] [?] [?] [?]. [?]

and behold [?] [?] [?] [?] like [?] [?] [?] [?] [?]. [?] [?] [?] [?] [?] [?] [?] [?] [?] [?] [?] [?]. [?] [?] [?] [?] [?] [?] also [?] [?] [?] [?] [?] [?]. [?] [?] [?] [?] [?] [?] [?] [?] [?] [?] [?] [?]. [?]

[Several closing lines of degraded procedural prose; lexicon as above — "calculation," "the planet," "the matter."] [?]

Yesod Olam — Book Two (Cosmology), continuation

PDF p. 139 (folio "67" recto)

Right column

The planet that rules over each day of the week likewise rules over the first hour of that day. From it the count of the rulers of the successive hours proceeds, each planet in its turn, until the cycle returns to its starting point. [?] In this way the sequence runs continuously through day and night, twenty-four hours, so that the ruler of the first hour of the following day is the planet seventh in order from the ruler of the first hour of the preceding day. [?]

Therefore, when you wish to know which planet rules a given hour of any day, count from the ruler of the first hour of that day, hour by hour, in the established planetary order, until you reach the hour you are seeking; and the planet that falls upon it is its ruler. [?] This same method holds whether you reckon by the hours of the daytime or by the hours of the night. [?]

[The following several lines are heavily faded and the cursive is dense; only fragments read with confidence: "...this is the rule..." / "...and the ruler of..." / "...the seventh from it..."] [?] The argument here turns on the fixed seventh-from-seventh progression by which each day's first ruler advances. [?]

And so the matter stands [?] regarding the rulership of the days and of the hours, as we have set it out. [Several lines degraded — [?]; partial readings: "...and behold..." / "...the sphere..." / "...the planets..." / "...as we explained above..."] [?]

Left column

[The left column of p.139 is more heavily faded and water-stained along the inner edge. The text continues the same procedural discussion of planetary rulership and the ordering of the days. Only scattered phrases are recoverable with confidence:] [?]

"...for this is the rule [?]... the seventh [?]... and again [Red ink cue-word: וחזר] [?]..." [?]

"...the day of Saturn [שבת / שבתי] [?]... and the day [?]... and after it..." [?]

[Toward the foot of the left column:] "...as we shall explain [?]... the days of [?]... and concerning [?]." [?]

[Last line, foot of left column:] "...and behold the rule [?]... and the days [?]... and that completes..." [?]

> **Readability note:** Both columns of p.139 are substantially faded, with water-staining intruding along the inner (gutter) margin and the lower portion. The right column is partly legible at the level of argument; the left column is largely illegible at this resolution. **p.139**

PDF p. 140 (folio "67" verso)

Right column

[The upper portion of the right column continues the planetary-rulership discussion from the preceding page.] The count proceeds from the ruling planet through the successive hours, day and night, so that each day receives its proper ruler in the fixed order. [?] When one cycle of the days is completed, the same order begins again from its head. [?]

[Several mid-column lines faded; recoverable fragments:] "...the hours [שעות] [?]... and the day [?]... seven [?]... and the planet [?]... as we explained..." [?] The rule governing the rotation of the rulers — day by day and hour by hour — is constant, and from it every particular case is derived. [?]

Therefore, once you have grasped the order of the rulers of the days and the rule for the rulers of the hours, the whole matter of planetary rulership is in your

hands, for all of it follows from this single principle. [?] And this is what we intended to make clear concerning it. [?]

[Red ink: ונחתם זה ה[ספר] [?]] — Conclusion of this [Book / Gate]

> **Rubric note:** A short rubric in red ink stands here. The red iron-gall ink is badly faded. The reading is approximately **ונחתם זה ה…** ("and herewith this … is concluded / sealed"). The word following ה is degraded: it is most plausibly הספר ("the Book") or השער ("the gate") — I cannot discriminate ספר from שער here with confidence. This appears to be the **חתימת המאמר / חתימת הספר השני** seam (the close of Book Two) the batch was instructed to watch for, or the close of the gate that opened on p.138. — the seam wording is structurally load-bearing and must be confirmed.** [?]

[Immediately below the red rubric, the text resumes in black:] "...the matter [?]... and now [Red ink cue-word: ועתה] we shall begin / we return to [?]..." [?]

Left column

[The left column of p.140 continues below the rubric of the right column, in black ink, somewhat better preserved at the top than the bottom.] [?]

[Top lines:] "...and after [ואחר] [?]... the day of the Sun [חמה] [?]... and the day [?]... behold the hours [שעות] [?]... and the ruler [?]..." [?]

[Mid-column:] The discussion turns again to the succession of the ruling planets across the days, restating the seventh-from-seventh progression and applying it to particular days. [?] "...the day of [?]... and after it the day of [?]... and the hours of the night [שעות הלילה] [?]..." [?]

[Lower portion — increasingly faded:] "...as we explained [?]... and the rule [?]... and behold [?]... the planets [הכוכבים] [?]... in the order [?]..." [?]

[Foot of left column:] "...and that completes / and behold the rule [?]... and the days [?]..." [?]

> **Readability note:** p.140 is faded throughout, with the red-ink rubric the most degraded element on the page. The right column reads at the level of argument near the top and at the rubric; the left column is recoverable only in fragments. **p.140, and the red rubric is the single most important element to recover.**

Manuscript: Vatican Library, Vat.ebr.380. Sephardic semicursive hand (single primary hand throughout this batch). Folio numeral "68" visible in the upper margin of p. 141.

> Translator's caution: this is a degraded, densely-abbreviated Sephardic cursive page with heavy water-staining across the lower-right of both folios and faded ink. The reading below recovers the legible run of the argument and its structure; a substantial number of individual numeral-tokens and clause-internal words could not be read with confidence and are flagged [?]. This batch is a strong for the numeral-bearing clauses (see report).

p. 141 (folio 68)

Right column

and after this [reckoning], whatever days are added, take and reckon them; and the days that remain [?] — keep them likewise [?]. So too with the hours: take whatever [hours] are over and reckon them, and what remains, set aside [?].

When you wish to know the [count?], take what you have [computed] and reckon it; and if there be a remainder over, return [?] it and set it [?] in its place [?]. Always keep [the count] before you until you reach the [?] place [?] that you seek. Whatever remainder there is, that is what you add [?] — for so it [the rule] holds [?]. [Several clauses through the middle of this column are obscured by water-staining and fading; the recoverable thread is a reiterated instruction to "take the remainder, reckon it, and add it in its place."] [?]

and you shall reckon [?] from that [?] until you reach [?] the day and the hour [that you seek] [?].

And after this further [step], reckon [?] from [the figure] for the days, [as?] we have explained [?], and likewise the [count of?] hours — so that you may know the [?] [?].

[The lower third of the right column is heavily faded/stained; only fragments of the same procedural instruction (days, hours, "reckon," "remains," "place") are recoverable. [?] Marked as a]

Left column

[Mid-column, red ink:] **[Red ink: ועתה]** ("And now"), **hear** [?] and understand [?] [what we shall set forth].

[Following the red discourse-marker, the text resumes the same instructional vein:] The reckoning [?] of the [?] — and they [the days?] are [counted?] from there [?]; for so [the matter] stands [?]. [?] [Several clauses here are obscured.]

the day [?] and the hour [?]; take it [?] and reckon, and set it [?] in its place. And whatever is added — set [?] it before you, and add [?] in its place [?]. [?]

and you shall reckon [?] from the [figure for the?] days that we have explained [?], up to the [?] that you seek; and after this, take what remains [?] over and add [?] it. [?]

in the reckoning [?]; and whatever remains [?] over, [add?] it in its place [?] — for so [the rule] holds [?]. [?]

[Bottom of left column, partly stained:] …the remainder [?] there is [?]; this [?] is the foundation [?] of the world [?] / the principle [?]. [?]

> Note: the final words of this column appear to read …*יסוד העולם* ("…the foundation of the world" / the title-phrase) but the ink is too faded to confirm whether this is the work's title-phrase recurring as a catch-phrase or an ordinary use; flagged [?].

Right column

And whatever [remainder] arises [?] for you in the [reckoning?] — that [?] is [what] you take [?], and reckon [?] it. [?] [Opening clauses obscured by staining at the top-right.]

take whatever [hours/days] are over [?] and reckon them; and what remains over [?] — keep [?] them likewise, until you reach [?] the [day and the?] hour that you seek [?]. [?]

And the [twelve?] — [12 =] [?] ב״י — [hours?]: take [?] them and reckon [?]; for so [the matter] stands [?] with the hours that come after [?], and likewise [?] with what is over [?]. [?]

When you wish [?] [to know], take [the figure?] and reckon it [?]; and after this, [take] whatever remains over, and add [?] [it] in its place [?]. [?]

[Middle of column — procedural reiteration; recoverable terms: *שעות* (hours), *יום* (day), *קבה* (a fixed amount), *חשבון* (reckoning), *מותר* (remainder), *מקום* (place). The argument is the same "take → reckon → remainder → place → add" loop. [?]]

the day [?] and the hour [?]; and they shall be [?] for you [as?] a day [and] a [?]. [?]

Every [?] day that is added [?] [comes?] with the day that you seek [?]; for [?] also [?] [there is] a fixed amount [קבה] of hours that you reckon [?]. [?]

[take] the [figure?] and reckon it, and you shall go [proceed?] [?]; and [the count of?] hours that [?] [are over], take them [?] and reckon them. [?]

When [?] [you reach?] the [?] place [?], so [it] holds [?] for the hours [?]. And the [?] reckoning [?], the [?] hour [?] — and [you?] set it [?]. [?]

[The lower-right block of this column is the most heavily water-stained region of the batch; roughly the bottom 8–10 lines are only partially legible, repeating the same reckoning instruction with the terms *שעות / יום / קבה / חשבון / שבת* ("week"/"sabbath"). [?] Marked as a]

and the days [?] that [are over?] reckon [?]; and the [?] [count?]: take [?] [it]. [?]

Left column

The fixed amount [קבה] [?] [of] the hours that you reckon [?] — [it?] is in [?] the reckoning [?]; and after this [step], whatever is added [?], take [?] it. [?] [Top clauses partly faded.]

until you reach [?] the [day?] and the hour [that] you seek [?]; and [proceed?] thus [?]. So too [?] with the days [?] that are added [?], up to the [count?] you seek. [?]

Take [?] [the figure] and reckon it; and whatever [?] [remains] over [?] — that [?] [is what] you add [?] in [its] place [?]; for so [the rule] holds [?]. [?]

And after this further [step], take [?] whatever [days/hours] are over [?] and reckon them, [as?] we have explained [?]; and so [it] holds for the [?]. [?]

the [?]; for so [?] [it] is [?] [with] the day [?], [and?] you shall reckon [?] from there [?] until you reach the [?]. [?]

and they shall be [?] for you a [?]; and the reckoning [?] [of] the hours [?] — take [?] [it] and add [?] [it] in [its] place. [?]

[Middle-to-lower left column continues the procedure with the recurring lexicon — *שעות, יום, חשבון, מותר, מקום, קבה* — through to the foot of the column. The water-stain at the lower margin obscures several clause-ends. [?]]

take [?] [it] and reckon [?]; and you shall add [?] the [day?] [in its] place; and so [it] holds [?]. [?]

[and] reckon [?] from there [?]; for so [?] it is [?]; this [?] is [?] the [day?], the [hour?], and [?] [the count]. [؟]

[Bottom-left, after the column:] …reckon [?] [from] there [?], that [?] [is the] day [?]; and the day [that] is added [?] [?]. [؟]

Script: Sephardic semicursive, single primary hand, black carbon ink with red rubrication. Foliation: an Arabic "69" in the upper-left margin of p. 143 and a "3" at the head of p. 144 (an older quire-internal numbering); a catchword " / "ואחרים מאחרים"" [?] appears at the foot of p. 144.

PDF p. 143 (Book Two, concluding chapters — weekday-and-hours reckoning)

**

the same; rather, in any reckoning you make, take the figure and reckon by it [?]. And behold, here is a general rule: in all these reckonings the count of the days runs ahead of [?] the [solar] cycle. Throughout the cycle the days run ahead, and within the reckoning you have already grasped the principle. Now turn back and review the reckoning of the days and the hours [?].

For we have already laid down for you that the [solar] cycle does not complete its revolution upon a single point, but rather upon successive points, and that its motion advances [?]. Thus, were the cycle a fixed circle [?] and this [point] returned to that [?] same [position] without remainder, [the reckoning] would be straightforward [?].

But since the motion runs upon the line of revolution [קו ההקפה, the line of revolution], it returns to the reckoning [and continues onward]. And were you to grasp it [in the manner of] the place of one [single] point, and not [the manner] of the points [taken together], you would err [?]. We have set down the matter for you in [a way] that you may grasp [?] the reckoning of the cycle [?].

and from this it follows [?] that the cycles are not equal; rather, each cycle exceeds [its predecessor] [?]. And there are those who hold that the cycle [is reckoned] from the points [taken together] [?] — and this is correct [?]. The [received] traditions [המסורות, "the traditions"] [?] differ [in this], and you have [the matter] before you [?].

upon the head of the cycle [ראש התקופה] [?]; and behold, there is [a remainder] [?]. [It comes out [?]] upon the head of the cycle [?]. He [?] [reckons] thus [?].

[Red ink: ונסה] — And test [it]:

take a [solar] cycle from the figure and reckon it; carry [the remainder]; add [it] in its place; and continue, every figure [advancing] [?] upon its [proper] place. And [as for] every figure that you reckon — [if] not, [then] add it [?]. And every figure that you find [?] [in excess] [?] —

upon the place; and the figure [?]. And you reckon [?]. And it comes out upon the place [?]; and the figure [?]. And reckon [?], and it comes out [?] upon the place; and the figure [?] —

upon the matter [?] of the [solar] cycle [?]. As regards [?] this — [namely] that he [?] reckons from one figure to another [?] —

[*~3 lines, foot of column, faded with water-stain; reading uncertain] [?]

**

the same upon any [given] figure, [a determinate] reckoning [?]. And behold, here too the [days] [?] [run] [ahead]. And the figure [?] —

[at] the head of the [solar] cycle [?], the hours [שעות, "hours"] [are] in such-and-such [a count] [?]. And in the [reckoning of the] cycle, the hours [are] in such-and-such [?]. And from this you take [?] the figure [?].

[at] the head [?] of the cycle [?] — [in] this [?] manner [?]. And the hours of the cycle [are] such-and-such [?]; and the hours [are] such-and-such [?]. And take [?] the figure [?].

upon the head [?] of the cycle [?]; the hours [are] thus [?]. And the figure [?] [comes out] upon the place [?]. And you reckon [?], and it comes out [?] —

[*Several densely written lines of the same reckoning procedure — repeated "hours of the cycle / hours" parallel constructions — continue here; the recurring technical terms (תקופה "cycle," שעות "hours," התמונה "figure," המקום "place," חשבון "reckoning") govern, but individual numeral values in these lines are too faded to transcribe with confidence] [?]

[at] the head of the cycle [?]. And behold [?], you reckon [?] upon the place [?]; and you find [?] —

and [as for] the figure [?] — upon the place [?]; and you reckon [?]; and it comes out [?] upon the place [?]. And the figure, [in] such-and-such [a count] [?] —

upon the cycle [?]; and [as for] the figure, upon the place [?]. And [as for] the head [?] of the cycle [?] —

[*Remaining lines of the left column, lower portion — water-staining and edge-darkening obscure the numeral values; the procedural frame (head of cycle → hours → figure → reckon → "comes out upon the place") repeats] [?]

PDF p. 144 (conclusion of Book Two; opening of Book Three)

**

[at] the head [?] of the cycle, the figure [is] such-and-such [?]. [If] you reckon and [it] does not [come out] [?] upon the place — add [it] [?]; and [as for] the figure [?] [it comes out] upon the place [?].

and [behold] [?] the figure [?]. And [as for] the head of the cycle [?] — in [such-and-such a] reckoning [?]. And the figure [?] [comes out] [?] —

the figure [?]. And [you] reckon [?], and [it comes out] upon the place [?]; and [the] figure [?]. And [as for] the head [?] of the cycle [?] —

and [in] this manner [?] you reckon [?] always [?] [until] you reach [?] the figure [המבוקש, "the sought figure"] [?].

and behold [?], you reckon [?] [until] there comes out [?] for you the sought [figure] [?]; and [as for] the figure [?] — upon the place [?].

[*Several lines of the recurring reckoning procedure continue, with the same parallel "head of cycle / hours / figure / place / reckon" frame; numeral values within them are partly obscured by water-stain and not all legible] [?]

[Red ink: ונחל השם] — [Red rubric mid-column:] *And let us begin, [with] the [help of the] Name [שם, the Divine Name]:* [?]

[and] let us turn back [?] to our subject [לענייננו, "to our matter"] [?]. The figure, upon the [solar] cycle [?] — [in] such-and-such [a reckoning] [?]; and [it has] drawn near [?] to the reckoning [?].

[at] the head [?] of the cycle, the hours [are] in such-and-such [a count] [?]. And [as for] the reckoning [?], [until] there comes out [?] for you [the figure] upon the place [?]; and [as for] the figure [?] —

[*A few further lines of the same procedure close out the right column; not all numeral values legible] [?]

**

[in] such-and-such [a count] [?] upon any figure; [a determinate] reckoning [?]. [If] not [so], then [as] we said [?]: [the count of the days] runs ahead [?] —

[at] the head [?] of the cycle, the hours [are] thus [?]. And the figure [?] [comes out] upon the place [?]; and you reckon [?], and it comes out [?] —

upon any figure [?], [a determinate] reckoning [?]. And from this [?] [it follows that] the cycles [?] are not equal [?]; rather, each one [exceeds the other] [?] —

[the count of the days] runs ahead [?]. And behold [?] you reckon [?] always [?], and it comes out [?] [for you] the sought [figure] [?].

[*~4 lines continue the procedure; the parallel "figure / reckoning / runs ahead / comes out / sought" frame holds, individual numerals partly obscured] [?]

and from this [?] you understand [?] the matter [?] of the cycles [?], and the reckoning of the days and the hours [?]. And [this is] the whole [of the matter] [?]; [grasp it well] [?].

[Red ink: a small red flourish / line-filler closes the column.]

Thus the entire matter [of] the [solar] cycle [is sound] [?]; and the chapter [is herewith] completed [?] —

[Red ink, prominent, foot of left column — Book heading:]

THE THIRD BOOK

[Red ink: המאמר השלישי]

[Red ink, beneath the Book heading:]

Chapter One

[Red ink: פרק א] [?]

** [?]

Yesod Olam — Book Three (המאמר השלישי)

Script: Sephardic semicursive, primary hand throughout, with red-ink chapter rubrics. This opening of Book Three is laid out as a **detailed chapter index**

(table of contents) for the book: a long sequence of red פרק (chapter) rubrics, each immediately followed in black ink by a one-line statement of that chapter's subject. The two pages are arranged in two columns each (Hebrew right-to-left); the logical reading order runs right column then left column on each page. A large diffuse water/foxing stain runs vertically down the center-left of both folios, degrading the inner-column readings considerably.

The right column of p. 145 continues body prose from the opening of Book Three, Chapter One, then transitions into the chapter list.

[Damage / heavy foxing across the head of this column; opening prose partly obscured.]

[?] of the spheres and their order [סדר הגלגלות], and what is above and beneath them, after the manner of [?]…

The wise men examined and investigated, and they [?] to them [the heavens?] the order [?] which they appointed. And the [?] arose for them [?]… and they [?] to them with a true demonstration [במופת]… The matter [?] is [?] and complete [שלם]. [Several lines here are darkened and only partly recoverable — see Readability.]

[Red ink header: פרק ראשון] ("Chapter One") — On the [?] of [?]: He set [?] [Interlinear / faded]… concerning [?] [?].

The order of the spheres [סדר הגלגלות], the [?] of the configuration [/ התקומה התמונה? [?]], and the [?] — in [?] manner [על דרך כלל [?], "in a general way"].

[Red ink header: פרק שני] ("Chapter Two") — [?] of the [?] and the [?] of the [?]… [line degraded]. He of the wise men… and ‹if› [?] the [?] [?]… the sun and its [?], and the [?] of the [?]… the wise men, on [?] of the place [מקום] [?] [?].

[Red ink header: פרק שלישי] ("Chapter Three") — [?] all [?]: On the way of [?] [?] for each one of the [?] motions [התנועות], in love [?] and [?]… [degraded].

[Red ink header: פרק רביעי] ("Chapter Four") — On the [?] of the heavens [השמים [?]] [?]: How the heavens [?] and [?]… and [?] [?] [?].

[Red ink header: פרק חמישי] ("Chapter Five") — On [?] [?]: The [?] [?] the way [הדרך] [?] in the [?] [?]… and in [?] [?].

[Red ink header: פרק ששי] ("Chapter Six") — On [?] the way of the [?] [?] [?]: The [?] and [?] [?], and so [?] from them [?].

[Column foot degraded.]

The left column continues the chapter list, with a running folio numeral **70** at the top margin and a catchword at the foot.

[Red ink header: פרק שבעה ‹עשר?›] ("Chapter Seven[teen?]") [numeral uncertain — see anomalies] — On [?] [?] [?]: The [?] [?]… the [?] [?] [?].

[Red ink header: פרק שמיני] ("Chapter Eight") — [?] of the [?] [?], in [?] [?]: How the [?] [?] [?] their [?]… and [?] [?] them in [?] [?].

[Red ink header: פרק תשיעי] ("Chapter Nine") — On [?] [?] of [?] [?]: There were [?] [?]… how the [?] [?] [?] [?], and [?] [?] [?] [?]. [This entry has multiple degraded clauses.]

[Red ink header: פרק עשירי] ("Chapter Ten") — On the [?] of the configuration [?] and [?] [?]: The [?] [?] on [?] of [?]… and [?] [?].

[Red ink header: פרק אחד עשר] ("Chapter Eleven") — On the [?] [?] [?]: [?] [?]… the [?] [?] [?].

[Red ink header: פרק שנים עשר] ("Chapter Twelve") — And they [?] [?] one [?] [?] [?]: [?] [?] [?].

[Red ink header: פרק שלשה עשר] ("Chapter Thirteen") — On the [?] of [?] [?]: How [?] [?]… [?] [?] [?] [?] [?].

[Red ink header: פרק ארבעה עשר] ("Chapter Fourteen") — [?] [?] [?]: [?] [?] of [?] [?]… and [?] [?] [?].

[Red ink header: פרק חמשה עשר] ("Chapter Fifteen") — [?] [?] [?]: [?] [?] [?] [?]… [degraded].

[Red ink header: פרק ‹…› עשר] ("Chapter [?]teen") — On [?] [?] [?] [?] [?]… the [?] [?] [?] [?].

[Red ink header: פרק שבעה עשר] ("Chapter Seventeen") — On the [?] of [?] [?]: There [?] [?]… and the [?] [?]. [?] [?] [?] [?].

[Red ink header: פרק שמנה עשר] ("Chapter Eighteen") — On [?] [?]: [?] [?]… [?] [?] [?].

[Red ink header: פרק תשעה עשר] ("Chapter Nineteen") — On the [?] of the [?] [?] [?]: [?] [?] [?]… and [?] [?] [?].

[Red ink header: פרק ‹עשרים?›] ("Chapter [Twenty?]") — On [?] [?]: There [?] [?]… (interlinear: ‹…› [?])] [?] [?] [?] [?] [?] [?] [?] [?].

[Mid-column an isolated red-ink cue:] [Red ink: ‹…› [?]] — apparently a structural/marginal cue rather than a chapter rubric; verbatim text not securely legible.

The remaining lines of this column return to continuous body prose: a discussion that names **the wise men [החכמים]** and treats the heavens [השמים], a [?] motion [תנועה], and a [?] [?]. The clause "and the diameters [הקטרים [?]] of the [?]" appears mid-column; "the wise men [החכמים]" recurs. [The fine numerals and several technical terms in these prose lines are below secure legibility]

The left column is the most heavily damaged region of the batch: the central water-stain passes directly through it, and the upper-third bleed-through compounds the loss.

[Damage: water stain, central, ~10–12 lines partially affected.]

[?] and not [?] [?] [?]… [?] upon it [עליו] [?]… in [?] [?]… he [?] [?] [?]… and the [?] of [?] [?] on the [?] [?]… the [?] [?] [?].

[?] the [?] [?] [?]… and they [?] [?] the sphere [הגלגל [?]]… and they [?]… and [?] [?] [?] them [?]… the [?] [?] [?]…

and the [?] [?] [?]… on the [?] [?]… [?] [?] [?] [?]… and the [?] motion [התנועה [?]] [?]… [?] [?] [?] [?]…

[Lower portion of column blank / very faint.]

At the foot, a black-ink note (continuation prose, partly legible): [?] [?] the [?] of the [?] [?] [?] [?]… [?] [?] [?] [?] [?] the [?] [?]…

Yesod Olam — Book Three (Geography / Astronomy)

Script: Sephardic semicursive, single hand, black carbon ink with red-ink rubrication for chapter headings. The hand shows the noted tendency for ש to lose its left stroke and resemble ע; numerals and point-letters read with care. Heavy edge wear (torn/worn outer and lower margins), foxing, and ink bleed-through from the facing folio. The Vatican watermark overlay and copyright footer are ignored throughout.

Folio note: A Hebrew-numeral folio mark "(71) "[א]ע appears at the top-left of the first page (recto); the catchword "עשו" stands at the foot of the second page (verso). Each page carries a faded running header at top center.

PDF page 147 (f. 71r)

" = 71]

Right column. The text continues the body discussion from the preceding chapter, treating the measured arc and the line of revolution. The author reasons that the resulting magnitude [or arc] follows from the established ratio, and that what was sought is obtained by the procedure already laid down. [The opening lines are abraded and partly obscured by bleed-through.]

He continues: the matter is so [arranged] in its place [or position], and the established figure makes plain that the point in question lies upon the [given] line. From this it is shown that the measure derived accords with the computation already set out, and that the value found is correct. [Several phrases here are degraded; the sense is the verification of a derived quantity against the construction — [?] in the abraded stretches.]

[The middle of the column treats a geometric/astronomical construction: a line, a point upon it, and the relation of the two arcs. The recurring technical vocabulary — קו ההקפה (the line of revolution), המעדל (the deferent/equating line), הקוטר (the diameter), the מעלות (degrees), and the חשבון (computation) — appears, consistent with the chapter's subject. Letter-level point-labels in this stretch are too abraded for confident transcription.]

He concludes the discussion: and this [demonstration / matter] is what was intended to be shown. [Closing formula of the chapter.] ✦

[Red ink header: [פרק [שני?] — Chapter [Two?]

[Red-ink rubric, lower-left of right column. The red iron-gall ink has faded badly; the chapter numeral is degraded. Context — this is the second body chapter of Book Three following Chapter One — suggests "פרק שני" (Chapter Two), but the numeral itself is not legible: [?]. for the rubric numeral.]

[The opening line of the new chapter, in red/black, states its subject — apparently the heavens (השמים) and their configuration. The subject-line is partly abraded: "On the [configuration / measure] of the heavens and their [?]."]

Left column (f. 71r). Now the wise men of [astronomical] inquiry have already established their measure [of the heavens], and [it is fitting] that we treat the [configuration of the] heavens and their measure. [Opening of the chapter body; the wording "the wise men" — חכמי — and "inquiry / observation" anchors the standard introductory move of a new chapter.]

The wise men investigated this and found [a measure / value]; and one of them held [a measure], while another held [a differing measure]. [The author surveys differing measured values reported by earlier astronomers — the recurring scholarly framing. The specific named authorities and their numerical values in this stretch are abraded; the comparative "one of them … another …" structure is legible, the names and numerals are not — `[?]`.]

[The chapter then proceeds to the demonstration. It invokes the established cosmological premises — the order of the spheres (סדר הגלגלים) and the body of the heavens (גשם השמים) — and reasons from them. Mid-column: "and behold, this [follows] …" / "and from this it is shown that …". Letter-level readings of the embedded values are uncertain.]

The author argues that the measure [in question] is true [האמתי] and stands established, and that the matter is settled by the computation [חשבון] already laid out, as the wise men have shown. [The chapter's argumentative spine is legible; the embedded figures are not. `[?]` on the numerals.]

[Lower left column, abraded: the discussion of degrees (המעלות), the value found (המבוקש), and the correction (התיקון). The closing lines of the page are worn at the lower edge — `[Damage: lower margin, ~2 lines abraded]`.]

PDF page 148 (f. 71v)

Right column (f. 71v). [Opening abraded by a large brown stain across the upper-right quadrant — `[Damage: water/foxing stain, upper right, ~3–4 lines partly obscured]`.] The text continues the chapter's argument: a parable [משל] is offered to make the matter plain — "this is like [the case of] …". [The author introduces an illustrative analogy. The specific terms of the analogy are partly obscured by the stain; the lead-in "this is like" (משל) is legible.]

He continues the reasoning: when the measure is taken in this way, the result is [thus]; and were one to take it otherwise, [a different result would follow]. [The author contrasts two methods of taking a measure and shows that his own yields the correct value. The contrast structure is legible; the embedded quantities are abraded — `[?]`.]

[Mid right column: a stretch on the heavens (השמים), their motion, and the measured value. Recurring vocabulary — התקופה (the cycle/season), ההקפה (the revolution), and the האמצעי/האמתי (mean/true) pair — appears. The author reasons from the order of the spheres to a numerical conclusion. The point-letters and figures are not confidently legible.]

He concludes a sub-argument: and so it is shown [that the measure is as stated], and the matter is [now] clear. [Closing of a paragraph — the section marker ✦ follows.] ✦

[A further paragraph treats the relation of two measured arcs and their difference (החילוף / המותר). The author states that the difference between them is [a value], and that this is what was intended. The numeral is abraded — `[?]`.]

Left column (f. 71v). [Top of column partly abraded.] The author continues: behold, in this way [the matter is demonstrated]; and were it not [so], [the consequence would be untenable]. He reasons by reductio: "and if you should say [otherwise] … [then such-and-such would follow], which is impossible." [The standard ואם תאמר … dialectical move is legible in structure; the embedded content is partly worn.]

[Mid-column treats a construction: a point, a line, and a circle [העגולה / the circle], and the relation of an arc to its chord [or to a quarter — רביע]. The recurring construction vocabulary appears: "from point [X] to point [Y]", "the line [so-and-so]", "the arc [so-and-so]". Point-letters across this stretch are abraded and not confidently legible — multiple `[?]`. The mathematical sense is the demonstration of a ratio between an arc and a line, consistent with the chapter on the measure of the heavens.]

He continues: it is good [i.e. it follows correctly] that the [measure] is so, and the difference [המותר] is settled; and behold, this is [thus]. [The author affirms his result. Legible in structure; figures abraded.]

[Lower-left column: the discussion turns to the days [הימים] and the cycle [התקופה] — apparently relating the measured arc to a temporal value. "the measure / number is so-and-so days, and the [remainder] is so-and-so." The temporal values are abraded — `[?]`. `[Damage: lower margin, text worn]`.]

The chapter closes: and behold, this is what we intended [to demonstrate]; and upon this [foundation] the wise men [built] their measure. [Closing formula. The chapter ends near the foot of the column.] ✦

Yesod Olam — Book Three (Geography / Astronomy)

Script: Sephardic semicursive, a single primary hand throughout. The hand is consistent with the preceding batches. Both pages are substantially faded and abraded — large portions of the lower-right of f.72r and the right column of f.72v are washed out by water staining and ink loss, and edge wear has cost text along the torn upper and outer margins. Many numerals (day/hour/chelek calendar quantities) are present but only partially legible; these are transcribed with `[?]` where the glyphs cannot be resolved with confidence at this resolution.

f.72r

[Damage: torn upper margin and outer (right) edge; the right-hand column is heavily abraded and water-stained, with whole phrases washed out. The folio number "72" (ע״ב) is visible in the upper outer margin.]

Right column (heavily degraded — the opening lines are largely washed out):

the reckoning [?] … and from this it follows … [several lines abraded — text loss ~6–8 lines] … the great circle [?] and its measure [?] … that which is sought [?] is established for you [?] …

for the matter is so [?]: when you take the measure [?] … the days and the hours [?] and the fractional parts [chalakim] … [abraded] … and this is what we said [?] …

[The remainder of the upper right column cannot be read with confidence — ~10 lines lost to water damage and fading. Flagged as a]

and behold [?], the days [?] … the hours [?] and the parts … in the calculation [?] … as we explained [?]. And so too [?] in this reckoning … [?]

Left column (better preserved in its lower two-thirds):

and just as you take [?] … the day [?] which is fixed [?] for you, the days [?] and the hours [?] and the parts [chalakim] … so too [?] in this matter. And therefore [?] … its quantity [?] … (interlinear: a short correction above the line — illegible, ~2 words)

and these are the matters [?] … and we shall reckon [?] from it … [abraded] … the day [?] … [?]

for everything [?] … and we have already explained [?] this … the days [?] and the hours [?] and the parts [chalakim] … the measure [?] … as we have explained [?].

therefore [?] when you take [?] … the fixed [?] day, the days and the hours, and the parts — [several words abraded] — and from this [?] you reckon [?] the day [?] which is sought [?].

[A passage on the day/hour/chelek reckoning of a recurring cycle continues here; the embedded numerals are present but the glyphs are too faint to resolve — `[?]` throughout.]

and from a year [?] to a year [?] … (interlinear: illegible word above the line) … and the rest [?] … in this matter [?] … as we explained [?].

and one [?] who reckons [?] … or in the reckoning of … [?]. This [?] [Red ink? — a faint marker, possibly a paragraph break] … one who reckons [?] either by [?] … or in [?] … not as a custom [?] … the years [?] and the day [?] … or [?] … the days and the hours and the parts [chalakim] …

in the reckoning [?] … its day [?] … and the difference [hachilluf] [?] … [abraded] … as we explained [?] in this [?] … and from one day [?] to the day [?] which is sought [?] … the difference [?] of the years [?] …

one [?] … in this reckoning [?] … as we have explained [?] … in the matter [?] … the rest [hamotar] [?] (interlinear: a correction above this line — illegible). And let one [?] take care [?] in this reckoning [?]: the day [?], the hours [?], and the parts, and the [?] … of the year [?] … as we explained [?] above [?], for [?] the matter [?] is so [?]. And let one understand [?] this [?]. And let it suffice [?] … to here [?] [end-of-passage flourish].

f.72v appears at the foot of the page (lower outer margin), in a slightly smaller hand.]

Right column:

and it [?] arises [?] upon it [?] … upon it [?] [the measure] which arises [?] upon it, and from the measure [?] … upon the [?] end [?] of the line [?]. And behold [?], when you reckon [?] [Damage: ~1 line washed out] … the days [?] and the hours [?] and the parts [chalakim] [?] …

and behold [?] the measured day [?]; one [?] who reckons [?] either [?] one [?] or another [?], not as a custom [?] … [abraded] … and there shall be [?] [Damage] …

and reckon [?] from it [?], and from the day [?] … until the [?] day [?] which is sought [?] … the difference [hachilluf] [?] … so too [?] in this [?] matter [?].

and after [?] this [?] [Damage] … the configuration [hatemunah] [?] … the way [haderech] [?] … [abraded] … in this [?] … the rest [hamotar] [?] … the parts [chalakim] [?] … and from this [?] … the [?] day [?] … not [?] … upon it [?]. And one who guards [?] … upon it [?] … not [?] … [end-of-passage marker].

[a phrase introducing a new sub-point, ~2 lines, abraded] … behold [?] this [?] is the [?] difference [?] … the configuration [hatemunah] [?] … and there is no [?] … [Damage] … and the day [?] … and there is no [?] difference [?] in it [?].

[?] a fixed [?] thing [?] … and we explained [?] … upon it [?] … the reckoning [?] [hachesbon] … as we explained [?] … [abraded] … and from this [?] … the configuration [?] … and reckon [?] this [?]. And behold [?] [the matter] returns [?] [chozer] [?] … [Damage] …

[The lower right column — ~6–8 lines — is lost to water staining.]

Left column (the better-preserved column on this page):

In its own measure [?] … and we explained [?] that which arises [?] upon it [?] … the measure [?]. [Damage: ~1 line] … the day [?] of [?] … and the years [?] … and from the day [?] which is fixed [?] for you …

[abraded] … the configuration [hatemunah] [?] … the day [?]. And behold [?], when you reckon [?] … [Damage] … and the parts [chalakim] [?], and the day [?] … and from this [?] … the rest [hamotar] [?] …

and after [?] you [?] reckon [?] … [Damage: ~2 lines] … the days [?] and the parts [?] … and from this [?] … the day [?] which is sought [?] … and behold [?] this [?] is the configuration [?].

[Several mid-column lines on a worked day/hour/chelek reckoning — the numerals are present but unresolvable at this resolution. `[?]` throughout.]

and we explained [?] this [?] … the reckoning [?] … and from the [?] year [?] … the difference [hachilluf] [?] … as we explained [?]. And let one [?] take care [?] … the day [?] and the hours [?] and the parts [chalakim] … in this [?] reckoning [?].

and behold [?] … the configuration [hatemunah] [?] … [abraded] … and from this [?] … the day [?] which is sought [?] … and there is no [?] difference [?] in it [?] [Damage] … and let one [?] understand [?] this [?] well [?].

[a closing sub-clause, ~3 lines, water-damaged] … the years [?] and the days [?] and the hours [?] and the parts … in the reckoning [?] … as we have explained [?] … and from a year [?] to a year [?] … the rest [hamotar] [?] … [end-of-passage flourish].

Yesod Olam — Book Three (Geography / Astronomy)

Script: Sephardic semicursive, single primary hand throughout. Both pages are continuous body prose with no display rubric, save for a single red-ink emphasis word on p. 151 and a red-ink marker word on p. 152. Heavy degradation: water staining (severe on p. 152, where the lower-inner column is largely washed out), faded iron-gall ink, foxing, and edge loss at the upper corners.

[Sephardic hand, two columns]

**

the remainder [or: that which is left over] over [?] the established [reckoning] is whole [שלם], so that the establishment is complete [?]. And [the matter] turns about, for these days that we have mentioned [?] are the days [or: cycle]. By contrast, the days [?] of the gathering [or: the leap-intercalation] are added [?] over the established reckoning [?]. The sun and the moon, and that which is parallel [או הנכח, "or the opposition"?] to them [?], are reckoned [?] together [?].

The fixing [התקון, "the correction/fixing"] of the configuration [התמונה], which is taken up [?] in the [computation] — and the matters concerning it are clear and well-ordered [?]. And there arises a difficulty [?]: when the [solar] reckoning [?] and the lunar reckoning [?] differ [?] one from another [?] — therefore the difference [החילוף] [?] falls [?] upon the correction [התקון]. There is no difference [?] in [?]…[?]…

the configuration [התמונה], its [?] place [?] and that which is in it [?], and the rest [המותר], which is divided [?] into parts [חלקים]. The day [?] [?]… and that which is in it [?] of [?] hours [?], and the moment [הרגע] [?] which is in it [?]; the difference [החילוף] [?] is divided [?]…[?]…

The configuration [התמונה], the [?] correction [התקון], and the establishment [?] of the parts, all [?] [?]…[?]. And this [?] is the parallel [or: the opposition], which is divided [?]…[?] all [?]… [Several lines here are too faded/stained to recover; ~4–5 lines lost.] [?]

[Red ink:] **ושתה** [Red ink: "And the foundation" — יְסוֹד / וְשָׁתָה? **probable red-ink emphasis or sub-marker**; reading uncertain, [?]]

the correction [התקון] [?] of [?] differences [חלוף], for they are gathered [?] [?]. The configurations [התמונות] [?] and the correction [?] [?] of [?]… that which is established [?]. The reckonings of the configurations [חשבונות התמונות] [?] in [?] the correction [?]…[?], the surplus [העודף] over the established reckoning [?], and not less [ולא יחסר] [?]…[?]…

and we know [?] the [?] correction [?] of the difference [?] in the [?] reckonings [?], that they are [?]… [?] [Reading degraded; ~2 lines lost.] And [?] [?] those [?] that are [?] before [?] [?]… [?]

And it is not [?] [?] possible [?] for [?] the reckoning [?] of the configuration [?] except [?] in [?] the [?] correction [?]; and that which is [?] established [?] in [?] it [?] [?]…[?]…

And [?] [?] [?] the correction [?] [?]… [?] [the lower 3–4 lines of this column are largely lost to fading and stain; not recoverable at this resolution] [?]

**

in the heavens [בעולמים? — more likely בגלגלים, "in the spheres"; reading [?]], for that which we have mentioned [?] arose [?] [?] before [?] [?]…[?] [?] [?]. The [?] eastward [קדמותם? "their priority/easterly"] [?] [?] are [?]…[?]…

that which is [?] [?]… the [?] reckoning [?] [?]…[?] from another [?], and the moment [נרגע / הרגע] [?] [?]…[?] each one [?] of them [?]; and the [?] reckoning [?] [?]…[?]…

For [?] [?] the cause [?] [?]… of [?] another [?], and the configurations [?] [?]… revolve [?] [?]…[?] from the [?] east [?]. The matter [?] [?] [?]… the configuration [?] of the [?] correction [?] [?]…

the [?] [?]… and the [?] correction [?] for [?] [?] the difference [?] [?]…[?]…[?] [?] [?] [?] [Mid-column ~3 lines too faint to recover.] [?]

The configuration [?] [?]… and that which [?] [?]… that the [?] reckoning [?] [?]…[?] from the [?] [?]…[?]…

the [?] [?] correction [?] [?]; and there [?] [?]…[?]. When [?] the [?] configuration [?] [?]…[?] this [?] [?]…[?]; and [?] [?] established [?] [?] this [?]…[?] is [?] [?]…[?] [?]…

For [?] [?]… that which [?] [?]… in [?] the [?] difference [?] [?] [?]…[?], the [?] correction [?] [?] [?]…[?]. And [?] [?] [?]… established [?] [?] [?]…[?]…[?] [Lower-column ~5 lines: largely faded to illegibility; ~5 lines lost.] [?]

And the cause [?] [?]… that which [?] [?] [?]… the [?] difference [?] [?]…[?], and we [?] [?] [?] from [?] [?]… that the [?] reckonings [?] [?] [?]…[?] from the [?] east [?].

[Sephardic hand, two columns; heavy water-staining lower half]

**

that it [?] arises [?] [?]… the [?] day [?] of [?] [?] this [?] [?] [?] which [?] is [?]… [?] [?]. And [?] [?]… the [?] correction [?] [?] [?]… one [?] from [?] another [?] [?] over [?] the [?]…[?]…

then [?] the [?] reckoning [?] [?]…[?] that [?] [?]; for [?] [?] the [?] configuration [?] [?]…[?] [?] [?] from [?] the [?] [?]…[?] the [?] configuration [?] of [?] the [?] correction [?] [?] [?]…[?]…

the [?] reckoning [?] [?] [?] [?]…[?]; for [?] [?] the [?]…[?] [?] this [?] [?]…[?] [?] [?] the [?] correction [?] [?] [?]…[?] [?] of [?] the [?] difference [?] [?]…[?]…

over [?] the [?] establishment [?] [?]…[?], and the moment [?] [?] [?]…[?], the [?] correction [?] [?] [?]; and [?] [?] one [?] from [?] another [?] [?] [?]…[?] [?] over [?] the [?] establishment [?]…[?]…

And [?] [?]… [?] [?] over [?] [?] the [?] reckoning [?] [?]; for [?] [?] [?]…[?] this [?] [?] [?] [?] [?]…[?] and [?] [?] [?] there [?] is [?] in [?] it [?] of [?] hours [?] [?]…[?]…

[The lower ~6–7 lines of this column are washed out by a large water stain; not recoverable at this resolution.] [?]

[Red ink marker:] **ידוע** [Red ink: "It is known" / יָדוּעַ — **probable red-ink section/topic marker**, [?]]

It is known [?] [?] that the [?] reckoning [?] of [?] the [?] configuration [?] [?]…[?]: that [?] when [?] one [?] knows [?] the [?] [?]…[?] [?] [?] of [?] the [?] difference [?] [?]…[?]…

there [?] [?]… in [?] the [?] reckoning [?] [?]…[?] one [?] from [?] another [?] [?]; and the [?] reckoning [?] [?] [?]…[?] the [?] configuration [?] [?] of [?] the [?] correction [?] [?]…[?]…

in [?] the [?] establishment [?] [?]; for [?] [?] when [?] the [?] reckoning [?] [?]…[?] the [?] moment [?] [?]…[?] [?] [?] of [?] [?]…[?] [?]; therefore [?] the [?] difference [?] [?]…[?] over [?] the [?] establishment [?]…[?]…

And [?] [?] the [?] cause [?] [?] [?]…[?], and [?] [?] one [?] from [?] another [?] [?]; and we [?] [?] [?]…[?] [?] the [?] reckonings [?] [?]…[?]…

[The lower-right block is severely stained; ~4 lines lost.] [?]

**

the heavens [?] [?]… that which [?] [?]…[?] [?] [?] [?]…[?]. And [?] [?] [?]… these [?] [?]…[?] from [?] [?]…[?] [?] [?]…[?]…

the [?] configuration [?] [?] [?]…[?] [?]; for [?] [?] [?]…[?] [?] [?] [?] [?]…[?] [?] [?] the [?] correction [?] [?]…[?] over [?] [?]…[?]…

and the [?] [?] correction [?] [?] [?]…[?] [?] [?] [?] [?]…[?]. When [?] [?] [?]…[?] [?] [?] [?]…[?] [?] one [?] from [?] another [?] [?] [?]…[?]…

[Several mid-column lines too faded to recover; ~4–5 lines lost.] [?]

the [?] reckoning [?] [?] [?]…[?] [?] [?]; for [?] [?] [?] [?] [?]…[?] [?] [?] [?]…[?] [?] [?] established [?] [?] [?]…[?] [?] [?]…[?]…

the [?] correction [?] [?] of [?] the [?] difference [?] [?]…[?] [?] [?] [?] [?]…[?] [?] [?]; and [?] [?] [?]…[?] [?] [?] [?]…[?] over [?] [?] [?]…[?]…

[Lower-left block heavily stained and faded; the column tapers to a short line; ~5–6 lines lost.] [?]

[Foot of folio:]]

Yesod Olam — Book Three (Geography/Astronomy)

Script: Sephardic semicursive, single hand throughout. Red ink used for in-line structural markers (וחפה, ושתה). Heavy water-staining and edge loss, especially in the lower-right of the first leaf and the lower portion of the second leaf; bleed-through is pronounced. This hand's ש frequently loses its left stroke and resembles ע — readings affected by this are flagged.

and we have already shown earlier that this surplus, which accrues over and above the established whole-day reckoning, must be apportioned [?]. Whoever wishes to verify the matter should examine [?] the reckoning [המספר?] until the sought-after value [המבוקש] is reached, for this is the established rule [?].

The configuration [התמונה] of the planet is found by adding [?] the correction [התקון] together with the mean position [האמצעי], and from their combination [?] the true place [המקום האמתי] is obtained.

[?] is added [?] over [?]; and the remainder [המותר] which lies over and above this is divided into hours, and each hour into parts [חלקים], and each part into moments [רגעים]. [Several lines here are abraded by water-staining; ~3–4 lines partly illegible: "…"][?]

The true [האמתי] differs [יחלוף] from the mean [האמצעי] by the amount of this difference [החילוף], and one must take it into account in the direction [?] in which the planet moves.

[Red ink, in-line marker: "ושתה" / "וחפה" (uncertain expansion)][?] He said: when you wish to know [?] the place of the planet [מקום הכוכב] for a given moment [?], and there is no remainder, then you set [?] down the established reckoning by itself; and if there is a remainder, you add [?] it. [~2 lines abraded][?]

Take [קח] the mean motion [?] of the planet [?] which you found [?], and the correction [התקון] which corresponds [?] to it, and combine [?] them; and what results [?] from them is the sought-after value [המבוקש] — this is its true place [מקומו האמתי]. And know [ודע] this.

When you wish to set the reckoning [?] of the planet [?], and there is no [?]… the other [?] correction [?]; you should [?] take [?] another [?]…[?] [several words lost to edge-fade at column foot]

[?] the value [המספר?]; and you join [?] them [?]…[?] which [?] is the correction [?] that I mentioned [?] to you above. And know [ודע] this.

[~6–8 lines in this lower-left region are heavily abraded by water-staining and edge fade; only scattered words legible: "…ודע זה… המבוקש… חשבון… ועובר…"][?] (degraded column foot)**

Page 154 (folio 74v)

and the days of the month [?] are reckoned [?]; and the surplus [העודף] which accrues [?] over them is [?]…[?] when the moon [?] is [?] in [?]…[?]

[Red ink, in-line marker, opening a new instruction: "ושתה" — "And now"][?]: when you wish [?] to know [?] the place [המקום] of the sought-after [המבוקש] — the configuration [התמונה] and the correction [התקון] — and you take [?]…[?]

The reckoning [החשבון] which precedes [?]… as we explained [?]; for these [?] are [?]…[?] earlier [קדמונה?], and over and above them [?]…[?] when [?] the planet [הכוכב] is [?]…[?]

[?] and the reckoning [וחשבון] is set [?] by itself [?]; and when [?] the moon [הירח?] revolves [?]…[?] then [?] the difference [החילוף] [?]…[?]

[?] If [?] you wish [?] to subtract [?] the difference [החילוף], take [קח] the place [?] of the planet [?]… [several lines partly abraded by central water-stain][?]

[?] is the true place [המקום האמתי]; and know [ודע] this. [?]

[?] over [?]… and if [?] there is a remainder [?]; you add [?] it [?]… each [?] hour [שעה] into [?] parts [חלקים], and each [?] part [?] into [?] moments [רגעים]. [?]

[~Several lines mid-column abraded][?] — the place [?]… the planet [?]… in [?] the reckoning [?]… and know [ודע] this. [?]

[The left column of folio 74v is the most heavily damaged region in this batch: water-staining across its upper portion and edge fade at the foot. Only scattered words and phrases are legible.][?]

we have known [ידענו] [?]… the established [הקבוע] [?]… and this [?]…[?]

[?] the reckoning [?] of the planet [הכוכב] [?]… as [?] we [?] explained [?]; and when [?] there is [?]… and the correction [התקון] [?]…[?]

[?] when [?] the moon [הירח?] [?]… in [?] its place [?]… and the surplus [המותר] [?]… each [?] hour [?]… and each [?] part [?]…[?]

[?] He said [אמר?]: when [?] you wish [?] to know [?] the place of the planet [מקום הכוכב] [?]… you set [?] down [?] the reckoning [?]… [?]

[~8–10 lines at the column foot lost to water-staining and edge fade; not recoverable at this resolution.][?] (degraded column)**

Yesod Olam — Book Three (Geography / Astronomy)

*(The folio carries the Hebrew numeral **75 / עה** in the upper outer margin, and a faded running header at the top center reading approximately* "פרק ג" *or* "מאמר ג", *in the same faded form observed in the preceding batches.)*

The page continues the position-reckoning procedure from the prior folios — combining the correction (התקון) with the mean (האמצעי) to derive the true place, and apportioning the surplus across the whole-day reckoning into hours, parts, and moments (שעות, חלקים, רגעים).

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and we have established that the matter of the [reckoning] is so. The …[?]… in our hands, in the surplus and in the … [?] … so that you may know [?] the parts as the [whole] reckoning. [?] … The [Sun? / חמה] is now [?] … and [you compute? תחשוב] the parts and find … [?] the configuration (התמונה) as you began [?] … and the moments [?] … upon the … [?]. The position [?] (interlinear: …[?)…] of the chapter [?] reckoning … [?] … so that you know the true place which [?] is now …[?]…

[Several lines here are too abraded and abbreviation-dense to recover with confidence — they continue the apportionment of the surplus (המותר) into hours and parts. Flagged as a ~6–8 lines [?].]

and you know that the [whole?] reckoning [?] and that the [true place? המקום האמתי] [?] … and what is [?] above it, take from it … [?] you know, and you will find the … [?] … the part [?] … and the [?] … the day [?] … in the year [?] … with the [?] … unto the … [?].

[Lower right column, ~6 lines: dense computational instruction concerning the surplus carried into the next reckoning; partly legible. The phrasing " … ידעת תחשוב … תמצא" ("you have known … you compute … you will find") recurs, consistent with the worked-instruction register of the preceding folios. Specific numerals not securely readable; [?].]

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and one [?] … the reckoning [?] the … [?] like [?] [Red in-line marker: …[?]…] … to the [?] … there is no [?] … the part [?] [?] … [Damage: water-stain crosses the lower gutter; ~2–3 words per line affected over several lines.]

and you know thus [?] … the configuration [?] and the … [?] … as you [?] … and you will [?] the part [?] … and the … [?] … so [?].

[Remainder of the left column, ~10 lines: continuous procedural prose on the same theme (deriving the configuration and apportioning surplus), interrupted repeatedly by stain and abrasion. Individual technical terms recur from the established glossary — האמצעי, התקון, החלק, המותר, התמונה — but full clause-level translation is not reliable at this resolution. Flagged as a ~12 lines [?].]

(Faded running header at top center, approximately "פרק ג" *[?]. The Hebrew numeral* ***לה / 35 [?]*** *appears in the lower margin — likely a quire/leaf signature; transcribed verbatim.)*

[?]… the … [?] … and we have already [?] … the [?] … and you [?] [Damage: top three lines abraded along the upper edge, ~3–4 words per line lost.]

[Red ink header: וְשָׁנָה] — **"And a year" (ושנה)** — *(a red-ink in-line rubric opening a new topical unit, consistent with the red markers* ושתה/וחפה *noted in the prior batch).*

When [?] … the [?] … [?] them. The [?] … the [?] … [?] … the [?] of [?] … upon [?] … and [?] … and they will [?] … [?] [Damage / stain across the middle of the column; partial.]

and they [?] … the [?] [?] … as [?] … and if [?] … [?] … And this is what [?] [?] … [?] like [?] … and [you have known? ידעת] [?] … upon [?] … so [?] … the [?] [?].

[The right column continues with calendrical prose — apparently treating the year-count and its surplus. Roughly 10 further lines, partly legible: the recurring frame "ידעת … תמצא … המותר" is present, but clause-level reconstruction is unreliable. Flagged as a ~10 lines [?].]

[?]… the [?] [?] … upon the way [?] … and the … [?] … and the configuration [?] … the [?] … so [?]. [Damage: stain along the inner margin.]

[Red ink header:] פרק [?] — Chapter [?]

[Red ink header: פרק] **Chapter [number not securely legible — the red-ink numeral following פרק is abraded; candidates by stroke-count include a single-letter value but I cannot fix it. Flagged [؟]. The שער/פרק shared-counter convention applies, per the work note.]**

The [?] [premises? ההקדמות / החזרות [?]] upon the way of [?] all [?] … in [?] them [?] … as [?] … receive [?] them in [?] … the [?] [?] to [?]. [Opening of the new chapter; the first lines name the chapter's subject, but the key noun (whether ההקדמות "the premises" or החזרות "the repetitions/returns") is not secure — [؟].]

The … [?] … [?] … the configuration [?] … upon … [?] them [?] … the [?] … and [?] … so [?] … unto [?] them [?] … and [?] the … [?] [?] … the heart [?] [לב — likely "core/midpoint" in context, not literal "heart"] [?] of the way [?].

[Remainder of the left column, ~12 lines: continuous prose opening the new chapter's exposition. Recurring terms include המעלות (the degrees), התמונה (the configuration), המעלה (the degree), and what appears to be ידוע / יָדוּעַ ("known"). A red-ink in-line marker appears mid-column. Full translation not reliable]

and you know thus [?] [the degrees? המעלות] … so [?] … as [?] … and you will know [?] the [?] … another [?] … the degree [?] [?] … and after [?] … you will know [?] where [?] [?] is, [?] to [?] them [?] another [?] … as [?] [?] … unto [?] one [?] … the configuration [?] which [?] [?].

[Damage: the lower outer corner of the left column is foxed; the final two lines are largely illegible. [؟].]

Yesod Olam — Book Three (Geography / Astronomy)

Right column.

the matter that we set out [?], and what follows from it concerning the position [?]. And the practitioner who wishes to know [?] the place [?] of the luminary [?] — let him take the difference [?] between the two [reckonings] … [several words abraded] … and this is what we said.

The reasoning [?] is that, since the motion [?] of the … differs [?] from the mean [motion], the surplus [המותר] that accumulates between them is corrected [נתקן [?]] by the equation [התיקון]; and when you have completed this correction you

arrive at the true place [המקום האמתי]. By contrast, the position that is reckoned by the mean alone does not give the true place [?]. [Several lines here are faded beyond confident reading: a continued explanation that the mean motion is uniform [שוה [?]] while the apparent [הנראה [?]] motion is not, and that the equating line [המעדל [?]] resolves the one into the other.]

And he said: the … differs [?] [from] another, near and far [?] … by reason of [?] … and you should take [?] …

[The remainder of this column — roughly the lower third — is too abraded to read continuously. Recoverable tokens include קוטב ("pole" [?]), הקפה ("revolution/circuit"), and a reference to גלגל המזלות ("the sphere of the constellations" [?]). Treated as a]

Left column.

these are points [נקודות [?]] that are small [?] … fixed [?] …

[A run of short clause-fragments survives, evidently a list or a set of conditional sub-cases marked by repeated negation — "and not … and not … " (ולא … ולא …) — but the governing nouns have flaked away. Rendered here only as a structural note; do not read content into the surviving "and not" particles.]

for ever [לעולם [?]] … the diameter [?] … the motion [התנועה], so long as [?] … and likewise [?] [it stays] forever upon its circuit [?].

And he said: in the matter of the … there is no [אין] doubt [?] … and this rests [?] … and the practitioner who investigates [המחקיר [?]] upon … let him take the difference [החילוף] this [way], and seek, and he will find …

The thing [הדבר] has a number [?] of … [a number-word abraded] … so [כן]. And in the way [בדרך] we have established [?] … until [you reach] the true place [?]. And he said: I will [now] explain [?] [the matter] according to its order [סדר], so that the practitioner may understand and grasp [?] it. And if there should remain over [?] some surplus, take it [?] … the surplus [היתר] from the whole circuit [?], … one part [חלק] from … the [mean] motion [?] [and] the apparent [motion?] …

[Lower lines: faded. A reference to השמש / the luminary [?] and to תקופה ("the period/tequfah" [?]) closes the column.]

Right column.

[Upper ~5 lines abraded.] …upon [a point?] near [?] … that comes back [?] … and beyond [?] this … the [mean] motion [?] … its half [חציה [?]] …

between the equating line [המעדל [?]] and the apparent [הנראה [?]] [position], that this [is so] … and from the place [המקום] [where] the luminary [?] [stands], take the difference [?] … another, far [רחוק] from [?] another … beyond [?] this …

And when [וכאשר] you have done this with care, the surplus [המותר] that lies between the mean [האמצעי] and the true [האמתי] will come out for you correctly [?]; and from it you obtain the true place [המקום האמתי]. He said: this is one matter [?] [established] by reckoning [חשבון], and the sought quantity [המבוקש] is grasped [?] from it.

And in the reckoning [ובחשבון] of … the equating line [?] … in the [matter?] of … the … [several words faded] … this surplus [?], and likewise [וכן] the [position?] …

And he said: when the motion [התנועה] of the luminary [?] [reaches] the [point?] of … the apparent [?] [place], then the correction [התיקון [?]] is [to be made] … take [?] … the difference [?] this [way].

[A passage of perhaps four lines here is too faded for a continuous reading. Surviving anchors: האמצעי ("the mean"), האמתי ("the true"), and a repeated מקום ("place"). The drift of the argument is that the mean place plus (or minus) the equation yields the true place.]

Left column.

you have already [?] … and you [?] [should] … the … [point/sphere?] … and the difference [החילוף [?]] … beyond [?] this.

And the practitioner who establishes [?] this position [?] — let him take … the motion [התנועה] … its circuit [הקפה [?]] … and he will find the true place [?].

And he said: in the [matter?] of … [a word faded] … reckoning [חשבון [?]] … take [?] the surplus [היתר] … from the whole [?] … and likewise [וכן] … the part [חלק [?]] … one [אחד] … the [mean] motion [?].

[Several lower lines faded.] …and this is what we sought [?] … the true place [המקום האמתי [?]] … and from it [you obtain] the sought quantity [המבוקש [?]].

[Closing lines, badly abraded: a transitional sentence referring to תקופה ("the period/tequfah" [?]) and to גלגל ("sphere" [?]), evidently leading into the next chapter's material.]

Page 159 (folio recto, fol. 77)

Right column (read first)

the practitioner [should] reckon the surplus that remains to him after the operation. He said: I will now explain to you how you are to act [?]. If something remains, take it and reduce it [?]; the surplus from the whole circuit is what you must hold to. And he said: I will set down for you a fixed ⟨value⟩ [?], so that you may know it.

And when you have done this and have grasped the matter correctly, you will reach the true place of the luminary. He said: Know that this reckoning is only for the luminary [the Sun] and what is joined to it [?]; and according to this you are to act for the tequfah as well.

[Red ink header:] **פרק [Chapter] (this gate, ה"ש [?])** [— heading partly faded; see QA report]

[Red ink, sub-rubric / opening of the chapter:] In it ⟨he treats⟩ the principle and its operation [?]. Know:

The matter of the day-and-night reckoning [?] — I have already explained its principle, that it [?]…

[The following is continuous astronomical prose; readings of several individual tokens are uncertain — see QA report.]

that there is a place [?] for which he sets down [the value]; it goes forth toward the ⟨…⟩ [?] and ⟨…⟩ to it. And after this is established for him, take this [quantity]; another portion goes out, and you proceed with it in the operation. From this [?] there comes about [?] the figure ⟨of the construction⟩.

When you have grasped the operation correctly [?], the place ⟨sought⟩ comes forth [?]; this is the true place [המקום האמתי]. So when you take the surplus [?], it is reckoned [?]: ⟨one⟩ portion from the mean and ⟨one⟩ from the true [?].

He said: When you have set down the reckoning, and have grasped [?] the construction, ⟨then⟩ you have computed [?]. ⟨…⟩ [a clause here is too faded to read — flag] in the operation [?]. ⟨…⟩ the degrees [המעלות], or ⟨…⟩ upon ⟨…⟩.

⟨And⟩ when you have ⟨grasped⟩ [?] the operation [?] — ⟨one⟩ portion ⟨goes out⟩, and ⟨…⟩ another [?]. And in this manner the reckoning [?] is established for you. ⟨…⟩ [several tokens illegible here — flag] ⟨the deferent line⟩ [קו ההקפה?] [?] ⟨…⟩.

And the matter of the place [?] is, that ⟨…⟩ [?] goes out ⟨from⟩ the line of the circuit [קו ההקפה] [?] ⟨…⟩.

He said: And this is correct [?] for the luminary [?]. And when you have grasped [?] the construction [התמונה] [?], ⟨then⟩ this is the place sought [המבוקש] [?]. ⟨…⟩

Left column

the operation. And he said: ⟨…⟩ that ⟨the value⟩ which he set down [?] is ⟨the⟩ true [?] one [?]; ⟨and you reckon⟩ from it [?].

⟨And he said:⟩ the operation [?] ⟨…⟩ that ⟨…⟩ [?] the figure of the construction [תמונה] [?]. ⟨…⟩ another [portion] goes out [?]; and [?] this [?] is the place [?]. ⟨…⟩

He said: When you take [?] the surplus [המותר] [?] of [?] the luminary [?], and ⟨reckon⟩ from it [?] — the correction [התיקון] [?] is established. And ⟨…⟩ [a clause too faded to read — flag] the degrees [?]. ⟨…⟩

⟨And⟩ this [?] ⟨…⟩ the place [המקום] [?] is the true one [האמתי] [?]. ⟨…⟩ the reckoning [החשבון] [?] ⟨…⟩ goes out [?], ⟨one⟩ portion [חלק], in the operation [?]; and from this [?] there is established for you the figure [התמונה] [?].

⟨When⟩ you have grasped [?] the construction [?], the place sought comes out [?]. And he said: ⟨…⟩ ⟨one⟩ portion ⟨from the mean⟩ [האמצעי] [?] and ⟨one from⟩ the true [האמתי] [?] ⟨…⟩.

[The lower third of the left column is faded / abraded; running into the foot of the folio. Several lines are not securely readable]

⟨…⟩ He said: ⟨…⟩ [?] the line of the circuit [קו ההקפה] [?] ⟨…⟩, ⟨and⟩ in the operation [?] ⟨…⟩.

⟨…⟩ [final lines of column faded] ⟨…⟩ the degrees [המעלות] [?] ⟨…⟩ in this [?] ⟨…⟩ the construction [התמונה] [?].

Page 160 (folio verso)

Right column (read first)

⟨…⟩ He said: And ⟨…⟩ [?] the true positions [?] are ⟨…⟩ ⟨they⟩ are [?] ⟨…⟩. And [?] you have grasped [?] ⟨the⟩ matter [?]; ⟨and⟩ this is ⟨…⟩ [?].

He said: ⟨…⟩ the heaven [?] is divided [?]; and you reckon [?] ⟨…⟩, ⟨one⟩ portion [?] ⟨…⟩.

⟨And⟩ in this construction [התמונה] [?], the position of the luminary [?] is established for you ⟨…⟩. He said: And this [?] is correct [?]; ⟨and⟩ you have computed [?] ⟨…⟩.

He said: ⟨…⟩ [?], and ⟨you⟩ set it down [?] ⟨…⟩, ⟨and⟩ the place [המקום] [?] comes out [?] for you. ⟨And⟩ when ⟨…⟩ [?] is established [?] ⟨…⟩ — this is the true place [המקום האמתי] [?]. He said: ⟨…⟩ in the matter [?] ⟨…⟩ ⟨ten⟩ [יו?] [?] ⟨…⟩.

⟨…⟩ He said [?]: ⟨…⟩ the luminary [?] until [?] ⟨its⟩ position [?] is grasped [?] ⟨…⟩, ⟨and⟩ it is ⟨…⟩. ⟨…⟩ Know [?] ⟨…⟩, ⟨and⟩ this is ⟨…⟩.

⟨…⟩ the construction [?]. He said [?]: ⟨…⟩ goes out [?], ⟨and⟩ the surplus [היתר] [?] ⟨…⟩, ⟨one⟩ portion [?] ⟨…⟩. ⟨And⟩ from it [?] there is ⟨established⟩ [?] ⟨…⟩ ⟨the position⟩ of the luminary [?] ⟨…⟩.

⟨And⟩ in this manner [?] ⟨…⟩ [a clause faded] the degrees [?]. He said: ⟨…⟩ the construction [התמונה] [?] ⟨…⟩, ⟨and⟩ ⟨the position⟩ ⟨…⟩.

[Lower portion of right column abraded by water-stain — several lines not securely readable; flagged.]

Left column

⟨…⟩ that ⟨…⟩ [?] ⟨and⟩ in the construction [?] ⟨…⟩, ⟨and⟩ this ⟨…⟩ [?].

⟨…⟩ that ⟨…⟩ ⟨he⟩ set down [?] ⟨…⟩ in the operation [?]; ⟨and⟩ you have grasped [?] ⟨…⟩.

[Red ink, in-line emphasis / rubric word:] **And reckon [וחשוב]** [Red ink]

He said: When you have computed [?] this in the construction [התמונה] [?], ⟨then⟩ ⟨…⟩ [?]. ⟨And⟩ ⟨…⟩ apart [?] ⟨…⟩ the gathering [קבוץ] [?] of ⟨…⟩ ⟨…⟩.

⟨…⟩ ⟨one⟩ portion [?] ⟨…⟩ from ⟨…⟩ [?]; ⟨and⟩ you set it down [?] in the construction [?], ⟨and⟩ ⟨…⟩ [?].

He said: ⟨…⟩ the figure of the construction [תמונה] [?] ⟨…⟩, ⟨and⟩ it is established [?]. ⟨…⟩

[Red ink, sub-rubric:] ⟨…⟩ [Red ink word — too faded to read securely; flag] ⟨…⟩.

⟨…⟩ another [?] ⟨…⟩, ⟨and⟩ the position of the luminary [?] ⟨…⟩, ⟨and⟩ ⟨…⟩.

He said: ⟨…⟩ ⟨one⟩ portion ⟨from the mean⟩ [האמצעי] [?] and ⟨…⟩ the true [האמתי] [?] ⟨…⟩ in the construction [?].

⟨And⟩ when ⟨…⟩ [?] the reckoning [?] ⟨…⟩, ⟨and⟩ ⟨…⟩ another [?] ⟨…⟩.

[Red ink, in-line:] **And behold [והנה]** [Red ink] ⟨…⟩ they reckon [יחשבו] [?] ⟨…⟩.

He said: ⟨…⟩ the construction [התמונה] [?] ⟨…⟩, ⟨and⟩ ⟨…⟩ [?] for [?] ⟨…⟩. ⟨…⟩ ⟨one⟩ portion [?] ⟨…⟩, ⟨and⟩ another [?] ⟨…⟩.

He said: ⟨…⟩ I have already explained [?] ⟨…⟩, ⟨and⟩ in this manner ⟨…⟩ [?]. ⟨…⟩

He said: ⟨…⟩ [?] from the true [?] ⟨…⟩, ⟨and⟩ remote [הרחוק?] [?] ⟨…⟩, ⟨and⟩ near [הקרוב?] [?] ⟨…⟩.

⟨…⟩ He said: ⟨…⟩ in the matter [?] ⟨…⟩, ⟨and⟩ ⟨…⟩ until [?] ⟨…⟩ ⟨the position⟩ ⟨…⟩. ⟨…⟩ ⟨one⟩ portion [?] ⟨…⟩.

⟨…⟩ until [?] this [?] ⟨…⟩, ⟨and⟩ ⟨…⟩ the construction [?] ⟨…⟩, ⟨and⟩ ⟨…⟩.

He said [?]: ⟨…⟩ ⟨and⟩ ⟨…⟩ in [?] another [?] ⟨…⟩, ⟨and⟩ ⟨…⟩ to them [?].

R. Isaac Yisraeli (R. Yitzchak bar R. Yosef), Vat.ebr.380, Sephardic semicursive hand.

General readability note for this batch. Both folio sides are heavily affected. Folio 78r carries a large central water/foxing stain over the **left column**, which renders roughly the middle third of that column illegible. The whole batch is faded, with ink loss in the upper-right and lower margins and gutter intrusion on inner margins. Bleed-through from the facing side is present and has been ignored. Many words below are read at the limit of legibility; uncertain glyphs are flagged `[?]` and the worst stretches are marked as in the report.

Folio 78 recto

Right column

the [account?] of the [observation?], and the position of the planet [?]. By contrast, when [its] reckoning falls in this [region/quadrant?], take what you have [obtained?] and [add/subtract?] it [?].

[Red ink rubric verb in line: `[Red ink: וחשוב]` "And reckon".] Then reckon by [degrees?] the [account?] of the surplus [המותר], and [bring out?] the true place [המקום האמתי]. And behold — when [its] place [?] falls in [this region?], take what you have [obtained?] of the [parts/degrees?] and [add?] it [?].

[Red ink rubric verb in line: `[Red ink: ושוב]` "And again" (or `[Red ink: וחשוב]` "And reckon" — ח/ב ambiguous here) [?].] [Several lines here are faded to the

point of yielding only isolated tokens: "this place [?]", "the surplus [?]", "and reckon it [?]", "upon what you have obtained [?]".] [Damage: edge loss / fading, right margin, ~2–3 words lost per line over ~4 lines.]

and these are the matters [?] of the reckoning [החשבון], for it is [known/clear?] [?]. And behold, the [true?] place comes out by way of [this?] reckoning [?] … and this is what we intended [?].

[A short stretch follows on the relation of the true place to the **line of the circuit** [קו ההקפה] and the **equation** [התיקון]; the wording is too faded to render continuously — only the technical terms קו ההקפה and התיקון are securely legible.]

Left column

[Damage / heavy stain: the upper portion of this column (~8–10 lines) is obscured by a large water/foxing stain and is largely illegible. Only scattered words are recoverable.]

And [in/when?] [its?] reckoning [?]… [stain]… for this is [as?] [we have explained?] [?]… [stain]… upon the [place?]… [stain].

[Mid-column, emerging from the stain:]

and we have explained [?] that [?]… upon what we have said [?]… and [the/this?] place [?].

[Lower portion, more legible:]

[the?] [observer/one who reckons?] in his [observation?], for [when?] [the planet/the sun?] [?] upon the [point/place?] [נקודה], the [position?] [matzav?] [?] [is?] upon the [degree?] [?]; and according to this [?] [he should?] [reckon?] [?] [no?] [?]. And behold, it [?] [comes out?] [?].

So [too?] [know/likewise?] for [every?] place [?] [where?] the planet [?] [is?] [?], and according to this [?] [?].

[and?] they [told?] them [?] the names [?] of the [lines/winds?] [?], [Aramaic?: "…"] [?] — [too faded to be sure; possibly a citation formula] [?].

By contrast, the [true place?] and [its?] [reckoning?] for [it?], according to this [?] [reckoning?] [?] [for/from?] one [of?] [?]… to clarify [?] that [this?] place [?] [the?] [true?] [?]. And behold, this [?] [is?] [as?] [we have said?] [?]. [Damage: fading, ~2 words lost mid-line.]

that [the?] place of the planet [מקום הככב] [?], and [from?] this [?] place [?] [its?] [position?] [?].

[upon?] the place [?] [of?] [its?] [reckoning?] [?] [its?] [position?] [matzav], for [when?] [the planet?] [?] upon the [point?] [נקודה] [?]. And [behold?] [?], this [?] [comes out?] [?].

[The remaining lines of the left column are faded and yield only isolated technical tokens — "the position" [המצב], "the point" [נקודה], "the reckoning" [?].: entire left column of f.78r.**]

Folio 78 verso

Right column

[the?] foundation [היסוד?] of the [?]… for [when?] [its?] [reckoning?] [?] falls [in?] [this?] [region?], take [what?] you have [obtained?] [?], [and add/subtract?] it [?].

[A passage on the **reckoning of the true position** continues here: mean [האמצעי], surplus/remainder [המותר], the **line of the circuit** [קו ההקפה], and the **equation** [התיקון] all appear, but the connective prose between them is faded. Securely legible: "the true place" [המקום האמתי] and "and reckon" [וחשוב].]

and [if?] [its?] reckoning [?] [is?] [more?] than [?]… [subtract?] [it?] [?]; and [if?] [less?], [add?] [it?] [?]. And behold, [there?] comes out [the?] true place [?] [?].

[Red ink rubric / numeral, in line, faded: `[Red ink: …]` — possibly a small section marker; unreadable.] [?]

[and?] [know?] that [the?] [reckoning?] [of?] the [?]… [the?] degrees [המעלות] [?]… and [the?] [equation?] [התיקון]. And [this?] [is?] what we [intended/sought?] [המבוקש] [?].

[upon?] the [place?] [?] [of?] [its?] [position?] [?], for [the?] [planet?] [?] [is?] upon the [point?] [נקודה] [?]. And behold [?], this [?] [is?] [the?] [figure?] [התמונה] [?] [that?] [comes out?] [?].

Left column

[Upper portion faded; only fragments:] …[and?] [this?]… for [it?] is [as?] [we have explained?] [?]… upon the [place?] [?].

[Mid-column, more legible:]

the [line?] [הקו?] of the [circuit?] [ההקפה], [for?] [when?] [it?] [reaches/comes?] [?]… and [if?] you [wish?] [?] [to?] [know?] [?]… [Damage: fading, ~2 words.]

[A short stretch on **drawing a line** [קו] and a **point** [נקודה] in a geometric construction; the letters of reference are not securely legible — the prose names a [?]-point and a [?]-line, but the apex/reference letters are faded. **If this anchors a figure, it for label recovery.**]

[and?] [from?] the [point?] [הנקודה] [you?] [draw?] [a line?] [?] [to?] the [point?] [?], and this [?] [is?] [the?] [line?] [?] [of?] the [circuit?] [?] [?].

[and?] [reckon?] [?] [upon?] this [?] [the?] [degrees?] [?] [of?] the [surplus?] [?]. And behold, [there?] comes out [the?] [position?] [המצב] [?].

[the?] place [?] [of?] [its?] [reckoning?] [?] [its?] [position?] [?] [matzav?] [?], for [when?] [the?] [planet?] [?] upon the [point?] [?]. And [behold?] [?], this [?] [comes out?] [?].

[Lower portion of left column: faded, yielding isolated tokens "the equation" [התיקון], "the figure" [התמונה], "and reckon" [וחשוב].: lower-left of f.78v.**]

Book Three (Geography / Astronomy), Chapter Five continues — true-position reckoning of the luminaries and planets.

Primary script: Sephardic semicursive, single hand. Two text columns. The folio is badly damaged: a large water/foxing stain runs diagonally from the lower center toward the upper left of the right-hand column and across the inner-lower portion of the left-hand column, with substantial ink fading throughout. Marginal folio numeral "79" (Hebrew/Arabic) is visible at the upper outer corner of the left column. The reading below is partial; many tokens are flagged or marked degraded and these passages

Right column (the column read first, right-to-left)

When the two [?] [degraded: ~1 line, water stain] upon the [?] the equation/correction [התיקון], and [?].

[?] therefore [?] this place [המקום] [degraded] the equation of the [?] [degraded]. And so the [?] the equation [התיקון] [degraded].

The [first?] equation [התיקון] [?] [degraded] [Red ink: ויהי? / a rubric verb — partly legible].

[?] the apportionment by degrees [?] [degraded ~2 lines, heavy water stain] and behold the place [המקום].

[?] add [?] and subtract [?] in the [?] [degraded].

[?] [degraded ~3 lines through the stain — illegible at this resolution].

[?] the line of circuit [קו ההקפה] [?] and the [?] [degraded] half [חצי] the [?].

[?] the place sought [המבוקש] [?] and behold [?] [degraded].

[?] either [?] the place [המקום] [?] [degraded] or the [?] this [?].

[Red ink rubric: **ועתה** ("And now")] [?] when [?] you will reckon [תחשוב?] for them [?].

[?] [degraded] the gate / chapter [שער] [?] the equation [degraded] [?].

[?] it will be [?] and the [?] [degraded] our [?] [degraded — last lines of column, in the stain; illegible].

Left column (right-to-left)

[?] [degraded ~1 line] the [?] [degraded] the [?] [degraded].

[degraded ~1 line] as it is in the [?] and behold it [?] [degraded] [?] for the [?].

[?] [degraded] [?] and the [?] upon the [?] [degraded] when [degraded].

[?] [degraded] [?] and the [?] [degraded] truly [לאמתו?] [?].

[?] until the [?] [degraded] and behold the [?] [degraded] the [?] [degraded] thus [?].

[?] [degraded — heavy stain, ~2 lines, illegible].

[?] the place [המקום] [?] [degraded] [?].

[degraded] [?] the [?] [degraded] the line of circuit [קו ההקפה?] [?] and the [?] [degraded].

[?] and behold the [?] of the [?] [degraded] [?] thus [?] this [?].

[?] [degraded ~2 lines through lower stain].

[?] [degraded] for behold the [?] [degraded] and the [?] [degraded] the equation [התיקון?] [?].

[?] thus [?] when [?] [degraded] [?] the [?].

The [?] equal [?] [degraded] the [?] [degraded] upon the [?] [degraded] and so [?] [degraded].

[?] [degraded] [?] the [?] until the [?] [degraded] and behold thus [?].

[?] you reckon [?] [degraded] [?] half [חצי] [degraded] the [?].

[degraded ~2 lines, lower stain] [?] [degraded].

The [?] [degraded] like the [?] [degraded] and behold [?] [degraded] [?] the [?] [degraded].

[?] when [?] the [?] [degraded] [?] and behold [?] thus [?].

[degraded] [?] and we have reckoned [?] [degraded] [?] and behold thus the [?] [degraded] the line of circuit [קו ההקפה?].

[?] half [חצי?] [?] [degraded] thirty [ל'?] [?] [degraded — last lines of column lost to the lower stain].

Same hand and two-column layout. This side is somewhat more legible than 79r but still carries a large water/foxing stain through the lower two-thirds of the inner area and across the foot. Red-ink rubrics ("ועתה", "התבונן") are present. The reading remains partial through the stained zones.

Right column (right-to-left)

[?] [degraded ~1 line] it [?] the equation [התיקון] [?] which is [?] truly [?].

[?] when [?] [degraded] this the [?] [degraded] the [?] [degraded].

And if [ואם] [?] [degraded] the [?] of the [?] [degraded] [?] thus [?] [degraded].

[?] [degraded] and the [?] [degraded] truly [לאמתו] [?] [degraded].

And behold [?] [degraded] in the [?] of the [?] [degraded] [?] and behold thus [?].

[?] [degraded] [?] thus [?] the [?] [degraded] [?].

And if [?] [degraded] [?] half [חצי?] [?] and behold [?] [degraded] either [או] the [?].

[?] [degraded] [?] and behold thus [?] [degraded] [?].

[Red ink rubric: **ועתה** ("And now")] [?] when [?] the equation/reckoning [degraded] [?].

[Red ink rubric: **התבונן** ("Consider / Reflect")] [?] until [?] in the [?] [degraded].

[?] you will say [?] that [?] thus they are [?] [degraded].

[?] [degraded] [?] more [יותר] [?] and the [?] [degraded] the [?] [degraded].

[?] either [או] [?] thus [?] the [?] [degraded] [?].

[?] [degraded] [?] when [degraded] [?] the line of circuit [קו ההקפה?] [?] [degraded].

[?] like the [?] [degraded] and behold [?] [degraded] the [?].

[?] either [או] thus [?] [degraded] and the [?] [degraded] [?].

[?] [degraded] [?] either [או] the [?] [degraded] [?] thus the [?].

[?] and we have reckoned [?] [degraded] [?] and behold [?] [degraded] truly [?].

[?] [degraded] the [?] [degraded] [?] either [או] the [?] [degraded] [?] another [אחר].

The [?] [degraded] [?] [degraded] and another [?] [degraded] the [?] [degraded].

[?] [degraded — lower lines through the foot stain; partly illegible] [Red ink rubric: **ועתה** ("And now")] [?].

Left column (right-to-left)

[?] you will reckon [?] that they [?] from [?] [degraded] of the [?].

[?] [degraded] when [degraded] [?] and the [?] [degraded] the [?].

[?] like [?] [degraded] [?] the [?] [degraded] [?] thus [?].

[?] for [?] thus [?] [degraded] the [?] of the [?] [degraded].

[?] [degraded] [?] the [?] [degraded] the [?] truly [?] [degraded].

[degraded ~2 lines through the central stain].

[?] [degraded] the place [המקום] [?] [degraded] [?].

[?] [degraded] [?] the [?] [degraded] [?] thus the [?].

[?] [degraded] and behold [?] [degraded] [?] either [או] [degraded].

[?] [degraded] [?] and behold thus [?] [degraded] [?].

[Red ink rubric: **ועתה** ("And now")] [?] the [?] [degraded] and behold [?].

[degraded ~3 lines through the foot stain — illegible at this resolution].

We have completed [?] in good fortune / with felicity [בהצלחה?] [?]. [Red ink rubric: **ועתה** ("And now")] [?].

And consider [והתבונן] in the [?] of the [?] [degraded].

Yesod Olam — Book Three (Geography / Astronomy)

Vatican Library, Vat.ebr.380. Sephardic semicursive hand. Translation from the manuscript witness.

[f. 80r]

[Damage: faded upper lines, ~2 lines partly lost] … so that you may know its motion, and you will find the equation [התיקון] of the [?] and you will reckon [?]. And the difference [החילוף] [?] of its line of circuit [קו ההקפה], [?] [?] [?] … When you find what you seek, take it [?] and [?]. And so likewise [?] the equation [?] of its motion [?]. And thus, when [?], the matter [?] is established [?] for you [?].

[Red ink header: פרק ל"ו] — Chapter 36 [?] [the gershayim reading is uncertain: ל"ו = 36; an alternative reading ש"ו is possible but unlikely given the chapter sequence — flag for further review]

[This chapter] is to make known to you the manner of reckoning [חשבון] the true position [המקום האמתי] [?]. Consider [התבונן] the [?], and you will know [?] [?] the motions of the [?] and the corrections [התיקונים] of [?] which [?] [?].

Know that, when you have established [תקן] the mean motion [האמצעי] of the planet [?] [?] [?] [?]. Concerning this matter — the difference [החילוף] [?] take from it the equation [?] the correction [?] [?] [?] [?] [?]. Concerning this it is right [?] the equation [התיקון] of the difference, and you take from it [?] [?] the [?] degrees [המעלות] [?] [?].

And [?] [?] [?] [?] you will find the true [האמתי]. The remainder [המותר] [?] [?] [?]. And the line [?] of the circuit [ההקפה] which is between [?] [?].

[Damage: the next several lines are faded and water-stained; only fragments legible]

The whole [הכלל] [?] upon [?] the planet [?], and [?] when [?] [?]. Therefore, [?], because [?] all of the difference [החילוף] which [?] [?] [?]. By contrast, [?] [?] for [?] [?] reckoning [חשבון] the [?] which is [?]. Take the [?] of the planet [?] [?] [?] [?] [?]. And these [?] [?] are the [?] [?] [?] [?].

Because, when [?] the line [?] [?] the position [המקום] [?] [?] the [?] takes [?]. If this [?] [?] [?] to know [?] [?]. And the reckoning [החשבון] [?] [?]. If [?] [?] the [?] half [?] [?] [?]. With the [?] [?] [?] [?] [?] degrees [?] [?] [?] [?].

And these [?] [?] [?] [?] the matters [?] of the [?]. And so likewise [?] [?] [?] [?] [?] [?] [?]. He [?] the difference [?] [?] [?].

And so [?] [?] the reckoning [חשבון] of the [?] of the circuit [ההקפה] [?] [?] [?].

[Damage: upper-right of column faded]

[?] and [?] [?] [?] and so [?] [?] [?]. And [?] [?] the position [המקום] [?] [?] [?] take [?] [?].

In the [?] [?] [?] which is [?] [?] [?] [?] [?]. The [?] of the planet [?] [?] [?]. The motion [?] of the line [?] of the circuit [ההקפה] [?] [?] [?] [?].

And so [?] [?] [?] the [?] [?] [?] [?] [?] [?] the [?] degrees [המעלות] [?] [?] [?].

The [?] [?] [?] [?] of the [?] [?]. Because, when [?] [?] the [?] [?] [?] [?].

The reckoning [החשבון] [?] [?] the place [המקום] sought [המבוקש] [?] [?] [?] [?]. And [?] [?] [?] [?] [?] [?].

[Damage: a stretch of ~5 lines through the middle-lower column is badly faded with water staining; only isolated technical terms legible: החילוף ("the difference"), ההקפה ("the circuit"), המעלות ("the degrees"), המקום ("the position"). The procedural argument cannot be reconstructed with confidence]

and behold [?] [?] [?] the place [?] [?] [?] the position [?] [?] if [?] [?] [?]. For [?] [?] then [?] [?] [?] the [?] [?]. And there [?] [?] [?] [?] [?] [?] [?].

When [?] the line [?] [?] the [?] [?] which [?] [?] [?]. The mean [האמצעי] [?] [?] [?] and you [?] [?] [?]. And the [?] [?] [?] [?] [?] [?].

these [?] [?] [?] the place [המקום] [?] [?] [?]. [?] [?] [?] [?] [?] [?]. And the [?] [?] [?] of the [?] [?].

[The column foot is faded; closing line not securely legible.]

[f. 80v]

And when you cross [ובהעבר] the [?] [?], and you complete [ותשלים] [?] [?], that it [?] [?] [?]. The [?] which [?] [?] [?] and [?] [?]. And the [?] [?] [?] [?].

[Damage: upper lines faded]

And it [?] [?] [?] the [?] [?] [?] [?] [?]. The [?] [?] [?] [?] take [?] [?] [?]. And so [?] [?] [?] [?] [?] [?] [?].

And [?] [?] [?] he [?] [?] the difference [?] [?] [?] [?]. And [?] [?] [?] [?] [?] [?].

These [?] are [?] [?] [?] [?] [?] [?] [?]. The mean motion [האמצעי] [?] take from [?] [?] [?]. And so [?] [?] [?] the [?] [?] [?].

When [?] [?] [?] the [?] [?] [?] [?]. The [?] of the [?] [?] [?] [?] [?] [?] [?] [?] [?].

[Damage: middle of column water-stained; fragmentary]

And [?] [?] [?] [?] [?] [?] you [?] [?] [?] the [?] [?]. The line [?] of the circuit [ההקפה] [?] [?] [?] [?] [?]. And so [?] [?] [?] [?] [?] [?] [?].

The [?] [?] [?] [?] of the [?] [?]. And [?] [?] [?] [?] [?] [?].

When [?] [?] the position [המקום] [?] [?] [?] [?]. The reckoning [החשבון] [?] [?] [?] [?] [?] [?] [?].

And [?] [?] [?] the [?] [?] [?] [?]. The [?] [?] [?] [?] [?] [?] [?] [?] the place [המקום] [?] [?] [?].

The [?] sought [המבוקש] [?] [?] [?] [?]. And [?] [?] [?] [?] [?] [?] [?].

[Column foot faded.]

[Damage: upper lines faded; ~2 lines partly lost]

[?] take [?] [?] [?] [?] and [?] [?]. The mean [האמצעי] [?] [?] [?] [?] [?] [?].

And you will find [ותמצא] [?] [?] [?] the [?] [?] [?]. And [?] [?] [?] [?] [?] the difference [החילוף] [?] [?].

When [?] [?] [?] [?] the [?] [?] [?] [?]. The [?] [?] [?] [?] [?] [?] [?] [?] [?].

And so [?] [?] [?] the reckoning [חשבון] [?] [?] [?] [?] [?]. The line [?] of the circuit [ההקפה] [?] [?] [?] [?] [?] [?]. And the [?] [?] [?] [?] [?] [?].

[Damage: middle column badly faded with water staining and foxing; only isolated terms legible — האמצעי ("the mean"), המקום ("the position"), המבוקש ("that which is sought"), ההקפה ("the circuit"). Procedural detail not recoverable at this resolution]

These [?] [?] [?] [?] [?] [?] [?]. And [?] [?] [?] [?] [?] [?] [?].

When [?] [?] the [?] [?] [?] [?] [?]. And so [?] [?] [?] [?] [?] [?].

the place [המקום] [?] [?] [?] [?] sought [המבוקש] [?]. And [?] [?] [?] [?] [?] [?] [?].

Manuscript: Vatican Library, Vat.ebr.380. Sephardic semicursive hand. Book Three (geography/astronomy), procedural reckoning of true planetary positions continues. Two folio sides: = folio numbered **81** (recto), two columns; = the following verso, two columns.

> **General note on this batch.** Both pages are substantially faded, with water-staining down the right margin of p. 167 and across the lower-right of p. 168, and edge wear at the gutter. The hand is a compact Sephardic cursive in which ש frequently loses its left stroke (resembling ע), and ב/ד, י/ו, ד/ר are hard to discriminate. The text is a dense iterative computation-template (mean motion → difference → equation/correction → line of circuit → the place sought), so the same 6–8 technical terms recur across nearly every clause; per lexicon lock-in these are read once and carried. Numerals embedded in the procedure are mostly lost to fading and are flagged. A large share of the running prose is legible only in fragments; uncertain stretches are flagged `[?]` and the worst-damaged columns are marked as

PDF p. 167 (folio 81 recto)

Right column (read first, right-to-left)

[Damage / fading: the first lines of the right column are largely washed out by the water-stain along the right edge; only fragments are recoverable.] …all of them[?] … the body[?] of the heavens … and the line[?] … as we have explained. He

takes[?] the …, and it goes by[?] the path of … the difference (החילוף) … the equation/correction (התיקון) [?].

these stars[?] … the heavens … and also … the place … takes[?] the heavens … as you knew[?] …

And R. Yitzchak[?] [the author's own name appears doubtful here — more likely "and behold (והנה) …" or "and so (וכן) …" rather than a self-naming; flagged [?]] … the line[?] of the circuit … and behold[?] … you take[?] the equation and the line[?] of circuit …

by way of[?] the line[?] of circuit … and afterward[?] the place sought (המבוקש) … to[?] the place of … the calculation (החשבון) [?].

and afterward (ואחר) you take[?] the line[?] … from … and you[?] … the calculation, and add[?] … and afterward[?] …

the place sought (המבוקש) [?] … with the line[?] … the place[?] … and afterward[?] you take[?] … and behold[?] … the line[?] … [several lines here are reduced to scattered words: "the place," "you take," "the line of circuit," "and afterward," "the calculation" — the connective sense is lost].

[Red ink, in-line procedural rubric:] **וקח** ("And take") — [continues:] take[?] for yourself … and afterward[?] you take[?] the difference[?].

[Lower right column — a set-off / framed block of two short lines, followed below by a diagram caption (see figure metadata below). The two framed lines read approximately:] … the form[?] of the sphere (הגלגל) … and the[?] … [largely effaced].

Diagram. At the foot of the right column, below a set-off block, is a caption line in the manuscript hand reading **דמות הגלגל [?]** ("the form/figure of the sphere"). The figure to which it belongs is faint and largely lost to the lower-margin staining; the drawn lines of the circle and its labels are not securely recoverable at this resolution. The caption continues with one further effaced word. No interior point-labels can be read with confidence. (caption legible, figure body and labels not).*

Left column (right-to-left)

[The left column of p. 167 is in slightly better ink than the right but still faded in its lower third.]

And we return[?] … the form[?] … the difference (החילוף) [?] … as the line[?] of circuit … and we take[?] …

for if[?] the heavens[?] … take[?] the difference … the line[?] of circuit … and the equation/correction (התיקון) …

the heavens[?] … the place sought (המבוקש)[?] … and behold[?], the place[?] is what you sought[?] … the calculation[?].

upon[?] the line[?] … the heavens … if[?] he stood[?] … and afterward[?] … the place[?] … and behold[?] …

[a run of clauses governed by the recurring template — "you take the difference," "the line of circuit," "the equation," "the place sought" — but the intervening numerals and the precise operation (add / subtract) are lost; flagged `[?]` throughout].

the sun (החמה)[?] … the place[?] … and behold[?] … and the[?] … the place sought[?] … the calculation[?].

and behold[?] … the heavens … and so[?] … and afterward[?] … you take[?] … the equation[?] … and behold[?] …

[remaining lines of the left column are reduced to the recurring template-vocabulary with the operative numerals and connectives effaced].

PDF p. 168 (folio 81 verso)

Right column (read first, right-to-left)

so[?] … the heavens[?] … the place (המקום)[?] … and afterward[?] you take[?] … the calculation[?].

[Red ink, in-line procedural rubric:] **ועתה** ("And now") — [continues:] you shall know[?] … take[?] the …

you take[?] … the difference (החילוף)[?] … upon[?] the line[?] of circuit … the equation (התיקון)[?] … and behold[?] …

for[?] this[?] is[?] … and afterward[?] … the place sought (המבוקש)[?] … and behold[?] …

and you take[?] … upon[?] the line[?] … the heavens … and so[?] …

he said[?] … the difference … the equation of[?] the circuit (השואת התקופה)[?] … and behold[?] …

and as[?] … the place[?] … and behold[?] … as[?] we explained[?] …

on[?] the … the heavens[?] … and the[?] … and behold[?] …

[a long run governed by the same compute-template; the controlling numerals, and the add/subtract direction, are not recoverable. Recurring legible anchors across these lines: החילוף (the difference), קו ההקפה (the line of circuit), התיקון (the equation/correction), המבוקש (the place sought), החשבון (the calculation), ועתה / וקח (procedural rubrics)].

and behold[?] … the place sought[?] … the heavens … and so[?] you knew[?] …

[further template lines, numerals lost].

and behold[?] … and afterward[?] … the place[?] … and so[?] … the calculation[?].

Left column (right-to-left)

[The left column's lower half is washed out by the stain crossing the lower-right of the leaf; the gutter side (left edge here) is also tight.]

and afterward[?] … the heavens[?] … take[?] … to the place (למקום)[?] … and behold[?] …

and we return[?] … the difference[?] … the equation[?] … and behold[?] …

[Red ink, in-line procedural rubric, mid-column:] **ועתה** ("And now") — [continues:] you shall know[?] … the … (interlinear: a short interlinear addition of two or three words sits above this line; effaced and not recoverable — `[Interlinear: …?)`].

to know[?] … the … the calculation[?] … and behold[?] …

[the remaining lines descend into the lower stain and are largely illegible: scattered "the place," "you take," "and behold," "the line" survive without connective sense].

[final lines, foot of column] … and behold[?] … and so[?] … the place sought[?] … [effaced].

Yesod Olam — Book Three (Geography / Astronomy)

Vatican Library, Vat.ebr.380. Sephardic semicursive hand. Heavily faded throughout; the left column of the second folio (f.82v) is obscured by a large water stain and is only partially legible. Numerals are transcribed verbatim with `[?]` where the glyphs are not secure. The diagonal Vatican Library watermark and bleed-through from the facing side are ignored.

``

Right column

[the procedure] proceeds, and you take from this the second [argument?] [?], and the result you reach [?]… and you reckon [?] therefrom… that the sum that comes out for you [?] is the place sought (המבוקש). [Damage / faded: ~1 line largely effaced]

Therefore, when you wish to know [?], take what you have set down [?], and reckon [?] it [?]… and the place that results [?] is the true place (המקום האמתי) [?]. And from this [?] you will know [?]…

[The remainder of the upper right column is faded; the surviving words follow the established true-position reckoning template — mean (האמצעי), difference (החילוף), equation/correction (התיקון), line of circuit (קו ההקפה), and place sought (המבוקש) — but the connecting numerals and clauses are not securely legible.]

and when [?] the planet [?] is in this [?] position [?], you take [?]… and likewise [?] it [?]. And when you reckon [?] this, the matter [?] will be made known to you [?]. And so [?] for each one [?] of them [?]…

for every [?] reckoning [?] you make [?], you take [?] according to [?] the difference [?]… and the rest [?] of the equations [?]… [Damage: edge / faded, several words lost]

this is [?] the way [?], and upon [?] it [?]… so that the place sought [?] comes out true [?] for you [?]. And understand [?] (התבונן) this.

[Several lines here are too faded to recover; the surviving fragments are procedural restatements of the same reckoning. Marked as a]

Left column

and as you saw [?], that this [?] is the matter [?]… and the truth [?] is [?] according to [?] what we have explained [?]. The proof [?]…

it [?] falls [?], and what [?]… and reckon [?]… and the result [?] is the equation [?] (התיקון)…

the chapters [?] that we explained [?]… and there [?]… every [?] reckoning [?]… [Damage: ~2 words effaced]

and [?] it [?]… and likewise [?]. The way [?] is [?]… and [?] the result [?]… and from [?] this [?] it [?]… [?] [Damage: faded line]

if [?] you wish [?]… take [?]… and the place [?]… is [?] what [?] you sought [?] (המבוקש)…

the equation [?], and likewise [?]… and when [?]… reckon [?]… and add [?]… and from [?] this [?]…

And the rest [?] of the matter [?]… in [?] the chapter [?] (הפרק)… and we have explained [?]…

[Red ink header]: [Red ink header: פרק רביעי] — **Chapter Four** [?]

[Following the red-ink rubric is a short red continuation that is faded: "בשערי ענן" or similar — not securely legible; flagged.]

In our [?]… and this [?] is [?]… and we have already set down [?] the matter [?]…

take [?] the reckoning [?] that [?]… upon [?] the way [?], in [?] the equation [?] (התיקון)…

The way [?], and [?]… and it is [?] the life [?]… upon [?] the way [?]…

and so [?] for [?]… [Damage]… the chapter [?]… the way [?] of [?] the equation [?]…

And know [?]… that this [?] is the matter [?]… and the truth [?]…

and these [?]… upon [?] what [?]… and reckon [?]… and add [?]… and from [?] this [?]…

``

Right column

[The right column is more legible than the water-stained left column, but the ink is faded and the numerals are not secure.]

upon [?] it [?], that [?] it [?]… and [?]… and the rest [?] of [?]… every [?]…

and [?] you will find [?]… [?] according to [?] the way [?]… in [?] the reckoning [?]… that [?]… upon [?]…

and when [?]… reckon [?]… and the result [?]… that [?] you reach [?]…

And so [?] it is [?] proper [?] to do [?], that [?]… and [?]…

and [?] the place [?]… is [?] true [?]… and [?] from [?] this [?]… you will know [?]…

and [?]… the way [?]… and [?]… and [?]… [Damage: edge / faded, several words]

and [?]… every [?] reckoning [?]… and [?]… upon [?] the equation [?] (התיקון)…

and [?]… and [?]… reckon [?]… and add [?]… and [?] from [?] this [?]… the equation [?]…

and so [?]… for [?] each [?] one [?]… upon [?] the way [?]…

And the rest [?] of [?] the matter [?]… in [?] the chapter [?] (הפרק) [?]… that [?] follows [?]… and understand [?] (התבונן) this [?].

[Several mid-column lines are faded; the surviving content continues the same equation-reckoning template — difference (החילוף), equation/correction (התיקון), and the place sought (המבוקש). Not securely recoverable.]

and [?] likewise [?]… and [?] it [?]… and [?] from [?] this [?]… you [?] will [?] find [?]… the [?] equation [?] (התיקון)… and the place [?]…

Left column

[Damage: large water stain covering most of the left column. Only scattered words at the top, right edge, and bottom are legible; the body of the column is effaced. Marked as a]

this [?]… [?]… and [?]… [Damage: water stain]

the reckoning [?]… [?]… and [?]… upon [?]…

[Water stain — body of column not recoverable.]

and [?]… [?]… and so [?]… and [?]… [Damage]

the way [?]… and [?]… and [?] the equation [?]…

and [?]… reckon [?]… and [?]…

and the rest [?]… in [?] the chapter [?]… that [?] follows [?]…

``

This batch falls in a long, densely written, heavily effaced procedural stretch (true-position / equation reckoning) with severe water and ink damage, especially on f.82v. The surviving vocabulary is consistent with the established reckoning template (האמצעי, החילוף, התיקון, קו ההקפה, המבוקש, המקום האמתי, התבונן), but the connecting clauses and — critically — all numerical values are not securely legible at this resolution. Both folios are flagged as for higher-resolution recovery.

Script: Sephardic semicursive, single primary hand. Black body ink with red rubrication for chapter headings and certain in-line procedural markers. Both folios show substantial water-staining (heaviest across the lower third and the inner/right margins), with fading and bleed-through; numerous numerals and whole clauses are effaced. Folio number **83** is visible in the upper-left margin of the first page (recto).

The text continues the iterative true-position reckoning of the preceding chapter. The passage works through the relation between the mean position (האמצעי) and the corrected/true position (האמתי), the difference (החילוף) between successive values, and the correction (התיקון) applied to obtain the place sought (המבוקש).

[The first column is heavily abraded along the right margin; roughly the upper third reads as a continuation of the equation procedure, but individual numerals are not securely legible.]

its standing [position] in such-and-such [degrees] of such-and-such [a sign], in this manner; and you shall reckon [the value] for the time [in question], and the result [will be] thus. [?] …

And when you have [its] mean [motion], take the difference (החילוף) and the correction (התיקון), and the [resulting] place [will be] thus [?]. For if the [reckoned] places do not [agree], know that the discrepancy is from … [several words effaced by water-staining] … and they [the values] are equal [?]; and there shall remain to you that which is sought (המבוקש) [?] :

upon the [computed] value, and this is what we sought [?]. For the [hours/degrees?] … or … the [first/upper?] … the … And this is the [computed value] (החשבון) [?] :

The [values] are the [terms of the] reckoning, and the [hours], and what is done with them as [their] correction (תיקון) [?]; and the reckoning (החשבון) is thus [?]. By way of [example] [?], reckon the [mean motion] … [a clause of perhaps two lines is lost to staining here] … and place them [the values] one against the other [?], and what remains is the correction (התיקון) of the [place] sought :

[Several lines here are effaced by a broad water-stain crossing the lower-middle of the column; recoverable fragments below:]

true (האמתי) … the place (המקום) … in this [sign] … and this is what is sought (המבוקש) [?] … and the [true] place (המקום האמתי) [?] is thus :

[Toward the foot of the column the procedural exposition concludes and a closing formula is given, then the chapter heading follows:]

and in [reckoning] the latter [value/term?] [?] you shall fix the [computed] place (תקבע המקום) [?] in this manner. End [of chapter] [?] :

[Red ink header:] **פרק שמיני** — Chapter Eight [?]

[Note on the chapter numeral: the rubric reads clearly **פרק שמיני** ("Chapter Eight") in red ink. As with the open Book-Three numbering anomaly carried in the handoff (where the body-rubric count and the running-header count diverge), the absolute chapter number is not fixable from the rubric alone — reported verbatim for further reconciliation.]

The motions (התנועות) … [and] the … and the [mean?] … and the [hours/values] [?] in this manner [?]: … the [degrees of?] their [the planets'?] [positions], and the [reckoned] [value] [?] for the [time] sought, in this way [?]. And we shall reckon [the value] for that [moment] [?] … and we shall explain it (ונבארהו) — that this [is something] which we have already mentioned (כבר נזכר) [?] [in a previous place] : Another [reading / version] [?]:

That [which] we have explained / that we have set down (שזכרנו) in the chapter [?] concerning [the matter of] the … [several words effaced] … and the [computed] place / standing (יתאחר לה) [?] in [degrees of] such-and-such, the [reckoning] is thus [?] …

[The verso continues the procedural exposition of Chapter Eight. The left-hand column is reasonably legible in its upper half; the lower portions of both columns and the inner margin are degraded by staining.]

the [position] in such-and-such [degrees] of such-and-such [a sign], and what [comes out] [?]; and you shall reckon (ותחשוב) it [?] … and [you shall know] [?]

that [it is] thus. And reckon [the value] for the [time] sought (המבוקש), and the result [is] thus [?] :

Know, then, that the [reckoning] [?] [proceeds] in this [manner]; and the [difference] (החילוף) … the [correction] (התיקון) … and the [place] sought (המבוקש) … [is] thus [?]. And [we have] explained (ביארנו) [?] … the [computed value] … [in such-and-such] [?] :

and [if] the reasoning [requires it] [?], you shall return [reckon back] [?] [to / by] the [value] … by this way (כדרך זה) [?] [several words lost] … and this [is something] which we have already set down [?]; and the [correction] (התיקון) [?] [comes out] thus :

[Red ink in-line marker:] **ועתה** — "Now then" — And now [the matter of] [?] … take [the value] [?] … [and the result is] thus [?] :

[Red ink section marker:] **שער** — "Gate" [The reckoning] [?] … [The remainder of this section opener is effaced by a heavy stain crossing the lower-middle of the left column; perhaps three lines lost. Recoverable fragments:] … the difference (החילוף) [?] … its [computed value] [?] … and the [place] sought [?] … and the [correction] [?] [is] thus :

[Toward the foot of the left column the procedural template repeats once more with effaced numerals:] … and [for] the [planet?] [?] … reckon [the mean motion] [?] for the [time] sought; and place [the values] one against the other [?]; and what remains is the [correction] [?] of the [place] sought (המבוקש). [And in this way] [?] you shall always (תמיד) … and the [true] place [?] is thus :

[The right-hand column of the verso is more heavily damaged — abraded along the inner margin and stained across the lower half. It carries the same iterative equation procedure: mean motion (האמצעי) → difference (החילוף) → correction (התיקון) → true place (המקום האמתי). Individual numerals are not securely legible and are not transcribed here to avoid a false reading. The recoverable structural fragments mirror the left column:]

and we shall reckon (ונחשוב) [the value] … the [mean motion] (האמצעי) [?] … and the [correction] (התיקון) [?] … and the [true] place (המקום האמתי) [?] is thus :

[if] the places do not [agree] [?] … know that [the discrepancy] [?] is from … [effaced] … and the [reckoning] (החשבון) [?] is thus [?]; and what remains [to you] is the [place] sought :

Yesod Olam — Book Three (Geography / Astronomy)

Translated from Vatican Library, Vat.ebr.380 (Sephardic semicursive hand). Book Three continues mid-chapter; the iterative true-position / equation reckoning template runs throughout. Both folio sides are substantially effaced by water staining, foxing, and faint ink; large stretches are recoverable only in part. Numerals are transcribed as read with [?] where the glyphs are genuinely ambiguous.

[f. 84r]

Right column *(severely degraded by water staining across the upper third; transcription partial)*

and this matter [?] … the difference (החילוף) between the two of them [?] … the result you obtain [?]. The reckoning (חשבון) of the mean motion (התנועה האמצעית) [?] proceeds as before. Take what you found [?] and join it [?] to the place you had previously established, and that is the position sought (המבוקש) [?].

And when the difference has been determined, look (התבונן) at the correction (התיקון) [?] proper to it: if it is more (יתר) [?] than [?] … add it; and if it is less, subtract it [?] from the mean place (המקום האמצעי), and what remains is the true place (המקום האמתי) [?].

then take the [?] degrees (המעלות) … and the surplus (המותר) [?] … and reckon (חשב) from them [?]. For this is the way you will know the true place of the planet [?] at the hour you seek [?].

And after the correction [?] … the matter [?] … its motion (תנועתו) [?] … was prior [?] / not prior [?]. [?] …the [?] … and this is correct (וזה אמת) [?].

[Damage: water stain and faint ink, upper right column, ~6–8 lines only partially legible; several clauses unrecoverable.]

Left column *(better preserved than the right; still patchy)*

for in the reckoning [?] which we set forth (שערנו) [?], when [?] … the [?] place (מקום) [?]. And we made known [?] … the difference [?] … here [?].

(interlinear: a short correction above this line — [?], two or three words, illegible.]

and you take the half [?] … with that you will [?] know [?] the place sought. And from this it follows [?] … that the motion [?] is uniform [?] … for the matter [?] [?].

and if there is a residue (שקר) [?] / [reading uncertain] in this … the [?] correction (התיקון) [?] is [?]. And it has been established (וכבר התבאר) [?] … and from [?] … its motion [?].

And [?] … in the [?] degrees [?] … and the [?] … as we explained [?] … its [?].

that you set apart [?] … with that [?] … and look (התבונן) [?] at [?] … the [?] half [?] … the reckoning [?].

over the way [?] / the rule [?]: that you take what was [?] … from the [?] motion [?]. And on this principle [?] … you may rely [?].

and afterward [?] … take [?] … and from [?] … the [?] place [?] which [?] you sought [?]. And from this it is established [?] for you [?] the [?] true [?] … as we have made known to you (כמו שהודענוך) [?].

and now (ועתה) [?] … behold [?] … from [?] … in the gate [?] / chapter [?] … its reckoning [?].

and his [?] [?] … and look [?] … and afterward [?] … the [?] true place [?] … and from [?].

that you reckon (שתחשב) [?] from [?] … with that [?] … and the half [?] … and the reckoning [?] of the [?] [?].

and there is a residue [?] … the [?] correction [?] … as [?] … and from this [?] … its [?] … and on this [?] … rely [?].

[Damage: foxing along the lower margin; final ~3 lines of the left column faint.]

[f. 84v]

Right column *(degraded across the middle by a broad water stain; transcription partial)*

this [?] … the body [?] (הגשם) [?] crosses over (עובר) [?] … and within the orb (בגלגל) [?] … its revolution (הקפתו) [?]. The reckoning of the [?] … as we [?] established [?]: for [?] … the orb [?] … the [?] motion [?] crosses [?] within it [?] … and so [?] the [?] place [?].

and from this [?] there results [?] for the [?] body [?] … the matter [?] of [?] … and afterward [?] … the [?] true place [?] … and this is [?] correct [?].

to know the true place [?] … and the difference [?] … the [?] correction [?] … in the [?] orb of the zodiac (גלגל המזלות) [?] … its [?].

and afterward [?] … [?] … the [?] half [?] … and reckon [?] … and the [?] … and from this [?] you will know [?] the [?] true [?].

[Red ink: ושם — "and there" / heading-marker] [?] *(a short red-ink word mid-column; appears to mark a sub-topic rather than a numbered rubric)*

the [?] reckoning [?] (החשבון) … from [?] … the half [?] … and look [?] at the [?] correction [?] … if it is more (יתר) [?], add [?]; and if it is less, subtract [?] … the [?] true place [?].

[Damage: broad water stain crossing the right column mid-height, ~5 lines obscured; ink bleed-through from f.85r faint behind.]

and these [?] … the [?] degrees [?] … the [?] reckoning [?] … and from [?] … as we [?] explained [?] (כמו שביארנו) … and the [?] … its [?] motion [?].

and now (ועתה) [?] … behold [?] … in the [?] … and [?] … and afterward [?] … the [?] true place [?].

that you reckon (שתחשב) [?] from [?] … the half [?] … and the [?] reckoning [?] … and from this [?] there results [?] for you [?] the [?].

Left column *(upper portion legible; lower third faded into the foxed margin)*

[Red ink: ושם — "and there" / heading-marker, near the top of the column] [?] *(a second short red-ink word; appears parallel to the one in the right column)*

it follows [?] / there results [?] … the matter [?] … the [?] reckoning [?] … as [?] we set forth [?]. For [?] … the [?] motion [?] … and so [?] … the [?] true place [?].

and the difference (החילוף) [?] … the [?] correction (התיקון) [?] … and if [?] … is more [?] … add [?]; and if [?] less [?], subtract [?] … the mean place [?] … and what remains [?] is the [?] true place [?].

and afterward [?] … the [?] degrees [?] … and the [?] surplus [?] … and reckon [?] from them [?] … for [?] this [?] is the way [?] you will know [?] the [?].

and from this [?] it follows [?] … the [?] … as [?] we have made known [?] … and the [?] … its [?] motion [?] … and [?].

and now (ועתה) [?] … look (התבונן) [?] … and afterward [?] … take [?] … the [?] half [?] … and the [?] reckoning [?].

that you set apart [?] … with that [?] … and from [?] … the [?] place sought [?] … and from this [?] there is established [?] for you [?] the [?] true place [?].

and the [?] correction [?] … and on this principle [?] … you may rely [?] … and the [?] … its [?].

[Damage: foxing and water staining across the lower third of the left column; final ~6–8 lines only sporadically legible — isolated words (החשבון, התיקון, האמתי, ועתה) recoverable but not continuous sense.]

Yesod Olam — Book Three (Geography / Astronomy)

Vat.ebr.380, Sephardic semicursive hand. Two columns per page. Heavy water-staining, foxing, and ink fading throughout this batch; large portions are only partially legible and are flagged as The iterative true-position / equation-reckoning template of the preceding batches continues.

The running header at the top center is faded; it reads approximately "פרק" with "מאמר ג" ["Book Three"], consistent with the prior batch.

The text on this page continues the procedure for reckoning the true position of a planet, working from the mean place through the equation of the anomaly to the corrected position. The reading is badly compromised by ink fading and water damage; much of the column interior cannot be recovered at this resolution.

and we have already explained this. [?] [several words effaced] … the true place [המקום האמתי], for it is [?] … take [וקח] the difference [החילוף] [?] …

from the place where you began [?] … the mean motion [התנועה האמצעית] [?] … the correction [התיקון], and add it [?] … if it is more [יתר] …

[Damage: water stain and ink fading across the middle of the right-hand column, ~6–8 lines, only isolated words legible: התקופה ("the cycle"), הקפה ("the revolution"), המעלות ("the degrees"), חשבון ("the reckoning").]

and from this you will know [?] … the position sought [המבוקש] [?] … as we [?] explained [?] …

[The left-hand column of p. 175 carries several red in-line procedural markers, but most of the surrounding black text is effaced.]

[Red ink: ועתה] ["And now"] — [?] … take [וקח] [?] … the degrees [המעלות] of the [?] … and place them [?] …

[Red ink: התבונן] ["Observe / Consider"] [?] … the difference [החילוף] between [?] … the two positions [?] …

[Damage: lower-left column of p. 175 heavily foxed, ~5 lines effaced; isolated legible words only — האמצעי ("the mean"), המקום ("the place").]

The running header at the top center is faded; it appears to read the chapter/Book-Three formula as on the recto. No new numbered rubric is visible.

The verso continues the same reckoning procedure. The right-hand column is somewhat more legible than the left in its upper portion; the lower portions of both columns are badly stained.

[?] and likewise [וכן] [?] … the cycle [התקופה] [?] … the days [הימים] and the [?] …

[?] one [אחד] [?] … if the reckoning [החשבון] comes out [?] … then you shall add [?] … and if [ואם] it is less [?] you shall subtract [?] …

[Damage: water stain across the middle of the right column, ~5 lines, isolated words: השמש ("the sun"), המקום ("the place"), המבוקש ("sought").]

and this is [וזה] [?] … the true place [המקום האמתי] [?] … of the planet [הככב] [?] … as we have [?] said …

In the left-hand column there appears a red-ink in-line marker:

[Red ink: כי הכלל] ["For the rule (is)"] [?] … [or possibly the abbreviation וכו' / "etc." — the surrounding text is effaced]

[Damage: the left column of p. 176 is heavily water-stained over its lower two-thirds; only scattered words are recoverable — למשל ("for example"), המשל ("the example/illustration"), הימים ("the days"), הכלל ("the rule/general principle").]

[?] for example [למשל] [?] … the days [הימים] [?] … and you shall reckon [?] …

Note: Both pages of this batch are substantially below normal legibility owing to combined water damage, foxing, and iron-gall fading. The procedural content (mean place → difference/anomaly → correction added or subtracted → true place sought) is recoverable in outline from the surviving technical vocabulary and the red in-line markers, but the connected prose and — critically — all numerical values are effaced and cannot be transcribed verbatim. This batch is flagged in its entirety as a high-priority further review / higher-resolution

Yesod Olam — Book Three (Geography / Astronomy)

> **Reading conditions.** Sephardic semicursive hand, single columns of body text on each page side (with the verso also carrying a short upper block in the left column). Heavy edge damage along the outer and top margins of both leaves, with torn corners and water-staining; the gutter and the lower outer corners are abraded. Ink bleed-through and the diagonal Vatican watermark overlay are present throughout and are ignored. The text continues the iterative procedure for computing a planet's true position from its mean motion and its equation (correction), and on the verso a new red-ink chapter rubric opens. Many numeral-letters and abbreviated technical tokens are faded; uncertain glyphs are flagged `[?]` and noted as

(Right-hand column — the column the reader reaches first in this Hebrew opening):

and you should examine the position of the planet, whether it is more or less. And the rule (הכלל) in the equation of the cycle (השואת התקופה) is the same: take what you have set down and subtract it [?], for the rule (הכלל) — you already know it.

When [the value] you have found is verified and you have set it down [?] in its proper place, then you have the corrected reckoning. So examine [it] carefully (התבונן), for the principle is one and the same throughout: the mean motion (התנועה האמצעית) you take from the place where you began, and you add to it the correction (התיקון) — and look [whether it is] more or less, for so [it is] established. And there is no difference [in the procedure] between the cycle (התקופה) and the orbit (ההקפה) — the principle is one.

And now (ועתה) take the [number of] degrees (המעלות) that came out for you in this reckoning (חשבון), and set them down [?]. And the reckoning of the line of the orbit (קו ההקפה) [proceeds] in this manner [?]: for these are the seconds [?] (השניות) [?], and the [reckoning of the] cycle (התקופה) [proceeds] in the corresponding manner.

And [as for] the line of the equation [?] (קו השואת [?]) — when you have set down [?] the reckoning [in] this [way], you have the true [value]. And the position of [?] the orbit (הקפה) [is] above [?] the corrected line [?]. And when [?] the planet [reaches] the place of [?] … [Damage: outer-margin edge loss, ~2–3 words lost per line in this stretch] … and so [?] [it] is verified [?].

[The remaining lower lines of this column are heavily abraded along the outer margin; only scattered legible tokens — התקופה, ההקפה, המעלות, חשבון, האמצעי — survive. [Damage: water-stain + edge loss, lower outer corner, ~5 lines partially lost.]]

(Left-hand column — read second):

[The upper portion of this column is the better-preserved text on the recto.]

the mean motion (התנועה האמצעית), and you have it [set down] [?] [from] the place where you began. And from the corrected line [?] of the cycle (התקופה) take what you have [computed], and from the orbit (ההקפה) [take] its [corresponding value], and set down [?] each one of them in its [proper] place [?].

So [as for] the corrected reckoning of the cycle (תקופה) — set it down [?], and [likewise] the corrected line [?] of the orbit (ההקפה) — set it down [?]. And [as for] the equation [?] (השואת [?]) — its place [is] in the second [position] [?].

And [in the case] where it is more [?] (יתר), look: take what you have set down [?], and subtract it [?] from the orbit (ההקפה) — for the principle (הכלל) is one. And [in the case] where it is less [?] — then [?] [you] add. [Damage: edge loss interrupts ~1 line.]

And now (ועתה) examine carefully (התבונן): when the [number of] degrees (המעלות) has come out for you in the reckoning (חשבון) by this rule (הכלל), you have set down [?] the corrected line [?]. And so the corrected reckoning of the orbit (ההקפה) [stands], and from it [you derive] the position of the planet — [whether] more or less.

And the [reckoning of the] cycle (התקופה) [is done] in the corresponding manner [?]. And from the corrected line [?] you take what you need [?], and you have the position of the planet (מקום הכוכב) [?] in its place [?]. So examine carefully (התבונן): the position of the planet — when you have it [set down] [?], you already know it [?].

[The lower five or six lines of this column are abraded along the bottom margin; legible tokens include התקופה, ההקפה, המעלות, חשבון, המקום, האמצעי, but the connected sense is lost.] [Damage: bottom-margin abrasion, ~5–6 lines partially lost.]

(Right-hand column — read first):

Return [now] to [the matter of] the equation (השואה) [?], for it [is the matter of] which we spoke. And [as for] the [orbit's] equation [?] (השואת ההקפה [?]) —

examine carefully (התבונן) [the case] where there is more [?] in the reckoning (חשבון). And now (ועתה) you have the [corrected] equation [?] of the cycle (תקופה).

And from the corrected line [?] of the cycle [?] take what you have [computed], and look [whether it is] more or less. So [in the case] where there is more [?] — [the position of] the planet [is] above [?]; and [in the case] where there is less — [it is below?] [?]. And [in] this manner the [number of] degrees (המעלות) is verified, [for] the principle (הכלל) [is] one.

And now (ועתה) [as for] the position of the planet (מקום הכוכב) [?] — set it down [?] in its place [?], so that you may know [whether it is] more or less.

And [there is] no difference [in the procedure]: examine carefully (התבונן) the reckoning of the cycle (התקופה), for it has come out [for you] [?]. And [from] the corrected line [?] of the orbit (ההקפה) [proceed] upon [?] [the reckoning of] the cycle (התקופה) — set it down [?]. And now (ועתה) the [number of] degrees (המעלות) [is] verified [?], [whether] more or less.

And [as for] the [reckoning of the] orbit (ההקפה) — [it goes] in the corresponding manner [?]. And now (ועתה) examine carefully (התבונן) the matter of the distance [?] (הרוחק [?]) — [Damage: ~2 words lost] — upon the diameter [?] (הקוטר) … and the position [?] of the planet [is] above [?] [the line] [?]. So you have [found] the place of the planet [?]. And examine carefully (התבונן): [from] the corrected line [?] take [your] reckoning, and look [whether it is] more or less, for the principle (הכלל) is one.

[Several lines here carry the recurring lexicon — התקופה, ההקפה, המעלות, חשבון, הקוטר, הרוחק, המקום, האמצעי, האמתי — but the outer-margin damage breaks the continuous sense in roughly every third line. The connective tissue is supplied above in brackets per the established template; tokens that could not be resolved are left `[?]`.] `[Damage: outer-margin edge loss, recurrent throughout right column.]`

and so [?] you take [?] [from] the corrected line [?], and look [whether it is] more or less, for the principle (הכלל) [is] one. And so [it is] in the [reckoning of the] cycle (התקופה) [?]: examine carefully (התבונן) the matter [?], for [it is] verified [?].

Take what you have set down [?] in the reckoning (בחשבון), and subtract it [?] — and now (ועתה) you have the [corrected] line [?] of the cycle (תקופה). And again [?] examine [?] [whether it is] more or less in the reckoning [?] of the orbit (ההקפה) — [set it down] [?].

So [in the case] where there is more (יתר) in the reckoning of the orbit (ההקפה), take [?] what you have set down [?], and add it [?] [to] the corrected line [?]. And now (ועתה) you have [it] [?] [whether] more or less.

And [as for] the [reckoning of the] cycle (התקופה) — [it goes] in the corresponding manner [?]: examine carefully (התבונן) [whether it is] more or less, for the principle (הכלל) is one.

And [in] this you have completed [?] [the matter of] the corrected line [?] [of] the orbit [?] (ההקפה) and of the cycle (התקופה) — and so [?] [it is] verified [?]. And [as for] the matter [?] of the [planet's] motions [?] (תנועות) — examine carefully (התבונן) [whether it is] more or less in [?] your reckoning (בחשבונך) [?], [for] this is the principle (הכלל).

[Red ink rubric, centered display line, lower right column:]

[Red ink header: פרק שמיני [?] (Chapter Eight [?]) — **"כיצד תדע מצב הכוכב [?]"** ("How you may know the position of the planet" [?])]

> Editor's note: the rubric word after פרק is faded red iron-gall ink. The reading שמיני ("eighth") is consistent with the prior batch's noted "Ch.4→Ch.8 jump still unresolved" — this appears to be the chapter-8 heading itself. The numeral word is [?]; the body text following it (transcribed below) should anchor the chapter number at further review. שער/פרק share a counter in this book; reported verbatim as written.

[First lines of the new chapter, body text immediately following the rubric:]

[Red ink in-line marker:] **כתחילה** [?] (As at the outset [?]) — set down (שום) the mean motion (האמצעי) [?] from the place where you began, and from it [proceed] [?] … [Damage: torn outer corner, end of column lost, ~2 lines.]

(Left-hand column — read second; this column has a short upper block, then a long blank, then a lower block):

[Upper block — four short lines, the better-preserved text on the verso:]

you have completed [?] [the matter of] the corrected line [?] of the cycle (התקופה) and of the orbit [?] (וההקפה) [?]. [Damage: ~2 words lost.] [So examine carefully (התבונן)] [?] [whether it is] more or less … [the principle (הכלל)] [?] [is] one and the same [?].

[Then a long blank stretch in the middle of this column — `[Blank: middle of left column, ~9 lines, ruled but unwritten.]`]

[Lower block:]

now (עתה) [?] you set down [?] the corrected line [?] of the cycle (התקופה) [?], and the orbit (ההקפה) [proceeds] in the corresponding manner [?]. And from the corrected line [?] take [your] reckoning, and look [whether it is] more or less, [for] the principle (הכלל) [is] one.

And [as for] the [number of] degrees (המעלות) — when it has come out [for you] in the reckoning [?] (בחשבון) [?], you have set down [?] the corrected line [?] of the cycle (התקופה). And so [it is] verified [?] [whether] more or less.

And now (ועתה) examine carefully (התבונן): [from] the corrected line [?] take [your] reckoning of the orbit (ההקפה), and look [whether it is] more or less, for the principle (הכלל) [is] one.

And [in] this manner [?] you have set down [?] the corrected reckoning of the cycle (התקופה) [?], and the corrected line [?] of the orbit (ההקפה) [?] — and so the position of the planet (מקום הכוכב) [is] verified [?] in its place [?].

Yesod Olam — Book Three (Geography/Astronomy), Chapter Eight (continued)

Script: Sephardic semicursive, single primary hand throughout the batch. Red ink used for the in-line step-markers and one mid-page rubric. Both folios are heavily affected by water staining and faded iron-gall ink; the right column of f.87v and the lower-right quadrant are the worst-degraded regions. The watermark overlay and bleed-through have been ignored throughout.

f.87r

This folio continues the iterative procedure for determining a planet's true position, working through the corrected line of the orbit (קו ההקפה) and the cycle (התקופה), and the handling of the surplus or deficit (המותר / החסר) in the reckoning.

Left column

[Red ink: ועתה] — the step-marker opening this stretch. Now, then: this is the procedure (הדרך) by which you may know [it]. Take the [computed] amount that you have, and that which [results] from the [tabulated] value of the [planet's] orbit (ההקפה), and combine the one with the other [?]. When you have completed this, look at what you have gathered together: if [the result] is more, [proceed] thus; and if [it is] less, then [proceed] otherwise — [examine] whether the corrected line (הקו המתוקן) [agrees] with what you reckoned.

[?]…[the surrounding lines here are faded and water-touched along the column's left edge; ~2–3 words per line are uncertain]… and this is the principle (הכלל) by which you take the corrected line of the orbit and of the cycle together. When you have done this, then you know its [the planet's] place — whether it falls within the [first] half [of the circle] or in the second half.

If you find that the elongation (הרוחק) is more than what you reckoned in your computation (חשבון), then you add; and if [it is] less, you subtract, until the [final] reckoning comes out even (מכוון). This is the corrected reckoning. Look (interlinear: התבונן) at what you have gathered, and reckon it with care.

[?]…[further water damage across the lower-left lines; the procedural template repeats — combining the corrected orbit-line with the cycle-line, then testing the surplus]… and from this you derive the degrees (המעלות) of the sought-after [quantity] (המבוקש), [namely] the true position (המקום האמתי) of the planet.

And he said [i.e., the author continues]: when you have completed all of this, you will have the corrected figure (התמונה המתוקנת [?]), and from it [comes] the true place. Examine it [Red ink: התבונן] once more, lest there be in your computation more or less [than there should be] — for the small error grows. [?]…[final two lines of the column faded]… and afterward [proceed] as we shall explain (כמו שנבאר).

Right column

[The right column of f.87r is somewhat better preserved than the left, though faded at the head.]

[?]…[the opening 2–3 lines are faded]… the example (משל): when [the planet] has reached the head [of the sign / of the circle] and the corrected line of the orbit [agrees] — until [?] you have [the figure] before you (שלפניך [?]).

In the computation, when you take the corrected line and the line of the orbit (קו ההקפה) together, examine whether [it is] in the first half or in the second half. If [in] the first half, you subtract the elongation (הרוחק) from the corrected [value]; and if [in] the second half, you add it. This is what we explained (זהו מה שביארנו).

Then look at the true place (המקום האמתי): take it (קחנו [?]) and place it (שימהו) before you, and reckon from it [?]…[a phrase faded]… that you may know the true position of the planet.

He said: the principle (הכלל) is this — that you combine the corrected line of the orbit with the line of the cycle (התקופה), and from their combination you take what is more or what is less. From [this] you derive (תוציא) the true position. And he said: from the corrected line [comes] the position; and from the line of the orbit [comes] the elongation [?].

[?]…[mid-column lines water-touched]… When you have the corrected line before you, and you have combined the one with the other, then take what comes out (מה שיצא) and reckon it. This is the corrected reckoning (החשבון המתוקן [?]), and from it [comes] the position.

And if you wish to know the elongation by itself, take the line of the orbit alone and reckon it; for the line of the orbit gives the elongation, and the corrected line gives the true position. Each one [serves] its [own] purpose (לפי ענינו [?]).

[?]…[lower-right lines faded with water intrusion]… degrees (מעלות) … the corrected reckoning … the true place of the planet, [arrived at] when you have reckoned all of this with care. He said: and from here [we proceed] to that which follows after it (מה שאחריו).

[Red ink: ועתה / התבונן] — [the final preserved step-markers of the folio appear in red, opening the next stage of the procedure, which continues onto f.87v.]

f.87v

[This folio is the most degraded in the batch: a large water stain crosses the lower two-thirds of the right column and bleeds into the gutter and lower-left. Many right-column lines below the midpoint are only partly recoverable.]

Left column

[The left column is moderately preserved at the head, fading toward the foot.]

[?]…[opening lines faded]… [in] the corrected reckoning (הקו המתוקן), and you will see that [?]…[uncertain]… for the corrected line and the line of the orbit, when combined, [yield] the position; this is the corrected figure (התמונה המתוקנת [?]).

He said: and [as for] the elongation (הרוחק) — return (חזור) [to it] (interlinear: וזכרת — "and remember") for it is needed (צריך לה [?]). And you reckon the elongation with the [value of the] cycle until [?]…[a phrase lost]… the corrected line (הקו המתוקן). This is the principle.

[?]…[several lines mid-column faded; the procedural template — combining lines, testing surplus, adding or subtracting — recurs]… and if [the result is] more, you do thus; and if less, [you do] otherwise (אם עולה … או עולה [?]) — until the reckoning comes out even, and this is the corrected line. Then you know the true position of the planet.

The principle (הכלל) [is]: when you take the corrected line and the line of the orbit together, and you combine the one with the other, then you have the true position. And the elongation [comes] from the line of the orbit alone, as we explained.

[?]…[lower-left lines, ~5–6, are faded and partly water-touched; they appear to restate the rule for adding/subtracting the elongation according to whether the planet falls in the first or second half of the circle, and to close the iterative stage]… until [the reckoning] comes out even (עד שיצא מכוון). This is the corrected line of the orbit and of the cycle, [arrived at] when you have reckoned all of it (כל זה).

Right column

[Red ink: ושוב] — "And again" / "Repeat." [The red in-line marker opening this stage; clearly legible despite the surrounding water damage.]

And see (וראה) how (איך) it comes out (עולה [?]) before you (שלפניך) — what [results] from the corrected line, [namely] the position. Look (התבונן [?]) at the corrected reckoning [?] of the position [?]…

[?]…[the body of the right column from here downward is crossed by a heavy water stain; roughly the central block of lines (~8–10) is only intermittently legible. The recoverable fragments restate the standing template:]… in the computation (בחשבון [?]) … more or less (יותר … חסר) … the corrected line of the orbit (קו ההקפה המתוקן [?]) … and from it [comes] the position … the line of the

cycle (קו התקופה [?]) … you add … you subtract … until [it] comes out even (עד שיצא מכוון [?]) … the true place of the planet (מקום הכוכב האמתי [?]).

[?]… … He said: the corrected figure (התמונה המתוקנת [?]) … this is the principle (זהו הכלל [?]) … the true position …

[Near the foot of the right column, a partly legible line:] … when you have completed all of this, then [?]…[lost to the stain]… as we shall explain in the following [chapter / gate] (כמו שנבאר [?]).

[Lower-right margin, beneath the column, two lines in a smaller module of the same hand — apparently a marginal note / side computation:] [Marginal note (lower-right, beneath right column), verbatim as far as legible: "…[?] בכאן … אך האמתי … [?] הזקנה עה֗ בכאן … המורים … הזמן … הוא … "]. The note is heavily water-damaged; it appears to be a constructive helper restating "here … the true [value] …" rather than a citation. Further identification requires further verification.

Yesod Olam — Book Three (Geography / Astronomy), Chapter Eight (continued)

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Right column (read first, right-to-left)

and the difference between them, and according to the matter that we set down [?], so will the corrected reckoning come out, and you will know [?] it. Now, when the [position] of the planet [?] comes [out] from the line of the orbit alone, [?] the elongation will be from the line of the orbit. [?]

When you wish to know the corrected line and the elongation, [?] take the corrected line [?], and the elongation will be [?] together with it. [?] Therefore, observe whether the [position] comes out before [it reaches] [?] the corrected reckoning [?], for the matter [?] depends upon it [?].

[Red ink header: וזה התחלת] [= "And this is the beginning of…"] — a fresh rubricated section-marker mid-column. [The following two or three words of the red rubric are faded; the legible portion reads:] [Red ink: …הקפה אחת חלק] [?] [= "…one revolution, a portion" [?]].

Know that when [?] you wish to know the [position] [?] of the planet [?], take its mean and its [?]. [?] And if you wish to [?] the corrected line, [?] take from the line of the orbit [?] this much [?].

The principle [הכלל]: take the line of the orbit, [?] combine it [?], and it will come out — the true position [המקום האמתי]. [?] And the elongation [הרוחק] comes [?] from the line of the orbit alone, [?] as we have explained [?]. And when [?] you take the corrected line, [?] the difference [?] is between them. [?]

[Red ink: ושנה] [?] [= "And he repeated" / a section-divider word; reading uncertain — possibly וזה "and this"]. [?]

To the heavens [לשמים] [?] it belongs [?]. [Marginal/inline letter-label: "ב" [?]]. And another [?] [matter]: when you observe the true position [?], take [?] upon [?] the [position] of the planet [?]. [?]

And see that the elongation [?] of the planet [?] from [?] the mean [?]. [?] All this [?] from [?] the line of the orbit [?] and the [?]. [?]

You see [?] that [?] the position of the planet [?] from [?]. [?] You observe [?] toward [?]. [?] You [?] the corrected line [?] and the [?] is between them [?]. [?]

And when [?] the [position] [?] and there is not [?] above [?]. [?] [Several lines here are faded and water-affected; isolated legible words: "המעלות" (the degrees), "חשבון" (reckoning), "התיקון" (the correction), "שבת" [?] — but the connected sense cannot be recovered at this resolution.] [?]

So [?] you observe [?] the [position] of the planet [?] in [?] the orbit [?]. [?] …the degrees [המעלות] of the line of the orbit [קו ההקפה] [?]. And when [?] you set [?] the [position] of the planet [?], you [?] this. [?] And [?] the orbit [ההקפה] [?] [Provençal/Romance number-word or letter-label "ש"] [?] — possibly an abbreviation, not a numeral]. And [?] [?] there [?] from the deferent [המעדל] [?].

The principle [?]: the corrected line and the line of the orbit, [?] take [?] this much [?], for thus [?] the [position] of the planet [?] comes out [?], [?] and toward [?] [?] and the [?]. [?]

And the corrected line is [?] [a number/value]; [?] the [position] [?] toward [?] and the [?] difference [?]. [?]

You [?] [?] [near homograph cluster — illegible]. [?]

Left column

[The left column of p. 181 is shorter than the right and noticeably faded toward the lower half. The upper portion is moderately legible; from roughly the midpoint down it is washed out by a water stain.]

Now [?], in their reckoning [?] [the planets'] motion [?] is from [?] above [?]. [?] And we [?] place [?] them. [?] [?]

You reckon [?] this [?]; [?] take [?] the [position] of the planet [?] from [?], and you place [it] [?]. [?] You bring [?] the elongation [?] [?].

When [?] you place [?] the corrected line [?], [?] and you [?] the [position] of the planet [?] [?], [?] [the value] comes out [?] — this is what we sought [המבוקש] [?].

[Red ink: וזה] [?] [= "And this is…", a step-marker]. And the [position] of the planet [?] from [?] the orbit [?]. [?] [Then the text gives a worked example with numeric letter-values that are individually too faded to read with confidence — isolated legible glyphs include "כ" [?] and "ה" [?], but I will not assert a number.] [?]

You see [?] that [?] the difference [החילוף] [?] between them [?] [?]. And when [?] the [position] of the planet [?] [?] [?] [?].

[Several lines, badly water-damaged, follow. Legible isolated words: "הגלגל" (the orb), "השמים" / "השמש" [?] (the sun / the heavens — the two are hard to separate in this hand), "המעלות" (the degrees), "המבוקש" (what is sought). The connected argument is not recoverable at this resolution.] [?]

[Toward the foot of the left column the prose appears to close the topic:] …and you [?] toward [?] the [position] of the planet [?], and you [?] this [?]. And [?] [?] the [position] [?] is [?], [?] as we have explained [?].

PDF p. 182 (folio 89)

[Body heading, upper-left of the left column, in red ink:] [Red ink header: פרק ט] [= "Chapter Nine"]. [Two or three further red-ink words follow the chapter number as a section title, but they are badly faded; the legible fragment reads:] [Red ink: …בענין [?]] [= "…concerning the matter of…" [?]]. — **New chapter begins here (Chapter Nine, פרק ט).**

Right column (read first)

as it is [?], and when [?] you bring [?] the [position] of the planet [?], you will [?] it [?]. [?] And in the [?] [?] there is [?] in it [?] this much [?] from the line of the orbit [?], [?] [the value] comes out [?] toward [?] the [position] of the planet [?].

And if [?] you wish [?] [to know] the [position] of the planet [?] [?], take the corrected line [?] and [?] the mean [האמצעי] [?], [?] and the elongation [הרוחק] [?]. [?] And [?] you [?] toward [?] the line of the orbit [?], [?] and [?] [?] the difference [?] between them [?].

The principle [הכלל] [?]: the corrected line [?] [?] and the line of the orbit [?], take them [?] together [?] — [the result is] the true position [המקום האמתי]. [?] And the elongation [?] from [?] the line of the orbit [?] alone [?], [?] as we have explained above [?].

And when [?] you [?] the [position] of the planet [?] [?], [?] you take [?] this much [?] [?], for thus [?] [the value] comes out [?] [?]. [?] And toward [?] [?] [?] the [position] of the planet [?] [?].

Now [?], observe [התבונן] [?] [a red in-line step-marker may be present here, but the ink is too faded to confirm color] [?] that [?] the [position] of the planet [?] [?] from [?] the orbit [?]. [?] And the [position] [?] [?] [?].

You see [?] that the difference [?] between them [?] [is] this much [?]. [?] And take [?] the corrected line [?] [?], [?] and the [position] of the planet [?] [?] is [?] toward [?]. [?]

[A run of moderately legible procedural prose continues, repeating the template: "take the mean," "the corrected line," "the line of the orbit," "the elongation," "combine → true position." Isolated confidently-read terms across these lines: האמצעי (the mean), קו ההקפה (the line of the orbit), הרוחק (the elongation), המקום האמתי (the true position), החילוף (the difference). The exact connective structure of several of these lines is faded, but the template content is the established Chapter-Eight/Nine compute-procedure.] [?]

And [?] when [?] you [?] [it] [?], [?] [the value] comes out [?] — [?] this is what we sought [המבוקש] [?]. [?]

[Toward the foot of the right column:] …and the [position] of the planet [?] [?] toward [?], [?] and you [?] [?] the difference [?]. And [?] [?] the orbit [?] [?], [?] and [?] [?] [?]. [?]

The principle [?]: take [?] [?] [?] and [?] [?] the true position [?] [?] [?]. And [?] [?] [?] [?]. [?] [The final two lines of the right column are faded; legible: "המקום האמתי" (the true position), "הרוחק" (the elongation).] [?]

Left column

[Red ink header at top: פרק ט — see above; the chapter heading governs both columns / the new chapter opens at the top-left of this page. The first lines below the heading are the opening of Chapter Nine.]

[The left column is severely water-damaged across its lower two-thirds — the lower-left quadrant of folio 89 shows a large pale stain, and the text there is washed to near-invisibility, compounded by bleed-through. The upper several lines are partly legible.]

the matter [?] [?]. And [?] he said [?] [?] [the planet] [?] [?]. [?] When [?] you wish [?] to know [?] the [position] of the planet [?] [?], take [?] [?] [?]. [?]

And the [position] of the planet [?] [?] [?] [?] toward [?] [?]. [?] And [?] [?] the line of the orbit [?] [?] [?]. [?]

[The remaining lines of the upper-left column are faded; isolated legible words: "האמצעי" (the mean), "התיקון" (the correction), "המעלות" (the degrees).] [?]

[Lower two-thirds of the left column — water stain + bleed-through: not legible. ~14–16 lines lost at this resolution.] [Damage: water stain, lower-left of folio 89, ~14–16 lines effaced/illegible.]] [reading uncertain]. [?]

[Foot of page, lower-left margin, faded: a single word that may be a quire/folio note "מרובע" [?] or a scribal mark — not confidently legible.] [?]

Yesod Olam — Book Three (מאמר ג'), Chapter Nine (פרק ט) — continued

Vat.ebr.380, ff. 89r–89v. Sephardic semicursive hand. Both folio sides are substantially degraded by water staining, foxing, and faded iron-gall ink across the central and gutter regions; the diagonal Vatican watermark overlays the whole image and is ignored. Much of the lower-left and central text on both sides reads only partially. Both sides are flagged as

(The folio is written in two columns. By the manuscript's convention the right-hand column precedes the left-hand column. The running header at the top reads פרק ט

("Chapter Nine"); the folio number 89 *is written in the upper margin of the left column.)*

Right column

The procedure for the planet's position continues in the same compute-template register as the preceding chapter — establishing the mean (האמצעי), the correction (התיקון), and the corrected line, then reading off the planet's true position (המקום האמתי) in degrees.

and the [number/value] [?] you took [?], and the corrected [line] [?] of the position from the [?] [?]. And the [planet's position] [?] from [?] [?] toward [?] [?]. Take [?] this [?], for [?] [?].

The position of the planet [מצב הככב] from the [orbit / circuit] [?], and what [?] [?] the [?] [?]. And take the [degrees] [?] [?], for [?] [?] [?].

the difference [החילוף] [?] between them [?], and the place [המקום] [?] this much [?]. [?] [?] the [corrected] line [?], for [?] [?] [?].

[Several lines here are too faded across the central stain to recover; transcription yields only scattered tokens: …מצב הככב… הרוחק… המעלות… חשבון… המבוקש… — "the position of the planet … the distance … the degrees … the reckoning … the sought [value] …". Marked as a] [?]

and the [?] [?] [?] toward [?]. And when [?] [?] the [?] [?], take [?] [?] [?] and add [?] to [?] [?]. [?] [?] [?] [?]. [?]

then [?] [?] [?], and the [position] [?] [?] toward [?] [?] [?]. And [?] [?] [?] [?] [?]. [?] [?] [?].

Left column

(A red-ink step-marker ועתה *— "And now" — appears mid-column, opening a fresh procedural step.)*

the position [?] [?] this much, ten [עשר] [?] [?] [?]. And it [?] [?] [?], take [?] [?] [?]. And the [?] [?] [?] [?]. [?]

That [?] [?] before [?] [?] [?], and [?] [?] [?]. And the planet [?] [?] [?] from [?] [?], the position of the planet [מצב הככב] [?] from [?] [?]. [?] [?] [?] [?]. [?]

upon [?] [?] [?], and [?] [?] [?] toward [?] [?]. [?] [?] [?] [?] [?] [?]. And when [?] it was [?] [?] [?] [?]. [?]

The [?] [?] [?] [?] [?], the [?] [?] [?] [?]. And [?] between [?] [?] [?] [?]. [?] [?] [?] [?] [?] [?]. [?]

thus [?] [?] [?] one [?] [?] one [?] [?] [?] [?]. You will know [תדע] [?] the place [מקום] [?] [?] [?] [?] [?]. And [?] [?] [?] [?] [?] toward [?] [?] [?] [?]. [?]

[Red ink: ושוב] *(— "And again," a red-ink step-marker opening the next procedural step.)*

[?] [?] the [planet] [?] [?] [?] [?] [?] [?].

[The remaining lines of the left column are very faded and recover only isolated tokens. The lower ~10 lines of this column are largely lost to staining: scattered legible words include …הצומח… שעות… האופק… על… נבט… — "look / observe … upon … the horizon … hours … the rising [point] …". Marked as a] [?]

in the city [בעיר] [?] [?] upon [?] [?], the hours [השעות] [?] [?] [?]. And [?] [?] [?] [?] [?]. The [?] [?] [?] [?] and [?] [?] [?]. [?]

and you will know [ותדע] [?] what is [?] their position [?], the place [?] [?] this [?] [?]. [?]

(Two columns; the running header reads מאמר ג' *— "Book Three." The right-hand column precedes the left.)*

Right column

The reckoning [?] [?] like [?] [?] [?] [?] [?] [?]. The [?] [?] [?] [?] [?] [?], and the [?] [?] [?] [?]. And [?] [?] [?] [?] the [?] [?] [?]. [?]

from the [?] [?] [?] [?] [?]. [?] [?] [?] the [reckoning / sun] [חשבון / חמה] [?] [?] [?] [?], and [?] [?] [?]. [?]

the position of the planet [מצב הככב] [?] [?] the [degrees] [?] [?] [?], and [?] [?] [?] toward [?] [?] [?]. [?] [?] [?] [?]. [?]

[?] from [?] [?] [?] [?] [?], and the [?] [?] [?] [?] [?]. [?] [?] [?] [?] [?]. [?]

and the rising [point] [הצומח] [?] [?] upon [?] the horizon [האופק] [?] [?], and the hours [השעות] [?] [?] [?]. [?] [?] [?] [?]. [?]

[A central band of ~6 lines is heavily stained; recovers only: … …הרוחק… המעלות… התיקון… המותר… האמתי… — "the degrees … the distance … the true [position] … the remainder … the correction …".] [?]

the place [המקום] [?] [?] [?] this much [?], and [?] [?] [?] toward [?] [?]. And when [?] [?] [?], take [?] [?] [?] and add [?] [?] [?] [?]. [?]

the corrected line [הקו המתוקן] [?] [?], and the position of the planet [מצב הככב] [?] [?] toward [?] [?] [?]. [?] [?] [?] [?]. [?]

Left column

with knowledge [?] [?] [?] [?] [?] [?]. The [?] [?] [?] [?] [?], and [?] [?] [?] [?] [?]. [?]

in the city [בעיר] [?] [?] [?] [?] [?] [?]. [?] [?] [?] [?] [?] [?] [?]. [?]

The circuit [ההקפה] [?] [?] [?] [?] [?], and the position [?] [?] [?] [?] [?]. And the [?] [?] [?] [?] [?] toward [?] [?] [?] [?]. [?]

[?] [?] [?] the orbit [הגלגל] [?] [?] [?], and [?] [?] [?] [?] [?] [?]. [?] [?] [?] [?] [?] [?]. [?]

[A central run of lines here is faded into the stain; legible tokens only: … …המזלות גלגל המזלות… המישור… קוטב … — "the constellations … the zodiac orbit … the [celestial] equator … the pole …".] [?]

and you will know [וותדע] [?] the place [המקום] [?] [?] [?] [?] [?]. And [?] [?] [?] [?] [?] toward [?] [?] [?]. [?]

the [?] [?] [?] [?] [?] [?] [?]. [?] [?] [?] [?] [?] [?] [?] [?]. [?]

The lower portion of this column trails off into the heavily stained foot of the folio; the final lines are largely illegible.

(Translator's note: this batch covers a stretch of dense, repetitive procedural prose in Chapter Nine — the same true-position compute-template carried over from the prior batch, working through mean position, correction, the corrected line, the planet's position from the orbit/circuit, and the reading-off of the rising point and hours on the horizon for a given city. The recurring technical lexicon — מצב הככב "position of the planet," החילוף "the difference," המקום "the place," הרוחק "the distance," התיקון "the correction," הקו המתוקן "the corrected line," הצומת "the rising point," האופק "the horizon," השעות "the hours" — is consistent with the established glossary and the prior batch's register, and these are read with confidence where the ink survives. However, the connective tissue and, critically, nearly every numeral on both folio sides falls within water-stained or faded zones and cannot be recovered at this resolution. Because preserving exact numerical values is paramount and almost none survive legibly here, both folio sides are flagged as No diagrams or tables appear in this batch.)

Yesod Olam — Book Three (Geography / Astronomy)

> Sephardic semicursive hand, black body ink with red-ink rubrics and step-markers. Both folios are heavily faded with water-staining across the lower and outer portions; the diagonal Vatican Library watermark and faint ink bleed-through have been disregarded throughout. Numerals are transcribed exactly as the glyphs present, with `[?]` where a letter is genuinely ambiguous.

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the [number?] which results, take in its entirety, and add it to the remainder, and the sum is what is sought [?]. And we have already explained to you the method by which one works this out [?].

[Red ink header: **פרק קמ"ה (Chapter 145)** — *with God's help* [?]]

[Red ink subheading: *and these are its conditions* [?]]

When you wish to know this — that is, the [day?] and the hours of the night, and how much of the night has already elapsed [?] — set out [the figure?]: take that which you have, and place it before you [?]. As I have laid out for you here in this figure [?], the order of the operation is set in good arrangement [?].

These are its sixty parts [?]: enter with them, and take what corresponds to them, the line [?] of the [computed?] reckoning. [Several words illegible through staining: the corrected line and its remainder, ~2 lines.]

and you place it [?] before you, and there comes out for you the time that you seek [?]. Once you have laid hold of it [?], you know by it [?] how much of the night has passed and how much of the day remains [?] — for this is the matter that is sought [?], and you have grasped it [?].

And he said: place it before you [?], and take the degrees, and what corresponds to them [?] in the table that we have set down [?] before you in good arrangement [?]; and observe well [?] the line of the corrected reckoning [several words lost to water-stain].

And after this, return [?] to the corrected line [?], and let it [?] stand before you [?]. By this method [?] you will know in which region [?] you stand, and the hours of the night [?] — that is, how much has passed of it [?] and how much remains [?]. And the matter is sought, and you have laid hold of it. By this [?] you complete

the operation [?] of the sought place [?], and [there comes out for you?] what is sought.

[Lower right column, ~5 lines, badly water-stained and largely illegible. Recurring legible tokens: *the degrees* (המעלות), *the reckoning* (החשבון), *what remains* (המותר), *the table* (הלוח), *the corrected line* (הקו המתוקן), *the sun* (חמה). The passage continues the worked template for deriving the elapsed and remaining hours from the corrected line.]

[Red ink (closing rubric, badly faded): *here ends … the chapter [?]* — partly illegible]

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the moon [?] and its course [?], and [its?] place [?]. And take that which you have [?], and place [the figure?] before you [?].

And he said [?]: in this figure [the order of?] the operation [is set] [?]. As I laid out before you [?] in the prior chapter [?] [several words lost], enter with them and take what corresponds to them [?].

When you take it [?], you obtain by it [?] the [computed?] line [?] — that is, the corrected line [?] — and there comes out for you the time that is sought [?]. And once you have grasped it [?], you know how much of the night has passed [?] and how much of the day remains [?].

[Mid-column, ~4 lines: faded. Recurring legible tokens: *and now* (ועתה), *and again* (ושוב) as red [?] step-markers; *the degrees*, *the corrected line*, *what corresponds to them*. Worked-example continuation]

and observe [?]: the [hour?] and its sixtieth-parts [?]. Take that which you have [?] and add it [?] to what you obtained earlier [?], and the sum [?] is the [whole?] time that is sought [?].

And he said: this [is]? the matter that we sought [?], and you have grasped it. Now [?] you have completed the operation [?] for [this?] city [?], and there comes out for you, by this method [?], the [length of the?] day and the night [?], and what corresponds to them, and what remains [?].

[Lower left column, ~6 lines, water-stained. Legible fragments include *in this manner* (בזה הדרך), *and from here* (ומכאן), *the corrected line*, and a closing formula. Continuation of the template; ends a sub-unit.]

[Red ink (closing rubric, faded): *here ends … another chapter [?]* — partly illegible]

[and?] he revealed [?] in his words [?], up to [?] the degrees, as I have written for you [?] in good arrangement [?].

And again [?]: take the corrected line [?] and what corresponds to it [?], and there comes out for you [?] the sought thing [?]. As I laid out [for you?] here in this figure [?].

[Several lines, mid-upper right column: faded but partly legible. The recurring legible tokens are *the degrees* (המעלות), *the corrected line* (הקו המתוקן), *the table* (הלוח), *the reckoning* (החשבון), *what corresponds to them* (מה שכנגדם), *the sun* (חמה), *its course / its position* [?]. The passage continues a true-position / rising-point computation template: enter the table with the degrees, take the corresponding value, correct the line, and read off the result. for exact wording.]

And observe well [?]: by this method [?] you arrive at [?] the corrected line [?]; and once you take it [?] and place it before you [?], there comes out for you [?] the sought thing [?].

And he said [?]: this matter [?] is the [position of the?] sun [?] in the [given?] city [?]. And we know [?] by it [?] in which region [?] [we stand?], for this is the sought place [?]. And the matter is grasped [?].

[Mid right column, ~5 lines, faded: recurring tokens *the rising point* (הצומח) [?], *the horizon* (האופק) [?], *the degrees*, *the corrected line*. Continuation of the ascendant / horizon-hours procedure introduced in the prior batch.]

and there comes out for you [?] by this [?] the sought thing; and once you grasp it [?], you have completed [?] the operation of the sought place [?].

[Red ink step-marker: **ודרך (And the method) [?]**] — When you wish to know [?] [the position?] up to [?] the degrees [?] as I have written for you [several words lost], so too [?] in [this?] city: take the corrected line [?] and what corresponds to it [?], and there comes out for you the sought thing [?].

[Lower right column, ~6 lines, water-stained at the corner. Legible fragments: *the sun* (חמה) [?], *the corrected line*, *what remains* (המותר), *and add it* [?], *the sought thing*. Edge-loss along the lower margin, an estimated 2–3 words per line lost.]

[Top, ~6 lines: faded and water-stained. Legible tokens: *the table* (הלוח), *the degrees*, *the corrected line*, *the sun* (חמה) [?], *what corresponds to them*. Continuation of the computational template.]

[Red ink numeral/marker: **(16) י"ו [?]**]

When you wish [?] [to know?] the hours [?] of the night [?] and how much of the night has elapsed [?], that is the [number of?] sixtieth-parts [?] — enter with them [?] and take what corresponds to them [?] [several words lost], the corrected line [?].

And he said: place it before you [?], and observe well [?] [several words lost]. By this method you know [?] how much of the night has passed [?] and how much of the day [remains?].

[Mid left column, ~5 lines, faded: recurring tokens *the corrected line*, *the reckoning*, *what remains*, *and add it* [?]. Worked-example continuation.]

[Red ink step-marker: **ושב (And return) [?]** / **ושוב** [?]] — take that which you have [?] and add it [?] to the remainder [?], and the sum [?] is the time [?] that is sought [?]; and you have grasped it [?].

[Lower left column, ~7 lines, badly water-stained and faded, with corner-staining at the foot. Largely illegible. Recurring legible tokens: *the corrected line*, *the degrees*, *the sun* [?], *the night* (הלילה), *and now* (ועתה) [?]. The passage continues and apparently closes the procedural unit.]

Book Three (geography/astronomy), continued. Sephardic semicursive hand, single scribe. Red ink used for in-line step-markers and for one structural rubric. Both folios show water-staining across the upper third and into the gutter; iron-gall red has faded more than the black body ink. The diagonal Vatican watermark and the lower copyright bar are ignored throughout, as is bleed-through from the facing side.

PDF p. 187 (folio recto — marginal foliation "91")

Right column

the matter, as we have explained, is the [thing] sought in this calculation [?]. For when we wish to know the rising-time and the horizon [האופק] of any city, we enter with the degrees of [its] longitude [?]; and we set down what comes out before us. From this you understand the place where we stand [?].

By the method we set down for you, you arrive at the corrected position [התיקון]; and the position of the planet [מצב הככב] is then known in its true place. When the corrected line stands before you, it is the position of the sun in that city, and by it you know in which region of the regions [האקלימים] you are standing — for this is the true place [המקום האמתי] sought.

[Several lines here are obscured by water-staining at the head of the column; readings tentative.] …the calculation by which the matter is corrected [?]. And it has already been explained that the corrected line and the true line [?] are [as one] when the remainder [המותר] is taken according to the rule that we set before you. From this you reach the true place [?].

For know, the rising-point [הצומח] of every city and its horizon are not equal in every region [?]; rather, each city has its own [value]. And from the place [המקום] you enter [the table] with the degrees, and you take what is opposite them [?]. (interlinear: …) By this the matter is corrected [?].

And when you wish [?] to know this, take [?] the rising-point and reckon it, [as] we set before you [?]; and you set down whatever comes out, before you …[text damaged]… so that the matter [comes out] true [?].

Left column

[the head of the column is water-damaged] … so it is in every region, [as] we explained …[damaged]…

[Several lines obscured by staining and faded ink.]

[Red ink, in-line step-marker: **ונחזר** ("and let us return")] [?] …and what we set down before you, from the calculation …[damaged]… that you set down before you; this is the rule [הכלל] [?].

We have already taught its calculation [?]; and you reckon by it. …And so, when [you wish] to know …[damaged]… you take [?] the corrected line. There [?] is what was explained …

[A run of about six lines mid-column is faint; the sense is a continuation of the same procedural instruction — entering the table, taking the opposite value, correcting the line. Individual numerals are not legible here and are not transcribed rather than guessed.]

and you put it [?] opposite … the position of the sun [?] … [as] we explained. When the corrected line stands before you, then …[damaged]…

and you reckon …[damaged]… you take what comes out …and this is the place sought [המבוקש] [?].

[Lower part of the left column continues the same instruction with degraded ink; only fragments — "the corrected line," "before you," "the place" — are securely legible. Transcribed as fragments rather than reconstructed.]

PDF p. 188 (folio verso)

Right column

When we gather [the values] [?] … and the position [המצב] … of the sun [?] … as it was explained, and afterward …[damaged head of column]…

the calculation, and you reckon [?] by it … and so it comes [?] … in the [given] city [?].

When the sun [השמש] [?] is in [the sign] before you [?] … and it comes to … its position [?], you set it down — this is the true position [המצב האמתי] [?]. And you reckon the calculation [?]; and afterward you set down …[damaged]… opposite it [?] … as it was explained.

And in this matter [?] (interlinear: …) there is what you reckon [?] … the position of the planet …[damaged]… for so it is in every region.

and from the place [המקום] [?] … the corrected line; and you set it down before you. And the matter [comes out] true [?]; this is the rule [הכלל] [?].

[Mid-column, several legible procedural lines:] And know that the rising-point [הצומח] is not equal in every region [?]; rather it differs [החילוף] from city to city [?]. And when [you wish] to know it [?], you enter [the table] with the degrees and take what is opposite [?]; and this is its calculation.

and you reckon …and you set it down …[as] we explained. When the line stands [corrected] before you …[damaged]… this is the place sought [?].

[Red ink, in-line step-marker, lower right column: **ועתה** ("and now") [?] / or possibly a fresh rubric — see anomaly note.] …and reckon …the rising-point … and the matter [comes out] true.

Left column

[head of column water-damaged] … as we explained in the matter … and so it is …

[Several faint lines.]

you take [?] the corrected line, and set it down before you … and this is what is sought [המבוקש] [?]. And so it is in every region.

[Mid-column continues the procedural template — enter, take the opposite, correct, set down — with intermittently legible phrasing; numerals not securely legible and not guessed.]

[Red ink structural rubric, lower left column: **פרק שנים עשר** ("Chapter Twelve") [?] — followed by, in black: "…[and we will explain in it …] until [we reach] the [matter / place] …"] [Red ink: שער] [?] (see anomaly note — the line carries both פרק and שער forms, consistent with the handoff note that שער and פרק share a counter).

and we begin [?] …[as] we explained …until the true place [המקום האמתי] is reached [?] …[the column trails off / damaged at foot].

Yesod Olam — Book Three (Geography / Astronomy), Chapter Twelve (continued)

Script: Sephardic semicursive, single hand (the primary hand of the codex). The characteristic ש frequently loses its left stroke and resembles ע, as noted in the work profile. **Physical state:** both folios carry heavy water-staining; on p. 189 the inner-gutter band and the upper-right of the inner (right-hand) column are badly washed, and on p. 190 a broad stain runs down the inner gutter and across the lower third. Large stretches of running prose are only partially legible at this resolution. Transcription is conservative; degraded stretches are flagged `[?]` and both folios are submitted as

(The chapter continues the compute-template for locating a celestial position relative to a given city by way of its rising-point (הצומת) and horizon (האופק), and the use of the table (הלוח). The running prose carries the procedural connectives established earlier — ועתה "now," ושוב "again," התבונן "consider." Because of the water damage across this folio, only portions of each line can be read with confidence; the surrounding procedural sense is given, with literal readings flagged where the glyphs are secure.)

the rising [of the sign? הצומח] from the horizon (האופק), and you take [?] … the degrees (המעלות) … the place sought (המבוקש) [?] … as we explained before this. And you take the corrected line (הקו המתוקן) [?] … and reckon (תחשוב) …

[Damage: water stain, ~several words per line obscured in the upper band of this column].

the rising-point (הצומח) [?] differs (יתחלף) [?] from city to city, since the horizons (האופקים) differ [?] across the climes (האקלימים) [?]. And therefore [?] … the position (המצב) [?] … you will find (תמצא) [?].

[Several lines here are washed out by the stain crossing the column; ~6–8 lines only intermittently legible]

and this is what we sought (המבוקש). And know [?] (ודע) that … the day-arc (קשת היום) [?] and the night-arc (קשת הלילה) [?] … [?] …

and the elevation [?] … know (דע) that [?] … the degrees (המעלות) of the rising [?] … and add (תוסיף) [?] … and you have [?] the place sought. [Damage: stain band across mid-column, ~several words per line.]

the [solar?] place (המקום) [?] … in the table (בלוח) [?] … and what comes out [?] is the … [?] …

twelve [?] (י"ב) [?] hours [?] (שעות) [?] … day (יום) [?] … the day [?] … and night [?] (ולילה) … the corrected [?] … [Damage].

[Lower portion of left column]

and the time (הזמן) [?] … and you reckon (ובחשבון) [?] … the days [?] (הימים) … "twelve [?] hours (י"ב שעות) [?]" … and also (וגם) [?] … [the day(s)?]. And when you wish to know (וכשתרצה לדעת) [?] … the time (הזמן) [?] … the rising (הצומח) [?] … [?] … the degrees (המעלות) [?] … the table [?] (הלוח) … and this (וזה) [?] … the time (הזמן) [?] … the place (המקום) [?] … [end of left column; final lines partly washed].

(Continuation of the same procedural exposition: the day-arc and night-arc, the rising and setting points relative to the horizon, and the equation/correction (התיקון) of the line. The inner gutter and the lower third are heavily stained.)

the day-arc (קשת היום) [?] and you know [?] … the horizon (האופק) [?] … [Damage: stain across the top of the column, first ~4 lines only partly legible.]

you take (תקח) [?] … with it [?] … the line [?] (הקו) … the climes (האקלימים) [?] … [?] … and what comes out [?] … the place [?] …

the equation [?] (התקופה / התיקון) [?] … and the rising-point (הצומח) [?] … differs (יתחלף) [?] from one [?] to another [?]. And when you wish to know (וכשתרצה לדעת) [?] … then you take (תקח) [?] … [Damage].

and consider (והתבונן) [?] … the day-arc (קשת היום) [?] is greater [?] (יותר) [?] … and the night-arc (קשת הלילה) [?] … the time [?] … [?] … and this [?] is the place [?] sought.

and know (ודע) [?] that the rising-point (הצומח) [?] … the position (המצב) [?] … and the equation of the [?]-cycle (השואת ה… / התקופה) [?] … [?] … [several lines obscured].

[?] … the [solar] place [?] … and the corrected line (הקו) [?] … the climes (האקלימים) [?] … and this [?] is what we sought.

and the equation [?] (התקופה) [?] … and the rising [?] (הצומח) … [Damage: stain band, mid-column, ~several words per line.]

and when (ואם) [?] … you take [?] … the line (הקו) [?] … and add [?] (ותוסיף) … and you reckon (ותחשוב) [?] … and what comes out [?] is the place sought (המבוקש) [?].

the day-arc (קשת היום) [?] … and the night-arc (קשת הלילה) [?] … the hours (השעות) [?] … "twelve [?] hours (י"ב שעות) [?]" … and also (וגם) [?] … [?] …

and we have already explained (וכבר ביארנו) [?] … the rising-point (הצומח) [?] … from the horizon (האופק) [?] … [Damage].

and know [?] (ודע) … the position (המצב) [?] … and the place (המקום) [?] … as we explained [?] … [?] … and we will explain (ונבאר) [?] … with the help of God (בעזרת ה') [?] … [the closing line of the column, leading toward a new sub-section, is washed out].

[Foot of folio, left margin, smaller hand:] **]** *(apparent quire/leaf catchword at the foot of the verso; reading uncertain, single washed word).*

Yesod Olam — Book Three, Chapter Twelve (continued)

> Sephardic semicursive hand, single scribe. Both pages are heavily faded with brown water-staining concentrated in the gutter and lower-right quadrant; ink bleed-through is pervasive. The folio carries the Hebrew foliation **93** in the upper inner margin of the recto. Running header on the recto reads "פרק" (faded); the verso shows a faded "מאמר" header. In-line red-ink procedural markers (ועתה, ושוב) survive on the verso. Many tokens are illegible at this resolution and are flagged `[?]` as

the difference [?] of the [?] degrees [?], and likewise the [?] of the [?] of the position [?]. If [?] the position is [?] degrees [?], and [?] the [?] [?] [?], the [?] [?] [?]. And we shall take [?] the [?] of the [?]; and what [?] comes out [?], that is [?] the [?] [?].

And [?] we shall do [?] for [?] the [?]; and we shall take [?] the [?], and what [?] comes out is [?] the position [?] [?] [?] [?].

And [?] you [?] this [?] [?] [?]. And the [?] of the [?] is [?] the [?] [?] [?] [?] [?], and [?] the [?] [?] [?] [?]. And [?] [?] [?] the [?] of the [?] [?] [?], and [?] [?] [?] [?].

> *[Several lines here are too faded and water-damaged to transcribe with confidence; the surviving fragments concern taking a value from the table (הלוח) for a given degree and correcting (התיקון) the resulting line/figure. Flagged as a — see report.]*

[?] [?] the [?], so that [?] it [?] [?]. And the [?] of the [?] [?] [?] [?], and the [?] [?] [?] [?] [?] [?].

And this is [?] the [?] [?] of the [?] [?] [?] [?] [?] [?] [?] [?]. And [?] [?] the [?] [?] [?] [?] [?] [?].

And [?] the [?] of the [?] [?] [?] [?] [?] [?] [?] [?] [?] [?] [?]. And [?] the [?] [?] [?] [?] [?] [?] [?] [?] [?] [?] [?].

> *[This column is among the most degraded on the page; the surviving rubric-like word at mid-column may be a chapter-marker or an ordinary noun and cannot be read with confidence. Flagged as a]*

and when [?] the [?] [?] in the [?] of the [?] [?] [?] [?]; it is [?] day [?] [?] hours [?] [?] for [?] of the [?] [?]. We shall [?] for [?] the [?]: [?] the [?] [?] [?] [?] [?] of the day [?] [?] [?] [?]; if [?] there comes out [?] the [?] [?], then [?] [?] [?] hours [?] [?] [?] [?]. And what [?] comes out [?], divide it [?] [?] [?] [?].

[Red ink: ועתה] [And now] [?].

[?] each [?] [?], we shall [?] for [?] the [?] [?] [?] [?] [?] [?] of the day [?], and [?] [?] [?].

> *[A run of compute-template prose follows, of the same form as the day-arc / night-arc procedures in the preceding batches — take a value, enter the table for the degree, correct, divide into hours. The individual numerals are not legibly recoverable here. Flagged as a]*

[?] [?] [?] [?] for [?] the [?] [?]; and [?] [?] [?] [?] [?] [?] [?]. And [?] you [?] this [?] [?], and [?] [?] [?] [?] [?].

And [?] [?] the [?] of the [?] [?] [?] [?] [?] [?] [?] [?] [?] [?] [?] [?]. And [?] [?] [?] [?] [?] [?] [?] [?] [?] [?].

[?] [?] [?] [?] [?] [?] [?]. And [?] [?] [?] [?] [?] [?] [?] [?] [?].

[Red ink: ועתה] [And now] [?] [?] [?] [?] [?] [?] [?] [?] [?] [?] [?] [?] [?] [?] [?] [?] [?].

[?] the [?] [?] [?] [?] [?] [?] of the day [?] [?] [?] [?] [?] [?]; and [?] [?] [?] [?] [?] [?] [?] [?].

> *[Mid-column there appears a red-ink word (possibly a fresh ושוב marker or a structural rubric); it is too faded to read with confidence. The column closes with further table-and-correction procedure. Flagged as a]*

Yesod Olam — Book Three (Geography / Astronomy)

> **Manuscript:** Vatican, Vat.ebr.380, Sephardic semicursive hand. Black body ink with red-ink rubrics. Both folios are water-stained with substantial bleed-through; the verso is severely degraded across much of its surface. Readings below are conservative; uncertain glyphs are flagged `[?]` and degraded zones are noted as The large diagonal Vatican Library watermark and the copyright footer are scan overlays and are not transcribed.

Column A (right column) — continuation of Chapter Twelve

and likewise [?] the remainder [המותר] that you reach [?], so too the matter is as we have explained [?]. Therefore, when the computation [החשבון] comes out [?] for you, take what corresponds to it [?] and place [?] it [?] aside, so that it not be lost from you [?].

[Several lines here are obscured by water staining and bleed-through; the surviving phrasing continues the compute-template of Chapter Twelve — entering the table (הלוח) for a given degree and applying the correction (התיקון).] [?]

when you wish [?] to know the day-arc [קשת היום] and the night-arc [קשת הלילה] [?] for that degree [?], and the correction [התיקון] that belongs to it [?]. And do likewise [?] in every case [?], for the matter [הענין] is one and the same [?]: take

the computation [החשבון] and place it [?] before you [?], and add to it [?] or subtract from it [?] according to what we have explained [?].

the table [הלוח] [?]: enter [it] with the degree [המעלה] [?] that you have [?], and take [?] what stands opposite it [?]. And when the remainder [המותר] [?] exceeds [?] what is required [המבוקש] [?], subtract [?]; and when it falls short [?], add [?]. For this is the rule [הכלל] [?] in all that is like it [?].

[Mid-column, several severely faded lines — structure only:] …and so [?] the computation [?] … and the remainder [?] … and you place [?] … [?] [degraded]

and afterward [?] you take [?] the second [השני] [?] correction [?], and you reckon [?] it [?] with the first [?]. And when the two of them [?] come together [?], that is the true [האמתי] [?] position [המקום] [?] that you seek [?]. [?]

[Lower column A — water damage intensifies; only fragments are securely legible:] …the degree [המעלה] [?] … the table [הלוח] [?] … and not [?] … [?] [degraded]

Column B (left column) — continuation, then new red-ink chapter heading

the day-hours [שעות היום] [?] and the remainder [?] … and you reckon [?] from it [?] … as we explained [?] in the chapter [?] before this one [?].

take the computation [החשבון] [?] of the sun [חמה / השמש] [?], and enter [?] with it [?] the table [הלוח] [?], and take [?] what is opposite it [?] of the correction [התיקון] [?]. And when [?] you have done this [?], you will know [?] the true [האמתי] [?] position [?]. [?]

and so too [?] for the moon [?] [Interlinear or marginal: …] [?] and the rest of the planets [?], the matter [?] is according to this rule [?]. And understand [והתבונן] [?] this [?] well [?], for [?] it [?] is a great principle [?].

[Several faded lines bridge to the rubric below; structure only.] [?]

[Red ink header:]

> **פרק [number] — Chapter [Thirteen / י"ג?]**
>
> [Red-ink rubric, partly faded; the chapter-number letters are not securely legible. The running counter (פרק / שער share one count in this work) reads what appears to be "פרק שלשה עשר" ("Chapter Thirteen") [?] — transcribe verbatim; number uncertain.]

[Red ink: "פרק שלשה עשר" [?] — "Chapter Thirteen"] [?]

We wish now [?] to make known [להודיע] [?] the measure [שיעור] [?] of the day-hours [שעות היום] and the night-hours [?] for any [?] day [יום] [?] that you wish [?].

[Black body:] Know [דע] [?] that the day [היום] [?] is [?] … [?] from the rising [?] of the sun [חמה] [?] until [עד] [?] its setting [?]. And the night [הלילה] [?] is from its setting [?] until [?] its rising [?] [the following day [?]]. [?]

and when [?] the sun [חמה] [?] is in [?] the [?] equinox [?] [or: at the line of the equator [קו המישור] [?]], the day [?] and the night [?] are equal [שווים] [?], each one [?] twelve [?] hours [שעות] [?]. [?]

and when it [?] departs [?] from there [?] toward [?] the north [צפון] [?], the day [?] grows longer [?] and the night [?] grows shorter [?]; and when it inclines [?] toward [?] the south [דרום] [?], the reverse [?]: the day [?] grows shorter [?] and the night [?] grows longer [?].

[Lower column B — moderate fading:] …the longest [?] day [?] … and the shortest [?] day [?] … according to [?] the latitude [?] of the [?] climate [האקלים] [?] in which [?] you are [?]. And understand [?] this [?]. So too [?] in [?] every [?] climate [?] … [?] [?]

> **Severe water damage and heavy bleed-through across this folio.** The lower-left quadrant and the right margin of each column are largely effaced. Only structural skeleton and isolated phrases are recoverable. The entire folio is flagged as a**

Column A (right column)

[?] the matter [העניין] [?] … and you reckon [?] [?] … the computation [החשבון] [?] … [?] [first lines effaced]

take [?] the day-arc [קשת היום] [?] … and divide it [?] … by [?] … so that [?] you obtain [?] the measure [שיעור] [?] of the hour [השעה] [?]. [?]

and these [?] are [?] the temporal [?] hours [שעות זמניות?] [?] — that is [?], the hours [?] that change [?] in [?] length [?] according to [?] the season [?]. [?]

[Mid-column — several effaced lines.] [?] []

and when [?] you wish [?] to convert [לשוב / להפך?] [?] them [?] to [?] equal [שוות] [?] hours [?] [i.e., equinoctial hours [?]], do [?] thus [?]: … [?] [the conversion procedure follows but is largely illegible] [?]

[Lower column A — heavily effaced; bleed-through dominates. The faint reddish-tinged lines visible here are bleed-through from the recto's red rubric and are not transcribed.] [?] []

[Near the foot of column A, a securely-blacker line:] …and you multiply [?] … the climate [האקלים] [?] … this [?] is [?] the [?] true [?] [measure] [?]. [?]

Column B (left column)

[?] … and likewise [?] … the moon [הלבנה / הירח?] [?] … [?] [opening lines water-damaged] [?]

and the day-arc [קשת היום] [?] … and the night-arc [קשת הלילה] [?] … and you take [?] the difference [?] between them [?] … [?].

and when [?] the [?] degrees [המעלות] [?] … rising [?] [הצומח / the ascendant?] [?] … the horizon [האופק] [?] … [?].

[Mid-column B — moderate legibility; compute-template language:] …take [?] the computation [החשבון] [?] and enter [?] the table [הלוח] [?], and take [?] what is opposite it [?]; and when [?] the remainder [המותר] [?] … add [?] or subtract [?] according to [?] what [?] we explained [?]. For [?] this [?] is [?] the rule [/ הכלל הדרך?] [?] in [?] all [?] that [?] is like it [?]. [?]

and so too [?] … the [?] correction [התיקון] [?] … and you place [?] it [?] aside [?] … so that [?] it [?] not [?] be lost [?]. [?]

[Lower column B — several lines, then a securely-legible closing clause:] …and when [?] you [?] have [?] done [?] all [?] this [?], you will know [?] the [?] measure [שיעור] [?] of [?] the [?] day-hours [שעות היום] [?] and [?] the [?] night-hours [?] for [?] any [?] day [?] that [?] you [?] wish [?]. And [?] understand [והתבונן] [?] this [?]. [?]] [or: והמדה [?] — reading uncertain]

Book Three (מאמר ג) — Chapter Thirteen (continued)

Primary script: Sephardic semicursive, single main hand. The opening of this batch continues Chapter Thirteen on the reckoning of day-hours and night-hours; a red-ink rubric introducing Chapter Fourteen appears partway down Both folio sides are badly faded with heavy ink bleed-through, water-staining across the inner columns, and edge loss along the outer margin; many readings below are flagged accordingly.

[continuation of Chapter Thirteen]

and the arc of the day and likewise the arc of the night [?]. And just as the arc of the day [?] is divided into twelve temporal hours (שעות זמניות), so too the arc of the night is divided into twelve temporal hours [?]. Therefore the length of an hour of the day in this case differs from the length of an hour of the night [?].

When you wish to know the magnitude of these hours, take the arc of the day [?] and divide it into twelve equal parts; each part is the measure of one temporal hour of the day. Do likewise with the arc of the night, and each of its parts is the measure of one temporal hour of the night [?].

[The following several lines are heavily degraded by water-staining and bleed-through; only fragments are securely legible.] …for the measure of the [temporal] hour [?] is according to the place [?] and according to the season of the year [?]… and the difference between the day-hour and the night-hour [?]… until [?]…

this was the [matter of] the temporal hour, and now [ועתה] consider [התבונן] the equinoctial hour [שעה שוה] [?]. Know that the equinoctial hour is one of the twenty-four equal parts into which the [?] day and its night [?] together are divided. By this measure the [astronomers / חכמים] reckon [?]…

[Approximately 4–5 further lines, degraded.] …and the equinoctial hours [שעות שוות] are equal to one another in every place and in every season [?], whereas the temporal hours are not equal [?]… and from this [?]… they reckon [?] … And [you already know] [?] that [?] the [?] hour [?] is fixed [?].

[Red ink: **פרק ארבעה עשר**] (Chapter Fourteen)

[Red ink: …] [?] — *[a short red-ink phrase follows the chapter number, heavily faded; reads approximately] שתי [?] בכאו"ל [?]… ("…the two…")* — and the beginning is as follows [?]:

The reckoning [החשבון] which we set forth [?] for [knowing] [?] the temporal hours and the equinoctial hours [?], and to convert [?] one of them into the other [?] — [we shall now explain] [?] how you may [reckon] [?] [the hours] [?] from one to another [?].

[The next several lines are faded.] …Know that when [?] the arc of the day [?] is known [?] to you [?], and you wish [?] to convert [?] equinoctial hours [שעות שוות] into temporal hours [שעות זמניות] [?]… take the [?] arc of the day [?] and divide it [?]…

and you already know [?] that the temporal hours [?] differ [?] according to the place [?] and the latitude [?] [רוחב המקום] [?]… [degraded] …and likewise [?] in the [?] arc of the night [?].

[The lower portion of the left column, roughly the final 6–8 lines, is largely illegible from water damage and bleed-through. Partial fragments only:] …the equinoctial [hours] [?]… according to [?] the [?]… and likewise [?] [וכמו כן] in [?] this [?]… for [?] the season [?] of the year [?]… [?] … the difference [?] … from one to another [?] … and this [?] suffices [?]. [Damage: outer-margin edge loss, ~2–3 words per line lost on the final lines.]

[Chapter Fourteen continues, then a new rubric]

[The top of the right column is heavily degraded.] …and you take [?] the arc [?]… [Damage: water-stain across upper inner column.] …so too [?] [degraded] … Therefore [?]…

[Several degraded lines.] …and when [?] you wish [?] to convert [?] the [?] hours [?]… do the opposite [?] of what we [explained] [?] [in] the [first] reckoning [?]… and from this [?] you will arrive at [?] the desired result [המבוקש] [?].

and [thus] [?] the matter [?] of [?] this chapter [?] is completed [?].

[Red ink: **פרק חמשה עשר**] (Chapter Fifteen) [?]

[A short red-ink phrase follows, faded; reads approximately] לדעת [?]… ("To know…") [?]

[The chapter opens. Heavily faded.] Know that [?]… the [?]… [degraded] …the rising-place [?] [המזרח / the east] [?] and the setting-place [?] [המערב / the west] [?] of the [?]…

[Several lines, partly legible.] …and this is [?] [according to] the latitude [?] of the place [?] [רוחב המקום] [?]… and the [arc] [?]… [degraded] …and when [?] [the sun] [?] is in the [?]… [degraded] …and likewise [?] [וכן] when [?]…

and you already know [?] [וכבר ידעת] that the [?]… [degraded across 3–4 lines] … the [?] horizon [האופק] [?]… and the [?]… [degraded]…

[Lower-right column, several degraded lines.] …and [?] from this [?]… you will [know] [?] the [?] [rising-place / setting-place] [?] of [?] [the sun / the star] [?] [?]… and this [?] [is what we] [?] sought [?].

[The left column is the earlier-reading column on this opening; it continues the running text. Heavily degraded throughout — water-stain across the inner gutter and bleed-through. The securely legible fragments:]

and the [?] of the [?] is [?]… [degraded] …and when [?] [the place] [?]… [degraded] …[the arc of the day] [?] and [the arc of the night] [?]… [degraded] …and this [?]…

Know [?] that [?] [degraded] …according to [?] the [?] and the [?]… [degraded]… and likewise [?] in [?]…

[Several further degraded lines, mostly illegible.] …and [you will find] [?] the [?]… [degraded] …two [?]… [degraded] …and this [?] is the [?] [matter] [?]… [degraded]…

[Foot of folio:]] *(faded catchword at lower-left *

Yesod Olam — Book Three (Geography/Astronomy)

> Manuscript witness: Vatican Library, Vat.ebr.380, Sephardic semicursive hand. Both folio sides are substantially faded, with edge loss at the outer corners and water-staining intruding into the lower and inner margins. Several lines — especially toward the bottom of each column and along the gutter — are degraded to the point of partial illegibility. Readings flagged `[?]` are genuine ambiguities after careful examination; the most degraded passages are noted as in the report.

Right column (read first):

[Red ink: ועתה] And now [the chapter] returns to its subject. [The text continues with the demonstration of the sun's rising-place and setting-place on the horizon as a function of the observer's latitude.]

In a region [whose latitude] is such, the rising-arc [קשת] is so-and-so [?], and the place of the sun [מקום החמה] upon the horizon [על האופק] is set forth accordingly. From this you understand [התבונן] how the rising-place [הצומח] and the setting-place are displaced toward the north or toward the south [… צד צפון צד דרום] in proportion to the [solar] declination [נטיית [?]] and in proportion to the latitude [רוחב] of the region. [?]

When the sun [החמה] is at the head of Aries [ראש טלה [?]] or at the head of Libra, it rises [it ascends] due east and sets due west, for then it lies upon the equator [קו

המישור [?]], and on that day the day-arc [קשת היום] equals the night-arc [קשת הלילה]. [?]

But when the sun departs [from the equator] toward the north — when it is in the northern signs — its rising-place is displaced toward the north of the east-point, and its setting-place toward the north of the west-point; and the measure of that displacement [המותר / היתר [?]] is according to the [solar] declination at that place and according to the latitude of the region. [?] When the sun is in the southern signs, the displacement is toward the south by the like measure, [each rising-place and setting-place corresponding to its counterpart]. [?]

And the rising-arc [is computed] so that you take the declination [?] and operate upon it as [taught] above, [until you obtain] the place of the sun upon the horizon for that region. [?] [Several words here are abraded — [?].]

[Lower portion of the right column is badly faded along the water-stain; a continuous reading is not possible. Fragments recovered:] … and the rising-place [הצומח] … the horizon … toward the north [צד צפון] … and toward the south … by this you will know [תדע] the place of the sun and the rising-place for every region and every latitude. [?]

[Red ink: ושוב] And again, [the text turns to a further case]: [?] the chapters [הפרקים [?]] [and the matter is set forth] for the temporal hours [שעות זמניות] and the equinoctial hours [שעות שוות] [?] … [as was taught].

Left column (read second):

[The opening lines are faded.] … and from this [you understand] [?] … the rising-place of the sun [צמיחת [?] החמה] … [?]

The far point [המרחק [?]] which is so-and-so [?] — take [it] and operate upon it [as] above; [and the result is] the place of the sun upon the horizon. [?]

[Mid-column, a worked illustration:] Take, for example, [the case where] the declination [?] is such-and-such [קשת [?]] and the latitude such-and-such [קשת [?]]; then [the rising-arc / the displacement] is so-and-so. [The specific numerals here are too abraded to read with confidence — transcribed only as letter-fragments; flagged [?] and noted as a] [?]

so-and-so [?]. [The text appears to work a second numerical example for a contrasting latitude, but the figures along the lower third of the column are lost to water-staining.] [?]

[Lower left column, fragments:] … the [solar] declination [?] … the latitude of the region … the place of the sun … and the rising-place [הצומח] … upon the horizon. [?] By this method you find the place of the sun and its rising-place for any region whose latitude is known. [?]

[Bottom two lines faded; fragments:] … and the far point [המרחק [?]] … and the place of the sun [מקום החמה [?]] … [?]

Right column (read first):

[Opening lines faded.] … the place of the sun [מקום החמה [?]] … the rising-place [הצומח] [?] … upon the horizon [על האופק]. [?] If the sun is in the northern signs [?], its rising-place lies toward the north; if in the southern signs, toward the south. [?]

[worked statement:] the rising-arc [קשת [?]] is so-and-so, and the displacement [המותר [?]] from the east-point is so-and-so. [Numerals abraded — [?].] [?]

[Mid right column:] And you already know [וכבר ידעת [?]] that the day-arc [קשת היום] together with the night-arc [קשת הלילה] complete the full circle [the whole revolution] [?]; and the temporal hour [השעה הזמנית] is the [twelfth] part [חלק [?]] of the day-arc, while the equinoctial hour [השעה השוה] is the [twenty-fourth] part of the whole. [?]

by this you reckon [תחשוב [?]] the hours of the day and the hours of the night for any region and any latitude, and the rising-place and the setting-place of the sun [?] … [several abraded words] … upon the horizon. [?]

[Lower right column, fragments along the stain:] … and the displacement [היתר / המותר [?]] … toward the north [צד צפון [?]] … and toward the south [צד דרום] … the [solar] declination [?] … [?]

[Near the foot of the right column, a red-ink in-line marker:] [Red ink: ועתה] And now [the text proceeds to the next matter]. [?] [The remaining words of the line are faded.]

Left column (read second):

[opening faded] … [?]

[Mid-left column — a small ruled table appears, with a header line and a single short row beneath. The cells are abraded; the header row is in part rubricated. Transcribed as best as legibility permits:]

[?]	ה	ד	ג	ב	א
[?]	[?]	[?]	[?]	[?]	[?]

[Red ink header (left of the table): [Red ink: מורה [?]] / "indicator(s)" [?] — the rubricated word(s) heading the table are faded; further reading requires further verification.] [The table is a short tabulation of values keyed to lettered columns (א–ה); the numerical entries are illegible. Marked as a]

Below the table the prose resumes:

The far point [המרחק [?]], which is so-and-so, take and operate upon it [as] above [?]; [and the result] is the place of the sun upon the horizon for that region. [?] By this you find the rising-place [הצומח] and the setting-place of the sun, and the day-arc and the night-arc, and from them the temporal hours and the equinoctial hours, for every region and every latitude. [?]

[Lower-left column, fragments:] … so that the day [היום [?]] … the night [?] … the latitude of the region [רוחב [?]] … the rising-place [הצומח] upon the horizon. [?] And take the far point [המרחק [?]] … and operate … the place of the sun [מקום החמה [?]] … and the rising-place [?] … [final lines abraded]. [?]

Yesod Olam — Book Three (Geography/Astronomy)

Translated from Vatican Library, Vat.ebr.380 (Sephardic hand). Book Three continues — rising/setting amplitude and the day-arc material, leading into a new chapter (פרק) headed in red ink.

Right column (read first)

the place of the sun, which is upon the horizon, is so-and-so. [?] When you wish to know the rising-arc, take the declination of the sun for its place, and multiply [?] it by the ratio [?] that holds for [?] that horizon, and what comes out [?] is the displacement (המותר) from the east-point.

[?] Afterward, take a second [?] reading: the rising-arc (קשת) such-and-such degrees. This place [?] which is upon the horizon — its [?] declination is so-and-so. [?]

[?] If it falls [?] toward the north of the east-point, you know [?] that the sun is in the northern signs; and if [?] toward the south, then it is in the southern [signs]. [?]

And again, take [?] the rising-arc such-and-such degrees [?].

[?] And we have already explained [?] that the rising [reading] [?] when this is the case — that the displacement here [?] is greater than the [?] east [?]. [?] But the southern [?] declination [?] when it is [?] of the great circle [?], its rising [reading] [?] will be [?] this. [?] For if upon the horizon there is a difference [?], and what remains [?] is the displacement [?].

When you know the [?] [Interlinear/marginal correction: illegible] —

[Red ink: ושוב] ("And again") [marginal/in-line red marker]

[?] When you know [?] this multiplication [?] —

[?] take the declination such-and-such [?] which [?] this place [?] which is the rising-place [?]. [?] Like that [?] which we said [?] before [?], the rising-arc, this [?] —

[?] you take [?] the night-arc [?] which [?] is the complement [?] [Latin/abbrev illegible]. [?] And [?] the day-arc [?] upon the horizon [?] which is the rising [reading] [?], the displacement [?], so-and-so. [?]

[Table reference — partial ruled table; see below]

[Red ink header / table top row labels — faded]

The following short ruled table appears at the foot of the right column, immediately above the "Chapter Fifteen" rubric. The header rule carries single-letter (numeral/parameter) column labels written with the abbreviation stroke; beneath are three row-labels whose letters run across the ruled columns (the scribe used the column rule as letter-guides — the cells are not independent numerals). Columns are given in manuscript reading order, right→left.

(row label)	א	ב	ד	ר	ם
לשאר [?]	ל	ש	א	ן [?]	—
מישב	מ	י	ש	ב	—
מזרח ("east")	מ	ז	ר	ח	—

[Header far-left group stub reads most plausibly ג *(group index); flagged* [?] *(*ג *vs* ל*). Row-1 label* לשאר *flagged* [?] *(final glyph* ר *vs* ן*). The earlier "Shevat / gematria 311" reading is retired: the rows are label-words spelled across the rule, not month-names or numeric values. Trailing — cells are genuinely empty (labels shorter than the header rule), not carry-overs.]*

at scan floor.]

[Red ink: פרק חמשה עשר] — Chapter Fifteen

[Red ink, immediately following: בסאור קשת …] [= "On the explanation of the arc…"] [?] [Running-line red rubric, faded]

[?] [marginal note in red: למזרח [?] — "to the east" [?]]

The beginning of [?] knowledge [?]: through the table [?] you produce [?] the rising-place [?] for [?] the rising-arc [?] of the sun [?], by [?]. [?]

[?] For [?] you may [?] know [?] the declination [?]. [?] The [?] day [?] —

[?] Now [?] you take [?] the day-arc [?], and [?] you multiply [?] it [?] by [?] the [?] difference [?] of [?] the rising-place [?] from [?] the [?].

[?] [Several lines at the foot of the column abraded — text loss.]

Left column (read second)

[?] And his [?] place [?] which [?] upon the horizon [?] is so-and-so [?]. And [?] so [?] —

[?] and [?] if [?] the [?] place [?] of the sun [?] which [?] —

[?] When [?] the rising-arc [?], you [?] take [?] —

[?] this [?] which [?] is [?] the rising-place [?]. [?] Like [?] that [?] which [?] —

[?] the displacement [?] from [?] the [?] east [?] —

[?] you [?] take [?] the day-arc [?], which [?] —

[?] and the night [?] arc [?] —

[?] And again [?], we have explained [?] that the rising [reading] [?] —

[?] [text abraded] —

[?] the day [?] which [?] is so-and-so [?], and [?] the [?] hours [?] —

[?] [Red ink: וזה] [?] ("And this") [in-line red marker, faded]

[?] When [?] you [?] know [?] —

[?] the horizon [?] —

[?] the [?] complement [?] which [?] —

[?] [several lines abraded] —

[?] for [?] the [?] light [?] which [?] —

[?] this [?] reckoning [?] —

[?] the place of the sun [?] —

[?] And again [?] [Red ink: ונחזור] [?] ("And we return") [?] —

[?] the rising-arc [?] upon the horizon [?] which [?] is so-and-so [?]; for [?] —

[?] and [?] —

[?] [foot of column abraded] —

Right column (read first)

And the boundary [?] of [?] the [?] reckoning [?] and [?] the number [?] of [?] the [?] places [?] which [?] —

[?] for [?] the [?] place [?] of [?] the [?] horizon [?] which [?] —

[?] the rising [?] and [?] the [?] degrees [?] which [?] —

[?] when [?] —

[?] And [?] when [?] the place [?] [?] you [?] take [?] the [?] —

[?] [Red ink: ואחר כך] [?] ("And afterward") [?] —

[?] you [?] take [?] the [?] declination [?] and [?] you [?] multiply [?] —

[?] [text abraded] —

[?] which [?] is [?] the rising-place [?] —

[?] and [?] the [?] —

[?] When [?] you [?] wish [?] to [?] know [?] —

[?] the [?] sun [?] which [?] is [?] in [?] the [?] northern [?] signs [?], its [?] rising-place [?] toward [?] the [?] north [?]; and [?] if [?] southern [?], toward [?] the [?] south [?]. [?]

[?] [several lines abraded toward the gutter] —

[?] the day [?] which [?] —

[?] the [?] hours [?] which [?] —

[?] When [?] you [?] know [?] —

[?] the [?] number [?] which [?] —

[?] the [?] times [?] which [?] —

[?] [Red ink: ואחר זה] [?] ("And after this") [?] —

[?] you [?] take [?] —

[Red ink: ויתכן] [?] ("And it is possible") [in-line red marker, faded]

[?] When [?] you [?] know [?] the [?] —

[?] the [?] declination [?] which [?] —

[?] the [?] rising [?] —

[?] [foot of column abraded] —

Left column (read second)

[?] And [?] he [?] knew [?] that [?] the [?] horizon [?] which [?] —

[?] the [?] number [?] of [?] the [?] reckoning [?] —

[?] [text abraded] —

[?] When [?] you [?] take [?] the [?] day-arc [?] which [?] —

[?] and [?] the [?] night-arc [?] which [?] —

[?] [Red ink: וזה] [?] ("And this") [in-line red marker, faded]

[?] If [?] —

[?] And [?] the [?] horizon [?] which [?] —

[?] you [?] take [?] —

[?] the [?] rising-place [?] which [?] —

[?] [several lines abraded] —

[?] you [?] take [?] the [?] hours [?] which [?] are [?] —

[?] the [?] temporal [?] hours [?] [שעות זמניות] [?] —

[?] and [?] the [?] equal [?] hours [?] [שעות שוות] [?] —

[?] When [?] you [?] wish [?] —

[?] [text abraded] —

[?] [Red ink: וכבר] [?] ("And already") [?] —

[?] the place of the sun [?] which [?] —

[?] the [?] rising [?] which [?] —

[?] and [?] the [?] reckoning [?] —

[?] [Red ink: ויתכן] [?] ("And it is possible") [?] —

[?] you [?] —

[?] the [?] declination [?] which [?] —

[?] [foot of column abraded — text loss]

Yesod Olam — Book Three (Geography / Astronomy)

Script: Sephardic semicursive, single primary hand throughout. Red ink used for structural in-line markers and one section rubric. Folio "98" is written in the upper-left margin of the spread (Hebrew-Arabic numeral, modern/foliator hand). The two columns on each page read right-column-first (right-to-left). Significant water-staining at the lower portion of the inner (gutter) side of page 202, and edge abrasion at several outer margins.

the rising-point (הצומח) [?] over the eastern horizon, the rising-arc (קשת) and the displacement (המותר) [from the east-point]; therefore the determination follows accordingly. When the declination is northern, the rising-arc is added [to the quadrant]; and when it is southern, it is subtracted — and from this the rising-place over the horizon is known.

And now (ועתה), set your mind to grasp the matter of the day-arc (קשת היום) and the night-arc (קשת הלילה). For when you know the rising-arc of any [given] degree, and you double it, the result is the day-arc of that degree; and what remains of the whole circle [360°] is the night-arc. [?]

[Several lines here are abraded and partly obscured by a faint water-stain at the inner margin; the thread of the argument is the relation of day-arc and night-arc to the seasonal hours (שעות זמניות) and the equal hours (שעות שוות).] [?]

When you wish to know the seasonal hour from the equal hour, or the equal hour from the seasonal — take the day-arc and divide it by twelve, and the quotient is the measure of one seasonal hour [in degrees]; for the day is [reckoned as] twelve seasonal hours, whether the day be long or short. [?]

And likewise the night: take the night-arc and divide it by twelve, and the result is the measure of one seasonal hour of the night.

[Several further lines, partly abraded:] …And from the measure of the seasonal hour you may convert to equal hours and back, for fifteen degrees [of the equator] correspond to one equal hour, since the whole revolution is three hundred sixty degrees [completed] in twenty-four equal hours. [?]

[The left column continues the same discussion of arcs, hours, and the rising-place.]

the regions/climes (האקלימים) [?]; for the further [a place lies] toward the north, the more the length of its longest day increases, and the more its shortest day diminishes — and this is plain from what has [already] been set down. [?]

the matter of the elevation of the pole [?] above the horizon, [for] in [each] place the latitude of the place equals the elevation of the [celestial] pole above its horizon; this is a fundamental [principle] settled among the masters of this science (חכמי החכמה הזאת) [?]. [Several lines abraded.]

[Mid-column there is a worked illustration in words — a sample computation:] … take the [given] place [latitude] [?]; and when the elevation of the pole is such-and-such, the rising-arc of the degree comes out to such-and-such, and from it the day-arc and the night-arc [follow], as has been explained. [?]

[The lower third of the left column is increasingly abraded along the bottom edge; readings here are tentative.] …And he said: this is the way (וזה הדרך) [?] — observe it, and you will find it correct in every place and in every degree. [?]

and we do not need [to dwell on] it, for it is already understood from what has preceded. [?] But [as for] the rising of the days [i.e., the day-length], the matter is [as follows] — [Red ink in-line marker: ושוב ("and again")].

[Red ink in-line marker: ועתה ("and now")] — set your heart [to this].

When the sun (חמה) is at the head of Aries (ראש טלה) [?] or the head of Libra, it rises due east and sets due west, and on those two days the day equals the night in every inhabited place [?]; for then [the sun] is upon the equator (קו המישור) [?] and has no declination at all. [?]

[A passage on the obliquity and the movement of the sun between the two solstitial points:] And when [the sun] departs from the equator toward the north, the day grows longer than the night in the northern inhabited [regions], until it reaches the head of Cancer (ראש סרטן) [?], which is the utmost of its northern declination; there the day is at its longest. [?]

And when it departs toward the south [?], [reaching] the head of Capricorn (ראש גדי) [?], the day is at its shortest [in the north] and the night at its longest. [?]

[Several lines continue the symmetry argument between the two halves of the zodiac.] …and what is added to the day in the one [half] is subtracted from it in the other, [the two being] equal and opposite. [?]

[This column continues the discussion of converting between seasonal and equal hours, with a worked numerical example.]

[and the remainder] is the measure of the seasonal hour. [?] And he said: take the day-arc, and divide [it] by twelve [?]; what comes out is the measure of one [seasonal] hour. And know that the seasonal hours of the day and the seasonal hours of the night together [make] twenty-four [?] — that is, twelve and twelve. [?]

[A worked example in words:] When the day-arc is [a given number of] degrees [?], divide it by twelve, and what comes out is the [length of the] seasonal hour [in degrees of the equator]; and from the degrees you convert to equal hours at the rate of fifteen degrees to the [equal] hour. [?]

[Several lines, partly abraded along the inner margin:] …and likewise for the night, [the procedure is] correspondingly [the reverse]. [?]

[Lower portion of column — water-stained and abraded; the text appears to close the chapter and transition. Readings here are tentative:] …And this is the way; observe it [?]. And when you have grasped all that we have set down in this

chapter, the matter of the hours and the arcs will be plain to you in every place and in every clime. [?]

Vatican Library, Vat.ebr.380. Sephardic semicursive hand. Folio 99 recto/verso (marginal "99" visible on p. 203).

PDF p. 203 (folio 99r)

Right column (continuation of Chapter Fifteen)

along the path of the [planet] until [its position] is opposite the head [of the constellation]; and consider [it]. Then add the equation-of-the-cycle [שיעור השוואת ההקפה], and [from?] there [its] gates will come out [for] you. And consider this further. [?]

[Red ink marker: נסמן / "we mark"] When we wish to compute its [the planet's] returns to [its mean position?], take what is given [?]:

Its remainder [its surplus, היתר] toward the head [of the constellation] — bring it [to bear] upon the [computed] place. [?] And in order that this [matter] be made fully clear to you, take for yourself a given example: that the planet — its true position [should be?] at some computed number of degrees [?]. And [it] amounts to its surplus toward [the head] — bring it [forth?]. From what [is] given [?], compute its surplus [?], for from it [comes?] its surplus. [?]

Whoever puts in [front of?] him a single degree — for [the] sake of [the] computation [?] — and computes a degree of the equation [תיקון], [will?] retain its surplus, this position [?]. Upon [the] true position, its true [position] and its surplus [?]. As [in] what [we] said in the chapter, [its?] surplus [?].

When its measure is — and [it] goes [up?] for completion, [and we?] mark the surplus [?]. [?] The surplus, [that] all [of] it be equal [to] the arc of [its] cycle [קוטר ההקפה?], according to its reckoning [?]. We computed [by] the way of the equation: the [planet?] arrives [at] its [?]; its [?] reckoning [?]. And we computed it [?], and [we?] take what [is] given for it, and [we?] complete its [reckoning]. [?]

The equation — [if?] it were the surplus, and [it] proceeds along the arc of the equation [?], the calculation [should be?] equal [?]. [If] all [of it] is equal to the surplus, then [in?] its determination [we?] correct [?]. [?] By [the] way [of?] Jerusalem — by [the] reckoning [?] equation [?] in [the?] cycle [קו ההקפה?] of [?].

If at [the] hour [that?] the [planet's] portions [חלקים] precede [or?] come [out?], [then?] according to its quantity[?]. [?] All [the] day, this [is] the rule [?]; and this [is] [its?] reckoning [?].

The sun [השמש] and [the] moon [הלבנה] — the [computation?] for them [is according to] their motion [?]. By the way of the equation [?] their cycle, this is the [?]. According to what [we] said before [?], the surplus [?]. Whoever proceeds in [the?] portions [?] of the cycle, [there is?] a [given?] [?]. As [in] what [we] said before [?]: a portion [חלק], a moment [רגע], and [its?] reckoning [?].

[Margin: faded annotation, illegible — [?]]

Left column

[Red ink header: **פרק שנה עשר** — "Chapter Fifteen"]

: this rubric reads as "Chapter Fifteen" but the prior batch was already within Chapter Fifteen; possible scribal repetition or a new sub-section. Transcribe verbatim.)*

[Sub-heading / red: דין החלוק — "The rule of the division" [?]]

We [now] turn[?] to set out the [computational] tables [הלוחות] which [are] before us, [each] according to [the] way [of] its[?] reckoning [?]; and to interpret [the] gates [שערים] and [the] cycles [ההקפות] [?], the position [?]. [?]:

The position [המקום] — take [it] for the moon [?], and [it] proceeds [along] the [?]. Take the place [המקום] [for?] its computation, [from?] the table [הלוח] of the moon [?]; understand [it] for[?] its returns [?]. [?] [Margin / interlinear: בעלה? — [?]]

[Take?] what is given [for] him [?]; and to[?] its [reckoning], take [the] rule [?]. So consider its [?], and [its?] place [?]. [?]

[Take?] in the [?] [Margin: בעטרא? / [?]] upon [the] tables [הלוחות] [?], the [?] true [?]. [?] By the way [of] equation [?], its place [?]. He who [?] [its] true [?], and [?] [the] place [?] [?].

The figure [התמונה] [should be?] for him [?], according to [its] reckoning [?]; in [the] true [?] [Margin: faded — [?]] [?]. Whoever proceeds [along?] the[?] cycle [ההקפה?], to[?] its [reckoning], take [the] rule, [and?] [its] place [?].

The reckoning [?] — its place [?] [?], the true [position] [?]. And [its?] surplus [?]. [?]

The reckoning [for] the moon [?] [Margin: faded] [?]: the true place [המקום האמתי] [?], so consider [it]. So [take?] for the surplus [?]; [the] sun [?] [its] reckoning [?]; the place [?]. [?]

[Margin, lower left: faded annotation — [?]]

[End of column / page.]

PDF p. 204 (folio 99v)

Right column (continuation)

thus [it is]; and [we?] returned [to?] [the?] reckonings [?], [the?] additional ones [?], [and?] [we?] said two[?] [?]. After[?] the introduction [ההקדמה] [?], when [we] computed [the] additional [?], the surplus [?]. [It is] not[?] thus the introduction [is] explained [?]. The surplus [?] take [for] him [?] this [?]; according to [?] take[?] [?] [?].

Its name [?] — [we?] proceed [along] the[?] way [?], [we?] put [for?] him [?] the place [?]. After [it?] [is] explained [?], its place [?]. [?] [we?] computed [the] additional [?], its surplus [?], [for] the reckoning [?] [the?] addition [?]. [?]

The introduction [ההקדמה] [?] — [we?] computed [?] [the?] surplus[?] [its?] reckoning [?]. The position [?] [the] true [?]; [the] [?] reckoning [?]. And consider its [?] [?].

And [its?] surplus [?], [and?] consider [its?] [?]. [?] before [him?] [?]. According to [the?] reckoning [?] this [?] take [for] him [?]; [and?] [the?] place [?]. [?]

The way [of?] this[?] reckoning [?]: take [for] him [?] [the?] [?]. [?] He whose[?] reckoning [?] [and] computes [?] [the] additional [?], the [introduction?] [?] [and] the proofs [?] [Margin: faded] [?]. [?] [we] said, take [for] him [the?] [?].

[?] [we?] computed [?] [the] additional [?], [its?] surplus [?], [and?] [it is] not[?] [the] proof [?] [Margin: שאלה? / "question" [?]]. The proof [?]: [we?] put [it?] [?] before [him?] [?]. So [take?] for [the?] [?], [and?] [we?] complete [?] its [reckoning] [?].

[?] [the?] true [?]; [its?] place [?]; [the?] reckoning [?] before [him?] [?]. [?] [we?] take [for?] him [?]; so [take?] for the surplus [?]; [and?] [the?] place [?]. [?]

[Red ink marker: ושוב / "and again" [?]] [?] [we] return[?] [to?] the[?] [?].

[?] [we?] said, take [for] him [?]: [and?] the [introduction?] [?] [its] place [?]. [?] All [the?] [?] [we?] computed [the] additional [?] [Margin: faded] [?]. After [the?]

reckoning [?] [?], [the] true [?], [it is?] [?]. So [take?] for the surplus [?]; [and?] consider [its?] [?]; [and?] [we?] complete [?] [its] reckoning [?].

Until [the?] surplus [?] [its?] place [?] [?]; [the?] [?] reckoning [?]; [and?] [the?] [?]. [?]

[Margin, lower right: faded annotation — [?]]

Left column (continuation)

"]

until [it amounts to?] [?]. [In?] the introduction [?] take [for] him [?] [Margin: עב חולק? / [?]]. The position [?] [its?] [?] take [for] him [?]; [the] additional [?] [?]. The position [?] upon the table [הלוח] [?]; [the] place [?] [its?] reckoning [?] [?].

[Whoever?] proceeds [along] the [?] [Margin: faded] [?], [the] true [?] [?], [the?] additional [?]. [?] consider [?] before [him?] [?]: the[?] place [?] [?]. [?]

[?] put [for?] him [?] [the?] reckoning [?] [?]. The true [?]; [its?] place [?]; [its?] surplus [?]. [?] When its [?] take [for] him [?] [the?] place [?]. [?]

[?] [the?] reckoning [?] [?], the position [?] [?]. [?] before [him?] [?] [the?] [?] [?]. [?] [we?] computed [the] additional [?]; [its?] surplus [?] [?]. [?] [we?] said in the chapter [?] [Margin: faded] [?]. The surplus [?] [?]: [the] true place [המקום האמתי] [?]; so consider [it]. [?] [we?] complete [?] [its] reckoning [?].

[?] When its measure [?] [and?] [it] goes [up?] [for?] completion [?]; [and] [we?] mark [the?] surplus [?]. [?] The figure [התמונה] [should be?] for him [?] [?], [the?] true [?] [?]. According to [the?] reckoning [?] [?]; [the] place [?] [?].

The way [of?] the equation [?] [?] [Margin: faded] [?]: He whose[?] [reckoning] [?], [and?] [its] true [position?] [?], [the?] place [?]. [?]

[Margin, lower left: faded — [?]]

[End of batch.]

Yesod Olam — Book Three (Geography / Astronomy)

Translation from Vatican, Vat.ebr.380 (Sephardic semicursive hand). Procedural prose on using the astronomical tables (הלוחות) to derive the true positions of the

sun and moon, the surplus/equation, and the day- and night-arcs. The pages are heavily damaged by water staining and foxing across the lower portion of both folios; many readings are necessarily uncertain. Two text columns per page, read right-to-left. Red ink is used for paragraph dividers and a small number of structural markers.

---

you have set down [Red ink: the surplus]; consider it well: from the place of the true [position] for you, with respect to the place you …[?] …[Red ink: ¶]

And when the surplus [המותר] of …[?] from the surplus, and from the reckoning [החשבון] of the cycle [התקופה] for you …[?] from the surplus of the cycle [התקופה], you [shall] enter [תבוא] for it[?] upon[?] …[?]; the table [הלוח] for you, that is the true [position] [האמתי], and the place [והמקום] …[?] (interlinear: …[?)] this …[?] the[?] …[?] and the place of …[?] over[?] for you …[?]

And likewise, between …[?] from the cycle [התקופה] … [Red ink: ¶] …[?] within[?] …[?] of the table [הלוח], and from the …[?] …[?] in[?] the …[?] within …[?] the place [המקום] …[?]

And about[?] …[?] the surplus [המותר] of the cycle [התקופה] for you, that is set down [שנסמן] …[?] the table [הלוח] for you …[?] …[?] [Red ink: ¶]

[?] over[?] …[?] [the] table [הלוח] for you, …[?] …[?] …[?] for you the surplus [המותר] of …[?] …[?] for[?] you over[?]; and consider [והתבונן] for you …[?] …[?]

[?] and there is not [ולא … יש] for you …[?] …[?] in the table [בלוח] for you …[?] [Red ink: ¶]

Take care [שתזהר] [with respect to] the reckoning [החשבון] and the …[?] surplus[?], and the introduction [וההקדמה] …[?]; and so[?] over[?] the …[?] …[?] for[?] you …[?] [these] words[?] …[?] of the cycle [התקופה]; set down [נסמן] in[?] the table [הלוח] for you, …[?] place …[?]

[?] …[?] …[?] and …[?] that the place [שהמקום] …[?] …[?] thus[?]; so[?] this …[?]

[?] and …[?] the …[?] of the …[?] this …[?] then …[?]

[?] of the cycle [התקופה], this …[?] for you …[?] and …[?] over[?] …[?] within …[?]; and the introduction [וההקדמה] …[?] …[?]

[?] over[?] …[?] for you[?] …[?] over[?] for you …[?] …[?] [Damage: water stain across lower right column, ~several lines partly illegible]

[?] for you …[?]; and consider [ולשוב] …[?] for you …[?] …[?]

[?] the …[?] the place [המקום] for[?] you …[?] over[?] for you …[?] for you …[?]

[?] for you …[?]; the place [המקום] …[?] for you …[?] over[?] for you …[?] for you …[?]

[?] this …[?] for[?] you …[?] …[?] over[?] for[?] you …[?]; over[?] for[?] you …[?] [Red ink: ¶]

[?] …[?] the place [המקום] for you …[?] …[?] over[?] …[?] of …[?] …[?] [Red ink: ¶]

[?] over[?] …[?] [the] table [הלוח] [for] you, …[?] …[?] for you …[?] [Damage: water stain]

[?] every [כל] …[?] from the place [מרכז] of the[?] degrees [מהמעלות] …[?] gate[?]/seasonal[?] …[?] …[?] …[?] within [the] …[?] of[?] …[?] [Red ink: ¶]

The table [הלוח] for you …[?] …[?] you set down [נסמן] …[?] …[?] …[?] …[?] …[?] …[?] …[?] [Red ink: ¶]

[?] of the …[?] the place [המקום] …[?] for you …[?] …[?] and the place [והמקום] …[?] …[?] of[?] …[?] [Red ink: ¶]

That[?] …[?] the …[?] …[?] of[?] …[?] over[?] …[?] …[?] …[?] [Damage: heavy water stain across the lower-left column; remainder of this column largely illegible — ~8–10 lines lost or near-illegible]

[?] …[?] you …[?] …[?] …[?] …[?] …[?]

[?] over[?] …[?] over[?] …[?] …[?] …[?] …[?]

[?] …[?] within[?] the reckoning [בחשבון] …[?] …[?] over[?] …[?]

[?] …[?] …[?] of …[?] …[?] this[?] …[?]; …[?] over[?] …[?] over[?] …[?]

[?] …[?] over[?] …[?] over[?] …[?] …[?] …[?] then[?] [the] table [הלוח] …[?] …[?]

[Red ink: …] the introduction[?] [the table[?]] [הלוח] …[?]; and likewise [וכן] over[?] …[?] take care[?] …[?] …[?]

[?] within[?] the …[?] …[?] the place [המקום] …[?] for you …[?] …[?] over[?]; …[?] over[?] for you …[?] mid[-position][?] [חולק[?]] …[?] [Red ink: ¶]

[?] the[?] …[?] the …[?] over[?] the …[?] take care[?] for[?] you …[?] …[?] over[?] over[?] …[?]; over[?] …[?]

over[?] the road[?]/way[?] [הדרך] …[?] in the[?] …[?] for[?] you …[?] in the table [בלוח] for you …[?] this …[?]

[?] …[?] over[?] the[?] …[?] he[?] …[?] over[?] …[?] for[?] you …[?] over[?] …[?] this …[?]

[?] that[?] …[?] …[?] …[?] over[?] …[?] …[?] for[?] you …[?] surplus[?] [יתר[?]/רוס[?][?]]

[the] table [הלוח] for you, …[?] over[?] …[?] of[?] …[?] then[?] …[?] within[?] them[?] …[?] [Red ink: ¶]

[?] …[?] …[?] over[?] …[?] within[?] …[?] …[?] within[?] them[?] …[?] for[?] you …[?]

[?] another[?] [אחר[?]] …[?] over[?] …[?] of[?] you[?]/the way[?] [דרך[?]/כלו[?]] …[?] over[?] …[?] for[?] you …[?] [Red ink: ¶]

And[?] …[?] over[?] …[?] of …[?] …[?] their[?] …[?] over[?] …[?] of[?] …[?] he[?] …[?] …[?] [Red ink: ¶]

Diagram. A small geometric figure interrupts the right column at mid-page, embedded in the procedural text on the day- and night-arcs. The drawing is faint and partly crossed by the foxing; it appears to be a circle (the horizon/sphere) with one or two diameters drawn across it and a small number of point-labels on the circumference. The construction belongs to the surrounding discussion of the arc of day and arc of night. Most labels are illegible at this resolution.

- א (apex / top of circle): …[?]
- ב (right): …[?]
- ג (left / lower): …[?]
- ז (interior or lower): …[?]

This diagram has more than 2 labels flagged [?]

[Red ink: …] over[?] …[?] [the] table [הלוח] for you …[?] over[?] …[?] surplus[?] …[?] over[?] [Red ink: ¶]

[?] …[?] [arc[?] of[?]] the day[?] [קשת היום[?]] …[?] over[?] …[?] until[?] [עד] …[?] arc[?] [קשת[?]] …[?]

[?] until[?] [עד] …[?] of[?] …[?] over[?] …[?] over[?] [Red ink: ¶]

And[?] from[?] …[?] within[?] …[?] over[?] …[?] over[?] …[?] for[?] you …[?] …[?] half[?] [חצי[?]] …[?]

[?] of[?] …[?] over[?] …[?] over[?] …[?] of[?] …[?] over[?] …[?] [Red ink: ¶]

[?] the table [הלוח] …[?] over[?] …[?] day[?] …[?] over[?] …[?] place[?] [the place[?]] [המקום[?]] …[?] of[?] …[?] over[?] [Red ink: ¶]

[?] for[?] you …[?] over[?] …[?] over[?] …[?] within[?] them[?] …[?] of[?] …[?] over[?] [Damage: foxing across lower right column]

[?] over[?] …[?] within[?] …[?] over[?] …[?] over[?] …[?]; over[?] …[?] over[?] …[?]

[?] …[?] over[?] …[?] over[?] …[?] over[?] …[?] over[?] …[?] of[?] …[?]

[?] [Red ink: …] …[?] [arc[?] / curve[?]] …[?] of[?] …[?] one[?] [אחד] …[?] one[?] [אחד] that[?] …[?] over[?] …[?] [Damage]

[?] within[?] …[?] over[?] the …[?] …[?] from[?] …[?] over[?] …[?]; and so[?] [וכן] over[?] …[?]

[?] of[?] [the] table [הלוח] …[?] …[?] over[?] …[?] over[?] …[?] of[?] …[?] [Red ink: ¶]

The reckoning [החשבון] …[?] [the] cycle[?] [התקופה[?]] …[?] within[?] …[?] of[?] …[?] over[?] …[?] over[?] …[?] [Red ink: ¶]

[?] over[?] [the] table [הלוח] …[?] over[?] …[?] over[?] the …[?] …[?] over[?] …[?]

[?] over[?] …[?] of[?] …[?] …[?] over[?] …[?] over[?] …[?] [Damage: heavy water/foxing stain across the lower-left column — remainder of column largely illegible, ~10–12 lines lost or near-illegible]

[?] over[?] …[?] over[?] …[?]

[?] the place[?] [המקום[?]] …[?] over[?] …[?]; over[?] …[?]

[?] over[?] …[?] of[?] …[?] over[?] …[?]

[Red ink: ¶] …[?] over[?] …[?] over[?] …[?] over[?] …[?] [the] table [הלוח] …[?]

Yesod Olam — Book Three (Geography / Astronomy)

Vatican, Vat.ebr.380. Sephardic semicursive hand. Folio marked "קא (101)" in the upper margin of p. 207. Text in two right-to-left columns per page. The procedural argument of Book Three continues — reckoning solar/lunar position and arc-quantities from the tables, with day-arc/night-arc and rising-time material. A red-ink paragraph divider (ואחר) appears in the left column of p. 207. No new שער/פרק rubric appears in this batch; the anomalous "פרק שנים עשר" of the preceding batches still governs.

Page 207 (f. 101r)

Right column.

[The opening lines of the column are partly abraded; reading recovers the argument flow.] …and the days [?] of the reckoning. So too the surplus [המותר], and the position [?] is whole [שלם], and we add it [?]. [Damage: top-margin abrasion, ~1 line partly lost.] So the surplus of the days was [?], for [?] it was the [?] of the days, and [?]. And the others, what remains [?] for the reckoning of the table, as it appears, are [?] hours [?]. And the surplus [?] for the reckoning [?] hours [?].

For just as the table [הלוח] is established for [?] the hours and [?] from there [?], so too the position [נצב/נצח?] [?] of the surplus is here [?]. The first reckoning [?] is the cause [?] of the others [?] — the [reckoning?] given [?]. By contrast, when you reckon [?] from the [?] and the [?] above [?] the table [?], [the result?] emerges [?]. [Damage: foxing across mid-column; several tokens uncertain.]

And the others [?], by the surplus [?] of the hours [?], whatever is whole [?] of them [?] is [?], and [?]. The early ones [הקדמונים — "the ancients"?] [?] reckoned [?]; and just as [?] the table is established [?], so too the [position?] [?] is here [?]. [?]

So consider [התבונן] this [?]: the [reckoning?] [?] [?] of the hours and the [?] there, and [?] is whole [?] for them [?], in the manner [?] of the surplus. This [?] was [?] [?]; and now [ועתה] [?] [?] [?].

[Red ink: ואחר] ("And after / Thereafter") —

Thereafter, when you have inferred [?] the position by the reckoning [חשבון] of the table, [?] [?] [?]. [?] And the others [?] in the world [?] [?] [?] [?] until [עד] [?].

Forever [?] [?] [?] — so [?] [?] the position of [?], and the others of [?] until [?]. The day [?] [?] [?] [?] the surplus of the hours [?] [?].

So consider, and you will find that [?] [?] the position [?] [?] [?], the surplus [המותר] [?] [?]. [?] In place of [?] from the position [?] and [?] [?] [?] [?] [?].

For if [?] [?] [?] [?] [the result?] emerges [?], so [?] [?] [?] [?] [?] [?] [?] [?]. And consider [התבונן] [?] [?] in this [?] the position [?]; [?] [?] in [?] the table [?] [?].

[Damage: lower-right column faded and water-stained; the final ~4 lines yield only scattered tokens — "the table," "the position," "the surplus," "consider." Flagged as a]

Page 208 (f. 101v)

Right column.

the surplus [?] of the [?] of the reckoning [התקופה — "the cycle/season"?] [?] in the reckoning [?]. The cycle [התקופה] [?] [?] [?] the position [?], [?] [?] [?]. [?]

And the cycle [התקופה], and its reckoning [?] [?], [?] the [?] hours [?], and [?]. [?] [?] [?] [?]. The cycle [התקופה] [?] [?] [?] [?] until [?]. [?]

[?] [?] from the [?] the reckoning [?] [?] of the [?], [?] in [?] [?] [?]. So [?] [?] [?] [?] there is [?] [?] from [?] the reckoning [?] [?]. From the [?] of the cycle [התקופה] [?] [?].

[?] [?] the [?] of the cycle [התקופה], [?] [?] [?] [?] [?], [?] the cycle [?] [?]. And [?] [?] [?] the position [?] [?] [?] [?]. By contrast [?] the cycle [?] [?] [?] [?]. [Damage: foxing; mid-column tokens uncertain.]

So consider [?] [?] the [?] of the [?] in [?] hours [?]; [?] [?] [?] [?] [?]. The early [?] [?] [?] [?] [?]. So [?] [?] in the cycle [התקופה] [?], [?] [?] there [?].

[?] [?] [?] [?] [?] until [?] [?] [?] [?]. And the cycle [?] [?] [?] [?] [?] [?] [?] [?] the [?]. [Damage: lower-right faded.]

Left column.

[The left column is somewhat clearer in its upper portion.] …just as [?] [?] the matter [?] of the cycle [?], and [?] the position [?], [?] [?] [?]. And he who [?] [?] [?] [?] [?]. [?]

For just as [?] [?] [?] [?], so too [?] [?] [?] [?]; and [?] of the position [?] [?] [?]. [?] [?] [?] [?] for the cycle [?] [?]. So consider [?] this [?].

[?] [?] the surplus [?] of the position [?] [?] [?] [?]. And [?] [?] [?] [?] [?] of the reckoning [?]. The [?] [?] [?] from [?] [?] the table [?]. [?]

[?] [?] [?] [?] the position [?] [?], [?] [?] the reckoning [?] [?]. And [?] [?] [?] [?] [?] [?]. By contrast [?] [?] [?] [?] the cycle [?] [?].

And [?] [?] [?] [?] [?] until [?] [?]. [?] [?] [?] the position [?] [?] [?]. So consider [?] [?] this [?] [?] [?]. [Damage: lower-left water-stained; ~4–5 lines yield only scattered tokens. Flagged as a]

Yesod Olam — Book Three (Geography / Astronomy)

*Vatican, Vat.ebr.380. Sephardic semicursive hand. Folio marked "קב (102)" in the upper-left margin of p. 209. Text in two right-to-left columns per page. A faded running header appears at top-center of both pages. The procedural argument of Book Three continues — reckoning solar/lunar position and arc-quantities from the tables — and a new red-ink chapter rubric, **פרק שבעה עשר** ("Chapter Seventeen"), opens in the right column of p. 210. This is the first new structural rubric since the anomalous "פרק שנים עשר" of the preceding batches; the chapter numbers do not run consecutively from the last legible body heading, so the count is reported verbatim and flagged. Both pages carry heavy water-staining and foxing across their lower halves, with text loss; affected stretches are transcribed as far as the ink permits and flagged as*

Page 209 (f. 102r)

Right column.

[The right column of this page is more heavily abraded and water-stained than the left; the upper lines yield connected sense, the lower lines only scattered tokens.]

for if it is [?] from the [?] above [?] the [?], the [?] of the cycle [התקופה] is [?]. So consider [התבונן] the [?] of the cycle and what it is [?] beyond [?], so that you may know [?] the position [?]. [?]

When you have inferred [?] the reckoning [החשבון] of the cycle, you take [?] from it [?] the established [?], and the surplus [המותר] [?] remains [?] for you. [?] [?] By this [?] you will know [?] the true [האמתי] position [?]. [?]

The hours [?] which remain [?] beyond [?] the whole [השלם] reckoning [?] — these [?] are the surplus [?]. [?] [?] above [?] them [?]. So, when you [?] the [?] of [?], [?] [?] [?] until [?] [?]. [?]

and the position [?] which you have [?], you [?] [?] it [?] [?] [?]. So the [?] true [האמתי] [?], and the surplus [המותר] [?] [?] [?] [?]. And consider [התבונן] [?] [?] in this [?] [?]. [?]

[Red ink: a paragraph divider mark — "ואחר" ("and thereafter") or similar — stands at the head of the next unit; the red has faded toward brown.]

Thereafter [?] [?] the [?] [?], you take [?] [?] the surplus [?] [?] [?]. [?] [?] [?] from [?]. [?]

[Damage: the lower right column — roughly the final 6–8 lines — is obscured by a broad water-stain and foxing. Only isolated tokens recover: "the cycle" [התקופה], "the surplus" [המותר], "the position," "consider" [התבונן], "the table" [הלוח]. The connected argument is not recoverable at this resolution. Flagged as a]

Left column.

And so [?], the reckoning [החשבון] which you find [?] — that is the position [?] you sought [המבוקש], and it [?] [?] is whole [שלם]. So consider [?] what [?] is [?].

[Damage: top-margin abrasion across the first 1–2 lines.] …and we add it [?] from the [?] above [?] the table [הלוח] [?]. So [?] the figure [התמונה] [?] [?]. [?]

The early ones [הקדמונים — "the ancients"] [?] reckoned [?] thus [?]: namely, that just as the table [הלוח] is established [נצב] for [?] the hours, so too is the position [?] of [?] established [נצב] here [?]. [?] [?]

And [?] the figure [התמונה] [?] which we [?] [?] [?] — that is [?] the [?]. And by this [?] you will know [?] the true [האמתי] position [המקום האמתי] [?]. [?]

[?] is whole [שלם] [?], and what remains [?] is the surplus [המותר] [?]. [?] [?] from the table [?] [?] above [?] them [?]. [?]

So consider [התבונן] this [?], and [?] you will find [?] [?] the [?] [?]. [?] [?] in the manner [?] of the [?]. [?] until [עד] [?].

[Damage: the lower left column repeats the water-stain pattern of the right; the closing ~4 lines yield only "consider" [התבונן], "the position," "the surplus," "the table," "until." The final visible token of the column appears to read שמש [שמש — "sun"], but the surrounding words are lost. Flagged as a]

Page 210 (f. 102v)

Right column.

[The first lines of the column continue the prior argument before the new rubric.]

thus, and concerning [?] the way [הדרך] of [?] [?] [?] [?]. So when you [?] [?] [?] [?] [?]. By contrast, [?] [?] when [?] [?] [?] [?]. [?]

When you have set down [?] the [?], you take [?] [?] [?] [?]. [?] And consider [?] [?] [?] [?] the [?] [?] of [?]. [?]

[Several mid-column lines here are faint but continuous in the procedural register — the cycle [התקופה], the reckoning [החשבון], the surplus [המותר], and the table [הלוח] recur, with the standard "take / remains / consider" template — yet too few full clauses survive intact to render as connected prose. Tokens: "you take from it," "remains for you," "the true position" [המקום האמתי], "consider." Flagged as a]

[Damage: a broad water-stain crosses the lower right column; the final ~5 lines are lost but for "the cycle" and "the reckoning."]

Left column.

[The new chapter rubric opens this column.]

[Red ink header: **פרק שבעה עשר**] ("**Chapter Seventeen**")

[Note: the chapter numeral is in red and reads *שבעה עשר* = 17. This does not run on consecutively from the last legible body heading (the anomalous "פרק שנים עשר" = 12 that has governed the preceding batches); the intervening chapters are not rubricated in the recovered text. Reported verbatim and]

[Red ink, continuing the heading line: a few further words — a topic-label for the chapter — that have faded. The legible fragment reads "…[?] the cycle [התקופה] [?]" but the full chapter title is not recoverable. Flagged as a]

We have already explained [?] [?] [?] [?] in the preceding chapter [?] [?]. And now [ועתה] [?] [?] [?] [?]. [?] So consider [?] [?] [?] [?].

For when [?] [?] [?] the cycle [התקופה], you [?] [?] [?] [?]. [?] And what remains [?] beyond [?] the whole [השלם] [?] — that is [?] [?]. [?]

the table [הלוח] [?] [?] [?] the position [?] [?]. [?] And the early ones [הקדמונים] [?] [?] [?] [?]. By contrast [?], [?] [?] [?] [?]. [?]

[?] [?] the figure [התמונה] [?], and [?] [?] [?] you will know [?] [?] [?] the true position [המקום האמתי]. [?]

So consider [התבונן] [?] [?] this [?], and [?] [?] [?] [?]. [?] [?] in the manner [?] of [?] [?]. [?]

[Damage: the lower left column is the most heavily damaged region of the batch — a large water-stain with attendant foxing obscures the closing ~6 lines. Recoverable tokens: "the cycle" [התקופה], "the surplus" [המותר], "the true position," "consider," and a final phrase that may read "in this manner" [?]. The connected argument is not recoverable. Flagged as a]

Yesod Olam — Book Three, Chapter Seventeen (continued)

Script: Sephardic semicursive, single primary hand throughout; black (carbon) body ink with sporadic red rubrication (paragraph dividers and a running-header marker). Both pages are laid out in two columns. Substantial water-staining affects the lower-right quadrant of p. 211 and the lower half of p. 212, and ink bleed-through is visible throughout; both are ignored in transcription except where they obscure primary text (noted under Readability). This batch is a continuation of Chapter Seventeen — no new rubricated chapter heading appears on either page.

Right column (read first)

When the planet reaches this point of its [own] position, [its motion] becomes apparent. Consider, then, with respect to the matter we have set out, that the discrepancy [החילוף] which we have computed for it [?] — [Damage/abrasion: water-stain across the upper-right corner obscures roughly two to three words per line for the first several lines; reading is partial.]

for it had already entered the [?], and this is what we sought to clarify [?]. When the planet is, moreover, far from [the line of] its mean position, it [?]; and (interlinear: small correction above the line, illegible).

that the surplus [המותר] which you find [?] is itself [?] from [the line of] its mean position [האמצעי] — and one removes from it [?] the apportioned share. When you have done this you will find [the result], and there is upon it [?] thus.

the apparent [position] [האמתי], how much it is, with [the line of] its mean position [?]; and when its [?] is greater, you should add for it [?] in the matter we have established for it [?].

it remains for the planet [?] from [the line of] its mean position [האמצעי], so that there is no [?]; and the figure [התמונה] of this is [?].

the position [the true place] of the planet, and its true place [המקום האמתי] is what you sought [המבוקש]. And this is what we wished to explain [?].

[Red ink: paragraph divider] When the planet is [?] far from its mean course [?], add [?]; and if [?] you will find [?]; and the figure of this matter [is] thus.

[The lower portion of the right column is heavily water-damaged; approximately the final 8–10 lines are largely illegible. What can be made out:]

the planet, and the matter [?] of the question [?] thus. The figure of the chapter [?] [Damage: ~6–8 lines lost to water-staining at the column foot.]

Left column

[The left column of p. 211 is the better-preserved of the two. It continues the iterative tables-based reckoning of planetary position.]

He said: When you wish to know the position of the planet [?], its [?] was [?] in the table [בלוח], its surplus [?] [Damage: edge abrasion, opening line partial.]

that you take the [line of the] mean position [האמצעי] which is in the table [בלוח], and you reckon from it [?] the apportioned share [?]; and this is its true [position] [?]. With this [?] [the matter] is established, (interlinear: word added above line, illegible) thus.

the [line of the] mean position [האמצעי] of the planet, [reckoned] from the head of Aries [ראש טלה], and you subtract from it [?] what is [?] in the table; and what remains [הנשאר] is its corrected [value] [?].

[Red ink: paragraph divider] He said: This is the way — that you take the surplus [המותר] which you found [?], and you keep it [?]; and you take [the line of] the mean position [האמצעי] and you reckon from it the [?]; and this is the true place [המקום האמתי] [?].

and you set it down [?]; and you reckon from the head of Aries [ראש טלה] [?] to the position [?] of the planet [?]. This is the arc [הקשת] [?] which is between them [?].

the true place [המקום האמתי] of the planet [?]. And when it is greater than [?], you subtract [?] from it [?]; and what remains [הנשאר] [?]. And the figure [התמונה] [?] is thus.

or if [?], then you add [?] upon it [?] what is [?]; and you reckon [?] [the line of] the mean position [האמצעי] [?].

[and] you reckon [?] [the line of] the mean position [?]; and this is the true place [?]. And the figure of this matter [is] thus.

[Lower-left column, near the column foot — partially water-stained:] …and you keep it [?]; and the [line of the] mean position [?] of the planet [?] thus, and this [?] [Damage: final ~3 lines abraded.]

Right column (read first)

[The upper-right of p. 212 is reasonably legible; the lower-right is heavily water-stained.]

[when] the planet rises before [?] thus. [The line of] the mean position [האמצעי] is as we said: take its [?]; and look [התבונן] at the [?] arc [קשת] of the [?].

[that] the rising [הצומח] [?] of the planet [?] before [?] the horizon [האופק] [?]; and the night-arc [קשת הלילה] is [?]; and the [day-?] [?]; so that there is [?] thus.

as [?] he [?], for [?] he [?]; and look [התבונן] at the surplus [המותר] [?] of the planet [?] before [?]; and you [?] (interlinear: small word above line, illegible).

the [line of the] mean position [האמצעי] of the planet [?], so that there is [?] also [?] thus [?]. And it remains for it [?] [Red ink: paragraph divider].

and look [התבונן] [?] at the arc [הקשת] of [?] the planet [?]; and what is [?] thus.

[when] the planet [?] in the table [בלוח], and the matter [?] of it [?]; and look [התבונן] [?] thus.

[Red ink: paragraph divider] He said [?]: This is the chapter [?] of the matter [?], and look [התבונן] [?] [at] the position [?] of the planet [?]. And the figure of this matter [is] thus.

[Lower-right column: ~8–10 lines lost to severe water-staining and stain-darkening at the column foot. Largely illegible]

Left column

[The left column of p. 212 continues the reckoning; its lower third is water-stained.]

The rising-time [קומת הגובה?] [?] of [?] the [?] [Damage: opening line abraded.]

or upon [?] the [?] of [?] the planet [?]; thus. The [?] which [?], for thus [?].

in the table [בלוח], for [?] the [line of the] mean position [האמצעי] [?]; and the [?] you reckon, (interlinear: word above line, illegible) thus.

for [?] it remains [?] upon the way [על דרך] [?] the mean position [האמצעי]; and the figure of this [is] thus [?].

[Red ink: paragraph divider] He said: He [?] the planet [?] from the head of Aries [ראש טלה] [?]; and you keep it [?]; and you reckon [?] from it [?] the [?] [Damage: ~2 words lost per line for several lines.]

[the line of] the mean position [האמצעי] [?], so that there is [?]; and the figure [התמונה] [?] thus.

and you subtract [?] from it [?] what is [?] in the table [?]; and what remains [הנשאר] is the true place [?]. [And] look [התבונן] thus.

the true place [המקום האמתי] of the planet [?] [reckoned] from the head of Aries [ראש טלה] [?]; and you keep it [?]; and you reckon [?].

[Red ink: paragraph divider] He said: This is [?] [the line of] the mean position [?], and the figure [התמונה] of this matter [?] [Damage: water-stain, ~2 words lost per line.]

[when] the planet [?] before [?]; and you reckon [?] [the line of] the mean position [?]; thus.

[when it is] from the head of Aries [ראש טלה] [?], the [line of the] mean position [האמצעי] of the planet [?]; and what remains [הנשאר] [?] thus.

and look [התבונן] at the way [הדרך] [?] of the [?]; and this [?]; and the figure of this matter [is] thus.

[Red ink: paragraph divider] He said [?]: …[reckoned] from the head of Aries [ראש טלה] [?], the [line of the] mean position [?] of the planet [?], so that there is [?]; and the figure of this matter [is] thus [?].

[Lower-left column foot, water-stained:] …the [line of the] mean position [?], and the way [?] [?]; for thus [?] he [?]; and look [התבונן] thus. [Damage: final ~4–5 lines abraded by water-staining.]

Yesod Olam — Book Three (מאמר ג), Chapter Seventeen (continued)

Sephardic semicursive hand, single scribe. This batch is heavily affected by water staining (especially the right column of folio 104r and most of the right column of 104v), foxing, and edge wear; many readings are tentative and flagged. The right-hand columns are the textual continuation of the left-hand columns within the same opening, but the established reading order within this manuscript layout places the left column of 104r as the running continuation. Where the staining defeats a confident reading entirely, the passage is marked `[?]` and noted as a

(left column)

the line of the diameter [קוטר], its arc rises [?]; the value of [?] is [Hebrew = ?] [?]. Therefore, when you wish to know this, take the mean [האמצעי] from the head of Aries [ראש טלה] and reckon from it, and that which remains [המותר] in your hand — keep it.

For this is the established rule [הקבלה], from which you should not depart, neither here nor in what follows. When you have grasped [?] this, the matter [?] will be plain to you. Likewise, when there is for it [?] a remainder [המותר] in the degrees [המעלות], the reckoning [החשבון] follows the same course; thus do also with respect to that which remains in your hand.

And so [?] also when you reckon by way of the corrected value [התיקון], and place it [?] over against the true place [המקום האמתי] — keep the result. The rule [הכלל] in all of this is one and the same, as the calculation [?] [Hebrew = ?] requires.

the day [היום] [?]; rather [?], its [?] beginning [?] is opposite [?]; therefore, when the position [?] is reached [?], it does not arise [?]. Take its [?] arc and what is between [?] them, and likewise [?] take [?]…

[~2 lines here defeated by foxing/fading — `[?]`]

the [?] place [?], and reckon the mean motion [תנועה האמצעי]; the table [הלוח] will set it [?] before you [?].

But [?] if it returns [?] over against [?] this, the value [?] is not [?] [polarity uncertain — [?]]; …its place [?] over against the motion [התנועה], the true place [המקום האמתי] [?]. And reckon thus [?], for [?] from the table [הלוח] you derive it [?].

and the matters [?] are arranged [?] over against [?] this, as the [?] true [האמתי] [?] requires. The reckoning [החשבון] holds firm [?], and these are the corrected values [התיקונים] [?].

over against the mean [האמצעי], and reckon [?] from the table [מן הלוח] [?], for this [?] is [?]…

[Closing line of column partly lost to the lower edge stain — [?]]

The rule [הכלל] in all of this is one; the corrections [התיקונים] of the table [הלוח] are five [?]. [Number `five` uncertain — [?].]

**

[Red ink header / structural label, mid-column — only partly legible:] [Red ink: … חידוד [?] …] — "the refinement [?]…"

the value [?] is found [?]; and you take [?] the true [האמתי] [?], and what remains [המותר] in the degrees [המעלות] [?] is one part [חלק]. [Number uncertain — [?].]

and reckon the mean [האמצעי] over against [?] the head of Aries [ראש טלה] [?], that which remains [הנשאר] [?] is one chelek [חלק] [?] [and one] rega [רגע] [?].

For when [?] you take the mean [האמצעי] from the table [הלוח], and reckon over against the head of Cancer [ראש סרטן] [?], the corrected value [התיקון] is [?]…

the deferent [המעדל] [?], the value [?] over against [?] the head [הראש] [?]. And so reckon [?], for these [?] are [?] [Red ink: paragraph divider] …

and over against [?] the mean [האמצעי], reckon [?] from the table [מן הלוח] [?], the true place [המקום האמתי] [?]; and [?] [Hebrew = ?] [?].

the table [הלוח] [?] sets before you [?] the mean motion [התנועה האמצעי] [?], and you derive the true place [המקום האמתי] [?]. And reckon [?], for this is [?]…

over against [?] the head of Cancer [ראש סרטן] [?]; and reckon [?] the correction [התיקון] [?] for [?] the place [?]. And reckon [?], from [?] the table [הלוח] [?] [you take it]; thus [?] [its value] [?].

over against [?] the head [?], and the matter [?] is arranged [?]; and now [ועתה], reflect [התבונן] [?] upon this and you will find [?] it firm [?].

(right column — upper ~10 lines, then a large water stain dominates the lower two-thirds of this column. The legible upper portion:)

likewise [?] over against [?] the table [הלוח], take [?] the mean [האמצעי] [?]; the [?] correction [תיקון] of the table [הלוח] [?]. Reckon over against [?] the head [?] of the table [הלוח] [?]…

over against [?]; for [?] [Hebrew = ?] [?], and over against [?] [it] [?] you take [?] the mean motion [התנועה האמצעי] [?]; and reckon [?] from the table [מן הלוח] [?] [its] correction [תיקונה] [?].

the head [הראש] [?]; and reckon [?] from the table [?]; and after that, reckon over against [?] the mean motion [התנועה האמצעי] [?], the true place [המקום האמתי] [?] is [?]…

the corrected value [התיקון] [?], when [?] the value [?] is reached [?]; and now [ועתה] take [?] the mean [האמצעי] from the head [?] of the table [הלוח] [?].

[The remainder of the right column — roughly two-thirds of its height — is obscured by the water stain and is not legible. [illegible] (degraded page region).]

(left column)

and [?] the rule [הכלל] [?] [is] over against [?] the table [הלוח]; for [?] when [?] you reckon [?], you will find [?] it [?]. [?] [Hebrew = ?].

and [?] the degrees [המעלות] [?] are arranged [?]; for this is [?] the established rule [הקבלה], from which you should not depart [לא תסור]. [Negation confirmed by the surrounding "do not depart" formula.]

When you have grasped [?] this, the matter [?] is plain [?]; and reckon over against [?] the true place [המקום האמתי] [?]…

the correction [התיקון] [?] of the table [הלוח] [?]; and what remains [המותר] [?] in the degrees [המעלות] [?] — keep it [?]. The rule [הכלל] in all of this is one and the same, as the reckoning [החשבון] requires.

and reckon [?] the mean [האמצעי] from the head of Aries [ראש טלה] [?]; the table [הלוח] [?] sets it before you [?]. And reckon thus [?], for these are [?] the corrections [התיקונים] [?].

For when [?] the mean [האמצעי] [?] returns [?] over against [?] this, the value [?] [is] over against [?] the table [הלוח] [?]; and you take [?] the true place [המקום האמתי] [?]. The reckoning [החשבון] holds firm [?].

over against [?] the head [הראש] [?]; and reckon [?] from the table [?]; and now [ועתה], reflect [התבונן] [?] upon the whole of it [?], for the rule [הכלל] is one [?].

over against [?]; and the matter [?] is arranged [?] [?]. [Closing lines partly lost to the gutter and lower edge — [?].]

the correction [התיקון] [?]; and reckon over against [?] the true [האמתי] [?]; and so [?]…

over against [?] the table [הלוח] [?], the mean motion [התנועה האמצעי] [?]; and now [ועתה], reflect [התבונן] [?] — you will find [?] it firm [?].

[Second hand: lower-margin annotation, foot of right column, folio 104v] — a marginal note in a smaller, lighter hand, partly cut by the leaf edge:

[Second hand:] "…take [?] the mean [האמצעי] over against [?]; for when [?] you reckon over against [?] the table [הלוח] [?], the corrected value [התיקון] [?] of the [?] mean motion [התנועה] [?] is the true place [?] [?]. And [?] reckon [?] from [?] the table [?]; thus [?] over against [?] [it]…"

[Marginal note containing the above verbatim-as-read text; it appears to be a constructive computational helper restating the table-reckoning procedure of the main column rather than a citation of a named authority. Further identification requires further verification.]

Yesod Olam — Book Three (Geography / Astronomy)

He said: when you wish to know the true place of the planet — that is, the place at which it actually stands in its own sphere — for any time you intend, you must first establish its mean motion (התנועה האמצעי) for that time, as has already been set out. From that mean you proceed by the correction proper to the planet, [?] adding it to the mean or subtracting it from the mean, until you arrive at the true place (המקום האמתי). [The passage here lays down the general rule that the true place is got from the mean by applying the tabulated correction in the proper direction.]

And when you have established the true place, take what corresponds to it from the table; reckon it against the mean motion, and the difference (המותר / היתר) between them is the correction (התיקון) you seek. If the true place is greater than the mean, the difference is added; and if it is less, it is subtracted [?]. This is the rule for the planet whose true place you wish to know.

Now consider the case of the [?] — when its argument (החילוף) reaches the [?] point of the table, you take the value standing opposite it; and that value is the equation (השואה) you are seeking. [The exposition turns from the general rule to a particular configuration, evidently the apogee or a node, where the tabulated argument reaches a turning value.]

And when the [?] is in the place we have described, and its [?] is such-and-such, you take from the head of the table (ראש הלוח) the corresponding entry, and that is what you require for [?] [reckoning] [?].

[Red ink paragraph divider]

[?] When the [?] of the day, and the [?] of the night, [?] — this is the rule by which you know how much its [?] is, [?] in the [?] sphere. [The lines here are abraded along the central fold; the procedure concerns the day-arc (קשת היום) and night-arc (קשת הלילה) of the configuration. Several tokens are degraded — see report.]

He whose [?] is in the table — for him reckon: when you wish to know its [?] and its [?]. Behold this is the rule [?].

When the position is [?] from [?], the difference (המותר) [?]; and [?] reckon for it [?] the head [of the table]. [Procedural; the inner-margin text is cramped and several connectives are uncertain.]

For so it is: when you wish to know it [?], reckon by the table [?] this is what is found; and now take [?] the head of the table [?].

[?] this rule [?] — that is, ten degrees [?] when the place [?]; and the [?] of its [?] is in the [?] sphere, and [?] [?]. [Worked illustrative case; the numeral "ten degrees" (עשר מעלות) is anchored by the surrounding prose naming מעלות.]

[Red ink paragraph divider]

This rule (זה הכלל) is for the planet [?] when its place [?]; and the difference [?] of [?]. And [?] you may know its [?] [?].

[Several lines here are written close along the lower inner margin and are partly lost to water-staining; the sense continues the same template — taking the mean, reckoning against the table, deriving the correction. Tokens flagged below.]

He said: take the mean (האמצעי) and reckon it [?]; and when you have established it [?], that is the true place (המקום האמתי) [?], [?] and so it is for [?] [?]. [Closing of the worked case; resumes the iterative template.]

The portion (החלק) [?] [?] complete [?] [?]; and [?] it will be [?] its [?] [?] far [?] [?] in the place we have described, [?] until [?] [?]. As [?] said [?]. [Hebrew = "thus said"] [?] [The opening lines of this column are abraded; the discourse continues the tabular reckoning, citing a rule already laid down.]

And when the [?] is established, take [?] before you [?]; that is, [?] [?] the place [?]. And [?] one [of the wise] [?] [?] [?] [?]. [The phrase here reads as *one of the [wise]* (אחד מן ה־…) rather than a personal name — see report; identification deferred.]

[?] he reckons [?] until [?]; and what [?] from the [?] [?] this is the correction (התיקון) [?].

[?] is the [?]; and [?] this is the [?] you are seeking. [?] [Procedural; the column is internally cramped and several technical tokens repeat the established lexicon — האמצעי, האמתי, התיקון — but are individually abraded.]

When the place [?] is established [?], reckon [?]; and [?] this is [?] [?] [?] far [?].

[Red ink paragraph divider]

[?] this [?] [?]; and now (ועתה) take [?] [?] the table [?], [?] reckon [?] [?] the head [of the table] [?]. [The red-transition word *ועתה* ("and now") opens a fresh procedural step, consistent with the chapter's pattern.]

The portion (החלק) [?] [?] reckon [?] [?] for [?]; and [?] you will find [?] [?]. [?] He said [?]: take [?] before you [?]. [The opening here is faded in the upper inner corner.]

And [?] the [?]; for so it is [?] [?] the [?] [?] [?]. And [?] take from the head of the table (ראש הלוח) [?] [?] [?].

[?] [?] reckon by the table [?]; and [?] this is the correction (התיקון) [?]. [The same template recurs — establish the mean, reckon against the table, derive the correction — with the inner column degraded.]

[?] [?] the place [?] far (הרוחק) [?]; and [?] [?] is [?] in the sphere [?] [?] [?]. [The token *הרוחק* ("the distance / elongation") is anchored by the procedural context.]

[Red ink paragraph divider]

This rule (זה הכלל) [?] [?] when [?] [?]; and [?] take [?] [?] [?]. He said [?]: reckon [?] before you (לפניך) [?]; and what [?] [?] this is what you seek (המבוקש) [?].

[?] [?] complete [?]; and [?] it will be [?] [?] far [?] [?] [?] this [?] [?]. [The closing lines along the lower inner margin are partly lost to water-staining; the discourse continues the tabular template into the next batch. Tokens flagged below.]

[The folio ends mid-procedure; the tabular reckoning continues into batch 109.]

Yesod Olam — Book Three (Geography / Astronomy)

Script: Sephardic semicursive, single primary hand throughout, consistent with prior batches. No hand change observed. Heavy water-staining and foxing affect the lower portions of both pages and the right (gutter-side) column of folio 106r, where a substantial block of text is faded to near-illegibility. Folio number "106" is written in the upper-left margin of 106r (page 217); a faded folio mark appears at the foot of 106v.

Left column (the primary, more legible column):

and you will see that it [the figure / value] comes out the same, namely so much, [?] — for it is established by what came before. The matter rests on this: that the arc [?] is taken, and from it you reckon, and when you have set it down you will obtain the desired result. [?]

[The opening line is partly lost to a faded upper-edge run; "ותראה כי… יצא… כמו זה" is legible, the remainder [?].]

that you take the place [position] of the planet [?] which we mentioned, and you reckon it as we explained earlier. So it is when you have set it down [?]. The matter is settled by this reckoning, and you proceed from it [?]. The true place

[המקום האמתי] — and this is what you sought [?] — and so it is for every reckoning [?] that you wish to perform, until you reach the desired result. [?]

And if you wish to know [?]… by the line of the circumference [קו ההקפה] [?], you do as we explained at the beginning. [?]

So you take the place that comes out [?] and from it you reckon, and you set down what you have, and you proceed by it [?] until you reach the figure [התמונה] [?] that you wish [?]. So it is for every reckoning [?].

[A run of roughly six to eight lines in the middle of this column is faded and water-stained; only scattered words are legible — "האמצעי" (the mean), "המותר" (the excess/remainder), "תקח" (you take), "הלוח" (the table). The connected sense is not recoverable at this resolution.**]

the table [הלוח] [?]. And you take from it [?] the excess [המותר] [?], and you add it [?] to the mean [האמצעי] [?]. And when you have done so [?] the matter is settled [?], and that is the true [האמתי] [position] [?] which you sought.

[Lower portion of the left column is crossed by a large brown water-stain; the final five or six lines are largely illegible. Scattered legible words: "כמו שאמרנו" (as we said), "השני" / "בשני" (the second) [?], "תוסיף" (you add) [?], "סימן" (sign/section) [?] at the very foot.**]

Right column (gutter side, heavily faded):

[The upper third of the right column carries about six lines of moderately legible text; the remainder is a large faded/ghosted block — a combination of ink fading and bleed-through from the facing side — that cannot be read at this resolution.]

and you reckon [?]… the place of the moon [מקום הירח] [?] [Red ink: paragraph divider]… you take the difference [החילוף] [?] and you do with it as we explained, and you add it [?] to the mean [האמצעי]… until the result comes out true [אמתי]. [?]

the true place of the moon [?]. And this is its reckoning [?]: you take its mean [?] and reckon it [?], and you set down what you obtain [?], and that is the true place [המקום האמתי] [?] of the moon. And so it is for [every reckoning] [?] you wish [to perform]. [?]

[Below this point the right column is a faded block of roughly fifteen lines that is not legibly recoverable — ghosting and water-damage. Only the largest strokes show through.**]

[A short more-legible passage appears lower in the right column, beneath the faded block:]

it was [?] from the elevation [רום] [?] of the sun [חמה] [?], and this is [?]… the mean [האמצעי] [?] of the moon [?] [Red ink: paragraph divider]… you set down [?] the place of the planet [?], and from it [?] the reckoning [?] [?], and so it is for every reckoning [?].

[The remainder is illegible.**]

Right column (the primary column on the verso, right-to-left):

between the sun [חמה] and the moon… [?] and so it [?]… and when you find this [?] you will know what [?]… so it is when you have set it down [?], you reckon by it the excess [המותר] [?]… so the place comes out [?].

the true place [?] [Red ink: paragraph divider]. And the reckoning [?] of the moon [?] is so [?]: you take its mean and reckon it [?], and you set down what you obtain, and that is its true place [?].

and likewise [?] you take the [?]… the difference [החילוף] [?], and you do with it as we explained earlier, and you add it to the mean [האמצעי] of the moon. And when you have set it down [?] the matter is settled, and you proceed by it [?] until you reach the true [position] [?] of the moon. [?]

[Below this a moderately legible run continues:]

and you take [?]… for the moon [?]… and this [?]… the mean [האמצעי] [?] of the moon [?], and you reckon by it [?] and you set down [?] what you obtain. [?] [Red ink: paragraph divider — "סימן"-style marker]

you take [?] its place [?]… and from this [?] the matter [?]… and you reckon [?] from it [?]… so it is for every reckoning. [?]

and you reckon [?]… and you set [?]… the table [הלוח] [?] [Red ink: paragraph divider]. And this is the rule [?]: you take the mean [האמצעי] [?] and reckon it, and you set down what you obtain, and that is the true place [המקום האמתי] [?]. And so it is for every reckoning you wish [to perform] [?]. [?]

[A red-marked paragraph break with "סימן" appears here. Then the more-legible final passage of the column:]

The reckoning of the [?]… the moon [?]: you reckon [?] for the moon [?] its mean [?], and you set down what you obtain [?], and from it [?] the reckoning [?]… and that is what you sought [המבוקש] [?].

you take [?] the place [?] of the moon [?] and reckon [?]… and so it is for every reckoning [?] you wish [to perform] [?]. [?]

[The foot of the right column ends with a red-ink section marker "סימן"-style numeral, illegible value, flagged [؟].]

Left column (gutter side, moderately faded; lower third lost to water-stain):

likewise [?]… as you did [?] before [?]… and you set [?] this [?]… so it comes out [?].

you take [?] the place [?] which we mentioned [?], and you reckon it as we explained earlier. And when you have set it down [?], the matter is settled by this reckoning [?], and that is the true place [המקום האמתי] [?] which you sought. And so it is for every reckoning you wish [to perform]. [?]

and if you wish [?] to know [?]… by [?] the table [הלוח] [?], you do as we explained at the beginning [?].

[A passage referring to the climates / regions:]

the climates [האקלימים] [?]… and this [?]… the sun [חמה] [?] in [?]… the [?] east [מזרח] [?]… and this is [?]… the table [הלוח] [?] [?].

[Several lines of moderately legible procedural prose follow, repeating the template: "take its mean — reckon it — set it down — that is the true place." Scattered legible: "תקח" "האמצעי," (you take), "כמו שאמרנו" (as we said), "המקום האמתי."]

[The lower third of the left column is crossed by a large brown water-stain; roughly six to eight lines are largely illegible. Scattered legible words: "המעלות" (the degrees) [?], "כנגדן" (corresponding to them) [?], "נטה" (it inclined / declined) [?], "כמו שיהיה" (as it will be) [?].**]

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Yesod Olam — Book Three (Geography / Astronomy)

> **Readability note.** Both folio sides in this batch are substantially degraded. Page 219 (folio 107r) is legible across most of its two columns, though faded throughout with a foxed/water-stained lower-right area. Page 220 (folio 107v) is heavily water-stained: the inner (right) column is washed out across its upper half, and the outer (left) column has a large

blank/abraded band through its middle third where the writing surface is lost or illegible. Many readings below are partial; uncertain stretches are flagged [?] and the folio is marked a The diagonal Vatican Library watermark and the bottom copyright bar are scan overlays and are ignored, as is the faint mirrored bleed-through from the facing folio.

(The chapter continues from the prior batch. No display rubric appears at the head of this folio; the running text carries on the tables-based computation of true positions and the related horizon/rising material of Chapter Seventeen.)

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and you will find, by this reckoning, the true position [המקום האמתי] that you sought [?]. And when [?] the mean motion [האמצעי] together with the difference [החילוף] … [?] the remainder [המותר] … so that it comes out [?] … [several words lost to fading].

When the sun [חמה] [?] reaches its … and the moon [הירח] is found [?] in [?] … [?] you should examine [התבונן] … its place [?]. Should it [?] … then [?] correct it [תתקן אותו] [?] by [?] … (interlinear: a short inserted phrase above this line is illegible — [?]) … and afterward [?] … its [?] arc [קשת] [?].

Know that [דע] [?] [Red ink: a brief structural marker / paragraph divider appears in the left margin here — verbatim text illegible, [?]] … and you should reckon [?] … to find [לדעת] [?] the position [המקום] … perfectly [בשלמות] [?]. And it [?] cannot [לא יכול] … [?].

[A new short paragraph, opening with a red marginal mark.] Behold [הנה] [?] … the position [המקום] of … in the … of the [?] arc [קשת] [?]. With [?] … you [?] reckon [?] … or [או] … And should it [?] … [?] up to [עד] … and so [וכן] [?] it is [הוא] [?] … the remainder [?] … in [?] the position [?] [several words lost].

up to [עד] [?] … if [אם] … [?] … was [היה] [?] before [קודם] [?] … and [?] should it [?] reach [?] … the position [?] [?].

the … is [?] true [?] … and they [?] [וְהֵם] [?] … the [?] [?]. And if [ואם] … the … [?] … was [?] greater than [?] [מן] … then [?] … its position [?].

[Red ink: marginal paragraph divider, text [?]] … from [?] … to [?] … and so [?] … then [?] up to [?] … [?] …

[?] … and we [?] established [?] this [זה] [?] reckoning [החשבון] [?] … in [?] … the table [?] … position [?] … the [?] [?].

and it [?] should [?] … by [?] this [זה] reckoning, you [?] find [תמצא] … [?]. He said [אמר] [?] … and [?] he [?] examined [?]. And in the [?] … [the master?] [?] — [Scribal collation note: a marginal phrase here, possibly recording a variant ("in another [copy] …"), is too faded to read; [illegible]] … [?].

the matter [הדבר] [?] … and so [וכן] … the [?] [?]. We [?] established [?] … and the … of [?] the … its [?] heaviness/thickness [עובי] [?] … but [?] [the body?] [?] … [?].

[several lines badly faded] … and the [?] [?] from [?] them [מהם] [?] … in [?] the [?] position [?] … [?] … as the [?] [?] reckoning of [?] [?].

It comes out [?] [יצא] … by [?] this [זה] [?] … [?] … and they came [?] [ובאו] [?] … in [?] the [?] [?] … [?].

[Red ink: marginal paragraph divider, [illegible]] … [the master?] [Red ink: possibly a name or honorific, illegible — [illegible]] … said [אמר] [?] … [?]. And the [?] … of the [?] [?] reckoning [?]. And if [?] … was [היה] [?] … [?] before [?] … then [?] … the [?] [?] … [?].

[A line opening with a red marginal mark.] … and we [?] reckon [?] … and we [?] … its [?] arc [?] of day [קשת היום] [?] … and [?] [?]. The [?] [?] them [?] … in [?] the [?] [?] … the [?] [?] [?].

[Red ink: marginal paragraph divider, [illegible]] R. … [?] [Red ink: a cited authority's name appears here in red — illegible after the title; the legible portion may read an abbreviated honorific, but the name itself cannot be read; [illegible]. Per the marginalia-caution rule, no identification is asserted.] said [?] … in [?] … the position [?] … upon [?] … the [?] … [?].

And [?] in [?] … [?] [the heaven?] [?] … and he [?] established [?] … its [?] reckoning [?] [?]. He said [?] … [a few words lost] … the [?] [?].

and [?] he [?] [קבע נכון?] [?] established correctly [?] … [?] … and he turned [?] [נטה] [?] … upon [?] … [?] [?].

And it [?] … and [?] in [?] [?] … the [?] [?] [?] … [?].

[A short closing paragraph, opening with a red marginal mark.] … with [?] … and he [?] [established?] [?] … [several words lost] … the [?] [?] … its [?] [?]. He [?] [?] … and the [?] … [?] [?] … He [?] said [?] … and if [?] … [?] [?] … [?] [?].

[final lines of the column, very faded] … and he [?] … the [?] [?] … [?] in [?] the [?] [?] … [?] … to find [לדעת] [?] … its [?] reckoning [?] [?].

(Continuation. No display rubric. The inner column is the heavily water-damaged side; the outer column has a large abraded band.)

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it [?] arose [?] … and we [?] [established?] … this [?] [?] … [Red ink: short marginal marker, [?]] … [several words lost to staining].

And whoever [?] [ומי ש…] [?] … will [?] … this [?] [?] … the [?] [?] … [?].

[a faded line] … the [?] [?] of [?] the [?] motion [?] [?] … and the [?] … [?].

[?] … it is [?] [הוא] … and that [?] [?] … the master [?] [?] … [?] [?] him/it [?] … [?].

[?] … and so [וכן] … behold [הנה] [?] … in [?] the [?] reckoning [?] … [?] [?] in [?] the [?] forms / figures [התמונות] [?] … and the [?] … [?].

[Red ink: marginal paragraph divider, [?]] To the … son of [?] [לבן …] [?] … [?] [?]. And in [?] [?] … the … of [?] [?] … and we [?] [?] … its [?] mean [?] [?האמצעי] [?] … the [?] [?] [?]. And it/he [?] [?] … in [?] the … [?].

[?] … one [אחד] [?] … [?] [?]. Behold [?] it is [?] … to him/it [?] [?].

[Red ink: marginal paragraph divider, [?]] We have set down [?] … the [?] [?] … and we [?] … upon [?] … [?] … [?] [?] like [?] this [כן] [?] [?]. And we [?] … the [?] sun [?] [?השמש] [?] … [?] [?] in [?] the [?] [?] … [?]. And we [?] [?] … and we [?] [?] … in [?] [?] … the [?] [?].

[Red ink: marginal paragraph divider, [?]] Behold [?] … [?] [?] … the [?] [?] … [?]. And we [?] … and we [?] [?] … and we [?] [?] … from [?] [?] … and [?] [?] [?] … to them [?] [להם] [?].

[Red ink: marginal paragraph divider, [?]] We know [?] [נדע] [?] … [?] [?] … was [?] [היה] … [?]. And [?] … behold [?] … here [?] … [?]. And [?] she/it [?] [?] … and [?] he/we [?] [?] … upon [?] … [?] [?] … [?].

[a few closing lines of the column, partly legible] … and the [?] … of [?] [?] … upon [?] [?] [?] … [?]. And [?] … behold [הנה] [?] it [?] [?] … this [?] [?] [?].

You will know [תדע] [?] that [כי] [?] … upon [על] [?] [?] … this [?] [?] … in [?] [?] … the [?] [?]. And the [?] [?] established [?] … upon [?] [?] [?] … [?] the [?] [?] [?] … as the [?] … [?] [?].

The [?] sun [?] [השמש?] [?] … in [?] its [?] [?] … the [?] [?] [?] … [?] [?] … and he/it [?] [?] [?] … in [?] the [?] [?] … [?].

and others [ואחרים] [?] … [?] [?] … [?] in [?] the [?] [?] … and [?] [?] [?] … in [?] the [?] [?] … [?].

[Damage: a horizontal band of roughly six to eight lines through the middle of this column is abraded / washed out and cannot be read — [?]. Text loss here.]

[Lower portion of the left column resumes]

that [?] [?] … of [?] this [?] reckoning [החשבון / הדין] [?]. And [?] it [?] … established [?] … and [?] in [?] [?] … [?] [?].

[?] [established?] correctly [נכון?] [?] … and [?] in [?] [?] [?] … [?] [?]. … the [?] [?] … the [?] beginning / first [הראשית / הראשון] [?] … in [?] the [?] [?] … or [?] [?] [?]. And [?] [?] … [?].

that [?] [?] … and the [?] sun [?] [השמש?] [?] … its [?] [?] … in [?] [?] [?] … and [?] [?] [?] … [?].

and the [?] … of [?] [?] [?] … upon [?] … behold [?] [?] [?] … and [?] [?] [?] … [?] … [?] [?] … And [?] upon [?] [?] [?] … [?].

upon [?] … the [?] [?] … and [?] in [?] [?] … the [?] [?] [?] … in [?] [?] [?].

> **Translator's summary of this batch.** Folio 107 carries forward the Chapter-Seventeen material of Book Three: the operation of the astronomical tables to obtain true positions, with the recurring template vocabulary (mean [האמצעי], difference [החילוף], remainder [המותר], the table [הלוח], correction [תיקון], true place [המקום האמתי], arc [קשת] / arc of day [קשת היום]) applied to the sun and the moon, and short red-ink-flagged paragraph divisions structuring a sequence of "he said … and we established …" steps, some apparently citing an authority by name (unread). No new שער/פרק display rubric appears on either folio side. Because both sides are heavily faded — with genuine surface loss in the inner column of 107v and a washed-out band in its outer column — the connected sense of long stretches cannot be recovered at this resolution, and the prose above is necessarily fragmentary. This folio in its entirety.

Translation from Vatican, Vat.ebr.380 (Sephardic semicursive hand). Book Three (geography/astronomy), continuing the chapter-seventeen material on the tables-based computation of true position, arc-of-day, rising-times, and seasonal/equal hours. Both folio sides in this batch are heavily water-stained, with text loss in the lower-right quadrant of p. 221 and across the central-right of p. 222; many readings are degraded. Flagged accordingly.

PDF p. 221 (folio 108r — "108" in upper-left margin)

Right column

with the table; and we take what corresponds to it [from the table], and that is the true place of the planet. [?] … And when the [?] … rises [?] … and the [?] … is established [?] …

[Degradation: the upper third of the right column is faded by water-staining; only scattered phrases are legible — "we take," "that is," "the table," "rises."]

the arc-of-day [קשת היום] and the arc-of-night [קשת הלילה]; and when you know one of them, the other is known, since together they complete the full revolution [?]. [?] … and that is the [?] … its rising [?] …

This is the [?] … and we already explained that the arc-of-day is [?] … and when it [?] … then [?] … And he said: the rule [?] … take the [?] of the [?] … from the table [מן הלוח] [?] … in the [computation/חשבון] [?] …

the [degrees/המעלות] [?] … and that is the sought value [המבוקש] [?] … And he said: and this is [?] … And when you wish [?] … then take [?] from the table [?] … (interlinear: (?) — a short interlinear insertion above this line, illegible).

and the [?] of the planet [?] … and the [?] … and we already mentioned [?] … in the [?] … of the climes [האקלימים] [?] … And when [?] then [?] …

[Degradation: the lower half of the right column is increasingly faded toward the bottom; phrase-level reading only.]

Left column

and likewise [?] … and the [?] … and that is [?] … the [?] of the [?] … And he said [?] … take what is between them [?] … and that is the [?] of the [?] [?] …

the [?] … and we take a single [degree/measure] [?] … and the [?] … and that is the [?] … and the [?] of the [?] … and likewise [?] … And he said [?] …

for [?] … and that is [?] … and we already mentioned [?] … and when [?] … then [?] … And this is the [?] … take [?] and add [?] … and that is the sought value [המבוקש] [?] …

[Degradation: the central portion of the left column is heavily water-stained; only intermittent function-words ("and that is," "and he said," "take," "and we already") are recoverable, not connected sense. Flag this whole stretch as a]

this [?] … the hours [השעות] [?] … the seasonal hours [שעות זמניות] and the equal hours [שעות שוות] [?] … and when [?] … then [?] … and that is [?] …

and he said [?] … and the [?] … and we established [?] … and the [?] … from the table [?] … and that is the true place [המקום האמתי] [?] …

[The bottom two lines of the left column carry an abbreviation closing the passage — "וכו'" (וכולי, "etc.") is legible at the end — but the surrounding words are faded.]

PDF p. 222 (folio 108v)

Right column

[The top of the right column is degraded by water-staining.]

[?] … And he said [?]: when [?] then we already explained [נבאר] [?] the equating [עדור / השואה] [?] of the [?] … And this is [?] … and when [?] then [?] …

the planet [הכוכב] [?] … or its [?] … And when [?] … then [?] … and that is [?] … and we take [?] … no [לא] [?] …

and we already mentioned [?] … in the [?] … And he said [?]: when you wish [?] to [?] … then take [?] … and add [?] … or subtract [?] … and that is the [?] … [?] …

and we established [?] … And this is [?] … and the [?] … and he said [?] … take from the table [מן הלוח] [?] … the [?] of the [?] … and that is the sought value [המבוקש] [?] …

and we already explained [?] … And when [?] then [?] … And this is the [?] … the [?] … and the [?] … and the [?] of the planet [?] … And he said [?] …

and the [?] … and the difference [החילוף] [?] … and the mean [האמצעי] [?] … and that is the remainder [המותר] [?] … and we take [?] from the table [?] … and that is the true place [המקום האמתי] [?] …

[Toward the foot of the right column, a red-ink structural marker appears:]

[Red ink header: שער] — **Gate** [?].

[a short phrase follows the red marker, then:] within [it/them] [?] … and that is [?] … and he said [?] … and we already mentioned [?] …

Left column

the [?] … the rule [הכלל] [?] … and that is [?] … the [?] … and the [?] of the [?] … And he said [?] … and we already explained [?] … the [?] … And this is [?] …

and the [?] … and that is [?] … and he said [?] … take [?] … and that is the [?] … the [?] … and the [?] … and likewise [?] …

this [?] … the [?] … And he said [?] … and we established [?] … and that is [?] … the difference [?] … and the [?] … and that is [?] …

[Mid-column, a red-ink chapter heading in a display position (line break before and after):]

[Red ink header: פרק שבעה עשר]

Chapter Seventeen [פרק שבעה עשר]

The subject [matter] of this chapter [is] [?] … and [?] … and we already explained [?] … And he said [?] … the [?] … the [?] of the [?] … and the equator/equinox [המישור / השואה] [?] … and the [?] … And this is [?] …

and that is [?] … the [?] of the [?] … and when [?] then [?] … and the [?] … And he said [?] … the [?] … and that is the sought value [?] … and likewise [?] … from the table [?] …

[Degradation: the remainder of the left column is faded toward the bottom; phrase-level reading only. The folio marker "108" (?) appears again in the lower-left margin.]

- Both folio sides are dominated by water-staining; this batch is largely **template/procedural prose** of the kind seen in batches 108–110 (mean המקום האמתי, difference החילוף → remainder המותר → true place האמצעי + read off the table הלוח), recited with "and he said… and we established… we already explained" connective formulae. The recurring lexicon (lexicon lock-in) is recoverable, but the connective tissue and most numerals are not legible at this resolution.
- No tables and no diagrams appear in this batch — the material is running procedural prose.

- The structural signal of the batch: a red-ink **שער** (gate) marker at the foot of p. 222 right column, and a red-ink **פרק שבעה עשר** (Chapter Seventeen) heading mid-column in p. 222 left column. Both are in display/red-ink positions and are structural. Note that Chapter Seventeen was already entered earlier in the run (handoff records "interior to Chapter Seventeen"); this fresh **פרק שבעה עשר** rubric here may indicate a scribal re-statement, a sub-division, or that the earlier "Seventeen" was a forward reference.

Yesod Olam — Book Three (Geography/Astronomy)

Script: Sephardic semicursive, single hand. Heavily faded iron-gall ink throughout, with extensive water staining and foxing — especially in the lower halves of both pages and the inner column of p.224. Many lines are only partially recoverable; large patches are effaced. Both pages are flagged as (see Readability).

> **General note on this batch.** The prose continues the procedural astronomical template of Book Three: a worked exposition of motions, distances/elongations, and the geometric relations governing planetary place, with the characteristic "he said… we have established… and now consider…" connectives carried over from the prior batch. Because the ink is so faint and the staining so heavy, much of the technical content cannot be read at the resolution available. What follows transcribes and translates only the portions legible with reasonable confidence; effaced runs are marked `[…illegible…]` and individual doubtful glyphs `[?]`. No section/chapter rubric (שער / פרק) appears on either page of this batch — the chapter run begun in batch 111 continues unrubricated here.

PDF p. 223 (margin foliation "109")

Right column (begins mid-passage):

the matter [?], and not [?] in the world; and as for what [?] we have established for them [?]. And [?] there is no path [?] to them [?]; rather [?] the line [?] to them. And [?] […illegible…] for they came [?] near to them [?]. And [?] the line that goes out [?] from them [?] reaches [?] […illegible…]

[…several lines effaced by staining; only scattered words recoverable: "and he said…", "near…", "the line…"…]

And [?] he said [?]: know [?] that [?] [...illegible...] to them [?] from [?] the south [?] and the north [?] [...illegible...] and the line of the [?] revolution [?] and [?] the line [?] reaches [?] them [?].

[...run of ~4 lines largely effaced...]

and [?] our [?] reaching [?] the lines [?], the [?] near [?] and [?] the far [?]; and we set down [?] for them [?] from [?] this [?] [...illegible...] our [?] reaching [?] of [?] the line [?] of [?] the [?] near [?].

And [?] when [?] you have [?] reckoned [?] the [?] proper [?] amount [?] for them [?], you will know [?] the place [?]. And [?] he said [?]: until [?] you reach [?] the line [?] which [?] goes out [?] [...illegible...]

and they [?] examined [?] by way [?] of [?] the reckoning [?]; and [?] they will know [?] that [?] this [?] is [?] the [?] near [?]. Every [?] line [?] of the [?] revolution [?] reaches [?] [...illegible...] and [?] the difference [?]; and the [?] body [?] reaches [?] the line [?] of [?] the [?] revolution [?].

the [?] line [?] of [?] the [?] revolution [?]. And [?] this [?] [is] [?] the [?] difference [?] of [?] the equalization [?] of [?] the [?] revolution [?] which [?] [...illegible...]

[...the column continues for several more partially-effaced lines of the same procedural register — "the line of the revolution... the difference... reaches... and the body..." — none recoverable with confidence enough to render as connected prose...]

Left column of p. 223 (a fresh paragraph; the first words are slightly clearer):

[the] revolution [?]: [for] this [?] is [?] a [?] small [?] distance [?] upon [?] a [?] great [?] distance [?]. And [?] when [?] [...illegible...] from [?] the [?] line [?]; and [?] the [?] matter [?] is [?] thus [?].

the [?] manner [?] of [?] the [?] reckoning [?]: or [?] you [?] take [?] [a]bout [?] [?]. And [?] you [?] complete [?] the reckoning [?] of [?] the [?] revolution [?] [... illegible...] upon [?] the [?] body [?] until [?] you reach [?] the [?] near [?] one [?].

you [?] take [?] for [?] them [?] the [?] near [?] [one] [?]; and [?] this [?] [is] [?] the [?] line [?] of [?] the [?] revolution [?] which [?] [...illegible...]

[...several lines effaced...]

you [?] complete [?] [it] [?]; and [?] this [?] [is] [?] the place [?]; and [?] the place [?] of [?] the [?] body [?] [...illegible...] the [?] near [?] one [?].

[…remaining lines of the column dissolve into stained, illegible text; recurring legible tokens are "the place," "the line of the revolution," "the near," "the reckoning," consistent with the running compute-template — but no full sentence is recoverable…]

PDF p. 224 (verso)

Right column (the clearer of the two columns on this page; begins mid-passage):

And [?] he said [?] [that] [?] in [?] the [?] world [?] there [?] [is] [?] a [?] line [?] to [?] your [?] length [?]; for [?] […illegible…] the [?] distance [?] is [?] near [?] in [?] the [?] line [?] of [?] the [?] near [?] one [?]. And [?] know [?] that [?] the [?] line [?] goes [?] [along] [?] the [?] near [?] one [?].

He said [?]: he [?] who [?] of [?] [our] [?] forefathers [?] [?] [?] the [?] reckoning [?] […illegible…] the [?] near [?] [one] [?], for [?] he [?] who [?] reckons [?] it [?] reaches [?] […illegible…]

from [?] them [?] the [?] body [?]; for [?] when [?] the [?] body [?] is [?] near [?] […illegible…] from [?] it [?] [the] [?] revolution [?].

it [?] is [?] not [?] known [?]: it [?] is [?] true [?] for [?] them [?]; and [?] when [?] upon [?] the [?] line [?]; and [?] thus [?] upon [?] them [?]; and [?] from [?] the [?] manner [?] of [?] the [?] path [?] […illegible…]

in [?] the [?] short [?] distance [?] in [?] [its] [?] going-out [?] [is] [?] the [?] line [?] which [?] goes [?] [to] [?] the [?] near [?] one [?]; and [?] all [?] […illegible…]

upon [?] the [?] line [?]; rather [?] [it] [?] reaches [?] them [?]. And [?] he said [?]: he [?] who [?] reckons [?] the [?] near [?] [one] [?] knows [?] the [?] reckoning [?] of [?] the [?] body [?] […illegible…]

upon [?] the [?] body [?]; and [?] it [?] reaches [?] them [?]; and [?] he [?] said [?] [that] [?] this [?] [is] [?] the [?] line [?] of [?] the [?] revolution [?]; and [?] thus [?] the [?] revolution [?] is [?] near [?]; and [?] he [?] reached [?] the [?] line [?] of [?] the [?] near [?] one [?].

[…the lower third of this column is effaced; recurring legible tokens — "the line of the revolution," "the near," "the body," "he reckons," "he reaches," "he said" — confirm the compute-template continues, but no further connected sentence is recoverable…]

Left column of p. 224 (the most degraded region in the batch — heavy water staining across nearly its full height; only fragments legible):

the [?] revolution [?] [...illegible...] the [?] gate [?] [שער?] [...illegible...] [Red ink: possibly a paragraph divider, not legible] [...illegible...]

[...~6 lines almost wholly effaced; isolated recoverable words: "the world," "the reckoning," "the near," "and now," "consider"...]

and [?] now [?] consider [?] [...illegible...] the [?] reckoning [?] of [?] the [?] near [?] [one] [?]; and [?] this [?] [is] [?] the [?] place [?] [...illegible...]

[...remainder of the column illegible...]

This batch is left deliberately sparse: the two folios are among the most degraded encountered in Book Three. The legible vocabulary is wholly consistent with the established compute-template lexicon (place / the near one / the line of the revolution / the difference / the body / the reckoning / and now consider), but the connective tissue and — critically — every numeral and technical distinction is effaced. Both pages require further high-resolution recovery before any confident continuous translation can be offered.

Yesod Olam — Book Three (Geography / Astronomy), Chapter Seventeen (continued)

Vatican, Vat.ebr.380 — Sephardic semicursive hand. (folios bear the medieval numeral "110" at the top-left margin of p. 225).

PDF p. 225 (folio "110")

This opening is **compute-template prose** of the kind that runs through Chapter Seventeen: a procedure for finding a position by combining the mean motion, the near-point (the apogee/perigee reference), the line of revolution (*kav ha-hakafah*), and the difference (*ha-chiluf*), then taking the reckoning to its result. At this resolution most of the connective phrasing and nearly all of the embedded numerals are below the legibility threshold; what can be read with confidence is rendered below, with `[?]` marking genuinely uncertain stretches.

[The right-hand column, p. 225:] ... and we have already explained [?] this matter, that when [?] the place [המקום] is [?] ... and we take the difference [החילוף] ... [several lines illegible — faded iron-gall ink and water staining]. Therefore, when you wish [?] to know the true place [המקום האמתי], you take [?] ... the line of revolution [קו ההקפה] ... and you add [?] it to [?] the mean [האמצעי] ... [?] and the

remainder [המותר] [?] is the correction [התיקון] … [remainder of these lines illegible].

[The left-hand column, p. 225, continues the same procedure:] … and likewise [?] when [?] the reckoning [החשבון] … you take the place [המקום] … [?] … and you set it down [?] … and consider [התבונן] … [several lines illegible].

> [Red ink: **ועתה**] — "And now" —
>
> And now, [?] when [כי] [?] the place [?] … you take [?] … the gate [השער] [?] … [the following lines are largely illegible: this is the procedural "and now consider/take" turn that recurs as a paragraph hinge through the chapter]. … and the rule [?] … the place [המקום] … the chapter [?] … [remainder of column illegible — heavy fading and edge wear at the lower-left margin].

[The final lines of the left column on p. 225 are illegible: faded ink, water stain, and bleed-through from the verso. Numerals here cannot be recovered at this resolution.]

PDF p. 226 (folio verso; catchword-style numeral "עו" at foot)

[The right-hand column, p. 226, continues the compute-template:] … and the mean [האמצעי] [?] … and you take [?] … the place [המקום] … and the difference [החילוף] … [?] … [several lines illegible]. … and the true [האמתי] [?] … [?] … and you add [?] … and the remainder [המותר] [?] … the correction [התיקון] … [remainder of these lines illegible].

[Mid-column, right, p. 226:] … the chapter [הפרק] [?] … the place [?] … and likewise [?] … [illegible] … and that [?] is [?] what [המבוקש] [?] you sought. [End of a procedural unit.]

> [Red ink: **ולחמר**] (i.e. **וחמר** / "and a further matter," a paragraph-divider rubric) [?]
>
> Its heading [as written in red] [?]: "…" — and the prose resumes [?] … [the lines under this rubric are largely illegible].

[The left-hand column, p. 226, opens with a red-ink rubric:]

> [Red ink: **ולחמר**] / [**וחמר** — "and a further matter"] [?]
>
> … its way [?] … when [?] … the place [?] … you take [?] … [several lines illegible] … and consider [התבונן] [?] … and the rule [הכלל] [?] … [remainder largely illegible].

[Mid- to lower-left column, p. 226:] … and likewise [?] … the place [המקום] … the reckoning [החשבון] [?] … and the true place [המקום האמתי] [?] … [several lines illegible] … and this [?] … [?].

> [Red ink: **והחכמים**] [?] — "and the sages" — [or a continuation rubric]
>
> … [the lines following this red word are illegible].

[The lower-left column closes the page with the compute-template still in progress; the final few lines are illegible — faded ink and edge wear at the lower margin.]

Yesod Olam — Book Three (Geography/Astronomy)

Manuscript: Vatican Library, Vat.ebr.380. Sephardic semicursive hand. Translation from the manuscript witness.

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until [the place] is established, and the reckoning upon the whole, as we have made clear [?]. With [the matter] before you [?] and the consideration of the matter [?], so [you find] the difference (החילוף). And after this, when [?] you have done thus [?], and you take from it [the remainder].

And the [place/reckoning] [?] is set down [?] upon what [we] established before [?], one [degree] after another [?]; consider [התבונן] them well.

When [the position] is [thus] [?], you do as we said before [?], according to [the place] [?] which is true (האמתי), [you take] the difference [?] and the matter [is corrected].

And after this, when you wish to know [?] the [position] [?], you consider (התבונן) [?] the true place (המקום האמתי), which is [?].

The [matter] [?] which [?] is set down [?] and the difference (החילוף) which we mentioned, [these] you set [down] [?]; consider them well.

Then, when you have done [?] thus, and you wish to know the true place [?], it is in your hand [?]; and you take [?] the line of revolution (קו ההקפה) [?], and you add it [to the mean] (האמצעי), [and the remainder is the correction (התיקון)].

And [the place] is [?] [?] from the true [position] (האמתי) [?], and from there [?] you take [?] [the difference].

The correction (התיקון) which [we] [?] [from] the line of revolution (קו ההקפה), [you] consider [it] [?] [?].

This [matter] [?] [is] true [?], and so it is [?]; and the [position] [?] [?] [?] [it is] in your hand [?] [?].

And so too the [other position] [?], which [?] [its] revolution (הקפה) [?] [?], [you take] from it [?], [and] the remainder [is] the correction.

This [is] the true [place] [?], and so [?] [?].

---

the matters which [?] [your hand] [?], and so the second [?], and from the [?].

The motions (התנועות), [some] [?], and [some] of them [?]; and the [?] are [?], and they [?].

[As/since] [?] [the matter], the [?] of the second [?] [?], and [?] [?].

And when [?] [the position] [?] [?], the line [?] [?] [?] [?], and [?].

And [these] are the [matters] [?] [?], and [?] [?]; and you set [it] [down] [?] [?], and the [remainder] [?].

[?] [?] [?] [?] [it is] in your hand [?], and so [the other] [?].

The reckoning (החשבון) [?] [?] [?] [?], and [?] [?], and [?] [?] [?].

And after the reckoning [?] [?] [?] [?], the [number/degrees] [?] [?], and from there [?] [?] [the remainder].

[The whole/the rule] [?] [?] [?] [?], and so [?] [?] [?].

And when [you have] [?] [?] [?] [?] [?] [?] [?], [you] consider it [?].

[Several lines here are at the lower margin and are degraded by foxing/edge staining — heavily abbreviated procedural prose continuing the computation-template. Transcription confidence low]

[Bottom line of left column, smaller hand:] [?] [?] [?] [?] [?] [?].

[Red ink header:] **פרק תשעה עשר** [Chapter Nineteen]

[Red ink, continuing the rubric on the same line:] בו [?] [?] [?] [?] [explaining the matter of …] [?]

The [matter] [?] [?] which [we have made clear] [?], that the motions (התנועות) and the [revolutions/corrections] (החילוף) [?], so that the [reckoning] [?] [?] upon the matter [?].

And know [?] that when [the position] is [?] [?], the place (המקום) [?] [?]; and so the [second], it is [in your hand] [?] [?].

The motion (התנועה) of the [planet] [?] [?] [?] [?]: when [it is] [?] upon the [reckoning] [?], you [take] the difference (החילוף).

And so the [position] [?] [?] [?] [?], when [it is/it goes] [?] [?] [?], and [?] [?] [?].

[As for] the second [?] [?] [?] [?], and [?] [?], according to what [we] [explained] [?] before [?].

And [these] [are] [?] [?] [?] [?], and [?] [?]; and the [remainder] [?] [the correction].

And after [?] [?] [?] [?] [?] [?] [?], [you] consider (התבונן) them [?].

[The whole] [?] [?] [?] [?], and so [?] [?] [?], in the matter [?].

And when [?] [?] [?] [?] [?] [?], the [degrees] [?] [?]; and from there [?] [?] [the remainder] [?].

The reckoning (החשבון) [?] [?] [?] [?], and [?] [?] [?] [?] [the correction] [?].

And so [too] [?] [?] [?] [?] [?] [?] [?]; consider [התבונן] [?] well.

[As for] the [position] [?] [?] [?] [?] [?] [?] [?], and [?] [?] [?] [?].

And when [you have] [?] [?] [?] [?] [?] [?] [?] [?], [it is] in your hand [?].

And so [?] [?] [?] [?] [?] [?] [?] [?], and [the remainder is the correction] [?].

This [is] the true [place] (האמתי) [?] [?], and so [?] [?] [?].

[The line/measure] [?] [?] [?] [?] [?] [?] [?], and [?] [?]; and you [take] from it [?] [?] [?], and [?] [?].

And [these matters] [?] [?] [?] [?] [?] [?], according to the [reckoning] [?] [?].

**** …and so [?] [?] [?] [?] [?] [?], in the matter [?] [?].

And when [?] [?] [?] [?] [?] [?] [?], the line [?] [?] [?] [?].

[As for] the [motion] [?] [?] [?] [?], and [?] [?] [?]; and [the remainder] [?] [the correction] [?].

And so [too] the [second/other] [?] [?] [?] [?] [?] [?], it is in your hand.

The reckoning [?] [?] [?] [?] [?] [?] [?] [?], and [?] [?] [?] [?].

And after [?] [?] [?] [?] [?] [?] [?], [you] consider it [התבונן] [?].

[The degrees] [?] [?] [?] [?] [?] [?] [?] [?], and so [?] [?] [?].

And when [you wish] [?] [?] [?] [?] [?] [?] [?] [?], it is [in your hand] [?].

This [is] [?] [?] [?] [?] [?], and so [?] [?] [?] [?].

[Several lines in the lower-middle of the left column are degraded by water-staining and the cramped hand — procedural compute-template continues. Low confidence]

And [the whole/the rule] [?] [?] [?] [?], and so [?] [?] [?] [?]; consider (התבונן) them well.

[Lower lines:] …and so [?] [?] [?] [?] [?] [?], and [the remainder] [?] [?] [?] [?].

[Bottom line, smaller hand:] [?] [?] [?] [?] [?] [?] [?] [?].

Yesod Olam — Book Three (Geography/Astronomy)

Manuscript: Vatican Library, Vat.ebr.380. Sephardic semicursive hand. Translation from the manuscript witness.

This is a two-column page. The right column reads first, then the left. The hand is the same Sephardic semicursive compute-template prose continuing from the prior batch; the ink is faded and the outer edge shows wear, so many readings are uncertain.

---

and you take [?] what arises [?] upon the reckoning of the position [?], and the place [?] is established [?] from [?]. And when you have done [?] thus [?], the difference (החילוף) [?] which [?] arises [?] is in your hand [?].

The number [?] which arises [?] upon the calculation [?], you set down [?] as we made clear before [?]; and from it [?] you take [?] the true position (האמתי) [?], one [degree] [?] after another [?].

[?] you set down [?] upon what [?] we established before [?], and you consider (התבונן) [?] it [?] well [?]. And when [the position] [?] is [thus] [?], you take [?] the difference [?], and the correction (התיקון) [?] [is established].

And after this [?], when you wish [?] to know [?] the true place (המקום האמתי) [?], it is [?] in your hand [?]; and you add [?] the mean (האמצעי) [?] to [?] the line of revolution (קו ההקפה) [?], and the remainder [?] is [?] the correction (התיקון) [?].

[?] which [?] from the true [position] (האמתי) [?], and so it is [?] [?], and you take [?] from it [?] the difference (החילוף) [?].

This [is] the true place (המקום האמתי) [?], and so [?] it is established [?] [?] in your hand [?] [?].

---

from this [?] you [?] [?] upon [?] the reckoning [?], and the place [?] [is] true [?]; and so [?] the second [?], and from [?] [?].

And when [?] you have done [?] thus [?], and you take [?] the difference [?] from [?] the line of revolution (קו ההקפה) [?], the remainder [?] is the correction (התיקון) [?].

The mean (האמצעי) [?] which [?] we established [?] before [?], and the true [position] (האמתי) [?] which [?] we mentioned [?] — you consider (התבונן) [?] them [?]; and from them [?] you take [?] the [true] place [?].

And so too [?] the [other] [?] revolution (הקפה) [?], [you take] from it [?], and the remainder [?] is the correction [?] [?].

This [matter] [?] is true [?]; and you [?] [?] it [?] in your hand [?], as [?] we [?] before [?].

[Several lines here are badly faded and worn at the inner column; only scattered compute-template tokens — "the reckoning," "the difference," "you take," "the remainder," "the correction" — are legible. The thread of the procedure continues without a discernible new rubric. Flagged as a]

And after this [?], when [?] you wish [?] to know [?] [the position] [?], you do [?] as we said [?] before [?]; and the matter [?] is [?] in your hand [?] [?], and you consider (התבונן) it well [?].

Two columns; right column first, then left. Ink faded; inner (gutter) and lower margins worn.

And these [matters] [?] [are] true [?] for the longitudes [?] and the [latitudes] [?]; consider (התבונן) [?] them [?]. So [?] [?] upon [?] the reckoning [?], and the place [?] arises [?] from [?].

And when [?] [the place] [?] arises [?], you set it down [?]; and from it [?] you take [?] [the difference] [?]. [?] when [?] [the position] [?] is [thus] [?], and [?] [?] [?].

[A run of badly faded lines: the legible tokens are "the reckoning," "the difference," "the position," "you take," "you set down," "the remainder." No new rubric is visible. Flagged as a]

The true [position] (האמתי) [?] which [?] [?] [?], and so [?] [?] the second [?]; and you take [?] from it [?] the difference (החילוף) [?], and the remainder [?] [is] the correction (התיקון) [?].

[?] the place [?] is true (האמתי) [?], and so [?] it is established [?] in your hand [?].

---

the true [?] degrees [?] and so [?] you [?] [?]. And when [?] you wish [?] to know [?] the [position] [?], you do [?] as we said [?] before [?], according to [?] the place [?] which [?] is true [?].

And after [?] this [?], you take [?] the line of revolution (קו ההקפה) [?] [?], and you add [?] it [?] to [?] the mean (האמצעי) [?]; and the remainder [?] is [?] the correction (התיקון) [?], [as] [?] we made clear [?] before [?].

[?] [the place] [?] which [?] [?] from [?] the true [position] (האמתי) [?], and so [?] [?] it [?] [is] [?] in your hand [?].

[Lower lines faded and worn toward the gutter; the procedure appears to continue in the same compute-template idiom with no observed new chapter or book rubric. Flagged as a]

Manuscript: Vatican Library, Vat.ebr.380. Sephardic semicursive hand. **Folio:** numeral "113" visible at the upper-left margin (recto). is the facing side.

PDF p. 231 (folio 113)

The page is heavily water-stained and foxed across most of its surface; a large central water-stain ring covers the lower two-thirds of the leaf, where no primary text was written. Only the upper portion of the page carries text, in two columns. The **left column** is severely faded — individual word-shapes survive but most are illegible; it appears to be the tail of the running compute-template prose carried over from the preceding folios. The **right column** carries the end of a passage in black ink followed by a structural seam in red ink.

Right column — black ink (close of the preceding passage)

The black-ink lines that close the passage are abraded and crossed by the watermark overlay, but the surviving sense is the conclusion of the planetary-position compute-template that has run through the preceding folios — closing out the reckoning (חשבון) of the true place. The final black-ink line ends with a flourish. Several words within these five lines are not securely legible:

> …[?] in the third [house?] … and so too for the rest … the difference [החילוף] … the true place [המקום האמתי] … [?]

[Damage: water-staining and abrasion across the right-column text block; approximately 5 lines, of which only scattered words are securely legible.]

Right column — red-ink structural seam

[Red ink header: נגמר המאמר השלישי [?] — "The Third Book is concluded."]

This is the **closing rubric of Book Three (מאמר השלישי)** — the conclusion (חתימה) of the geography/astronomy book. The red-ink seam runs three short centered lines. The wording is partly abraded; the securely legible core is the verb נגמר ("is concluded / completed") with המאמר השלישי ("the Third Book"). The continuation includes a conventional closing doxology:

[Red ink: ונשלם [?] — "and it is completed."]

[Red ink: התהלה [?] — "the praise [be to God]" (a conventional scribal closing-doxology formula; the full phrase, e.g. *התהלה לאל* "praise to God," is abraded).]

Below the red seam, in black:

[Red ink: ידוע — "[it is] known"] / עלה [?]

[Red ink: כל זמן ונשלם [?] — partly legible; "every time … and it is completed."]

[Editor's note: This page marks the structural seam anticipated in the handoff: the **conclusion of Book Three (מאמר ג, geography/astronomy)**. The red-ink rubric נגמר המאמר השלישי ("The Third Book is concluded") closes the book; the remainder of the leaf is blank. The opening of **Book Four (המאמר הרביעי, the Jewish calendar)** does not appear within this batch — it presumably begins on the following folio. Several words of the seam are abraded by water-staining and are flagged for further verification.]

PDF p. 232 (folio 113, facing side)

The leaf carries no primary text. The page shows heavy water-staining (a large stain ring across the center and lower portion), foxing at the edges, and faint ink bleed-through from the facing written side at the top — all ignored per scan-artifact rules. Edge loss / tattering is visible at the outer (right) margin and lower-right corner. Classification (end-of-book blank vs. quire break) deferred to further review.

[Damage: edge loss / tattering, outer margin and lower-right corner, no text affected (blank leaf).]

This is consistent with the prior batch's handoff: Book Three concluded with its red doxological rubric ("נגמר המאמר השלישי") on p. 231, with the lower portion of p. 231 and the whole of p. 232 left blank. The blank run continues across this opening (pp. 233–234). The expected "המאמר הרביעי" opening rubric and chapter index for Book Four (the Jewish calendar) have **not yet appeared** in this batch — they presumably begin on the following folio. Classification of this blank stretch (end-of-Book-Three padding / quire break / deliberate division before Book Four) is deferred to further with cross-batch evidence.

[Vatican librarian note: foliation numeral "115" in pencil/ink]

The blank gap that began after Book Three's conclusion continues through this batch. Both folio sides facing the camera carry no manuscript text — only foxing, water staining, and the Vatican Library watermark overlay (a scan artifact, ignored). The librarian's modern foliation "115" appears in the top-left margin Book Four (המאמר הרביעי — the Jewish calendar) has not yet opened; watch for its rubric on a following folio.

Script: Sephardic semicursive (primary hand), with red-ink rubrication for structural headers. Modern librarian foliation in pencil ("119") in the upper margin of p. 243.

f. 119r (recto)

The recto carries no primary manuscript text. The only inscription is the modern librarian foliation in the upper-left margin:

[Vatican librarian note: "119" (pencil foliation, upper-left margin)]

Faint marks elsewhere on the leaf are bleed-through (mirrored, lighter) from the verso (f. 119v) and from the scan's staining; they are not transcribed. A faint reddish trace near the top of the leaf corresponds to the red opening rubric on the verso showing through the paper.

f. 119v (verso) — opening of the Fourth Book (Book Four)

This is the opening page of **the Fourth Book (המאמר הרביעי)** of *Yesod Olam*, devoted to the Jewish calendar (intercalation, the molad/conjunction, the tekufot, the nineteen-year cycle, common and leap years, and the month-length types). Per the manuscript's layout it carries a red-ink opening rubric at the head, followed by a **two-column chapter index** in which red-ink *פרק* (chapter) rubrics alternate with black-ink subject entries naming the topic of each chapter.

Readability — severe. At the resolution of this scan the verso is almost entirely illegible. The leaf suffers heavy water-staining and foxing across the center and lower half, and the page is dominated by show-through. The red iron-gall rubrics (which fade faster than the black carbon ink) survive only as red strokes at the top of the two columns and as scattered red marks down the right-hand column; **individual letterforms in the red rubrics cannot be resolved.** The black subject entries are fainter still. I can confirm the *structure* the task describes — a red opening rubric plus a two-column index alternating red *פרק* rubrics with black subject lines — but I cannot recover the wording of either the opening rubric or the individual index entries with any confidence.

In keeping with tool discipline (no image processing; one Read pass), I transcribe only what is structurally certain and flag the rest. I do **not** reconstruct the chapter-index entries from expectation.

Opening rubric (head of page)

[Red ink header: opening rubric of the Fourth Book — text illegible at this resolution] [?]

The rubric stands in red at the head of the page, spanning toward the top of both columns. Its content is not recoverable; on the basis of the work's structure it is

the opening title/dedication of המאמר הרביעי (the Fourth Book, on the calendar), but the letters cannot be read. [?]

Chapter index (two columns, right column read first)

The body of the page is a two-column index. The expected pattern — alternating red *פרק [number]* rubrics with a black subject line describing each chapter — is consistent with the surviving red marks down the right column, but no individual entry can be read.

- Right column: a vertical series of red-ink rubric marks (the *פרק* chapter headings) with intervening black subject lines. Entries illegible. [?]
- Left column: continuation of the index, same alternating red-rubric / black-subject pattern. Entries illegible. [?]

[Damage: heavy water-staining and foxing across the center and lower half of the leaf, with pervasive show-through; the great majority of the index is obscured.]

This entire page — it requires a higher-resolution image to recover the red opening rubric and the chapter-index entries. The structurally important rubricated material (opening title + every chapter heading and subject line of Book Four's index) is present on the leaf but not legible in this scan.

Manuscript: Vatican Library, Vat.ebr.380. Sephardic semicursive hand, black body ink with red rubrication. This batch contains the close of Book Three's chapter index and the end of its prose, the opening rubric of **Book Four (the Jewish calendar)** with its chapter index (running across both pages), and the beginning of Book Four's prose with **Chapter One**.

Page 245 (f. 120r)

> **Note on layout.** This folio is in two columns. The **left column** carries the tail end of Book Three's chapter index (red פרק rubrics, each with a one-line topical gloss). The **right column** carries the closing lines of Book Three's prose, the red opening rubric of **Book Four**, and the start of Book Four's chapter index. I render the right column (which carries the structural transition) first, then the left column's index entries.

Right column — close of Book Three and opening of Book Four

[The opening lines are the doxological close of Book Three, partly in red:]

[Red ink: …] my God, you have done a wondrous thing with me, to give thanks [?] let the wise [?] understand in your righteousness. [Red ink: …]

[Several lines of black prose follow — a closing reflection. The ink is somewhat faded and the right edge is worn:]

The heart that searches out the powers of [?] the heavens and their hosts [?] … and [?] in their wondrous works [?] … all [?] of his work [?] … your love and your delight [?] in his praise; you have completed [?] [Red ink: …] forever. [Red ink: …] He [?] shall establish [?] you [?] [?].

[Red ink rubric, opening Book Four:]

[Red ink:] THE FOURTH BOOK [המאמר הרביעי] — [black:] this one [?] he [?] declares [?] [?] to [?] [?] [?].

`. NOTE: Chapter One is introductory (the seven planets and the order of the spheres) — the molad/tekufot material proper begins in chs. 2, 3, and 5.]

[Red ink heading introducing the chapter index:] **[Red ink:] These [?] are [?] the chapters [?] of this [?] book [?]** [?] and its [?] gates [?] and the [?] number [?] of its [?] chapters [?].

[Black prose — a brief prefatory note to the index, partly worn:]

This book [?] treats of the cycles [המחזורים, the (calendar) cycles] [?] and their [?] reckonings [?] … the cycle [המחזור] of nineteen [?] years [?] … the molad [המולד, the lunar conjunction] [?] of [?] the months [?] … and the seasons [התקופות, the tekufot] [?] and their [?] reckonings [?] … and the leap-years [העיבורים] [?] and the common years [?] … and this [?] is [?] [?] the [?] chapters [?].

[Red ink chapter-index entries begin:]

- **[Red ink:] Chapter One** [פרק ראשון] — [black:] on the [?] reckoning [?] of [?] … rises [?] [?] the [?] [?].
- **[Red ink:] Chapter Two** [פרק שני] — [black:] on the cycle [המחזור] of nineteen [?] years [?] … [?] year [?] [?].
- [black continuation:] [?] … and the [?] common [?] and the leap [?] years [?] [?].
- **[Red ink:] Chapter Three** [פרק שלישי] — [black:] on the [?] reckoning of the years [?] and [?] … [?] to [?] correct [?] the [?] reckoning [?].
- **[Red ink:] Chapter Four** [פרק רביעי] — [black:] how [?] one [?] corrects [?] the [?] molad [?] [?] … [?] on [?] [?] the reckoning [?].
- **[Red ink:] Chapter Five** [פרק חמישי] — [black:] on the [?] tekufah [התקופה] [?] … how [?] it [?] is [?] [?].

- [black continuation:] [?] in [?] [?] the [?] reckoning [?] … [?] of [?] [?] the [?] cycles [?] [?].

Left column — close of Book Three's chapter index

[Top two lines, black, completing the gloss of the last Book-Three chapter on the prior column:]

[?] who reckons [?] [?] forty [?] … on [?] which [?] is [?] obligatory [?] the [?] leap [?] … [?] from [?] them [?] [?].

- **[Red ink:] Chapter Six** [פרק ששי] — [black:] on the [?] matter [?] of the things [?] that [?] [?] … [?] reckoning [?] the [?] molad [?] and [?] [?].
- [black continuation:] the [?] [?] … how [?] they [?] were [?] [?] in [?] the [?] [?] houses [?] [?] and [?] [?] … which [?] are [?] [?] alive [?] … [?] reckoned [?] [?].
- **[Red ink:] Chapter Seven** [פרק שביעי] — [black:] on [?] [?] the [?] [?] … the [?] sign [?] of [?] the [?] reckoning [?] of [?] … [?] correct [?].
- [black continuation:] [?] to [?] [?] them [?] [?] … the [?] reckoning [?] [?] [?].
- **[Red ink:] Chapter Eight** [פרק שמיני] — [black:] on the [?] laws [הלכות] of the [?] tekufot [התקופות] [?] [?] … [?] [?].
- [black continuation:] [?] to [?] guard [?] [?] … [?] [?] [?] and [?] its [?] reckoning [?] [?].
- **[Red ink:] Chapter Nine** [פרק תשיעי] — [black:] on [?] the [?] year [?] [?] of [?] [?] and [?] the [?] [?].
- [black continuation:] [?] three [?] [?] … the [?] reckoning [?] [?] this [?] … [?] the molad [?] [?] … the heads [ראשי, the beginnings] of the [?] tekufot [התקופות] [?] [?].
- **[Red ink:] Chapter Ten** [פרק עשירי] — [black:] [?] [?] and [?] … on [?] the [?] tekufot [התקופות] [?] and [?] [?].
- [black continuation:] [?] gathered [?] [?] … the [?] reckoning [?] of the [?] year [?] [?] … [?] [?] [?] and [?] the reckonings [?] [?].
- [black continuation:] the [?] beginnings [?] [?] [?].
- **[Red ink:] Chapter Eleven** [פרק אחד עשר] — [black:] on the [?] reckoning [?] of the [?] tekufot [התקופות] [?].

Page 246 (f. 120v)

Note on layout. Two columns again. The **right column** continues Book Four's chapter index (Chapters Twelve through Eighteen) and then opens

the prose of **Chapter One** in red. The **left column** carries continuous prose — the closing prose of Book Three, running down the column. I render the right column (index + Book Four opening) first, then the left column's prose.

Right column — Book Four chapter index (continued) and the opening of Chapter One

[Top line, black, completing a gloss from the previous column:]

and [?] the reckoning [?] to [?] correct [?] the [?] reckoning [?] [?].

- **[Red ink:] Chapter Twelve** [פרק שנים עשר] — [black:] how [?] one [?] corrects [?] [?] … [?] the [?] [?].
- [black continuation:] the [?] tekufah [?] [?] … [?] [?] [?].
- **[Red ink:] Chapter Thirteen** [פרק שלשה עשר] — [black:] how [?] one [?] corrects [?] [?] … [?] [?].
- [black continuation:] the [?] tekufah [?] [?] … [?] [?] [?] … the [?] reckoning [?] [?] [?].
- **[Red ink:] Chapter Fourteen** [פרק ארבעה עשר] — [black:] on the [?] matter [?] [?] of [?] [?] the [?] postponement [?] [הקביעה / הדחייה, the calendar fixing/postponement] [?].
- [black continuation:] and [?] the [?] reasons [?] [והטעמות] of [?] [?] … [?] [?] [?].
- [black continuation:] in [?] correcting [?] [?] [?] … [?] [?] this [?] [?] … and [?] [?] [?] [?] which [?] [?].
- [black continuation:] [?] [?] [?] [?] … and [?] one [?] reckons [?] [?] [?].
- **[Red ink:] Chapter Fifteen** [פרק חמשה עשר] — [black:] on [?] the [?] year [בשנת] [?] [?] [?] [?].
- [black continuation:] and [?] [?] [?] [?] [?].
- [black continuation:] [?] [?] [?] [?] … [?] [?] [?] [?].
- **[Red ink:] Chapter Sixteen** [פרק ששה עשר] — [black:] on the [?] [?] [?] [?] … [?] [?].
- **[Red ink:] Chapter Seventeen** [פרק שבעה עשר] — [black:] on the [?] reckoning [?] [?] … [?] the [?] [?] [?].
- [black continuation:] [?] [?] … [?] [?] … [?] [?] and [?] [?] … the [?] [?].
- [black continuation:] [?] [?] [?] … and [?] [?] [?] [?].
- **[Red ink:] Chapter Eighteen** [פרק שמונה עשר] — [black:] [?] [?] [?] [?] … on the [?] reckoning [?] of [?] the [?] [?] [?].

- [black continuation:] and [?] [?] [?] … and [?] [?] [?] [?] … [?] [?].
- [black, closing the index:] [?] [?] [?] [?] [?] [?].

[Red ink rubric, opening the prose of Book Four:]

[Red ink:] Chapter One [פרק ראשון] — [Red ink continuing:] on [?] [?] [?] [?] the [?] [?] [?] … the [?] [?] [?].

[Red ink (prefatory line of the chapter):] [?] [?] [?] upon [?] which [?] the [?] [?] … the [?] reckoning [?] [?] … [?] the year [?] … of [?] the [?] [?].

[Black prose — the body of Chapter One begins:]

[?] [?] [?] [?] … in [?] [?] the [?] [?] the months [?] [?] [?].

> **Readability — right column, Chapter One:** the opening prose lines of Chapter One are heavily abraded and water-stained at the column foot; only fragments are recoverable at this resolution. The full opening of Book Four's Chapter One is a

Left column — closing prose of Book Three

[Continuous black prose running down the column. The hand is the primary Sephardic semicursive; ink is moderately faded and the inner (gutter) margin is tight. This is the concluding discussion of Book Three. Only fragments are confidently recoverable:]

and [?] [?] [?] in [?] [?] the [?] [?] [?].

The [?] [?] [?] upon [?] [?] … [?] [?] [?] and [?] [?] … and [?] [?] the [?] [?] [?] [?].

as [?] the [?] wise [?] [?] [?] [?] [?] … [?] [?] [?] and [?] [?] [?].

[Mid-column, a denser passage discussing reckoning and the heavens:]

[?] the [?] [?] [?] [?] … the heads [ראשי, the beginnings] [?] of [?] [?] … the [?] reckoning [?] [?] [?] … [?] [?] [?] [?].

and [?] [?] [?] [?] … and [?] [?] [?] and [?] [?] [?] [?] … [?] [?] [?].

[Lower portion, discussing degrees and a constellation/sign:]

and [?] [?] [?] [?] … the [?] [?] [?] [?] [?].

[?] [?] [?] [?] [?] … and [?] [?] [?] [?] … in [?] [?] the year [?] [?].

[A line referencing degrees and possibly a zodiacal sign:]

[?] [?] [?] [?] … [?] [?] [?] [?] [?] … and [?] the [?] [?] [?] … [?] [?] [?] degrees [מעלות] of [?] [?] a sign [מזל, a zodiacal sign] [?].

> **Readability — left column:** this column is the most degraded matter in the batch. The combination of faded ink, gutter tightness, and water-staining at the foot leaves the bulk of the prose unrecoverable at this resolution. (entire left column of f. 120v).**

Manuscript: Vatican Library, Vat.ebr.380. Sephardic semicursive hand, black body ink with sparse red rubrication (mostly faded). This batch continues **Book Four (the Jewish calendar)**, the prose of **Chapter One** and the opening of the following chapter, dealing with the molad (lunar conjunction), the length of the synodic month in days/hours/halakim, the 19-year cycle, and the reckoning of common and leap years.

Condition. Both folios carry a heavy brown water-stain across the lower half (worst at the foot and the outer-lower corner), with substantial ink loss there; the upper two-thirds are legible but the iron-gall ink is faded and abraded in spots. The Vatican watermark overlay and faint bleed-through from the facing side are ignored throughout. Because this is continuous procedural calendar prose, the same small set of technical terms (molad, month, hour, chelek, cycle) recurs across the parallel sentences; once fixed in one position they are read the same in the parallel positions rather than re-flagged. Numerals are transcribed verbatim with `[?]` where a glyph is genuinely ambiguous.

Page 247 (f. 121r)

> **Note on layout.** Two columns. By the sense, the **right column** continues the running prose and the **left column** continues from it; I render right column first, then left.

Right column

and so too [?] in the months [?] … the molad of [?] [the month] [?] … [the moon's] light [?] is hidden [?] and you [?] reckon [?] from it [?]. After [?] the molad of [?] one [?] month [?] [you reckon] to the molad of the next [?]; and so [?] you continue [?] [the reckoning].

After this [?] [comes] the matter [?] of [?] the molad [?] … and you [?] reckon [?] to it [?]; and so [?] you continue [reckoning].

The remainder [?] [of] the [?] … you [?] take [?]; and you [?] know [?] that [?] there [?] is [?] [a remainder] [?]. And the [?] excess [?] of [?] the month [?] …

[Black prose, somewhat abraded:]

The light [?] of [?] the moon [?] … and the [?] reckoning [?] … the molad [?] of [?] [the month] [?] … and so [?] you [?] continue [?]. He [?] said [?] [that] [?] this [?] is [?] the [?] reckoning [?] … the [?] cycle [המחזור, the 19-year cycle] [?] …

He [?] who [?] understands [?] the [?] cycle [?] [of] nineteen [?] years [שנה] [?] … the year [?] is [?] common [פשוטה] [?] or [?] leap [מעוברת] [?] …

The molad [?] of [?] Tishrei [?] [תשרי] [?] … and the [?] molad [?] of [?] … and so [?] you [?] reckon [?] to [?] [the molad of the next] [?].

[Water-stain begins; the foot of the column is heavily damaged:]

[?] … [Damage: water stain, lower ~6 lines, most words illegible] … the reckoning [?] … the months [?] … [?].

Left column

in [?] the [?] … and [?] the [?] reckoning [?] of [?] the [?] cycle [?] … and [?] so [?] [?].

He [?] said [?]: when [?] you [?] wish [?] to [?] know [?] the [?] molad [?] … you [?] take [?] [the days] [?] … and the [?] remainder [?].

[A red-ink mark / small rubric is just visible mid-column but is too faded to read:]

[Red ink: …] [?]

Understand [התבונן] [?] this [?]: the [?] year [?] [is] common [?] … the [?] months [?] [number] twelve [?] … and the [?] leap [?] year [?] … thirteen [?] [months] [?].

The [?] last [האחרון] [?] … in the [?] reckoning [?] … and [?] when [?] you [?] reach [?] [the end] [?] … [you] return [?] [to the beginning] [?].

He said [?]: this [?] is [?] the [?] reckoning [?] of [?] the [?] cycle [?] [of] nineteen [?] [years] [?]; and [?] in [?] it [?] [are] seven [?] [שבע] [?] leap [years] [?] [the seven leap years of the 19-year cycle] [?] and twelve [?] [common years] [?].

[Heavily abraded / water-stained toward the foot:]

[?] … and [?] you [?] take [?] [the molad] [?] … and the [?] remainder [?] … and [?] when [?] you [?] reckon [?] … the [?] day [?] [?] … [Damage: water stain, lower ~5 lines, illegible] … and [?] this [?] is [?] [the] [?].

Page 248 (f. 121v)

> **Note on layout.** Two columns; right column read first by the sense. The lower half of the leaf is badly water-stained, with the outer-lower corner the worst.

Right column

The [?] keeper [?] [שומר] [?] of [?] the [?] reckoning [?] … the [?] established [?] [points] [?] … in [?] the [?] [reckoning] [?] … He said [?]: and [?] [if] [?] he [?] adds [?] to it [?] … and you [?] sanctify [?] [קדש, declare/fix the new month] [?] … the [?] year [?].

He said [?]: and [?] you [?] reckon [?] [the days] [?] … the [?] molad [?] … and the [?] first [?] [day] [?] …

He said [?]: the [?] established [?] [molad] [?] … you [?] take [?] [from] it [?] … the [?] beginning [?] of [?] [the year] [?]. And [?] this [?] [is] [?] the [?] reckoning [?].

And [?] one [?] who [?] is [?] careful [?] [in] the [?] reckoning [?] … and [?] he [?] [will know] [?] when [?] [is] [?] the [?] season [?] [התקופה] [?] … [?].

[A short interlinear addition above this line, in the same hand:]

(interlinear: … [?) the season [התקופה] [?]]

And [?] write [?] for [?] yourself [?] the [?] half [?] [חצי] [?] of [?] [the] chelek [חלק, 1/1080 hour] [?] … or [?] a [?] year [?]; this [?] [is] [?] the [?] day [?] … the [?] half [?] of [?] a [?] year [?] … and [?] [you] reckon [?] [thus] [?].

Pay heed [?] [התבונן] [?] to [?] the [?] arrangement [?] [סדר] [?] [of] [?] the [?] reckoning [?]: this [?] [is] [?] [how] [?] … the [?] [molad] [?] moves [?] from [?] one [?] [month] [?] to [?] the next [?].

[The mid-column lines are legible but technical, treating the synodic month's length:]

The [?] month [?] [is] [?] twenty-nine [?] [days] [כט = 29] [?] and [?] twelve [?] hours [?] [יב = 12 hours] [?] and seven hundred [?] and ninety-three [?] halakim [?] [תשצג = 793 halakim] [?] [the standard length of the synodic month: 29d 12h 793p] [?]. [literal-glyph reading retained; the numerals fit the known molad-month constant but each numeral is faded — see QA]

And [?] you [?] reckon [?] [from] the [?] molad [?] … and the [?] hours [?] … and the [?] halakim [?] … and [?] when [?] [they exceed] [?] … you [?] cast [?] out [?] [the whole days] [?] and [?] [keep] [?] the [?] remainder [?].

[Lower right, into the stain:]

He said [?]: and [?] thus [?] you [?] continue [?] … [Damage: water stain, lower ~6 lines, illegible] … the [?] reckoning [?] … the [?] molad [?] … [?].

Left column

[The upper left column is moderately legible:]

The [?] cycles [?] [המחזורים] [?] … and [?] their [?] reckoning [?] … and [?] [in] each [?] cycle [?] … the [?] years [?] … and [?] the [?] molad [?] [returns] [?] … [?].

In [?] this [?] reckoning [?] … the [?] day [?] … and [?] the [?] hours [?] … the [?] half [?] [חצי] [?] … and the [?] remainder [?]; and [?] this [?] [is] [?] [the] [?] reckoning [?].

He said [?]: when [?] the [?] year [?] [is] common [?] … and [?] when [?] [it is] [?] leap [?] … you [?] add [?] [a month] [?] … and [?] this [?] [is] [?] the [?] leap [?] [year] [?] [העיבור] [?].

[Mid-column, treating the addition of the extra days / the reckoning forward:]

He said [?]: and [?] when [?] you [?] wish [?] to [?] know [?] … you [?] take [?] [the molad of] [?] the [?] first [?] [month] [?] … and [?] you [?] add [?] to it [?] … and [?] [it] comes out [?] … the [?] molad [?] [of] [?] [the next] [?]. And [?] when [?] [the days] [?] [exceed] [?] … you [?] cast [?] [them] [?] out [?]; and [?] [keep] [?] the [?] remainder [?].

He [?] who [?] keeps [?] [שומר] [?] the [?] reckoning [?] … the [?] established [?] [molad] [?] … and [?] he [?] [will know] [?] … [?].

[Lower left, heavily water-stained:]

[?] … and [?] this [?] [is] [?] the [?] reckoning [?] of [?] the [?] months [?] … and [?] [the] [?] season [?] … [Damage: water stain, lower ~7 lines, illegible — outer-lower corner the worst] … [?].

Yesod Olam — Book Four (The Jewish Calendar)

Script: Sephardic semicursive, single primary hand throughout, with red-ink (rubricated) structural labels on the verso (folio 122v). The standard caution for this hand applies: ש frequently loses its left stroke and resembles ע; numerals have been transcribed with care and flagged [?] where the glyph is genuinely ambiguous.

[The two columns are read in Hebrew order: right column first, then left column. Book Four, the chapter on the molad and the reckoning of the calendar, continues. The discussion here turns on computing the molad and the days of the week on which festivals fall, and on the rules governing the year's "fixing" (קביעה) — the placement and length of its months.]

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to compute it [the molad?], whether it [falls] before or after, [and?] you will know its value [?]. And once you know this, [the matter] will be clear to you. He brought this near [?] in the conjunction [molad], and the molad of [the month?] is [?] [the reckoning?].

Therefore, when you wish [to know] upon which day of the week any festival you seek will fall, attend to its [computation?]: take the molad of Tishrei of that year, [add to it?] the reckoning that has accumulated [?] from the months [up to the month?] in question. Cast out from it whole weeks [groups of seven days], and what remains in hand is the day upon which that festival falls — provided [?] no postponement [דחייה] intervenes.

Know [?] that the day [yom] [?] together with its hours and its halakim [is the basis of the computation?]. And he [the author?] arranged [?] all these matters in order, that you may grasp them [?] readily, [in?] the table [?] [that he set] before you, so that you should not [need to] labor [over] a long computation. The values [?] arranged [?] there [are computed?] for every month and every [year?], for the common year and for the leap year [שנה פשוטה ושנה מעוברת] alike. [text continues — lower portion partly faded]

[and what?] remains in hand [after casting out whole days?] is the molad [?] of [the month?]. And know [?] this also [?].

[?] and this is fitting [?]. He computed [?] from [?] until [?] their molad [?], to know [?] [whether it is?] before [?]. He arranged [?] one [?] for each [month?], a separate table [?], for the [day?] of the week [and?] for [reckoning the day?].

[Several lines here are abraded and water-stained at the column's center; readings are partial.]

in the computation [?] [of?] the months [?] [and?] of [?] the days [?] one [arranges?] them [?] in a table [?], [for?] the common [year?] and [?] [for the leap year?]. And know [?] this also [?].

and that there should be no [?] error [?], [whether it is?] before [it?] or after [it?], [for the?] festivals [מועדים?] [?]. [And] know [?] this [as?] a [great?] principle [?] in this matter.

[when?] you wish to compute [?] the [day?] of the new-moon month [חדש?]. [text faded]

The day, the 9th [?] [ט'] [?] [or: ט"ו, the 15th] [?], [on which?] [the festivals?] fall [?] … on Sunday [יום ראשון?] [?]. [text continues, lower portion abraded]

[in?] the tekufah [?] [or: the tekufot] there is [a difference?] [?], and [it turns?] [?] the [matter?] [?]. [He set?] a fixed thing [?] together with [?] the established [?] reckoning [?], [so that?] there should be no [variation?] [?]. And this [?] is the principle [?]: it [the molad/tekufah?] returns and is reckoned [?], [for?] [from?] [year to year?] [?] … upon the [computation?].

When you wish to compute the [molad?] of any year, take the molad of Tishrei [?] and [add?] [?] the accumulated reckoning, and what remains in hand [after casting out whole days?] is what you seek.

[Mid-column lines here are degraded by water-staining at the gutter side; partial readings only.]

the year [שנה], whether it be common or leap [פשוטה או מעוברת], [and?] [reckon?] each one [?] [according to?] [its?] [type?].

He arranged [?] [for?] each [month?] [?] [a value?], [and?] [from?] one [to?] another [?]. And [?] [when?] you [add?] [them?] together [?], [cast out?] [whole?] [weeks?], [and the remainder?] [is?] [the day?].

[Lower right-column lines partly abraded; the procedure continues describing the accumulation and the casting-out of whole days.]

[and] R. [?] said [?] that the matter [?] [is so?] [?]. They had [?] [a tradition?] [?], [and] he [computed?] [?] [the?] tables [?] [?]. And there is no error [?] [in?] them [?], [for?] [they are?] [established?] [?], [that?] [it should be?] for the [days?], that you may [know?] [?] the [festival?]. [text partly faded]

[A red-ink marginal/structural cluster appears in this column — see the rubric notations below.]

[Red ink: ט"ו] — that on Tuesday [?] it [the festival?] [falls?] [?].

and once [you know?] the molad [?] of the month [?] [?]. [text faded]

[Red ink: סימן] [or: a red siman-mark] — **That on Monday [?] [the festival] falls** [?].

[Red ink: י"ד] — that it [is?] common [פשוטה?], its computation [?] thus [?].

[Several short rubric-flagged entries follow, each a red-ink notation introducing a rule for which day the festival falls and the year's character (common/leap):]

[Red ink: ג"ד] [?] — that it [is?] leap [מעוברת?] [?], [thus?] [?].

[Red ink: י"ד] [?] — that [its?] computation [?] [is?] thus [?].

[Red ink: ב"ה] [?] — that on Monday the festival falls [?].

[Red ink: ז"ח / ז'?] — that on the first day of the week the festival [?] falls [?].

[Red ink: ב"ש?] — that [it is?] thus [?].

[Red ink: י"ד] — that on the first day [?] it [the festival] [falls?] [?].

When you compute it [?] [thus?], the [computation?] [is?] complete [?]. And know [?] all these matters [?] [in?] [order?] [?], [whether it is?] common or leap [?], [and?] each one [?] [according to?] [its?] [character?].

[Red ink: ועתה] — **Now [understand?]:** know [?] that the computation [?] [must?] be exact [?]. [text faded]

The new-moon-month [festivals?] [?] and the [?] festivals [?] and [?] their [?] [computation?], [that they may be?] [established?] [?] [for?] the [days?]. So too

[for?] a common year [שנה פשוטה?] or a leap year [מעוברת?] [?]. And the year [is reckoned?] [?] thus [?].

[A short worked-example sequence follows, listing month-values; the column edge is abraded so several values are partial.]

He arranged it [?] [thus?]: take [?] [its?] value [?], [from?] one [month?] [to?] [another?]. [So-and-so its] computation [?]. [And?] [this?] is [?] [its?] table [?]. The hours [?] [are?] thus [?], [and?] the [halakim?] [are?] thus [?]. [text continues]

And it remains [?], [whether?] before [?] [or?] after [?], [for?] [the festival?]. And he [arranged?] it [?] [in?] a separate [table?] [?] [for?] each [month?] [?] [and?] [for?] [the day?] of the week [?]. And [know?] [?] this [?] [as?] a great principle [?].

**

Yesod Olam — Book Four (The Jewish Calendar)

Script: Sephardic semicursive, single primary hand. Red ink (rubrication) used for the chapter heading and for a marginal/in-text structural label. Heavy water-staining and foxing affect both leaves, with the right edge of folio 123r and large central stains on 123v obscuring portions of several lines. Ink bleed-through from the facing side is visible but ignored.

> **Note on layout.** Folio 123r carries two text columns. In the right-hand column the chapter that began in the previous batch continues to its close; the left-hand column opens **Chapter Two** with a red-ink heading. Both columns are badly water-stained along their outer edges, with the right margin of the right column and the lower portion of the left column most affected.

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the eclipse [?], and that which is sought from it [המבוקש]. Therefore, when you wish to know the matter [?], you shall arrange [?] for it the months [?] in their order [?]. [Damage: water-stain, right margin, ~2–3 words per line lost across the upper lines]

and add [?] them together [?], so that nothing of the computation [חשבון] is lost from your hand. And know that the remainder which remains in your hand [?] — that is what is sought [המבוקש]. [?]

[Several lines here are too stained to read with confidence — transcription gives only the through-line:] …and when you have completed this, set it down [?] until you require it for the matter you seek [?]. [Damage: water-stain obscures ~the central third of roughly eight lines in this column; transcribe as degraded]

and so [?] you shall do for every month [?], one after another [?], until you reach [?] the month that you seek [המבוקש]. [?] And the remainder that remains in your hand after you have cast out the whole weeks [?] — that is the weekday of the molad [מולד]. [?]

and you already know [?] that we do not reckon [?] save by whole days [?]. And the fractional part [חלק] that remains [?] — keep it [?], for it is needed [?] for the molad of the month that comes after it. [?]

[Damage: lower right column, ~6 lines, heavily stained — only isolated words legible: …"the months" [החדשים]… "and the year" [?]… "common" [פשוטה?]… "and you shall reckon" [?]…] …and this is the rule [?]. [End of right column.]

[Red ink header:] **פרק שני [Chapter Two]**

[Red ink, continuing the heading / opening rubric — partly faded:] In it [is treated] [?] the matter of intercalation [עיבור] [?] … the leap-year [שנה מעוברת] [?] and how it is [?] … the order of the seasons of the year [?] [סדר … השנה?] and the … [?] [Red iron-gall ink badly faded here — ~one line of the rubric]

[Body, black ink:] When [?] [the molad / the year] is such-and-such [?], [Damage: torn/stained corner, ~2 words lost] [?] …

[Marginal or sub-rubric in faded ink:] **[?] [Red ink: …]** — a short label of two or three letters at the column foot, too faded to read; further identification requires further verification. **[?]**

[Body continues, lower left column — heavily stained:] …[only a through-reading is possible here] …and behold [?], when you wish [?] to know [?] in which [?] of the days of the week [?] the season [תקופה] [?] falls, you shall do [?] thus [?]… [Damage: ~3 lines, central stain]

> **Note on layout.** Folio 123v also carries two columns; the right-hand column is read first. A short red-ink label and a ruled **table** appear in the left-hand column. Large brown water-stains cross the right column's upper lines and the left column's lower lines.

[Upper lines heavily stained — through-reading only:] …[?] it was a complete [שלם?] [?] … and you shall add [?] to it [?] … so much [?] … [Damage: water-stain, upper right column, ~5 lines, ~half each line lost] …

and behold, this [?] is the way to know [לדעת] the molad of any month you wish [?]. And now [ועתה] [?] consider [התבונן] [?] another matter: the seasons [התקופות] [?] and their heads [ראשי התקופות] [?], how [?] one computes [?] them. [?]

for [?] you already know that the season [תקופה] [?] is one quarter [רביע] [?] of the [solar] year [?], and that the four seasons [?] together [?] complete the whole year [?]. [?]

[Mid-column, more legible:] …and the length [?] of the [solar] year [?] is three hundred and sixty-five days and a quarter of a day [?] [365¼ days — value partly stained; transcribe as written, [?] on the fraction]. Therefore, when you divide it [?] into four [?], each season [תקופה] [?] is ninety days [?] and seven hours and a half [?] [?]. [Damage: the numerals here are stained; the figure "ninety… and seven hours and a half" is a candidate reading only]

and when you wish [?] to know on which day [?] of the week and at what hour [?] each season falls [?], you shall take [?] the head of the season [ראש התקופה] [?] that is known to you [?], and add [?] to it [?] ninety days [?] and a fraction [?]… [Damage: ~2 lines, central stain] …and cast out [?] the whole weeks [?], and the remainder [?] is what is sought [המבוקש]. [?]

[Lower right column — stained:] …[through-reading] …and so [?] you shall do [?] for each season [?] after the one before it [?], until [?]… [?] [Damage: ~3 lines, lower right column]

[Upper left column — stained, through-reading:] …the world [העולם] [?] and its seasons [?] [Damage: ~3 lines, water-stain] …and these [?] are the heads of the seasons [ראשי התקופות] [?] of the leap year [?] and of the common year [?]. [?]

and the reckoning [החשבון] [?] of the seasons [?] — its rule [?] is according to [?] what we have said [?]. And the … [?] of the season of Tishrei [תקופת תשרי?] [?] [Damage] …

[Red ink label, mid-left column — short letter-string, likely a structural / case-code label rather than a numeral:] **[Red ink: נ"ת / נ"ם — [?] נ"מ ?] [?]**

[Red ink, immediately following, a row of short labels:] **[Red ink: י"ב ... י"ז ... י"ח ?] [?]** — a sequence of red letter-pairs at the head of the table below; these appear to be the column/row case-labels of the table (likely the season-head day-codes), not gematria quantities.

Table (Folio 123v, left column)

> A ruled table follows the red labels, introduced by a red-ink marker **נ״ק** and a red-ink header line (leading word legible as **העובר** ["the passing / transit"], remainder degraded). The grid is 6 columns × 7 rows (1 red-ink header row + 6 value rows). Body cells are the spelled-out words **שלש** ("three") and, in two cells, **שתים** ("two"); the leftmost column carries row labels. The recurring **שלש** is written with a clear three-stroke shin + lamed + final shin (no ע/ש confusion, since it is lexical not gematria) — read as **שלש [three]** throughout. Logical (right-to-left) column order preserved; residual unreadable cells marked `[?]`.

[Red ink: העובר]	col. 2	col. 3	col. 4	col. 5	(row label)
שלש	שתים	שלש	שלש	שלש	העובר
שלש	שלש	שלש	שתים	שלש	שלש
שלש	שלש	שלש	שלש	שלש	שהם [?]
שלש	שלש	שלש	שלש	שלש	שלש
שלש	שלש	שלש	שלש	שלש	שלש
שלש	שלש	שלש	שלש	שלש [?]	אלו [?]

at scan floor.]

[Body resumes below the table, black ink — stained:] …and the order [?] of the seasons [?] [Damage: ~2 lines] …the [solar] year [?], when [?] it is intercalated [מעוברת] [?] [?], its season [תקופה] is so-and-so [?]; and when it is common [פשוטה] [?], its season [?] is otherwise [?]. [?]

and these [?] are the differences [?] between [?] the season [?] and the molad [מולד] [?]… [Damage] …and the [solar] year [?], by the reckoning [?] of the season [?], is greater [?] than the lunar year [?שנת הלבנה] [?] by [?]… [numeral stained] [?]. [End of left column / folio.]

** — i.e. 131; reading of the second/third letter uncertain under the stain. Note: this Hebrew foliation (131) differs from the Arabic-numeral "123" pencilled at the head of 123r; the two foliation systems are offset. Report both verbatim — see anomaly (a).]

Book Four (מאמר ד) — the Jewish calendar, Chapter Two (continued): the seasons (tekufot), their heads, and the reckoning of the season-cycle.

Primary script: Sephardic semicursive, single main hand throughout, with red ink (rubrication) used for the ועתה *cue-words and for one structural rubric* (ובעבור כתב וספר). *Both pages are heavily affected by water staining, foxing, and edge damage, with strong bleed-through from the facing sides; many readings below are tentative and flagged accordingly. Foliation: carries* 124 *(Arabic) in the upper-left margin and* קל"ב *[132] as a catchword/foliation mark at the foot; carries a faded* מאמר ד *running header at top and* קל"ג *[133] at the foot — consistent with the running offset (Arabic vs. Hebrew foliation) already noted in the prior batches.*

This page continues the discussion of the seasons and the rule for computing successive season-heads by adding a season-length and casting out whole weeks. The reading is badly compromised by a large water stain across the lower half of both columns and by edge loss along the outer (right) margin.

Right-hand column

the season returns to it [i.e., the cycle of the season comes back around], as we explained, by adding the season-length and casting out [the weeks?]; and it returns to the [same] point [?]. By this method [?] you keep adding and reckoning [?] the [seasons?] of the world. And the Holy One, blessed be He [הקב"ה], set [the heavenly bodies] in order [?] upon their [fixed] paths [?], so that [?] each one runs its course [מהלך, "course"] [?].

[Several lines here are obscured by the water stain and by edge loss at the right margin; only fragments are legible.]

the reckoning [החשבון] [?] each [time] you wish to know [?] the [position?] of the point [הנקודה] [?] … and you cast out [?] the [whole] weeks [השבועות] [?] … And the season-head [ראש התקופה] [?] returns [תחזור] … therefore [?] the season returns [החזור] [?] to its [proper] place. [Lexicon-locked from the surrounding procedural matter: החזור / תחזור recur here in the sense established in the prior batches.]

[so that?] you may add [?] [one] season [תקופה] to another, and reckon [?] the season [התקופה] in [its] [course?] … And the seasons [התקופות] [?] return [?] by [this same] computation [בחשבון] [?] from [one] cycle [מחזור] to another [?].

[and?] it [?] was [?] [the?] [first?] [point?] [of] the [season?] [?]. By it [?] you may compute [?] [its?] times [?] [?].

[Mid-column: a long stretch crosses the water stain and is largely illegible. The recoverable sense is that the same procedure — add a season-length to a known season-head, cast out whole weeks, and the remainder is the new season-head — is reiterated. Flagged as a]

this [זה] [?] [is?] the [reckoning?]. [And?] the rule [הכלל] [?] is what [?] we said [?]. [So that?] when [?] you [wish to] keep [?] [the seasons?] [?] [in their] [fixed orders?] [?] … the Moon [הלבנה] [?] [and?] [its?] cycles [?] … you [may?] add [?] [one] season to another [?] until [עד] [?] … the [computations?] [?] [are] complete [?].

[the?] [days?] [?] of the [solar?] cycle [המחזור] [?] [are?] [?] 365¼ [שס"ה ורביע] [?]. [Prose-pinned to the established solar-year value of 365¼ days carried forward from the prior batches.] … the [common-year seasons?] [?] [and?] the [leap-year seasons?] [?] … nine [תשעה] [?] [days?] … and ninety [ותשעים] [?] … [together?] [?] [making?] [?] [a?] season [?] [?]. [The fragmentary numerals here are consistent with the ~91-day season-length but cannot be securely reconstructed]

Left-hand column

[The left column is in somewhat better condition in its upper portion but is crossed by the same stain lower down.]

the [Moon?] [?] … and the [Sun?] [?] … and the Holy One, blessed be He [הקב"ה] [?], [made?] them [for] signs [?] … [as it is written?] [?] … [and?] [for?] [seasons?] [?]. [The sense appears to invoke the creation of the luminaries "for signs and for seasons"; the supporting clause is too faint to transcribe with confidence.]

[therefore?] [?] each [one?] [?] runs its course [מהלכו] [?] … upon the [path?] [?] which the Holy One, blessed be He [?], [appointed?] [?] for it … [and?] it [does] not [?] depart [?] from [?] its [order?] [?] [forever?].

[and?] this [?] [is?] [why?] [?] the [seasons?] [התקופות] [?] [come?] [?] [at?] [their?] [appointed times?] [?] … [neither?] [advancing?] [?] [nor?] [delaying?] [?].

[and?] [now?] [?] [the?] [reckoning?] [?] of the [season?] [?] … [you?] [add?] [?] … [and?] [cast?] [out?] [?] [the?] weeks [השבועות] [?] … [and?] [the?] [remainder?] [?] [is?] the [season-head?] [?].

[Lower portion of the left column lost to the water stain; only scattered words — מחזור ("cycle"), שבועות ("weeks"), תקופה ("season") — are legible. The passage continues the same casting-out-of-weeks procedure.]

Right-hand column

[so that?] [?] [we?] [explained?] [?] [it?] [?] [above?] [?]. [And?] in the [leap?] year [שנה?] [?] [the?] [chapters?] / [season-heads?] [?] … [their?] [order?] [?] [is?] [as?] [we?] [said?] [?].

[and?] when [?] you [wish to] know [?] the season [התקופה] [?], you take [תקח] [?] [its?] [head?] [?] [which?] [is?] [known?] [to?] [you?], and add [ותוסיף] [?] to it the [season-length?] [?] [and?] [cast?] [out?] [the?] [weeks?] [?]. [And?] [what?] [remains?] [?] [is?] the [new?] season [התקופה] [?] [which?] [you?] [sought?] [המבוקש] [?]. [Lexicon-locked: המבוקש / ותוסיף / תקח recur in the procedure as established in the prior batches.]

[A short run here is crossed by staining; the same add-and-cast-out rule is restated. Several words illegible.]

[Red ink: ועתה] — *And now* [the cue-word opening a new procedural unit]: [we shall] explain [?] [the?] [reckoning?] [of?] the season [התקופה] [?] [more?] [fully?] [?]. [And?] this [?] [is?] [its?] [rule?] [?].

[for?] [?] [if?] [?] you [wish to] know [?] the [season-heads?] [ראשי התקופות] [?], [reckon?] [?] [from?] the [point?] [?] [of?] [creation?] [?] / [the beginning?] [?] … [casting?] [out?] [?] [the?] weeks [השבועות] [?] [as?] [we?] [said?] [?].

[and?] [each?] [season?] [?] [is?] [?] ninety [תשעים] [?] [days?] [?] [and?] seven [?] [hours?] [?] [and?] a half [?] [ומחצה?] [?] [— i.e., ≈ 91d 7½h]. [Prose-pinned to the established season-length (¼ of 365¼ days ≈ 91d 7½h) carried forward from the prior batches; the individual numeral glyphs are too faint to certify, so this is given as a reconstruction.]

[and?] [you?] [add?] [?] [this?] [?] [to?] [the?] [known?] [season-head?] [?], [and?] [what?] [remains?] [after?] [casting?] [out?] [the?] [weeks?] [?] [is?] [the?] [day?] [of?] [the?] [season?] [?].

[and?] [so?] [?] [for?] [every?] [season?] [?] [of?] [the?] [year?] [?]: [Tishrei?] [תשרי] [?], [Tevet?] [טבת] [?], [Nisan?] [ניסן] [?], [Tammuz?] [תמוז] [?] [— the four season-heads]. [The four-season list is the standard structure; the individual month-names are largely reconstructed from the stain-obscured text and flagged.]

[Red ink: ובעבור כתב ספר] — *And because [he] wrote a book* [?] / *[a structural rubric — possibly the opening of a new section: "And concerning the writing of the book…"; reading uncertain]* [?].

[A short passage follows in black ink, much of it lost to staining at the column's lower portion; the legible fragments — חכמים ("the sages"), הראשונים ("the early/first ones"), המחזורים ("the cycles") — suggest a transition to a discussion of the earlier sages and the [transmission of the] cycle-reckoning.]

[the?] [early?] [sages?] [החכמים?] [הראשונים?] [?] [established?] [?] / [transmitted?] [?] [this?] [reckoning?] [?] … [and?] [they?] [did?] [not?] [?] [err?] / [depart?] [?] [in?] [it?] [?].

Left-hand column

[Upper portion legible in places; lower portion partly lost.]

[and?] [you?] [shall?] [find?] [?] [it?] [?] [from?] the [cycles?] [המחזורים] [?] [and?] [from?] [?] [the?] [seasons?] [התקופות] [?] [that?] [?] … [and?] [each?] [?] … [returns?] [?] [to?] [its?] [place?] [?].

[and?] [now?] [?] [understand?] [התבונן?] [?] [this?] [?] [matter?] [?] [well?] [?]: [that?] [?] the [season?] [התקופה] [?] [of?] the [Moon?] [הלבנה] [?] / [Sun?] [?] [is?] [not?] [?] [like?] [?] [the?] [season?] [of?] [the?] [Sun?] [?]. [The distinction being drawn between the lunar and solar reckonings — but the polarity (which is being contrasted with which) cannot be certified here, so the clause is flagged.]

[Red ink: ועתה] — *And now*: [let us?] [explain?] [?] [the?] [matter?] [of?] the [molad?] [המולד?] [?] / [the?] [season?] [?] … [Reading of המולד vs. another term uncertain.] [?]

[for?] [?] the [molad?] [?] [is?] [?] [twenty-nine?] [days?] [כ"ט?] [?] [and?] [twelve?] [hours?] [י"ב?] [?] [and?] [seven hundred?] [and?] [ninety-three?] [halakim?] [תשצ"ג?] [?] [— i.e., 29d 12h 793 halakim]. [Prose-pinned to the established molad constant (29d 12h 793 halakim) carried forward; the individual numeral glyphs are stain-obscured and given here as a reconstruction.]

[The remainder of the left column is heavily stained and largely illegible. Recoverable words include חלקים ("halakim"), מחזור ("cycle"), and תקופה ("season"); the passage appears to continue relating the molad and the season-reckoning.]

**** __ **

Yesod Olam — Book Four (The Jewish Calendar)

Script: Sephardic semicursive, single primary hand. Heavy foxing and water-staining across both folios, concentrated in the lower halves and the outer/lower margins; several lines in the lower third of each column are substantially degraded. The diagonal Vatican Library watermark and the bleed-through from the facing folio have been disregarded throughout. Numerals and letter-codes have been transcribed conservatively; uncertain glyphs are flagged [?]. This hand's ש frequently loses its left stroke and can resemble ע — readings have been weighed accordingly.

[Left margin: "125" — modern Arabic foliation, librarian's hand]

Right column

and afterward [?], so too the season [?] increased; and the wise men [Chazal] reckoned the reckoning of the season-head [ראש התקופה] for them. [?] By contrast, when you wish to know its day, take [?] the [season-]head [?] from there [?], and what you arrive at — set it down. [?] [Several words in this opening stretch are obscured by water-staining; transcription tentative.]

For the season comes round in its time once each year, and the season-head returns and revolves [?] just as it did at first. Yet [?] you must guard [?] the reckoning [?] of the seasons, so that you not err in them; for the season is the foundation [?] of much, and upon it depends [?] the matter [?] of the four [seasons of the] year [?] — and there are those who say [?] that the season-head [?] [phrase obscured].

[A run of roughly four lines here is heavily degraded by a brown water-stain crossing the column; only isolated words — "השמש" (the sun), "המזלות" (the constellations / zodiac signs), "ירח" (month / moon) — are securely legible. Treat as a]

and behold [?], the matter [?] of the seasons [?] and the months [?] is bound up [?] one with another [?], for the sun completes [?] its circuit [?] in the year, and the moon [?] [completes its circuit] in the month. [?]

Left column

and likewise [?] you shall fix [תקע [?] — "drive in / fix"] in the reckoning [?] [obscured]. [Marginal/interlinear cue marks appear at the column edge but are illegible.]

the [?] reckoning [?] [obscured] [?] [?]. After this [?] the matter [?] [obscured] — and the wise men [Chazal] [?] [obscured].

[The middle of this column carries a long degraded stretch; isolated legible tokens include "השנה" (the year), "המחזור" (the cycle), and what appears to be a citation lead-in "אמרו" (they said). The bound argument cannot be safely reconstructed and is flagged as a]

and they said [?]: This is the matter [?] that we have set down [?] [obscured]; and there is no [?] [obscured] upon [?] [obscured] [?] [obscured] in the year [?] [obscured]. The end [?] [obscured].

[Bottom margin, center: "[257 =] "רנז — Hebrew foliation, scribal hand]

[No legible running header at the top of this page.]

Right column

[The top several lines are water-damaged at the gutter and outer edge.] …this [?] [obscured]. [?] Take [?] in the first [?] [obscured], and set it down [?] [obscured] from the reckoning [?] [obscured]. [?]

A clear [?] season [?] [obscured]: and the day [?] [obscured] of the month [?] [obscured] [phrase broken by staining].

for [?] when [?] the season [?] and you reckon [?] [obscured] for [?] the morning [הבקר [?]] [obscured]. It was [?] [obscured] much [?] [obscured] again [?] [obscured]; and you shall go [?] [obscured] the way [?] [obscured]. [Several lines here are crossed by a heavy diagonal stain; only fragments survive.]

not [?] upon [?] the dwellers [?] [obscured]; there is [?] testimony [?] [obscured] of the wise men [Chazal] before [?] [obscured]. And it is fitting [?] [obscured] [phrase obscured].

and the matter [?] [obscured] [?] the season [?] [obscured], its day [?] and its [?] hour [?] [obscured]. [Marginal cue dots at the column edge, illegible.]

and after [?] this [?] [obscured] in [?] [obscured], we shall labor [?] [obscured] [?] [phrase obscured] — to know [?] [obscured] the matter [?] [obscured].

and behold [?] [obscured], for in [?] [obscured] there is [?] [obscured]; he wrote [?] [obscured] the season [?] [obscured] for them [?]; nevertheless [?] [obscured] not [?] [obscured] [phrase obscured].

[A long stretch in the lower-right column is illegible under combined foxing and water-stain. Isolated secure tokens: "התקופה" (the season), "הירח" (the moon), "החמה" (the sun), "הפסח" (Pesach). The thread evidently turns from the seasons to the festival-reckoning, but it cannot be reconstructed safely.]

Left column

And this [?] is not [?] in [the matter of] the seasons [?] that the [?] reckoning [?] [obscured]; nor [?] [obscured] [phrase obscured].

and we shall not [?] [obscured] in [?] [obscured] before us [?] [obscured]; and this is so [?] only [?] [obscured] [phrase obscured]. From here [?] and onward [?] [ומכאן [?]] [obscured].

The [?] [obscured]: when [?] the [season-]head [?] [obscured] [phrase obscured].

[A long degraded stretch follows in the mid-column; isolated tokens "השנה" (the year), "התקופה" (the season), "חשבון" (reckoning). The argument is not safely recoverable.]

and behold [?] [obscured], for [?] [obscured] [phrase obscured]; and when [?] [obscured] [phrase obscured]. The end [?].

[Toward the foot of the left column, the ink fades and the staining intensifies; the final several lines are illegible save for scattered words including "השמש" (the sun) and "המזל" (the constellation / sign).]

[Bottom margin, center: "[258 =] "רנח — Hebrew foliation, scribal hand]

Editorial note on this batch. Both folios of batch 128 are heavily degraded by water-staining and foxing, with the worst loss in the lower thirds and outer/lower margins of every column. The securely legible material confirms that the discussion of Chapter Two (the tekufot / season-head computation) continues without a new chapter rubric appearing in this batch, and that the text is moving from the seasons toward the molad / festival-reckoning relationship flagged in the prior batch. No table, diagram, or red-ink rubric is present on either page. Because so large a fraction of both pages is illegible at the available resolution, the entire batch is submitted as a; the prose above transcribes only what could be read with reasonable confidence and marks the remainder [?] / "obscured."

Yesod Olam — Book Four (The Jewish Calendar)

Vatican Library, Vat.ebr.380. Sephardic semicursive hand. Continuation of Book Four (the calendar), within the chapters on the tekufot (seasons), the molad reckoning, and the determination (קביעה) of the year. No chapter rubric appears in this batch; the text is continuous unrubricated prose. The pages are heavily water-stained and foxed, with substantial fading toward the gutter and the lower-right column. Many readings below are partial; uncertain glyphs are flagged [?] and the worst-affected stretches are marked as

PDF p. 257 (folio 126r)

[Right-hand column]

The text continues the discussion of the season-head (tekufah) and its computation in relation to the molad. [The opening lines of this column are badly faded toward the gutter and only partially legible.]

and you should know [?] that the day [?]… [Damage: water stain, gutter, ~2 words lost per line for the first several lines]. He said: the calculation [?] proceeds, and the reckoning of the molad [?]… so that the molad [?] of Nisan should fall [?]…

Therefore, when this is found [?] thus, and the matter [?] requires that you reckon [?] the molad [?]… so that you may know [?] the determination (קביעה) of the year [?] — whether it is established [?] as defective, regular, or full [?] [referring to the three lengths of the year: חסרה / כסדרה / שלמה].

And know that the season [?] (התקופה) and the molad [?] do not coincide [?] in a single point [?], but rather there is a difference [?] between them. And this difference [?]… [several words faded] …He said [?]: the matter [?] is as we have explained [?].

The author then turns [?] to the relation of the lunar reckoning to the solar reckoning [?]:

for the lunar year [?] and the solar year [?]… [Damage: ~3 lines heavily stained, mid-column]. And this [?] is the principle (הכלל) [?]… and from it [?] you shall reckon [?]…

He said: the seasons [?] (התקופות) — their heads [?] (ראשיהם) [the season-heads, ראשי התקופות] — fall [?] at known times [?], and the difference [?] between one season [?] and the next [?] is ninety-one days and seven and a half hours [91d 7½h] [?] [the standard quarter-year interval; prose-pinned to the established

tekufah value]. [The remainder of this column is faded and only fragmentarily legible.]

and when [?] this is reckoned [?]… he said [?]: the calculation [?]… [Damage: lower-right column severely stained, ~4 lines effectively illegible]. ****

[Left-hand column]

This column is somewhat clearer than the right.

and the others [?] — the difference [?] is as we [?] have stated [?]. He said: this difference [?]… [faded] …for it [?] is fixed [?].

And know [?] that this [?]… and we have already explained [?] that the lunar month [?]… the months [?]… [Damage: ~2 words lost mid-line].

He said: the reckoner [?] — when he reckons [?] the season [?] and wishes [?] to know [?]… he should [?]… [the procedure is described but the middle of several lines is faded].

and this [?] is what [?] he said [?]… and the rule [?] (הכלל) in this [?] is that you [?]… [Damage: water stain].

He said: the sages [?] (החכמים) — and there is testimony [?] of the wise men [?]… for the first ones [?] (החכמים הראשונים) [the earlier sages/astronomers]… .

and after this [?]… he said: the matter [?] is clear [?]. And this [?] is the calculation [?]… [the column continues with procedural prose on the season and molad reckoning, with intermittent fading].

He said [?]: when [?] you have reckoned [?] all of this [?]… so that [?]… [Damage: ~2 lines stained near the foot of the column].

the lunar year [?]… and from this [?] reckon [?]… [the lower portion of the column is faded]. ****

PDF p. 258 (folio 126v)

[Right-hand column]

This column is among the clearer regions of the batch, though water-stained at the head and toward the gutter.

and the season [?] (התקופה) — if [?] the day [?]… the duty [?] (חיוב) [?]… [several words faded at the head]. He said: the matter [?]…

and on the day [?]… [Damage: water stain]. He said: before [?]… the season [?] falls [?]… and one reckons [?] for it [?]…

[The text appears to discuss the relationship between when a season falls (its day and hour) and the corresponding reckoning, with attention to whether the season precedes or follows a given point.]

they reckoned [?]… and they returned [?] (וחזרו) the reckoning [?]… he said: and after [?]… the season [?]… [the procedure continues].

and the molad [?]… they said [?]… the heads of the seasons [?] (ראשי התקופות) [the season-heads] … fall [?]… and the difference [?]… [Damage: ~2 words faded mid-column].

He said: behold [?] the season [?] (התקופה) — when it falls [?]… and one reckons [?] from it [?]…

and after this [?]… he said: the principle [?] (הכלל) is… [the central portion of the column is somewhat clearer here] …that you reckon [?] the molad [?] and the season [?] together [?], and you place [?]… and from this [?]…

He said: the matter [?] of [?]… the season [?]… he returned [?] to the season [?]… for [?] the deferment [?] (דחייה) [?] [referring to the postponement rules of the calendar — prose context, but the glyph is uncertain] …and the determination [?] (קביעה) [?].

and after this [?]… [the procedure on determination and deferment continues, with the right column running fairly continuously].

He said: behold [?] when [?] all [?] of this [?] is established [?]… [Damage: ~2 lines water-stained toward the foot].

and they said [?]… and the matter [?]… [the lower-right column fades]. ****

[Left-hand column]

This column is faded at the head and improves toward the middle.

And know [?] that this [?]… so that [?]… [Damage: water stain, head of column].

He said: this [?] is the matter [?]… the day [?]… the season [?]… [several lines partially faded].

the season [?] (התקופה) [?]… he said: behold [?]… [Damage: ~2 words mid-line]. … and the duty [?]…

He said: the reckoner [?] — when [?] he [?]… [the procedure of the reckoner continues] …and he reckons [?]… and after this [?]…

the day [?]… and the hour [?]… and this [?] is what [?] he said [?]… [the middle of the column runs more continuously]. He said: the first one [?] (הראשון) — when [?]… the season [?]… the day [?]…

he returned [?]… and from this [?] you shall know [?]… [Damage: water stain].

He said [?]: behold [?]… the season [?]… and the parts [?] (חלקים) [the halakim — calendrical sixtieths/1080ths] …and the seconds [?] (שניות) [?] [time-fractions]… [the reckoning of the time-fractions of the season].

and after this [?]… he said: the rule [?]… [the column continues with procedural calendar prose]. He said [?]: behold [?]… when [?]… the season [?]… and the day [?]…

and this [?]… he said: the parts [?] (חלקים) [halakim] [?]… and the seconds [?] (שניות) [?]… [Damage: ~2 lines faded near the foot].

he returned [?]… the season [?]… another [?] (אחר)… [the column fades at the foot]. ****

[Hebrew foliation mark visible at the foot of p. 258, partially legible: "[?] רנח[?]" (≈ folio 258 by the manuscript's Hebrew foliation, continuing the offset of ~132 from the Arabic 126).]

Yesod Olam — Book Four (The Jewish Calendar)

Primary script: Sephardic semicursive, single hand. Body text in black (carbon) ink; one circular diagram with extensive red-ink (rubricated) labels. The pages are heavily stained (water/foxing) along the outer and lower margins, with ink bleed-through from the facing folio; several lines are faded. Running header "מאמר ד" (Book Four) faintly visible. Translation continues the unrubricated calendar discussion (molad, tekufot, the relation between the lunar and solar reckonings, and the determination of the seasons across the years of the cycle).

(The folio is laid out in two columns. Following the manuscript's right-to-left logic, the right-hand column is read first, then the left-hand column. Both columns continue the running discussion of the molad and the tekufot. Substantial portions are faded or stained; uncertain readings are flagged.)

[the reckoning?] proceeds[?] until it reaches [?] days and [?] hours and [?] [chalakim] [?]. And it returns afterward [?]. Therefore the season [תקופה] [?] falls [?] [?] within them, and the [?] of them [?]. He set down [?] for the latter [?] the reckoning [חשבון], which is [?] [?] days and [?] hours and [?] [seconds?] [?] [chalakim].

And it is fitting [ראוי] for the latter [reckoning] [?] [?], for the difference [?] between them [?] is [?]. Examine [התבונן] this and inquire into it [?]; you will find it [?] [?]. And so [?] [?] days, [?] [?] twelve [?] of the season, [?] it [?].

If you reckon [?] [?] for the latter [?], and you join to it the reckoning [?] [of] the season [תקופה] [?] — [?] [chalakim]. Take [קבל] the [?] of the season [?] [?] [?] [?], for it [?] [?] from the latter [?] reckoning the difference [?].

The [?] which is between [?] [?] [?] [?], you join [?] it [?]. And inquire [בקש] after [the reckoning of] the seasons [התקופות] — that they [?] [?] their reckoning [?]. Take it [?]. And join to it [?] [?] [?] [?] —

[?] [?] [chalakim]. The reckoning [חשבון] of the molad [?] [?] [?] [?] two [?] thirty [ל] hours [שעות], the seasons [?] [chalakim]. And from [?] [?] [?] [?] [?] [?] — and [?] not made [?] [?] [?].

[?] [?] for the years [?] [?] for the difference of the molad [?]. And join to it [?] [?] [?] [?] [?] the seasons [?] [?] [chalakim] [?] [?] [?]. And inquire [?] after [?] [?] [?] [?] [?] —

[?] hours [?] [?] [?] [?] [?] [?] [?] [?] [?] [?] [?] [?]. [?] [?] thirty [ל] [?] [chalakim].

For [?] join [?] [?] [?] [?] [?] [?] for the molad [?] [?] the latter [?] [reckoning of] the season [?] [?] [chalakim]. And join to it [?] [?] [?] [?] [?] [?] — [?].

And inquire [?] [?] [?] [?] [?] [?] [?] [?] join [?] [?] [?] [?] the reckoning [?]. Take it [?] [?] [?] [?] [?] —

[the season] of the latter [reckoning?] does not [?] them [?]. Make [?] for it [?] the [?] [reckoning] [?] [for the] latter [?] [season] [?]. Take it [?] [?] [?] [?] [?] —

[?] [?] [?] [?] [?] [?] [?] [?] [?] [?] [?] [?] [?] [?] [?] [?].

[?] [?] [?] [?] [?] [?] [?] [?] [?] [?] [?] [?] thirty [ל] [chalakim].

and join [?] [?] [?] [?] for [?] [?] the molad [?] [?] the latter [reckoning of] the season [?] [?] [chalakim]. And join to it [?] [?] —

Take [?] [?] [?] [?] [?] [?] [?] [?] [?] [?].

Examine [?] [?] [?] the latter [reckoning of] the season [?] [?] [?] [?] [?] for [?] [?] [?] the difference [?]. And [?] [?] [?] [?] —

For [?] [?] [?] [?] [?] join [?] [?] [?] [?] [?] [?] for [?] [?] the latter [reckoning of] the season [?] [?] [?].

For take [קבל] [?] [?] [?] [?] [?] [?] [?] [?] [?] [?] [?].

The molad [?] [?] [?] [?] [?] for [?] [?] [reckoning?] the difference [?]. And from [?] [?] [?] [?] [?] [?] [?]. And inquire [?] [?] [?] for [?] [?] —

For [?] [?] [?] [?] [?] [?] [?] [?] [?] [?]. And [?] [?] [?] [?] [?] [?] [?] [?] [?] [?] —

[?] [?] [?] [?] [?] [?] [?] [?] [?] [?] [chalakim].

The molad [?] for the latter [reckoning] [?] [?] [?] [chalakim].

> **[Readability — right column]:** This column is severely faded and water-stained across most of its height; many words and nearly all of the embedded numerals (which appear to be a worked sequence of molad-and-tekufah additions for successive years of the cycle) are illegible at this resolution. Transcription above is partial and the numeric content is largely irrecoverable. — high priority** (procedural compute passage with lost numerals).

[and so?] for the [?] [?] [?] [?]. And [?] not [?] [?]. To you [לך] [?] [?] [?] [?]. To inquire [?] [?] —

For [?] [?] [?] [?] [?]. So [?] [?] [chalakim]. The reckoning [חשבון] [?] [?] [?] [?] [?] [?] [?] [?].

And [?] not [?] [?] [?] [?] [?] [?] [?] [?] [?] [?]. They make [יעשו] [?] [?] [?] [?] [?] [?] [chalakim] [?]. And there is no [ואין] [?] [?] [?] [?]. And so [?] [?] [chalakim].

And it [is] [?] [?] [?] [?] [?] [?] [?] [?] [?] [?] —

[?] for the latter [?] [?] [?] [?] [?] [?] —

[?] [?] [?] [?] [?] [?] [?] [?] [?] [?] [?] [?]. [?] one [אחד] [?] [?] [?] [?] [?] [?] —

[?] [?] [?] [?] [?] [?] [?] [?] [?] [?] [?]. [?] one [אחד] in it [?] [?] [?] [?] [?] —

For the [?] of the season [?] [?] [?] [?] [?] [?] —

And it goes up [ועלה] [?] [?] [?] [?] [?] [?] [?] —

[?] [?] [?] [?] —

[?] [?] [?] [?] [?] [?] [?]. He said: [?] [?] [?] [?] [?] [?] —

[?] [?] [?] [?] [?] [?] [?] [?] [?]. And these [?] are the [?] [?] [?] —

[?] [?] [?] [?] [?] [?] —

[?] He revealed [?גלה] [?] [?] [?] [?] [?] [?]. This is [?] the way [דרך] [?] [?] [?] —

[?] [?] [?] for the reckoning [?] [?] [?] [?] [?]. These [?] [?] [?] —

[?] [?] [?] [?] [?] [?] [?] [?] [?] [?] [?] —

[?] [?] [?] [?] [?] [?] [?] [?] [?] [?]. As [?] [?] [?] [?] —

[?] [?] [?] [?] [?] [?] [?] [?] —

that [?] [?] [?] for [?] [?] [?] [?] [?] [?] [?] —

The [?] [?] [?] [?] [?] [?] [?] [?] [?] [?] [?]. Until [עד] [?] [?] [?] [?] the matter [דבר] [?] —

In them [?] the [?]. And he saw [וראה] [?] [?] [?] [?] [?] [?] —

To inform you [להודיעך] [?] [?] [?] [?] [?] [?] [?] [?] [?] [?] [?] —

[?] [?] [?] [?] [?] the molad [?] [?] [?] [?] —

So that [?] [?] [?] [?] the molad [?] [holy?] [?קדוש] —

He toiled [?] [?] [?] [?] [?] [?]. [?] [?] [?] —

> **[Readability — left column]:** Like the right column, severely faded with heavy staining in the central and lower margin. The passage appears to continue the discussion of the molad/tekufah reckoning and to include a citational/discursive turn ("He said…", "He revealed…", "to inform you…"), but most clauses cannot be read with confidence and almost all numerals are lost. — high priority.**

(Two columns again. The left column carries a short stretch of prose, then a sectioning marker, then the circular diagram. The right column is continuous prose.)

[?] [?] [?] [?] [?] [?] [?] [?] the molad [?] [?] [?] [?] [?] [?] —

And [?] [?] [?] [?] the [?] [?] [?] [?] in them [?] [?] —

[?] [?] [?] [?] [?] [?] [?] [?] [?] [?] [?] —

The [?] [?] [?] [?] [?] [?] [?] [?] [?] [?] eight [?] day [?] —

[?] [?] [?] [?] [?] [?] [?] [?] [?] [?]. And the molad [?] —

[?] [?] [?] [?] them [?] [?] [?] [?] [?] —

[?] [?] [?] [?] [?] [?] them [?] [?] —

[?] [?] [?] [?] [?] [?] [?] [?] [?] [?] [?] —

[?] [?] [?] [?] [?] [?] [?] them [?] [?] [?] —

[?] [?] [?] [?] [?] of Moshe [למשה?] [?] [?] until [עד] [?] receive [קבל?] [?] [?] [?] [?] —

[?] [?] [?] [?] [?] [?] [?] to them [?] [?] [?] —

He saw [ראה] [?] [?] [?] [?] [?] [?] [?] —

[?] one [?] [?] [?] [?] [?] [?] [?]. And [?] [?] [?] —

[?] [?] [?] [?] [?] [?] the seasons [?] —

And the [?] [?] [?] [?] [?] [?] [?] [?] —

[?] [?] [?] [?] [?] [?] [?] [?] —

that they [?] [?] [?]. [?] [?] [?] [?] [?] [?] —

[?] [?] [?] [?] [?] [?] [?] [?] [?] [?] —

[?] twelve [י"ב] [?] [?] [?] [?] [?] [?] —

[?] [?] [?] in it [?] [?] [?] [?] [?] [?] —

And it shall be [ונהיה?] [?] [?] [?] the [?] and renew [וחדש?] [?] [?] —

[?] [?] [?] [?] this [הזה] [?] [?] [?] [?] [?] —

[?] [?] [?] [?] [?] in it [?] [?] [?] [?] —

In the [?] [?] [?] [?] [?] [?] [?]. And not [ולא] [?] —

[?] [?] [?] [?] [?] [?] [?] [?] [?] [?] —

[?] [?] [?] [?] [?] [?] [?] [?] [?] —

[?] [?] [?] in it [?] [?] [?] [?] [?]. He [?] was [היה] —

[?] [?] [?] [?] [?] [?] [?] [?] —

And [?] in [?] [?] [?] three [?] [?] [?] —

[?] [?] [?] [?] [?] [?] [?] [?] —

he shall renew [יחדש?] [?] [?] [?]. He shall make [יעשה?] [?] [?] —

And this [?] [?] for the years of [שנות?] the world [העולם] [?] [?] [?] —

> **[Readability — right column]:** Faded and stained, especially toward the gutter and lower margin. The prose appears to move from the molad/tekufah reckoning toward a more discursive, possibly devotional reflection (references to "the years of the world," renewal, and possibly the transmission "of Moshe"), but the bulk cannot be read confidently. — high priority.**

[?] [?] [?] [?] [?] [?] [?] this [?] [?] —

And the [?] [?] [?] [?] [?] [?] [?] [?] [?] —

[?] [?] [?] [?] [?] [?] —

[?] [?] [?] [?] [?] [?] [?] [?] [?] —

[Then, set off by a structural marker in the manuscript:]

[Red ink: ועתה] — "And now" [the customary section/transition formula opening a new instructional unit]. **[Red ink:] [?] [chapter/gate marker — letter uncertain, possibly a פרק numeral]** [?].

To strengthen [?] [להחזיק?] [?] [?] [?] [?] [?] [?] [?] —

[?] [?] [?] [?] [?] this [?] [the] [?] [season?] [?] [?] [?] [?] —

You add [תוסיף?] [?] [?] [?] for the [?] [?] [?] [?] [?] [?] [?] —

The seasons [התקופות?] [?] [?] [?] [?] [?] [?] [?] [?] [?] [?] [?] —

And by this you will [?] [?] [?] —

> **[Note on the section marker]:** A red-ink rubric reading **ועתה** ("And now") opens a new instructional unit here, immediately above the circular diagram. A second red-ink mark follows it that appears to carry

a numeral (possibly a שער / פרק designation, the two sharing one counter in this book), but the red iron-gall ink is badly faded and the numeral cannot be read with confidence. **[?]** — flagged for further verification.

[Circular diagram — left column, lower half]

Diagram. A large circular figure occupying the lower half of the left column, drawn as a wheel of concentric rings divided by radial spokes into numerous sectors (a calendrical wheel). The labels are written in alternating **red ink** (the majority, around the outer and middle rings) and black ink. The outer ring carries a repeating red-ink label that recurs in most sectors; the inner rings carry shorter black-ink labels (single letters / short tokens) that appear to be weekday-character or קביעה-type codes for the years of the cycle. The figure is consistent with a *cycle wheel* tabulating the year-types (מעוברת / פשוטה, "ordinary" / "leap") and their קביעה determinations across the nineteen years of the מחזור.

The dominant repeating outer-ring red-ink word is read as **מעוברת** [meʿuberet, "leap (year)"] in the leap-year sectors, alternating with **פשוטה** [peshutah, "ordinary (year)"]-type labels in the others, around the wheel. The radial black-ink tokens in the inner sectors are short letter-codes (likely קביעה weekday characters; per the work-note these red/black letter-pair codes are determination codes, **not** gematria quantities, and are transcribed as letters).

Because of the heavy red-ink fading and the small, densely written labels, the great majority of the individual sector labels cannot be read letter-by-letter at this resolution. Recoverable readings:

- Outer ring (red), recurring in multiple sectors: **מעוברת** ["leap"] [?]
- Outer ring (red), recurring in alternating sectors: **פשוטה** ["ordinary"] [?]
- Inner-ring black tokens: short single/double-letter codes, individually **[?]** (קביעה-type weekday/character codes — transcribed as letters, not numerals)
- Hub / innermost label(s): **[?]**

**More than two labels in this diagram are flagged [?] (the red-ink rubrication has faded badly, and the wheel carries dozens of small sector labels that need higher-resolution recovery). The structure (concentric calendrical cycle-wheel of year-types and their קביעה codes) is, however, clear.

[Lower margin, left column]: a short word in a display position at the foot of the page — possibly a catchword. ** — illegible]** [?].

Yesod Olam — Book Four (The Jewish Calendar)

Script: Sephardic semicursive, primary hand throughout. Both folios are heavily faded (iron-gall ink), with substantial water/damp staining across the central panels and inner (gutter) margins, plus pervasive bleed-through from the facing sides. Large stretches are legible only in part. The right edge carries a partial calendrical cycle-wheel diagram intruding from the facing folio.

Folio marking: "(128) "קכח in the upper-left margin — the manuscript's own folio number for this side.

This page continues the instructional unit (opened in the prior batch with the red **ועתה**) on accumulating tekufah (תקופה, the seasonal/equinoctial point) values across the nineteen-year cycle (מחזור) and comparing the molad (מולד) reckoning with the tekufah reckoning.

The running text develops the relation between the lunar reckoning and the solar (tekufah) reckoning. It speaks of the difference (הפרש) that accrues between them and how that difference accumulates as one adds successive values [?] across the cycle. The discussion turns on the principle that when one knows (תדע) the value at the head of one period, one can derive (תוציא) the value of the next by addition of the fixed interval, and that this procedure continues consistently (תמיד) through the chapters of the reckoning. [The central third of the column here is washed out by a damp stain — roughly 6–8 lines are legible only in fragments; the connective sense above is reconstructed from the surviving phrases, with the bracketed verbs anchored to recurring vocabulary of this section.] [?]

It further notes the agreement (or the discrepancy) [?] that the early sages (החכמים הראשונים) established in this matter, and cites their practice (כמו שעשו) [?] in setting the heads of the tekufot (ראשי התקופות). The author observes that whoever wishes to verify the calculation (החשבון) should test it (יבחן) against the established figures and will find it correct (יצא נכון). [?]

[Several lines in the lower third invoke the quarter-day (רביע) and the standard tekufah length, with the phrase "and you will find" (ותמצא) recurring; the precise numerals are lost in the staining and are not transcribed here rather than guessed.] [?]

[Damage: damp stain through center of column, ~8 lines partially effaced; numerals in lower third illegible.]

Marginal cycle-wheel diagram (facing folio, intruding at right edge)

Diagram. A partial calendrical cycle-wheel intrudes from the right edge of the page — it belongs to the facing folio and only its left arc is captured in this scan. Concentric ruled circles are visible, divided into radial sectors. The legible labels are in red and black ink within the sectors, but only a sliver of the wheel falls within the imaged page, so most labels are cut off at the binding/edge.

- (outer arc, red ink): "[Red ink: …]" [?] — partially legible numeral/letter-code, cut off at the page edge
- (inner sector, red ink): "[Red ink: …]" [?] — cut off
- (inner sector, black ink): "…" [?] — cut off

Because the wheel is largely off-page (it is the facing folio's figure), more than two labels are illegible/absent. — but note this figure properly belongs to the facing page and will be captured fully in the adjacent batch; recovery here is not expected.

Running header (top, faded): "[Red ink: מאמר ד]" [?] ("Book Four") — a faint header trace centered at the top, consistent with the running header carried through this section.

Folio marking: "(129) "קכט [?] at the lower-left margin (faint).

The text continues the same reckoning. It develops the comparison between the count of the lunar reckoning (חשבון הלבנה) [?] and that of the tekufah, returning repeatedly to the difference (הפרש) between the two reckonings (החשבונים) and how it is to be reconciled (ליישב) [?] across the cycle.

A recurring formula in this column is "the reckoning of …" (חשבון) paired with "you will find" (תמצא): the author instructs the reader that when a given quantity is added or subtracted, the result agrees with the figure he has set down. The phrase "[Red ink: ועתה]" [?] appears once more lower in the right column, apparently opening a further sub-step of the same procedure ("And now…"), but the surrounding lines are too faded to fix its exact content. [?]

The left column carries the continuation. It speaks of the days (ימים), the hours [?], and the parts/halakim (חלקים) that accumulate, and of testing the running total (התבונן — "consider/examine"). It refers to the early sages once more (החכמים הראשונים) [?] and to what they transmitted regarding the heads of the tekufot.

The closing lines of the left column appear to summarize: that by this method the practitioner arrives at the sought-for value (המבוקש) and that the reckoning comes out true. [?]

[The lower-left quadrant of this folio is the most heavily stained region of the batch; the final ~6 lines are legible only as scattered words — חשבון, תקופה, ושנה ("and a year") [?] — and are not connectively transcribed.] [?]

> [Damage: heavy damp staining lower-left quadrant, gutter intrusion along inner margin; bleed-through pronounced on both columns. ~6 lines of lower-left column effaced.]

Yesod Olam — Book Four (The Jewish Calendar)

Manuscript: Vatican Library, Vat.ebr.380, Sephardic hand. Folio numeral "129" visible top-left margin (recto). Foliation offset from prior batches continues.

(The batch opens in the middle of the unrubricated instructional unit carried over from batch 131: accumulating tekufah values across the nineteen-year cycle and reconciling the molad reckoning with the tekufah reckoning. The reasoning runs across both columns of this page.)

---

examine the tekufah of the [?] and adjust it, until [you reach] its proper place. So too you should add the day of the week [?], and the established weekday will come out [?]. Take, therefore, the molad and the tekufah together [?].

When you have done this, the difference between them will emerge, and from that difference you may know [?] the amount by which the solar reckoning exceeds the lunar reckoning [?]. On any year, then, whether plain (פשוטה) or intercalated (מעוברת), you should reckon [?] the tekufah and set it against the molad, that you may know the difference [?].

The difference [?] from year to year accumulates, until at the head of the cycle [?] it returns nearly to its starting point. Yet a small remainder is left over [?], which is the quarter-day (רביע) [?] that the solar year exceeds [the lunar reckoning] [?].

Reckon the days, the hours, and the halakim [?] of the tekufah from its proper head [?], until you arrive at the [head of the] tekufah you seek [?]. The tekufah-heads (ראשי התקופות) [?] each fall a quarter-day later [?] than the one preceding it, advancing thus from one to the next across the year [?].

When you have reckoned all of this [?], the remainder will be [?] for you [the surplus]. And now (**[Red ink: ועתה]**) [?] understand and grasp [?] the matter rightly.

Take, therefore, day [?] and hour [?], for they are the foundation [?] of the reckoning [?]. Hold them firm [?], and you shall not err [?].

The new tekufah [?]: its day and its hour [?] [come out] thus [?]. The day [?] of the tekufah [?] you seek [?] you shall find [?] thus [?]: from day [?], take [?] the tekufah [?] [in?] hours [?] [—] thus the tekufah [?] [comes out].

[?] day [?]: take the tekufah [?], add to it [?] [?] hours [?] [?] until the [next] tekufah [?]. The plain year [?] [?] and the intercalated [year] [?] up to [?] the [head of the] tekufah [?], as we have done above [?].

So too in this manner [?] you should do [?] with the tekufah [?] [throughout] all the years of the cycle [?]: this is the rule (**[Red ink (rubric word): הכלל]**) [?] [of] the tekufot [?]. And now (**[Red ink: ועתה]**) [?] examine [?] the matter [?] [?] well [?].

(The remainder of the left column continues the same procedure — adding hours and halakim to the tekufah head, year by year, against the molad — but the readings are too faint and the ink too abraded for confident transcription)

**** *(continues the same tekufah/molad reconciliation procedure)*

it stands [?] until the day [?] [?] [?] and so forth [?]. The molad [?]: take the molad [?], it will not [?] [?], for if it [?] [?] for you the difference [?] until the halakim [?], take [?] [?] until the halakim [?] of the difference [?] thus [?].

Therefore (**[Red ink marker: ·]**), behold [?]: take [?] the molad [?] of the year [?] [?] the hours [?] [?] and adjust [?] them [?] until [you reach] the [head of the] tekufah you seek [?].

The remainder [?] [from] year to year [?] [?] from the molad [?] of [?] the year [?]: in it [the cycle] [?] you reckon [?] thus [?]. And so [?] in [?] the cycle [?] [?] the tekufah [?] up to [?] the molad [?] [?] [?], for [?] [you reach] the [head of the] tekufah you seek [?] [?].

From it [?] you shall know [?] the difference [?]. And in [?] [?] the cycle [?] [?] [?] [the tekufah] of [?] the molad [?] [?] [?], for [?] [you reach] the [head of the] tekufah you seek [?].

The difference [?] [from] year to year [?]: when [?] you reckon [?], take [?] the tekufah [?] [and set it] against the molad [?] [?] thus [?]. Know [?] therefore [?] the rule (הכלל) [?] of the difference [?] from year to year [?].

(Several closing lines of the right column give a summary instruction — "do thus with all the years of the cycle" — partly legible, flagged.)

(The upper left column opens with a body-prose recapitulation of the preceding rule. The first ~4 lines are abraded; partial reading follows.)

the molad [?] [?]. The new tekufah [?]: its day [?] and its hour [?] [?] [come out] thus [?]. Take, therefore [?], the molad [?] [?] and set it [?] [?] in its [proper] place [?].

When you have examined [?] the difference [?] [?] thus [?], so too [?] you should reckon [?] [?] in its [proper] place [?]. The intercalated [year?] [?] [?]: this is the rule [?].

(Mid-column, a recapitulation of the tekufah-reckoning across the cycle, with the recurring terms תקופה / מולד / הפרש / רביע. Lines are legible only in part; flagged.)

So too [?] the tekufah [?] [from] year to year [?] [?]: this is the rule (**[Red ink (rubric word): הכלל]**) [?] [of] the difference [?] [?]. And now [?] understand [?] [?] the tekufah [?] of [?] the difference [?] thus [?].

(The lower-left column completes the unrubricated unit and leads directly into the new chapter rubric below.)

[Red ink header (rubric, lower right column):] *פרק שלישי — Chapter Three*

[Red ink:] [?] פרק שלישי בהשגת הקביעות והיסודות שהן

(Rubric, partly faded red iron-gall ink:) **Chapter Three — On the attainment of the fixed dates (קביעות) [?] and the foundations (היסודות) [?] which are [?]…**

[Red ink (sub-rubric):] [?]בתקון התולדות / החולדות :read] ועתה לחם בתקן החולדות על פי החשבון

(Sub-rubric / opening, in red ink, partly abraded — most likely:) **And now [we shall treat?] the establishing [?] of the [?] / the regulation [?] according to the reckoning (על פי החשבון).** [?]

[Body, resuming in black ink:]

[?] [you reckon?] [?] the tekufah [?] the [?] reckoning [?] upon [?] [its] proper foundation [?] [—] for the reckoning is according to what we have explained [?] in the [proper] place [?]. From the molad [?] [?] day [?] [?] hour [?] or [?] halakim [?] or whatever there is [?] of [?] the molad [?]: the day [?] of the molad [?]. And this is so [?]: take [?] [?]...

(The chapter-three opening prose continues describing how the fixed reckoning is built upon the molad — day, hour, halakim — but the lines are faint and the procedure-vocabulary is identical to the preceding unit. Partial transcription only; flagged.)

so too [?] [from?] year to year [?] [?] until [you reach] the molad [?] you seek [?]. Set down [?] therefore [?] [the values?] so [?], that you may know [?] the [?] of the reckoning [?]. And from this [?] day [?] [?] [?]...

(The remainder of the lower right column carries the chapter's opening instruction; faint, partial.)

[Red ink header (lower right column):] *קשקי הקושט [?] — [Gate / heading; reading uncertain]*

[Red ink:] [?] קשקי [?] הקושט

[Red ink (margin, left of header):] [?] למודים [?] / שני מסר

(A short red-ink rubric heads the very last lines of the right column. The reading is highly uncertain — the first word may be a garbled שער or a non-Hebrew/loan term; "הקושט" (the truth / al-qusṭ?) is the more legible word. Both words flagged. This rubric and its marginal annotation are flagged as a — see report.)

[Body, black ink, final lines of right column:]

[?] When [?] [you reckon?] the tekufah [?] in its [proper] place [?] [?]. [?] [from] year to year [?] [?] the molad [?] [?] [?] the reckoning [?]. The plain year [?] and the intercalated [year] [?] [?] the cycle [?] [?] the difference [?] [?] [?]. And now [?] [you shall find?] the tekufah [?] [?] thus [?] [?]. [?]

(The page ends mid-procedure. These closing lines are faint and abraded; partial transcription, flagged.)

**

Yesod Olam — Book Four (The Jewish Calendar)

Script: Sephardic semicursive, single primary hand, with red-ink (rubricated) chapter headings and structural labels. Black carbon body ink; red iron-gall rubrics, some faded. A diagonal Vatican Library watermark and faint bleed-through from the reverse are present on both pages and are disregarded. …and you will find that the difference between them is small, and it is fitting for you to verify it [?]. The investigator who undertakes this matter will reach his goal, and the reckoning will be set straight before him. Once you have done this and verified it, the months will come out true to you, and the matter will stand firm.

and concerning what we have explained regarding the molad and the reckoning of the years, it has already become clear to you how the seasons (תקופות) are governed and how the months proceed in their order. The lunar year (שנת הלבנה) falls short of the solar year by a known amount, and on this account the intercalation (עיבור) was established — so that the festivals (מועדים) should fall in their seasons and not drift from them.

For if we left the lunar year as it is, without intercalating it, the months would revolve and shift away from their fixed seasons. Therefore the Sages instituted the nineteen-year cycle (מחזור), in which there are seven intercalated years and twelve ordinary years, so that the lunar reckoning should be brought into agreement with the solar reckoning. And the festivals are kept in their proper seasons by this means.

Now since these matters have already been explained, and since it is upon the molad that everything is founded — for from the molad the day of the new month [Rosh Chodesh] is determined, and from it the fixing of the festivals proceeds — we must explain the rules of the fixed dates (קביעות) and the postponements (דחיות) that govern them. [?]

[Lower portion of the recto's right column — postponement rules:] Know that not every molad becomes the fixed date of the [New] Year as it falls, for there are postponements (דחיות) that defer it. The first of them is the rule of "אד"ו" [Aleph-Dalet-Vav]: that Rosh Hashanah is never fixed on a Sunday (א), a Wednesday (ד), or a Friday (ו). And if the molad falls on one of these days, it is postponed (נדחה) to the day after it.

The second is the rule of the "old molad" (מולד זקן): that when the molad of Tishrei occurs at noon (the eighteenth hour) or later, Rosh Hashanah is

postponed to the following day; and if that following day is one of [the days] א, ד, ו, it is postponed yet again, two days from the molad.

The third [postponement] concerns an ordinary year (שנה פשוטה): when the molad falls on the third day [Tuesday], at nine hours and two hundred and four halakim (ט"ש ר"ד [?] — i.e., 9 hours, 204 halakim) or later, [Rosh Hashanah] is postponed from the third day to the fifth day. For if it were fixed on the third day, the year would become defective beyond [its measure] [?], and the following molad would fall after the limit [?].

The fourth concerns the year following an intercalated year (שנה מעוברת): when the molad falls on the second day [Monday], at fifteen hours and five hundred and eighty-nine halakim (ט"ו ש' תקפ"ט [?] — i.e., 15 hours, 589 halakim) or later, it is postponed from the second day to the third day, on account of [the preceding leap year] [?].

[End of recto right column.]

[Red ink header:] **וְהַשֶּׁקֶר הָרִאשׁוֹן** — "The First Falsehood" [a polemical rubric: the first of the [erroneous] claims/objections to be refuted] [?]

[Black-ink body, beneath the rubric:] …the foundation of the matter is so-and-so, and the reasoning is such [?]. The proof of this: that the difference (הפרש) between [the two reckonings] is [?] …and from this you understand that the matter is as we said. The objector claimed [?] that the seasons (תקופות) revolve and return to their starting points after a fixed number of years, and that the reckoning need not be corrected — but this is not so.

For the true [reckoning] does not return to its precise starting point, but there remains between them a small residue (שארית) that accumulates over many years. And he who relies on the [uncorrected reckoning] will err, for over a long span the discrepancy grows until it becomes perceptible. Therefore the correction we mentioned is necessary, and without it the seasons would depart from their places. [?]

[Mid-column, a second red rubric:] **וְהַשֶּׁקֶר הַשֵּׁנִי** — "The Second Falsehood" [the second claim to be refuted] [?]

[Black-ink body:] …the fixed date of the [New] Year [?]. The claim was that one may fix [the calendar] by the [molad] alone, without [attending to] the postponements (דחיות), and that the day of the molad is itself the day of the fixing. But this too is false.

For if it were so, Rosh Hashanah would sometimes fall on [a forbidden day], and the order of the festivals would be disrupted — for the Day of Atonement (Yom Kippur) would fall adjacent to the Sabbath [?], and the [festival of] Hoshana Rabba [?] would fall on the Sabbath, which the Sages did not permit. Therefore the postponements were instituted, and by them these difficulties are removed.

It has already been explained to you that the molad of [Tishrei] [?] determines the fixing, and that from it the [whole year] is reckoned — but only after the postponements have been applied to it. So [?] understand this well, and do not be misled by the words of him who claims otherwise.

[Lower left column, continuing:] And this [reckoning] is prior to that [?], and it precedes it [in the order of calculation]. The matter that is established before us [is] that the [first] molad is the foundation [?], and from it we count forward to every other molad. Each molad is greater than the one before it by twenty-nine days, twelve hours, and seven hundred and ninety-three halakim (כ"ט י"ב תשצ"ג [?] — i.e., 29 days, 12 hours, 793 halakim); and this is the [established] mean conjunction [?].

[and so] on the [fourth?] day [?], at such-and-such an hour, [the molad falls]; and you add to it [the lunar month] and you obtain the next [molad] [?], and so you proceed from molad to molad until you complete the cycle (מחזור). [?]

[Bottom line of left column:] …until here [is] the [matter of?] one molad [?]; and from the day of the [first] molad you count [?] … [the remainder of the line is faint] [?].

[Top of right column:] …and likewise the Sabbath. And so [it is] for every day [?]: when the molad falls on the first day [Sunday], one [reckons] thus; and when it falls on the second day [Monday], thus — each [day] according to its [own] rule [?].

Behold, [the molad of Tishrei] [?] is the foundation of the whole reckoning. From it you reckon forward to the months of the year and to the festivals; and when you wish [to know] the fixing of any year, you take its molad and apply to it the postponements (דחיות), and what remains [?] is the day of its fixing.

[Mid right column:] …on the [fourth?] day [?] at such-and-such [an hour], [number] halakim [?]. And know that the difference (הפרש) [between successive moladot] [?] is fixed and does not change, and from it the whole order proceeds. [?]

[The text continues with worked illustrations of advancing the molad day-count, much of it numeric and partly faint:]

if it falls [?] on the second day [Monday], the [following] molad falls on the [fourth?] day [?] at such-and-such [an hour], [number] halakim [?]; and if it falls on the [fifth?] day [?], thus [?]. So you proceed from one [molad] to the next, adding to each the [mean lunar month], until you complete the year and reach its end. [?]

[Lower right column:] And [you must] take care in this reckoning and not err in it, for the smallest [error] [?] in the halakim grows over the [whole] cycle until it becomes a [whole] day [?]. Therefore the Sages were precise in [counting] the halakim, and they fixed the molad at twenty-nine days, twelve hours, and seven hundred and ninety-three halakim (29 — [?] כ"ט י"ב תשצ"ג days, 12 hours, 793 halakim), neither more nor less. [?]

[from] the day of [creation] [?] [the cycle of moladot proceeds], and the order is preserved, and the festivals fall in their seasons. And this is the foundation upon which the [whole] calendar rests. [?]

[Bottom of right column, partly faint:] …and the difference (הפרש) [?] [is] ד"ו [Dalet-Vav?] [?] … [the conclusion of the line is degraded] [?].

[Top of left column, continuing prose:] …and the molad of [the next month] [?] [falls] thus, and you understand from it [the rest] [?]. And the rule [is] that you keep [the count of] the halakim, and you do not let [them] slip [?], for upon them the [whole] reckoning depends.

[Red rubric — chapter heading:] **הַלִּמּוּד הָרִאשׁוֹן** — "The First Lesson" [or: "The First Instruction"] [Red ink header]

[Black-ink body, beneath the rubric:] Know that the foundations (היסודות) and the principles [?] [of the reckoning are] for [the purpose of] establishing the fixed dates (קביעות). Now since [these] foundations [?] [have been laid], it is fitting that we explain [them] to you so that the matter [?] should be clear, and [so] that you should know how to [derive] the fixings [?] from them. The first of [these] foundations [?] is the [first] molad [?], from which everything [is reckoned] [?]. And the second [?] is the [length of the] lunar month [?] [as] [we have stated]: twenty-nine days, twelve hours, and seven hundred and ninety-three halakim. And the third [?] [is] the [length of the] solar year [?] … and from these foundations the [whole] reckoning [proceeds]. [?]

[The text then introduces the small table; the prose immediately above it lists the day-and-halakim values that the table tabulates:]

and behold I set [these values] before you in a table (טבלא) [?], so that the matter [should be] easy for you [?], and [so] that you should find [each value] [?] without toil. [?]

Diagram / table. A small red-ruled grid in the left column, with red-ink column headers and row labels (rubricated) and black-ink entries. It is a compact reference grid for the fixed dates / molad-day values associated with the calendar lessons that follow. The header band carries red-ink labels; several cells are faded and partly illegible. The grid appears to have 4 columns and several rows. Reading right-to-left (logical order), the rubricated headers and legible entries are transcribed below. Cell values that are letter-pairs are weekday/fixing character-codes (קביעה codes), **not** gematria quantities; several are too faded to read with confidence.

[Red ink header: stub label]	[Red ink header: col 4]	[Red ink header: col 3]	[Red ink header: col 2]	[Red ink header: col 1]
(row label)	ג [3]	[Red ink: יומ"א]	[Red ink: חלקים]	[?]
(row label)	ה [5]	[Red ink: יב [12]]	[Red ink: שעות]	[?]
(row label)	א [1]	[Red ink: ש [?]]	[Red ink: שניות]	[?]
(row label / red)	ב [2]	ד [4]	[Red ink: הכוללת]	[Red ink: מעלשות [?]]

[Note: the grid is 5 logical columns wide (revised from the first-pass reading of 4). The black-ink numeric column (col 4) is now resolved letter-by-letter as ג/ה/א/ב = 3/5/1/2; the unit-name and rubric columns are confirmed as NAMES, not gematria; the four rightmost stub-column cells and the col-3 ש cell remain below the scan floor. See report.]

at scan floor.]

[Black-ink body resuming below the table:] These [values] [?] are the foundations [?] of the fixings, and from them you [derive] the [day of the] fixing for [any] year [?]. When you have the molad [?], you compare it [against the table] [?] and you find [the fixing] [?] opposite it. [?] And [you must] take care that you do not err in

the day [?] or in the halakim, for [if] you err [?] in [even] one [chelek] [?], the [whole] fixing [?] is overturned [?] and [the year comes out] false [?]. Therefore [be] precise [in] the reckoning, and verify it [?], and the matter [will] come out true [for you]. [?]

[Lower left column — worked example, partly faint:] [For] example: [if] the molad [of Tishrei] [?] [falls] on the [third?] day [?] at [number] hours and [number] halakim [?], then [Rosh Hashanah] is fixed on the [fifth?] day [?], by the [rule of] postponement [?] [we mentioned]. And if [it falls] on the [second?] day [?] at [number] hours [?], then [it is fixed] thus [?]. So [proceed] for every [molad] [?], comparing it [against the foundations] [?] and [deriving] from [it] the fixing. [?]

[Bottom lines of left column, degraded:] …and [from] the molad you [reach] the fixing [?], and from the fixing [you reach] the [order of the] festivals [?]; and so the [whole] year is set in order [?]. And [now] understand [this] well [?], for it is the foundation [?] of [the whole] matter [?] … [final line faint] [?].

Yesod Olam — Book Four (The Jewish Calendar)

Primary script: Sephardic semicursive, single primary hand throughout. Body text in black (carbon) ink; structural rubrics in red iron-gall ink (faded). Right-to-left, two columns per page. A large diagonal Vatican Library watermark crosses both pages — ignored. Faint mirrored bleed-through from the facing folio — ignored.

> **General readability note for this batch.** Both pages are heavily affected at this scan resolution: extensive foxing and water-staining (especially the upper-right and central regions of p. 267, and the central gutter of p. 268), with the Sephardic cursive only partially resolvable. The right-hand (logically first) column of p. 267 and the upper portion of the right column of p. 268 are the worst. Much of the connective body prose cannot be read letter-by-letter at this resolution; I transcribe the structural rubrics, the legible technical vocabulary, and the embedded tables, and flag the long degraded stretches as rather than guess at running prose. Folio number "131" (Hebrew-numeral foliation, written קלא / "131") is visible in the upper-left margin of p. 267; a quire/catchword-area mark appears at the foot of p. 268.

This page continues the material of the preceding chapter (Chapter Three, the fixed dates / postponements), proceeding through the numbered Lessons (לימודים)

on the foundations (היסודות). The two columns each carry running calendar prose interrupted by small ruled reference grids.

Right column (logically first):

The upper right portion is the most water-damaged region of the page; the opening lines are largely illegible. The legible technical vocabulary establishes that the passage continues to work through the molad (מולד), the postponements (דחיות), and the resulting fixed dates (קביעות). [Damage: water stain, upper-right quadrant, ~6–8 opening lines largely illegible]

[?] the conjunction (מולד) … and the remainder (הפרש) [?] … the fixed date (הקביעה) falls … [several lines illegible] …

[Red ink rubric, mid-column:]

[Red ink header: "והלימוד הח'"] — **The Eighth Lesson.**

He who wishes to know … [the conjunction / the fixed date] … take for yourself … and know from it [?] … the matter (הענין) … [the cursive of the following clause is faded] …

For when you examine the conjunction (המולד) [?] … the days [?] … then you will find [?] … the fixed date (הקביעה) … and from it [?] …

if the conjunction (המולד) [is on] day 2 (Monday) [?] … the fixed date … [?] … and if it [falls] on day 3 (Tuesday) … then [the date is postponed] … as is required by the rule of ג"ט ר"ד [Tue 9h 204p — the postponement threshold] [?].

[several procedural lines, legible only in fragments, working through the weekday possibilities of the conjunction and the resulting fixed dates] …

Embedded reference grid (right column, upper area). A small ruled grid of fixed-date codes (קביעות) appears near the top of the column. At this resolution the cell contents are only partially legible.

Diagram. A small ruled reference grid (approximately 2 rows × several columns) of fixed-date weekday codes (קביעות), set into the upper portion of the right column. The cell entries appear to be single-letter weekday characters and/or short letter-pair codes (red-ink letter-pair codes are קביעה weekday-character codes, not gematria). At this scan resolution the individual cells cannot be read reliably.

- Header row: [?] — column labels not legible

- Cell entries: [?] — single letters / letter-pairs, not legible

Left column (logically second):

The left column is somewhat more legible than the right. It carries continuous procedural prose on the Lessons, again working through the conjunction-weekday cases and the fixed dates that follow from them, with the recurring vocabulary: the conjunction (המולד), the fixed date (הקביעה), days/hours/halakim (ימים / שעות / חלקים), the remainder (הפרש), and the rule (הכלל).

and afterward (ואחר כן) [?] … you go [reckon] … the [?] … and afterward you take from it … the fixed date [?] …

the conjunction (המולד) … hours (שעות) … halakim (חלקים) [?] … the rule (הכלל) [?] … and so too (וכן) …

Embedded reference grid (left column). A small ruled grid of fixed-date codes appears within the left column.

Diagram. A small ruled reference grid (a few rows × a few columns) of fixed-date weekday codes (קביעות), set into the left column. As with the upper grid, the cell entries are single-letter weekday characters / short letter-pair codes. At this resolution the cells are not reliably legible.

- Header row: [?] — not legible
- Cell entries: [?] — single letters / letter-pairs, not legible

[the lower half of the left column continues the procedural prose:] … if the conjunction (המולד) … day 3 (Tuesday) [?] … the fixed date … and if [it falls on] day 5 (Thursday) [?] … hours … then [the date] … the rule (הכלל) … [several lines fade] …

so know this (ודע זה) [?] … and afterward (ואחר כן) … and you will find (ותמצא) [?] … the fixed date of the conjunction (קביעת המולד) [?] …

[Damage: foxing and water staining across the lower third of both columns; readings degrade to fragments.]

[Red ink chapter rubric, top of right column:]

[Red ink header: "פרק רביעי"] followed by a continuation in red:

Chapter Four

[Red ink: "פרק רביעי · בכ[?]ר דרך תקון … המולד והקביעות [?]"] — **Chapter Four** — *"On the way of establishing … the conjunction (molad) and the fixed dates (kevi'ot) [?]" (the remainder of the red rubric line is faded; the legible words name the conjunction and the fixed dates as the chapter's subject — [?] on the intervening words.)*

> **Structural note.** This is a clear new chapter rubric in display position and red ink: **Chapter Four (פרק רביעי)** of Book Four. Trust the source: the chapter counter advances here from Chapter Three (the postponements/Lessons material of p. 267 and the prior batches) to Chapter Four. Per the shared שער/פרק counter for this work, report verbatim.

Right column (logically first), body prose under the new rubric:

[Red ink: "החשבון"] — **The Reckoning.** *(opening rubric-word of the chapter body, in red.)*

[the opening of Chapter Four explains the method of computing the conjunction and the fixed dates. The cursive here is small and the upper-right area stained; legible in fragments:] …

and behold (והנה) [?] … the conjunction (המולד) … day 2 (Monday) [?] … remainder (ושארית) [?] … and afterward (ואחר) … the fixed date (הקביעה) [?] …

for when (כי כאשר) [?] … the conjunction … the day [?] … and the hours (והשעות) … and the halakim (והחלקים) [?] … you will find (תמצא) … the fixed date [?] …

and so too (וכן) [?] … if the conjunction (אם המולד) … day [?] … the rule (הכלל) [?] … and the remainder (וההפרש) [?] …

every (כל) [?] … the conjunction (המולד) … the fixed date (הקביעה) [?] … and the cycle (והמחזור) [?] … the leap year [/ intercalation] (העיבור) [?] … the simple [common] year (שנה פשוטה) and the leap [embolismic] year (מעוברת) [?] …

Embedded reference grid (right column, lower area). A ruled grid of fixed-date / reckoning codes appears in the lower portion of the right column.

Diagram. A ruled reference grid (approximately 3 rows × several columns) set into the lower-right column, evidently tabulating the chapter's reckoning: the leftmost/header cells carry short labels (single Hebrew letters that read as

weekday characters and small numerals), and the body cells carry single-letter and letter-pair codes (קביעות weekday-character codes). At this scan resolution the cells are only partially legible.

- Header row: [?] — short labels, single Hebrew letters / small numerals, not reliably legible
- Body cells: [?] — single letters / letter-pair codes, not reliably legible
- One column appears to carry the labels "החודש" ("the month") and "ובחשבון" ("and in the reckoning") [?] — left-margin row labels

[below the grid, the prose resumes:] … the simple [common] year (שנה פשוטה) [?] … the conjunction (המולד) … and so when (וכאשר) … the fixed date (הקביעה) [?] … day 4 (Wednesday) [?] … hours (שעות) … and the rule (וכלל) … the fixed date (קביעת) … and upon (ועל) … [the final lines fade into the gutter] …

Left column (logically second):

The left column continues the procedural exposition of Chapter Four's reckoning. It is moderately legible in its upper half and degrades toward the foot.

and behold (והנה) [?] … the reckoning (החשבון) [?] … day [?] … the conjunction (המולד) … remainder … and afterward (ואחר) you take (תקח) [?] …

if the conjunction (אם המולד) [is on] day 2 (Monday) [?] … the fixed date … and if [on] day 3 (Tuesday) … then [postponed] [?] … as the rule [requires] (כפי הכלל) [?] …

the hours (השעות) and the halakim (החלקים) [?] … and you will find (ותמצא) [?] … the fixed date of the conjunction (קביעת המולד) [?] …

[several lines of procedural prose, legible only in fragments, working through the conjunction-weekday cases and resulting fixed dates] …

and so too (וכן) [?] … the conjunction … day 5 (Thursday) [?] … and afterward (ואחר כן) … the fixed date (הקביעה) … and behold (והנה) [?] …

[Damage: foxing and central water-staining; the lower third of the left column degrades to fragments] A small mark (catchword / quire-area annotation) appears at the foot of the page beneath the left column.

Yesod Olam — Book Four (The Jewish Calendar), Chapter Four (continued)

Source: Vatican Library, Vat.ebr.380, Sephardic semicursive hand. Two text columns per page, reading right-to-left. Both folios show heavy water staining, foxing, and edge wear; the diagonal Vatican Library watermark and the bottom copyright bar are scan overlays and are ignored. Many passages are degraded; uncertain readings are flagged [?] and the worst regions are noted as

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Right-hand column

The text opens within an ongoing discussion of establishing the conjunction (molad) and the reckoning. The conjunctions and their remainders (וההפרשים) are set out, the chapters of the reckoning [are continued]. The conjunction holds its course (קיים) and so too [?] the remainder of the reckoning.

and you take [?] the reckoning, and the conjunction that came out [?] [from] your reckoning is the conjunction [of] that [year/cycle] [?]. For your reckoning [?] runs [from] the conjunction [?] which is the conjunction [?] of the cycle [?], and you compute by it [?] upon [?] the fixed dates of the [conjunctions] [?]…

[heavily degraded — approximately four to five lines obscured by water staining and ink loss; isolated legible tokens: "the conjunction" (המולד), "the fixed date" (הקביעה), "the remainder" (ההפרש), "and so too" (וכן), "you compute"] [?]

[A horizontal scribal divider rules off the paragraph.]

Red-ink rubric (mid-column)

[Red ink header: שער] **The Gate (שער) — the conjunction of [?]…**

This gate continues the procedure for the reckoning of the conjunction. The text presents a worked sequence:

you take [?] from the [given] conjunction [?]. [Compute?] the conjunction of the cycle [?] until [you] reach [?] the [?] conjunction [?], and so the [years/months?]…

and the cycle [?] of the conjunctions [?] [is] so-and-so [?] [a tabulated value], and so the conjunction [?]…

[Several lines follow that appear to be a short reckoning template — the same four to six technical terms (the conjunction המולד, the cycle המחזור, the remainder ההפרש, the fixed date הקביעה, the reckoning החשבון) recur in parallel positions. Individual numeric values in these lines are largely illegible owing to ink fading and staining.] [?]

and one [?] [adds?] for each [?] one [?], in the reckoning [?]…

[Damage: water stain across the lower-right quadrant; ~6–8 lines partially lost.]

Left-hand column

[The left column is somewhat clearer in its upper portion.]

and you take [?] the conjunction [?] and the [?] you place [?] [from] the conjunction [?]…

and he said [?] [of] the reckoning [?] [that] so-and-so [?] is the cycle [?]…

The text lays out the relation between the common year (שנה פשוטה) and the embolismic year (מעוברת), and the difference (ההפרש) between them in the reckoning of the conjunction:

the common year [?] and [the] embolismic [?]; and the difference [?] [in the] reckoning [?] [is] so-and-so [?]…

and you reckon [?] [for] each [?] [year?] its difference [?], [and] thus [you reach?] the conjunction [?] that comes after [?]…

[A short clause set off by a divider:] …and he said [?] [that] when the [?] [number] reaches [?] [the limit?], it [?] [resets / carries] [?]…

the cycles [?] and the conjunctions [?]; the cycle [?] [is] so-and-so [?] and the conjunction [?] [is] so-and-so [?]…

and you place [?] [it] before you [?], and you take [?] [from] each conjunction [?] its difference [?], and the conjunctions [?]…

[Damage: lower-left corner foxing; the final ~4 lines of the column are degraded. Isolated tokens legible: "the conjunction" (המולד), "the difference" (ההפרש), "the cycle" (המחזור), "the reckoning" (החשבון), and a closing "and so too" (וכן).] [?]

Note: the second leaf is more heavily damaged — extensive water staining across both columns and the upper edge. Confident continuous reading is limited.

Left-hand column (begins the verso)

[The upper lines are largely lost to staining.] [?]

and so too [?] the conjunction [?]; and he said [?] [that] you take [?] [from] the reckoning [?]…

The passage continues a short worked list keyed to letter-and-numeral entries (apparently a compact table or list embedded in the prose). Several lines each open with what appears to be a letter-code followed by a value:

- …[code] [?] — and the conjunction [?] is so-and-so [?]
- …[code] [?] — and the cycle [?] is so-and-so [?]
- …[code] [?] — and the difference [?] is so-and-so [?]

[These entries are the recurring reckoning template (conjunction / cycle / difference / fixed date). The leading letter-codes and most numeric values are not legible enough to transcribe with confidence] [?]

the embolismic year [?] [and] the conjunctions [?]; and so too [?] the difference [?]…

and you reckon [?] [for] every [?] [one?] its difference [?]; and the conjunction [?] that comes after [?]…

[Mid-column, a clause set off:] …and he said [?]: when [?] [you have done] this [?], you have the conjunction [?] established [?]…

[Damage: water stain mid-column; ~5 lines partially lost.]

Right-hand column

you take [?] from [?] [the conjunction] [?]… [upper lines degraded] [?]

and so too [?] [for] the [?] [years]; and the conjunctions [?] and the cycles [?]…

the common year [?] and the embolismic [?]; and the difference [?] between them [?] [is] so-and-so [?]…

and you place [?] before you [?] the conjunction [?] and its difference [?], and you take [?] [from] each [?] its difference [?]…

Red-ink rubric (right column, mid-page)

[Red ink:] **And now (ועתה), understand [?] / consider — [the matter / lesson]…**

[Red ink, following line:] **The lesson / the matter (הטור / [?] השיעור [?])** —

The text resumes with an instruction to the reader to follow ("understand," "consider") the foregoing reckoning. The passage that follows sets out, in compact form, the procedure for deriving the fixed date (הקביעה) from the established conjunction (המולד):

[regarding] the reckoning [?] [of] the conjunction [?] established [?] — and you take [?] [from] it [?] [and] you reckon [?] the fixed date [?]…

and you place [?] before you [?] [the] conjunction [?], [and] you reckon [?] [for] every [?] [one] [?] [its] difference [?]…

and he said [?]: thus [?] [is] the reckoning [?] [of] the conjunction [?] and the fixed date [?], and so [?] [it is] established [?]…

the cycle [?] of the conjunctions [?] [is] so-and-so [?]; and the difference [?] [is] so-and-so [?]…

[Several closing lines, partly legible:] …and you reckon [?] [for] each [?] cycle [?] its [own] reckoning [?]; and the conjunctions [?] [come] in their order [?], and the fixed dates [?] after them [?]…

and he said [?] [that] when [?] you [?] [have completed] [?] this [?], the conjunction [?] and the fixed date [?] [are] correct [?]…

and you take [?] from each [?] its difference [?], [for] the cycle [?] is so-and-so [?] and you reckon [?]… [?]

Yesod Olam — Book Four (The Jewish Calendar)

Script: Sephardic semicursive, single primary hand throughout, with red ink (rubrication) used for a שער rubric, a chapter heading (פרק חמישי), and one further opening rubric. The folio bears the Vatican Library watermark overlay and the copyright footer (both ignored as scan artifacts). The leaf shows substantial foxing and water-staining across both pages, with faded running headers and several patches where iron-gall ink has browned and thinned; affected readings are flagged `[?]`.

(The folio is numbered "133" in the upper-left margin of the recto. The running header at the top is largely effaced; only faint traces survive — see QA report.)

Right column

[Red ink header: **שער** — *Gate.* The accompanying numeral is faded and not securely legible [?].]

The opening lines set out the procedure of the reckoning that has been established for fixing the calendar [?]. Once you have grasped the foundation of this reckoning and have its principle in hand, you can derive from it every fixed-date you require.

When the molad falls on such-and-such a day, at such-and-such an hour and so many chalakim, the calendar is fixed accordingly [?]. And he said: take the molad of the year in question, and from it the fixed date [?] follows, for the day on which the molad falls is itself the day of the [potential] fixing — and from there [you proceed], subject to the postponements (דחיות).

Understand, then, that the difference (הפרש) between the molad of one year and the molad of the next, in a common year (שנה פשוטה), is four days, eight hours, and eight hundred seventy-six chalakim [?] [= 4d 8h 876p]; and in an embolismic year (שנה מעוברת) the difference is five days, twenty-one hours, and so many chalakim [?]. [Several chalakim figures in this stretch are faded and carry [?]; the standard values are 4d 8h 876p for the common-year difference and 5d 21h 589p for the embolismic-year difference, but the manuscript's digits here are not all securely legible.]

Whenever the molad of one year is known to you, add to it the difference appropriate to that year — common or embolismic — and you obtain the molad of the year that follows. Continue in this way and you may run the reckoning forward as far as you wish [?].

He said further: when you wish to know the molad of the year, take the cycle (מחזור) and the year's place within it [?], and reckon by the established rule [?], for in this way the molad of every year is derived [?].

And if the molad falls on a day that is subject to a postponement (דחייה), the fixed date is postponed to the day that follows it, in accordance with the principle of the postponements [?]. Set the molad in its [proper] place [?], and let the fixed date stand as the reckoning yields it [?] … [text faded — a clause is partly lost here].

Left column

and the foundation of this matter [?]: the difference of the cycle (הפרש המחזור) and what is derived from it, as has been explained. By this means the molad of every year, and from it its fixed date, is brought out [?].

He said: this is the rule. Take the year and its place [?], and reckon by it until you reach the year you seek, year by year [?] … [a clause faded].

and what is left over [after the reckoning] [?]: cast out the weeks (שבועות) — that is, cast out [whole] weeks of days [?], for the days of the week revolve, and you keep [?] only the remainder. Take the remainder and reckon by it [?], and you have the day of the fixed date.

[Marginal note, left margin, faint: a short gloss anchoring a letter-reference [?] — marginal note containing illegible text; further identification requires further verification.]

He explained [?]: the months and the … [?] … the days [?] … [a passage here is browned and partly illegible; the gist concerns counting the months of the year and the days that accrue from them].

[Red ink heading: **פרק חמישי** — *Chapter Five.* Followed by what appears to be an opening rubric in red: "אמור בו ואחזק [?] / טעם זה החשבון [?]" — "A statement upon it, and I shall hold fast [?] to the reason of this reckoning [?]." The red rubric is partly effaced; both the heading word and its continuation carry [?] on individual letters.]

[Chapter Five opens:] We shall now state the reason underlying this reckoning, that you may understand it [?] … [the body of the chapter begins, but the foot of the column is faded].

(The remainder of the right column carries a continuous procedural passage on deriving fixed dates from the molad and applying the postponements; the lower lines are degraded.)

When the molad of Tishrei is known, the year is fixed from it — first by the molad itself, then with the postponements applied where they fall [?]. The postponements remove the fixed date from certain days, as has been laid out, so that it may not fall on a day on which it is forbidden to fall [?].

He said: and so, when you take the molad and apply to it the rule of the postponements, the fixed date emerges established and certain [?]. … [several lines faded].

(The running header at the top is effaced; a faint catchword-like mark appears at the foot of the left margin.)

Right column

[Red ink, opening rubric — several lines in red across the head of the column:] "… and the calendar [?] … and they sanctify the months (ויקדשו ראשי החדשים [?]) and reckon [?] … the foundations [?] upon the … of the reckoning [?] …" [The red passage is a rubricated opening; individual words are partly effaced and carry [?]. The sense concerns the sanctification of the new months (קידוש החדשים) and the reckoning on which the calendar's foundations rest.]

The reckoning stands firm [?], and the times of the seasons (תקופות) are fixed [?] … the cycle returns [?] to its starting point [?] … [opening lines, partly faded].

He said: and behold, the molad recurs [?], and from it the fixed date [?], until you reach the year in hand [?] … in the reckoning [?].

for if there were not [?] the postponements (דחיות) [?] … and the New Year (ראש השנה) [?] would fall on a day on which it is not fitting that it fall [?]; therefore the Sages of blessed memory [?] (חכמי [?]) ordained the postponements, that the fixed date might not light upon a forbidden day [?].

Understand [?]: the reckoning of the seasons (חשבון התקופות) and what is derived from it [?] — for from the season (תקופה) the years are reckoned [?], and the cycle (מחזור) of nineteen years brings the lunar [year] back into agreement with the solar [?] [i.e., the 19-year cycle reconciles the lunar and solar years].

and the seasons (התקופות) [?] … the differences [?] … [a stretch of faded prose on the seasonal reckoning].

He said [?]: this is the principle (הכלל) [?] — that you reckon the seasons and what follows from them [?]; for thereby [?] you know the day of the season and its hour, and so too the molad and its day [?].

and likewise you reckon [?] … [faded] … the New Year (ראש השנה) [?] and the fixed date [?], until you reach the year [?].

He said [?]: and now [?] (ועתה) — set your heart [?] to understand the reckoning of the seasons [?], that you may grasp it [?] … the molad [?] … the day and its hour [?] … from the cycle [?] … [a derivation step opens here, then fades].

the foundation [?] of this reckoning [?] … the season [?] … take the year [?] and reckon [?] … until [?] … and you reach [?] the year [?] you seek [?], by the reckoning of the seasons [?].

Left column

(A continuous procedural passage; the head of the column is somewhat clearer, the foot more faded.)

that you may set [?] … the difference of the season (הפרש התקופה) [?], and what is derived from it. The cycle (מחזור) [?] returns [?], and the seasons return [?] with it; this is the foundation [?].

He said: this is the rule (הכלל). Take the year and its place [?], and reckon by it until you reach the year you seek [?] … [a clause faded].

and the days [?] … you cast out [?] the weeks [?], and what remains [?] is the day of the season [?]; reckon by it [?], and you have the day on which the season falls.

He said [?]: and so, when you have the difference of the cycle [?] in hand, and you reckon by it [?], the seasons emerge to you established [?], each in its day and its hour [?].

and you reach [?] … take [?] the remainder [?] and reckon [?] … the season [?] … [several lines faded].

He said [?]: this is the matter [?] (הדבר), and it [follows] [?] from what has gone before [?]; and now [?] understand it [?] … that you may attain [?] the foundation [?] of the reckoning [?].

[the foot of the column is browned and largely illegible; only isolated words — "the season [?]," "the molad [?]," "the reckoning [?]" — can be made out].

Manuscript: Vatican Library, Vat.ebr.380. Sephardic semicursive hand.

Script note: a single primary Sephardic semicursive hand throughout. Both folios are laid out in two columns. The text is heavily faded in places, with water-staining in the lower-right quadrant of the first folio and a large brown stain across the upper-right of the second folio. The Vatican watermark overlay and bleed-through from the reverse are present and have been disregarded. Many individual letterforms — especially in numerals — are at the limit of legibility at this resolution; uncertain glyphs are marked [?] and the worst stretches are flagged as below.

Right column (p. 273)

the difference, then add it. And know that you should always [?] take the fixed-day (qevi'ah) of the molad [?] of the year… For the common year the difference [הפרש] is its known measure, and for the embolismic [leap] year its measure; and you reckon by it [?].

the seasons (tekufot) [?]. And when you wish to know the molad of any month you wish, begin from the molad of the head of the year, and proceed [?] month by month [?] until you arrive at the month you seek [?]. For each common month [?] you add… and for each [?]… For [?] the molad will fall on such-and-such a day, at such-and-such an hour, and so-many parts (chalakim) [חלקים]. And this is the molad sought [?] in the calculation [בחשבון] [?].

that there fell [?] the molad [?] before [?] the day, the hour, and the parts; and so likewise [?]… [Several lines here are faded and partly obscured by staining — [?]] …on the day [?] that there is [?]… and from it you derive [?] the [?] of the seasons (tekufot) [?].

[A short rubric-like turn of phrase appears here, marked with a marginal stroke; the body continues:] …a day before you reckon [?] them, the day, the hour, and the parts; and from it [?] you know the [?] of the season [?]. And if you find [?] the fixed-day (qevi'ah) of the molad [?] is not [?] as [?]… the molad [?]… on the day [?]… [[?] — line obscured].

in their reckoning [?]. Like the molad [?] of [?]… the day [?]… so-many [?]. The fixed-day [?] of the molad [?]… So you should always [?]… and from the molad [?] you derive [?]… the [?]… [[?] — faded].

and that there [?] fell [?] the molad… [[?] — several words obscured by water-stain at the foot of the right column]. And know [?] that [?]… the days of the month [?]… and that [?]… [[?]].

Left column (p. 273)

to derive [?]. [Red ink, faded:] **And now (ועתה)** [?] understand [?]… that the molad [?] of the seasons (tekufot) [?] in the [?]…

in the calculation [?] a day before [?]; and you reckon [?] the molad [?] of [?]… the difference [הפרש] [?]…

And now [?] understand [?]: he wished to make known [?] in this matter [?] from [?]… [Several lines faded — [?]] …of the seasons. And the [?]… upon [?] the [?]… until [?] the latter [?] [[?]].

the place [המקום] [?] of the [?]… and what [?] is between the two of them [?]. From the [?]… you derive [?] the day, the hour [?], and… [[?]].

[A run of perhaps eight lines in the middle of the left column is densely written and substantially faded; only scattered words are securely legible — they concern the molad, the days, the hours, and the seasons (tekufot), continuing the reckoning procedure. Transcribed content here would be largely conjectural and is therefore withheld; this stretch is flagged as a] [?]

and if [?] they wished [?]… they are able [?]… in the [?]… for every [?]… they reckon [?]… on the day [?]… and from it [?] they know [?] the [?]…

[[?] — faded] …the day [?] from the molad… So you should always [?]… [[?]].

[Damage / staining: lower-right of the left column is water-stained; the final ~4 lines are faint. Scattered legible words: "the molad," "the day," "good (טוב)" [?], "and from it (וממנו)" [?], continuing the molad-reckoning procedure.] [?]

Right column (p. 274)

the seasons (tekufot) [?]. And the molad… [[?]] …the fixed-day (qevi'ah) [?] of the molad [?]. The day of the [?]… and… [[?]].

and the seasons of the year [תקופות השנה] [?] in their [?]… and [?]… so-many [?]. Before it [?]… and [?]… [[?]].

The great [הגדול] [?]… [[?]] …he kept (שמר?) [?]… and [?] the molad fell [?] on such-and-such a day, so-many [?]. And so [?] also [?]… and likewise [?] they reckon [?] their seasons [?]…

and the rest [?]… the fixed-day [?] of the molad [?]. And there is [?]… on the day [?]… so-many [?]. And there is [?] [[?]].

the season [התקופה] [?] before it [?]; and the [?]… the [?] of the seasons [?]… and… [[?]] …he did not [?]… [[?]].

[[?] — faded] …in their [?]… and the [?]… before [?] the day [?] [[?]].

the [?] of the seasons [?]; and [?] the molad [?]; from it [?]… [[?]] …as [?] [[?]].

[New rubric / section]

[Red ink, decorated initial:] **נ"ס**? — i.e. a new structural marker, possibly **שער / פרק** (the shared-counter rubric). The opening red word is decorated but the precise letters are uncertain. [?]

> *[The red opening of this section reads, tentatively, a rubric introducing the next gate/chapter on the calculation of the seasons in relation to the fixed-day of the molad. The exact rubric text and number are not securely legible and are flagged as a]* [?]

their [?]… for every common [?] [[?]]… so-many [?]…

they reckoned [?]… on the day [?]… the molad [?] of [?]… [[?]].

there were [?]… years [?] of the [?] cycle [מחזור] [?]… and they reckoned [?] in their reckoning [?]… [[?]].

and they erred [?]… in [?] the [?]… and [?]… [[?]].

Left column (p. 274)

[[?] — the upper lines are faded] …their [?]… and they reckoned [?]… in the [?]…

in this [?]… he had [?]… [[?]] …the molad [?]… on the day [?]…

[A run of several lines is faded; recurring securely-legible terms are "the molad," "the day," "the fixed-day (qevi'ah)," "they reckon," and "the seasons (tekufot)," continuing the procedural exposition.] [?]

before [?]… the day, the hour [?]… [[?]] …and from it [?] you know [?]…

the cycle (machzor) [?]… and the seasons [?]… in their [?]… [[?]].

it is [?]… so-many [?]… on the day [?]… the molad [?]… [[?]]. [?]

Yesod Olam — Book Four (The Jewish Calendar)

Manuscript: Vatican Library, Vat.ebr.380. Sephardic semicursive hand. Book Four (the Jewish calendar), continuing Chapter Five (molad / fixed-date reckoning, tekufot, the nineteen-year cycle). Running prose, no rubricated body headings in this batch. Both folios are two-column; the right column of each page is heavily water-stained, and the right margin of page 275 and the right column of page 276 suffer foxing and edge-darkening with partial text loss.

Right column — heavily water-stained, large portions illegible

The right column of this page is darkened by a broad water stain across its full height, with foxing along the outer edge. Only fragments can be read with confidence; the connected argument is largely lost.

[?] the seasons (תקופות) [?] … and that which falls out for you (וּמַה שֶּׁיֵּצֵא לְךָ) [?] … [Damage: water stain, right column, the greater part of ~20 lines illegible] … the molad [?] … and from it (וממנו) [?] you reckon … [?] the remainder (השאר) [?] … for the common year (שנה פשוטה) [?] and for the embolismic year (שנה מעוברת) [?] … [?] the difference (ההפרש) between them [?] … the hours and the parts (חלקים) [?] …

[The lower third of the right column continues the molad-reckoning procedure but is too degraded to recover continuous sense]

Left column — better preserved, water staining along its lower portion

the remainder that you have (יתר אֲשֶׁלְךָ) [?]: when it is [?] … you should know (תֵּדַע) that it is so [?]. And if [?] you found (מצאת) the reckoning [?] of the seasons (חשבון התקופות) [?] not coming out evenly (לא יצא בשוה) [?] … but it (אבל הוא) [?] (interlinear: small correction above the line, illegible — [?])] …

the matter is according to (הדבר כפי) what we have explained (מה שביארנו) [?]. And know (וְדַע) that the seasons (התקופות) do not fall (לא יפלו) [?] always (לעולם) [?] upon (על) one fixed hour, but [?] each season (כל תקופה) … differs from its fellow (משתנה מחברתה) [?] …

and behold (והנה) this reckoning (החשבון הזה) [?] which we have set down [?] … each day [?] … [?] the day [?] of the seasons (יום התקופות) [?] and according to it (ולפי זה) … the seasons [?] of the ten [?] … [Damage: ink loss, ~2 words]

upon this principle (על זה הדרך) [?] you shall reckon (תחשוב) the seasons that have passed (התקופות שעברו) [?] and those that are to come (העתידות) [?] … in this way (בזה הדרך) … and behold (והנה) [?] …

the matter (הדבר) [?] which is before you (שלפניך) [?]. Therefore (לכן) [?] … this is the principle (זה הכלל): whenever (כל זמן ש…) [?] you wish (תרצה) to know (לדעת) the molad of any month (מולד איזה חדש) [?], take (קח) [?] …

and behold (והנה) [?] from the day [?] and from the molad (ומולד) [?] [Damage: water stain encroaching from below, ~3 words] … each one (כל אחד) [?] from (מן) [?] …

the molad [?] … by seven (בשבעה) [?] … [?] and that which remains (וְהַנִּשְׁאָר) [?] to you [?] … the molad [?] …

and behold (והנה) the principle (הכלל) [?] which is before you [?] … as we said (כאשר אמרנו) [?] …

and the remainder [?] [Damage: lower-left corner, water-stained, ~4 lines partially illegible] … the molad [?] … of the day [?] … [?]

[?] you will find (תמצא) [?] the molad in [?] hours [?] and parts (חלקים) [?] …

Right column — water-stained along its right edge and upper portion; foxing

The seasons (התקופות) [?] [Damage: water stain] … in each (בכל) [?] … the seasons [?] and not [?] their fixings (קביעותם) [?] [Damage: ~3 words] …

[?] and after (ואחר) [?] … in this (בזה) [?] … each [?] … the hour [?] …

[?] and from the day [?] [Damage: ink loss along edge] … this is the reckoning (זה החשבון) [?] …

and behold (והנה) it is so (כן הוא) [?]. And know (ודע) that (שֶ…) [?] … the molad [?] … the matter (הענין) [?] upon this (על זה) [?] …

[?] [Damage: water stain, right edge, ~6 lines with intermittent loss] … the seasons [?] … upon what (על מה) [?] … as we explained (כמו שביארנו) [?] …

so it is (כך הוא) [?] the matter (הדבר) [?] of the reckoning (החשבון) [?] in (ב…) [?] … the seasons [?] [?] …

take note (התבונן) [?] [?] the molad [?] … the matter (הענין) [?] and behold (והנה) [?] this (זה) [?] …

[?] each one (כל אחד) [?] … the seasons [?] [?] this (זה) [?] …

Left column — better preserved, faded at top

[Damage: top line faded] … and from [?] … the seasons (התקופות) [?] before us (לפנינו) [?] … as we have explained (כאשר ביארנו) [?] …

and behold (והנה) [?] this (זה) [?] the molad of the year (מולד השנה) [?] … and that which comes out [?] for you (ומה שיצא לך) [?] …

[?] the day of (יום) [?] the seasons [?] upon it (עליו) [?] … and on the morrow (ולמחרת) [?] … and on the morrow of that (ולמחרת זאת) [?] …

in this (בזה) [?] the day (היום) [?] [?] the day of the seasons (יום התקופות) … and on the morrow [?] the molad (המולד) [?] of the tenth [?] (העשירי) [?] …

upon this (על פי) [?] … you should know [?] their fixings (קביעותם) [?] … and behold (והנה) … as we explained (כמו שביארנו) [?] …

[?] for the common year (שנה פשוטה) [?] and the embolismic [year] (מעוברת) [?] … behold (הנה) [?] this (זה) … upon this (על זה) [?] …

and behold (והנה) [?] this is the principle (זה הכלל) [?] … [Damage: ink fade, ~2 words] … the molad [?] of the month (החדש) [?] …

and now (ועתה) [?] take note (התבונן) [?] … this (זה) [?] the matter (הענין) [?] of the reckoning (החשבון) [?] of the seasons [?] and the molad [?] …

[?] the principle (הכלל) [?] which is before you (שלפניך) [?] … and that which (ומה ש…) [?] … the months (החדשים) [?] upon them (עליהם) [?] …

[?] he will add (יוסיף) [a verb form, not the name "Joseph"] [?] … upon his reckoning (על חשבונו) [?] …

[?] [Damage: lower-left, faded] … the months [?] [?] …

Yesod Olam — Book Four (The Jewish Calendar)

> Translator's orientation: Sephardic semicursive hand, two columns per page, black body ink with red rubrication for chapter headings and structural labels. Reading order is right-to-left: on each page the **right** column precedes the **left** column. The diagonal "Biblioteca Apostolica Vaticana" watermark and the bottom copyright bar are scan overlays and are ignored. Faint mirrored text is bleed-through from the reverse of the folio and is ignored. This hand's ש frequently loses its left stroke and resembles ע — numerals and letter-pairs are read with that caution and transcribed verbatim with `[?]` where genuinely ambiguous.

Right column (read first)

and from this you already understand how the molad (מולד) of any one of them falls, and how it advances from the head of the year [?]. For this reckoning, when you wish to know the molad of a given month, [you proceed] in the way already laid out; and so too you derive the seasons (התקופות) — but the seasons are not [reckoned] on a fixed hour as the moladot are.

[Red ink header: **פרק ש"ו —** "Chapter 16" [?]] On the matter of the foundations (היסודות) [?], by which we establish the fixings (הקביעות) [Red ink continues]… And it is not [the case] that every fixing that falls out in the reckoning may be established; rather there are among them those that are pushed off (נדחות), and others that are drawn forward [?]. The pushings-off (הדחיות) and the rules of [the permitted] fixings [?] are explained in what follows.

[Red ink rubric: **ראש סוף [?] הנמין** [?]] — *further identification requires further verification*

We say at the outset [?]: every fixing (קביעה) and every reckoning [?] that we have [derived] [?] — that it [the molad] should fall on such-and-such [a day], on a fixed hour [?]. Now [as for] the reckoning of the [permitted] fixings (הקביעות) [?]:

And when the molad [?] falls [?] — not [?] [Damage / faded: ~2 words] before noon (קודם חצי היום) [?] — and it does not [?] [reach?] [?] the [boundary?], it [the new month] is fixed (נקבע) [?] on its day [?]. But if it [the molad] is [later than that] [?] [Faded: ~1 word] before [?] [Damage], then [?] the [day] is pushed off (נדחה) [?].

[The passage here treats the rule that a molad occurring at or after a certain hour of the day causes Rosh Chodesh / Rosh Hashanah to be deferred to the following day — the classic *molad zaqen* (old molad) deferment of the calendar's fixing-rules. The exact hour-boundary in this line is faded; transcribe verbatim with [?].]

if the molad of the month [?] falls [?] on [such an hour], it is not fixed [?] on its day, but rather on [the day] after it [?]. And if the molad [?] of [?] [the year?] [Damage] falls before [?] noon [?], the [day] before [?] it is [the one] fixed [?] — and this [?] [Faded] in [?] the [permitted] hours [?] of the moladot [?]. And whoever contemplates [?] the [permitted] hours [?] of the moladot will understand [?] [this].

[Red ink rubric: **פרק א [?]** — "Chapter 1" [?] — possibly a sub-section marker] and it is [thus] explained that the difference (ההפרש) is [the boundary] [?]…

[Red ink rubric: **כלל** [?] — "General rule" [?]] [Red ink continues] …and the remainder of the [computation? / hours?] [?] [Faded line].

Within this [matter], the chapter [?] explains the deferments (הדחיות) of the moladot [?] in [their] cycles [?]: for whoever reckons [?] [it] [?] [Faded] — the difference [?]; and so too the practitioner [?] [reckons] in [his] reckoning [?] the position [?] of the [moon? / star?] [?] in [?] [Faded]. And whoever [?] sets out [?] the [permitted] hours [?]; then they put [?] [Faded] — and whatever [?] is left over

[?]. [Faded clause.] So [reckons] the practitioner [?] in [the] reckoning [?] the position [?] of the [moon] [?], and one [?] [Faded].

Left column

and you already [?] [Faded: ~3 words] on the [reckoning?] [?]. He [?] established the [?] [Faded] on a [fixed?] hour [?], and what is [left over?] [?] from the [?] [Faded].

[Faded passage of ~5 lines — heavily affected by water-staining and gutter shadow at the top of the left column. The thread concerns the carrying-over of leftover portions (חלקים) in the molad computation and the distribution of those portions across the weekdays.]

then there fall [?] [Faded] portions [?] [חלקים] [?], and there remains [?] of [the] hour [?]. And [as for] this [?] [Faded], the practitioner [?] [reckons] [?] in [the] reckoning [?] [Faded clause]. And [there is no] doubt [?] [Faded]; and so too in [the] reckoning [?] of the seasons (התקופות) [?].

[Red ink rubric mid-column: **גם אדם** / [?] **נ"ח אדם** [?] — *the red rubric here is two words; the first is heavily faded. Verbatim transcription only; further identification requires further verification.*] [Red ink continues] …to the [practitioner] [?] in the [reckoning] [?].

And after [?] [Faded] — the chapter [?] [explains?] [Faded: ~4 words]. He [?] reckons [?] the [position?] [?] [Faded]; and [the] practitioner [?] [reckons] [?] [Faded].

[The remainder of the left column, ~14 lines, is body prose continuing the rules of the moladot and their deferments. The combination of cursive hand, water-staining toward the foot of the column, and gutter shadow makes a confident continuous reading impossible at this resolution. Representative legible fragments below; the full column is a review candidate.]

the molad [?] [Faded] … the hour [?] … the position [?] of the [?] … and so too [?] … the season (תקופה) [?] … the portions (חלקים) [?] … the difference (ההפרש) [?] … and he [?] established [?] [Faded] … on its day [?] … and after it [?] … the practitioner [?] reckons [?] in the reckoning [?] … and [there] remains [?] … and whoever [?] contemplates [?] [this] will understand [?].

Right column (read first)

that it [the molad / season] [?] [Faded] … and the [?] complete [?]. And [as for] the seasons (התקופות) [?] [Faded: ~2 words]: it [?] [Faded] — so [?] [the day] [Faded].

And the seasons (התקופות) [?]: on [the] day [?] [Faded: ~2 words] the season [?] of [?]. So [?] [Faded] — one [?]; and [?] [the season?] [?] is [?] another [?] [Damage]. And after [?] [Faded] — the season [?] [Faded] either [?] on [the] day [?] [Faded], or [?] another [?] [Faded].

And [we] do not say [?] [Faded] — for [?] [Faded] the season [?] falls [?] in [?] [Faded]. So [?] [Faded] — [the season] of [?]. And [there is no] [?] [Faded].

[The right column here continues the rules of the *tekufot* (the four seasonal points — solstices and equinoxes), and how their reckoned moment is assigned to a weekday. The discussion parallels the molad-deferment material on the facing page but applied to the seasons rather than the moladot.]

and [the season] [?] [Faded] before noon (קודם חצי היום) [?], it is [?] [Faded]. But if [?] [Faded] — after [?] [Faded] — then [?] [Faded]. And [we] do not [?] [Faded] — the day [?] [Faded]; and not [?] the day of [the] portions [?] [?] [Faded].

[a stretch of ~6 lines] … the season [?] … the hour [?] … noon [?] … the day [?] … and after it [?] … and [we] do not say [?] … and whoever contemplates [?] will understand [?].

on [the] day [?] [Faded] — the season [?] of [?]. And after [?] [Faded] — the [?] [Faded]. [Faded: closing ~2 lines of the right column.]

Left column

[Faded: ~2 words] … and the [?] [Faded] … so [?] [the season?] [?] [Faded].

[Red ink rubric: **ואחר** [?] — "And after"] on the matter of [the] reckonings (החשבונות) [?] and the [permitted] hours [?] [?] [Red ink continues] — that the [?] practitioner [?] [Faded].

When [?] the practitioner [?] [reckons] [?] [Faded: ~3 words] … the difference (ההפרש) [?] [Faded] … on a [fixed?] hour [?] [Faded] … another [?] [Faded].

The [permitted] hour [?] [Faded] — either [?] before [?] noon [?] [Faded], or [?] after [?]. And [as for] [the] reckoning [?] [Faded] — so [?] [Faded] — and there remains [?] of [the] hour [?]. So [?] reckons [?] the practitioner [?] in [the] reckoning [?] the position [?] of the [moon? / star?] [?] [Faded].

[A stretch of ~8 lines continuing the rules for the practitioner's reckoning of the permitted hours and the leftover portions. Water-staining at mid-column and the cursive hand prevent a continuous confident reading.]

[Faded] … the hour [?] … the portions (חלקים) [?] … the position [?] … and after it [?] … the practitioner [?] reckons [?] … and there remains [?] … and so too [?] in [the] reckoning of the seasons [?] … the difference [?] … and whoever [?] [reckons] [?] … on its day [?] … and not [?] [Faded].

how [?] [Faded] … the [reckoning?] [?] … on [a fixed?] hour [?] … and there remains [?] [Faded] … the practitioner [?] [reckons] [?] [Faded] in [the] reckoning [?] … and after [?] it [?] [Faded] … the position [?] [Faded] … and one [?] [Faded] … the practitioner [?] [reckons] [?] [closing line of the column, faded].

[Foliation, top-left margin: **137**]

Right column (begins mid-discussion)

[the opening lines are faded and water-damaged; ~the first line is largely illegible] [?]… The author continues the discussion of the molad and the boundary hour: when the new moon (molad) falls before or after the reckoned limit, the fixing (קביעה) of the month is determined accordingly. …[?]…

He explains that one must take the calculated value and compare it against the established limit; if it falls short [?] of that limit, the result stands as reckoned, but if it exceeds [?] it, the fixing is deferred (נדחה) to the following day. …[several words here are obscured by water staining and cannot be recovered] [?]…

And he said: this is the matter — and so [?] the words of the author, may his memory be a blessing (ז"ל). …[?]…

[A short closing clause precedes the rubric below; partly legible] [?]

[Red ink rubric, right column]

> **[Red ink: ושבח]** — "And he praised…" [opening word of a new section, rubricated in red]

[Following the red rubric, in black:] He has [?] taught us, the master Rabbi Yitzchak [ר' יצחק], may God be his keeper and preserve him [?]… [an honorific blessing follows the name; partly faded] [?]

Continuation (right column, black ink)

The reckoning [?] proceeds: the author sets out the procedure step by step. …[the column here is densely written and partly faded] [?]… He treats the leap year (שנה מעוברת [?]) and the ordinary year (שנה פשוטה), and how the surplus portions (חלקים) carry over from one cycle (מחזור) to the next. …[?]…

He notes that the fixing once established (קביעות) governs the arrangement of the months, and that when the molad and the deferment-rules (דחיות) are applied together, the year is set. …[?]…

[the remaining lines of the right column are largely obscured by water damage and faded ink; individual words recoverable but no continuous sense] [?]…

Left column (faded ink throughout; partial readings only)

[the upper third of the left column is badly faded] [?]…

The author continues with the calendar reckoning, treating the seasons (תקופות) and the new-moon computation (מולד). He explains that one takes [?] the established portions and adds [?] them, examining whether the result falls before or after the boundary; …[?]…

[mid-column, partly legible:] …and so [?] the seventh [?] day… and one defers [?]… [the reasoning concerns whether a given day is eligible for the fixing or must be pushed forward; the specific weekday-letters are not legible with confidence] [?]…

[a list-like sequence follows, marked by repeated clause-openers ("and on the…"); the individual day-values and chalakim are faded and cannot be read reliably] [?]…

[lower portion:] …the author concludes the point, may his memory be a blessing [?]; and he turns [?] to the next matter… [the final lines of the column are obscured] [?]…

[Foliation mark at foot of page, Hebrew letter, faded] [?]

Right column (black ink; upper portion water-stained)

[opening lines water-damaged] [?]… The discussion of the new moon (molad) and its reckoning continues. The author treats how the surplus accumulates and how, when it reaches the limit, a full day [?] is added. …[?]…

He explains the matter of the deferment (נדחה): when the molad falls past the boundary hour, the fixing is pushed to the next day; and from this further consequences follow for the arrangement of the festivals [?] and the months. … [several words obscured] [?]…

[mid-column:] …and he said [?]: the reckoning [?] is thus, and one should understand [התבונן [?]] the matter well. …[?]…

He continues: the seasons (תקופות) divide the year into their quarters (רביעים [?]); the head of each season (ראש התקופה) is reckoned from the established starting-point, and the surplus portions carry forward. …[the column is densely written; intermittent legibility only] [?]…

[lower right column largely obscured by the large water stain crossing the page] [?]…

Left column (faded; partial readings)

[Red ink rubric within the left column, faded:] **[Red ink: וכן]** [?] — "And likewise…" [a rubricated clause-opener; reading uncertain due to red-ink fading] [?]

[Following, in black:] …He continues the reckoning: the author treats the limit (יסוד [?]) and the established value, comparing the computed result against it. … [?]…

[mid-column, partly legible:] …the master, may his memory be a blessing (ז"ל)… [an authorial citation; the name itself is not legible with confidence] [?]…

and the fixing (קביעות [?]) of the festival [?]; the author explains that the holy day (היום הקדוש [?]) is set according to the reckoning, and the months are sanctified (קידוש החדשים [?]) accordingly. …[?]…

[the lower portion treats the months in sequence — the author appears to run through the year's months and their molad-values — but the individual month-names and numerical values are faded and water-damaged beyond confident reading] [?]…

[final lines of the column, badly faded:] …and another [?] month… and the cycle [המחזור [?]] of the moon… and so [?] the fixing of the months… [the closing clauses are obscured] [?]…

Yesod Olam — Book Four (The Jewish Calendar)

> **Manuscript condition note.** Both pages of this batch are in a Sephardic semicursive hand and are substantially degraded: heavy water staining (concentrated in the right margins and lower-right quadrant of each page), faded and locally flaked iron-gall ink, and a cramped, ligatured cursive. Each page is laid out in two columns of continuous calendar prose. There are **no display rubrics or chapter/gate headings**

anywhere in this batch — only the faded running headers at the top margin. Large stretches of the text can be read only in part; connected sense is recoverable for portions of each column, but many individual words and most numerals are obscured. The whole batch is flagged as a **further review candidate** for higher-resolution recovery. What follows renders the connected sense where it can be established with confidence and marks the obscured remainder with `[?]`.

PDF p. 281 (folio 138 recto)

Right column.

the matter of the intercalation, [as] we set forth before you[?]. And [?] you should reckon[?] [...several words obscured by staining...]. And the principle in this[?]: when [?] you wish[?] to know [?] . For there is none who [?] [several words lost to the stain at the head of the lines].

When the molad falls [?] before midday, then[?] [the month] is established[?] on that day; but if it falls after midday, the day is deferred [נדחה] [?] [several words obscured]. This is the reckoning[?], and [?] understand it.

[A run of roughly eight lines here is heavily stained across the right margin; only fragments are legible. Recoverable words include:] ...the deferment[?] [הדחיה] [?]... "and likewise" [?]... the molad[?]... on that day[?]... [the remainder of these lines is lost under the water stain and is flagged for further recovery].

the establishment[?] [הקביעה[?]] ... for they did not [?] [several words] ... on every[?] day [?] [פשוטה[?]] — [i.e.] an ordinary[?] year. And if [?] the molad falls[?] [several words obscured] [?] then it is deferred[?]. And [?] the principle[?] [in this[?]] [several words lost].

and from this[?] [we learn[?]] that [?] [the name of[?]] R. Yitzchak[?] [ר' יצחק[?]] [reckoned[?]] [several words obscured at the stained right edge]. And this[?] is [?] the reckoning[?] of the establishment[?] of the months [?] [קביעות[?] החדשים[?]] [the remainder of the line lost].

[The next several lines are among the most degraded on the page — water staining overlies faded ink at the right margin. Legible fragments only:] ...if[?] you wish[?]... and likewise[?]... the other[?]... [these lines are flagged for further recovery].

it is not[?] permitted[?] [several words] … and the establishment[?] [is[?]] [several words obscured]. And the principle[?] is firm[?] [several words] … and understand[?] [it[?]].

Left column.

the matter of the intercalation[?] [העיבור[?]], the [?] [several words] of the gentiles[?] [העכו"ם[?]] [?] [several words obscured at the head of the column].

and if[?] [several words] [?] the [?] day[?] [several words] … and they[?] [several words obscured].

and from[?] this[?] [several words] … and these[?] [are[?]] the seasons[?] [התקופות[?]] [?] [several words obscured].

[a run of about ten lines of connected prose on the calendar reckoning — the establishment of months, the deferments, and the seasons — is legible only in scattered fragments because of the cramped hand and local ink loss. Recoverable terms in sequence:] …the season[?] [התקופה]… the molad[?]… on the day[?]… the establishment[?]… the chalakim[?] [החלקים]… an ordinary[?] year[?] [שנה פשוטה[?]]… a leap[?] year[?] [מעוברת[?]]… the seasons[?]… [the connected reading of these lines is left for further recovery].

and behold[?] [והנה[?]], this[?] [several words] … the leap[?] [העיבור[?]] [?] [several words] … and likewise[?] [וכן[?]] [several words obscured].

this[?] is the reckoning[?] [החשבון[?]] … and you should know[?] [ותדע[?]] [several words] … the chalakim[?] [החלקים] [?] … and the remainder[?] [והנשאר[?]] [several words lost at the foot of the column].

PDF p. 282 (folio 138 verso / following folio)

Right column.

[the head of the column is obscured by staining] … if[?] [several words] … the molad[?] [?] [several words obscured]. And if[?] not[?] [ואם לא[?]] [several words] … and they[?] reckon[?] [ויחשבו[?]] [several words] [?] [the remainder obscured].

as[?] [several words] the principle[?] [הכלל[?]] [?] … to[?] reckon[?] [several words] … the seasons[?] [התקופות[?]] [several words obscured].

[?] [several words] the molad[?] … and they reckon[?] [ויחשבו[?]] [?] [several words] … from[?] this[?] [several words] [?] the establishment[?] [הקביעה[?]] [several words obscured].

and if[?] [ואם[?]] [several words] … and behold[?] [several words] … and likewise[?] [וכן[?]] [several words obscured]. And this[?] is the reckoning[?] [החשבון[?]] [several words lost].

[A run of about six lines here is legible only in fragments. Recoverable terms:] … the molad[?]… the establishment[?]… an ordinary year[?] [פשוטה[?]]… a leap year[?] [מעוברת[?]]… the deferment[?] [הדחיה[?]]… the chalakim[?]… [flagged for further recovery].

and the principle[?] [והכלל[?]] [several words] … to know[?] [לדעת[?]] [several words] … the seasons[?] and the molad[?] [התקופות והמולד[?]] [several words obscured].

and from[?] this[?] [several words] … the establishment[?] of the months[?] [קביעות החדשים[?]] [several words] … and understand[?] [it[?]] [והתבונן[?]] [the remainder of the line obscured].

Left column.

[the head of the column is obscured] … if[?] [several words] … and they[?] [several words obscured].

the season[?] [התקופה[?]] [several words] … the molad[?] … on the day[?] [ביום[?]] [several words] … the establishment[?] [הקביעה[?]] [several words obscured].

[A run of roughly twelve lines of connected calendar prose — concerning the seasons, the molad, the deferments, and the establishment of the months — is legible only in scattered words because of the cramped hand and faded ink. Recoverable terms in sequence:] …the season[?]… the molad[?]… an ordinary[?] year[?]… the chalakim[?]… the remainder[?] [הנשאר[?]]… the leap[?] year[?]… the deferment[?]… the establishment[?]… [the connected reading of these lines is left for further recovery].

and behold[?] [והנה[?]] [several words] … the reckoning[?] [החשבון[?]] … and you should know[?] [ותדע[?]] [several words obscured].

and the principle[?] [והכלל[?]] [several words] … the seasons[?] [התקופות[?]] … and likewise[?] [וכן[?]] [several words] … and understand it[?] [והתבונן[?]] [the remainder obscured].

[A red-ink word may appear in the lower-left region but is too faded under the staining to read with confidence — flagged for further recovery.]

Yesod Olam — Book Four (The Jewish Calendar)

[Marginal folio numeral, left: "139"]

[The opening of this page continues the discussion from the prior chapter, on the day of the establishment (קביעות) and the day on which the festival falls.] …And on the Day of Atonement (Yom HaKippurim), and on Shemini Atzeres, the festival falls on the same day [as a given weekday]; for these days are fixed in their order, one after the other. [?]

[Red ink header:] פרק שביעי — Chapter Seven

[Red ink, continuing the rubric:] On the place of the cycle (מקום העבור).

[Red ink, sub-heading:] In this chapter [we treat] the matters that are necessary for the cycle (העבור) — the [calculation of the] establishment (הקביעות) and the differences (החילוקים) that come about therein. [?]

Know that, regarding the matter we now wish to set before you and explain, you must first attend to the foundations (היסודות) on which the whole reckoning depends. For the seasons (התקופות) [?] which we have already taught — they follow [a fixed order, and from them] the [calendrical] reckoning proceeds. [?]

Therefore, after we have set down for you the foundations of this matter, and after we have made plain to you its principles and its conditions, [?] [you will understand] that, [from] the established molad of any given year, the [position] follows [in its proper sequence]. [?]

And know that it is well established (מבואר) with [the sages] that whenever there is a remainder of chalakim (חלקים) [beyond the whole hours], that remainder [must be carried forward] to the [reckoning of the] following [season or month]. [?] So too, when the [season] of one [year] is joined with [that of] the next, the remainder [accumulates] until it completes [a whole unit]. [?]

[The text continues describing how the seasons and the molad combine, and how the surplus chalakim are carried forward; several clauses here are degraded by water-staining at the foot of the column.] [?]

When [a season's reckoning] is fixed (קבוע) upon its proper [day], you will [find] it is established (קבוע); and if it is not [exactly] upon [the boundary], then it is deferred (נדחה) to [the following day]. [?] In either case — whether [the molad falls] before [midday] or after [midday] — you must [attend to] the day [on which it falls]. [?]

[Several lines at the bottom of this column are partly obscured by water-staining; the sense concerns the comparison of one season's reckoning with another, and the determination of whether the day is "fixed" or "deferred."] [?]

The wise man (החכם) [?] said: [In] the [matter of the] reckoning [?] of the seasons and the [establishment], it is fitting [that we now explain]. [?]

You [already] know that the seasons (התקופות) [follow] a fixed [order, each] coming after the other [at a regular] interval; [?] and you know that from the [reckoning of the seasons] proceed the [days of the festivals] and [their order]. [?]

[?] When [the season] is reckoned [?] upon its [day], [you] will know [whether it is established or deferred]; for the matter of the [season] follows [from the foundations]. [?]

And the [reckoning] follows [in its order]: when [the season] is [fixed] upon [its day], [it is] established [?]; and we [carry forward] the surplus [chalakim] to [the next]. [?]

[This passage continues the procedural explanation. The author lays out how, from the foundation-values already taught, one derives the day of each season, then compares it against the day of the molad, and from this determines the establishment. Multiple clauses are abraded by staining and ink-fading in the lower two-thirds of the column.] [?]

[?] This is the [matter of the] reckoning [?]: when the [season] is [fixed], it is established; and [when] it is not [exactly fixed], it is deferred [?]. So [the sages] taught [?], and so the matter is settled. [?]

[Near the foot of the column:] The [reckonings] of the seasons [?] — they are [fixed] upon their [proper] days; and from them [follow] the [festivals]. [?] And [whoever] understands this [matter] will not [err] in it. [?]

[The final lines of this column are degraded; the sense appears to summarize the procedure and to introduce a worked example, but the reading is too uncertain to render with confidence.] [?]

[?]

[The text continues from the prior column.] And when we have set down [for you] the reckoning of the [season] [?], so that you may [know it], [we shall make plain] the surplus [chalakim] and the difference (ההפרש) [?] that [arises] between one [reckoning] and the next. [?]

[?] One [season] comes after the other [at] a fixed [interval]; and the difference between [them is] determined [by the foundation-values]. [?]

[Several lines describe how the difference between successive seasons is computed and carried forward, and how this bears upon the molad and the establishment; the right margin near the gutter is tight and some line-ends are lost.] [?]

[Near the head of the column, a short clause closes:] …and this [is] the matter [as it stands]. [?]

So you have [seen] [?] that the [reckoning] of the [season] is [fixed], and from [it] the establishment [follows]; and [whoever] has grasped [this] foundation [?] [will reckon rightly]. [?]

[Red ink header:] עבור החמה — The Cycle of the Sun [?]

> [Red ink, sub-heading:] …[Chapter / section heading, partly faded; the red rubric reads approximately "עבור החמה" — "the solar cycle" — followed by a clause that is too degraded to read.] [?]

Know that, regarding the matter [of the solar cycle], [?] [the sun] returns [to its starting point] at [a fixed interval]; and [until] it [completes] its [course], it does not [return]. [?]

[The author here turns to the solar year and its relation to the seasons. He explains that the sun completes its circuit in a fixed period, and that from this circuit the seasons are derived; the lengths of the four seasons are then set against the lunar reckoning.] [?]

So [the matter is]: when the [sun] returns [to its point], [a year] is completed; and [from] the [completion of its course] proceed the seasons [?] — and the difference [between the solar year and the lunar year] [accumulates]. [?]

[?] [The sages] [?] reckoned [the year] of the [sun]; and [they found] the surplus [?] [over the whole days], which [is] the [excess] of the [solar year over the lunar]. [?]

[Several lines elaborate on the excess of the solar year, its distribution among the seasons, and the chalakim involved. The reading is hampered by ink-fading and the tight gutter; key numerical values, if present, are not legible at this resolution and should be recovered at further review.] [?]

[Toward the foot of the column:] And [from] this [excess] [follows] the [need for] the cycle (העבור) [?], by which the [lunar] year is [brought into agreement] with the [solar]; [and so] the festivals [are kept] in their [seasons]. [?]

[The final lines of the column are degraded; they appear to continue the explanation of how the surplus is handled and to introduce the next stage of the reckoning.] [?]

[This column continues the discussion of the solar cycle and the surplus of the solar year.] …after [the year of] the sun [?], and [the matter] returns [to its point]; [?] and the [reckoner] [?] [carries forward] the surplus [chalakim] that [remain] over [the whole days]. [?]

[The text explains that this surplus is the foundation (הכלל / קל"ל) [?] of the cycle, and that upon it the whole reckoning of intercalation depends.] [?]

So [the matter is]: [?] the [excess of the solar year] [?] [accumulates] until it [completes a whole day or month]; and [then] it is [added] to the [reckoning]. [?] And [whoever] [knows] this [will reckon] rightly [?]; for [from] it [follows] the [order of the] years and their [seasons]. [?]

[?] And [know] that [the sages] [?] [transmitted] this [reckoning], one [from] another [?] [in an unbroken chain]; and they [established] it [upon] sound [foundations]. [?]

[The middle of this column treats the transmission and verification of the calendrical reckoning, and the relation of the solar year to the lunar; several clauses invoke "the wise" (החכמים) and the principle (הכלל) of the reckoning. Staining and fading obscure portions.] [?]

[?] [Rabbi] Yitzchak [?] [zal] said [?] [— this attribution is uncertain; the name may instead be a verb-form or an honorific, and requires further verification]. [?]

[Toward the foot:] …and [whoever] understands [the matter] of the [seasons] and the [establishment] [?], [let him] reckon [it] rightly, [?] [for] from [the foundations] [follows] the whole [reckoning]. [?]

[The closing lines of the column, and of the page, are degraded by the large water-stain at the foot of the leaf; the sense appears to summarize and to introduce the continuation in the following folio.] [?]

[?]

Yesod Olam — Book Four (The Jewish Calendar), continued

> Script: Sephardic semicursive, single hand throughout. Both leaves carry the Vatican Library watermark overlay (ignored). Substantial degradation: heavy water-staining and foxing across the lower third and inner gutter of both leaves, with ink fading that renders extended stretches only partially legible at this resolution. The worst-affected regions are flagged [?] and noted as in the report. Folio numeral "140" appears in the upper margin the running header reads מאמר ד / פרק ז, faded.

(The page is laid out as two text columns per leaf, read right-to-left; the right column is logically first. The reckoning of the solar year and its seasons continues from the prior chapter.)

[Damage: water-staining and ink-fade across the inner-gutter side and lower third of this leaf; several lines below are recoverable only in part.]

the [seasons] proceed [in their order], and the difference of the [solar year] accumulates [?]. The sages computed [the year of the sun] and its seasons, and [found that] the surplus over the whole days falls out as a fixed [quantity]. Therefore the season is established at [its set hour], and the one that comes after it is [reckoned] from there [?].

Now the season that comes after this one [is later] than the [first] by a fixed measure; and when the sun [completes its circuit] and returns to the [point] from which it set out, [a full] solar year has been [completed]. The amount by which the solar year exceeds [the lunar year] is the surplus that drives the intercalation [עבור / intercalation].

[?] When you have understood [this measure], reckon the years of the cycle [19 / מחזור-year cycle] one by one, and [distinguish] the plain year [שנה פשוטה] from the embolismic year [שנה מעוברת / leap year]; for the plain year [falls short] of the solar [year] by [a known amount], and the embolismic year [exceeds] it [?].

[Several lines here — mid-column — are obscured by staining and are legible only as isolated words: "…and the difference… the seasons… in the hand of the sun…" [?]. Marked as a]

And [therefore], said the [master/author] [?], the seasons [run] according to the sun, and the [conjunctions / months] [run] according to the moon; and the [whole

intent] of the intercalation is to [reconcile] the year of the sun with the year of the moon, so that [the festivals] fall in their [proper seasons] [?].

and [he] poured out / cast [?] [verb of √יצק], and the son of [Tzo'ar / צוער ?] …

) remains unidentified at the scan floor.]

[Lower third of the right column — roughly the final 10 lines — is heavily water-stained and faded; only fragments are recoverable: "…he wrote… in the season of the sun… and he investigated [?]… the established seasons [קביעות התקופות]… the [computation] of the season… upon the foundations [על היסודות]… and they wrote it… and they took it… the foundation of the seasons [יסוד התקופות] [?]…". Marked as a]

[Damage: staining heaviest along the upper-inner corner and lower margin; the top several lines are faded.]

to them; and [when] the [excess] passes [?], so that they do not [reckon] it [wrongly] — for the [computation] is [a precise measure] [?].

But [if/when] he [the sun] [returns] and [the season] [is established] in [its place], then the [matter] is [set right]; and the [foundations] [stand firm] [?].

[Mid-column, partly legible:] The [Greeks / יונים ?] [held one view] [?], and others [held] that the [circuit / קלקוס] is [traversed] upon [its own foundations] [?]; [each] according to [his computation], and [each] according to [his foundation] [?].

[Several lines obscured — recoverable words only: "…the sun… its circuit [הקפתו]… upon [the surface] [?]… and they did not [err]…" [illegible].]

And he [the master] said: the [first] [season] is [as it was], [neither] added to nor [diminished] [?]; and [thus] the [computation] [proceeds] correctly, and [there is] no [confusion] in it.

[Further down, partly legible:] These are the [foundations] [היסודות] of the [reckoning] [?], and the [matters] [depend] upon them; [whoever] [grasps] them [grasps the whole]. [?]

[Near the foot, in what reads as a slightly emphasized line:] **…and the son of [Tzo'ar / בן צוער] [?]** [— possibly a marginal or display note; transcribed verbatim, identification deferred to further review.]

[Final ~8 lines of this column are badly faded/stained; only scattered words ("…he said… the master [?]… they explained… to them… and these are…") are recoverable. Marked as a]

[PDF p. 286 — running header: "מחזור [?] / פרק ח" (very faded, partly illegible)]

[Top ~4 lines faded:] …in [the season of the sun] [תקופת החמה], [the conjunctions] [קבועים / fixed] [?]; and [the difference] [returns] [?] [to its place]; [and so] the [established season] [stands] [?].

And [when] the [foundations] [are reckoned] [?] and the [conjunctions] are [established] upon them, then [the year is set right]; and [the seasons fall] [each in its place] [?].

[Mid-column, partly legible:] [He explained] [?] [that] [the matter / hand of the sun] [is] [as we have said]; and the [computation] [is true] [?]. And [the festivals] [fall] [in their seasons] [?], [each] [in its time].

[A relatively legible passage near the middle:] **And [the master] said:** the [difference / הפרש] between the [solar] year and the [lunar] year is what we [intercalate / מעברים]; and [we add] a [month] [in the embolismic year] [?] so that [the year of the moon may agree] with [the year of the sun], and [the festivals] [remain] [in their seasons] [?].

[Lower mid-column — heavily stained, fragmentary: "…the season [התקופה]… established [קבועה]… deferred [נדחה] [?]… the foundations [היסודות]… the computation [החשבון]… and they did not [err]…" [?]. Marked as a review candidate.]

[Foot of column, partly legible:] …[and now] [ועתה], [consider / התבונן] [?] [these foundations], for [upon them] [the whole reckoning] [depends]; and [the seasons] [פרי / fruit ?] [proceed] from them [?].

[Red ink header [?]:] התקופות — "The Seasons" [?] *(A display rubric appears at the left of this leaf; the ink is faded — possibly red — and reads התקופות. Whether it opens a new chapter/gate [פרק / שער] is uncertain; transcribed verbatim, structural status deferred to further review.)*

[Damage: staining across the upper and lower portions of this column.]

The [seasons] are [the foundation] of [the calendar] [?]; from them [proceed] [?] the [years and the cycles] [מחזורים], and [upon them] [stand] the [festival dates / קביעות].

The [first season] [is reckoned] from [the foundation of creation / יסוד הבריאה] [?], and [each season that follows] [is later] than [its predecessor] by [a fixed measure]; [and when] [the four seasons] [are complete], [a full] solar year [has passed] [?].

[Mid-column, partly legible:] And [the sages] [established] [?] [the seasons] [upon] [the computation], so that [the matter] [should not] [be confused]; and [whoever] [reckons] them [reckons] [correctly] [?].

[Several lines obscured by the lower water-stain — recoverable words: "…the season… the difference… the sun… upon the foundations [על היסודות]… and the computation… and they did not err…" [?]. Marked as a]

[Foot of column, partly legible:] …[and now] [ועתה] [the matter] [is set forth] [?]; and [the foundations of the seasons] [יסוד התקופות / יסודות החקירות ?] [have been explained] [?]. [And the cycle / מחזור] [is completed] [?]. **[The end of the chapter / completed [נשלם] [?]]** [— a closing formula appears faded at the foot; whether it marks the end of a chapter (פרק) is uncertain.]

The text continues the discussion of the seasons (התקופות) and the surplus of the solar year, carried over from the previous chapter.

[~3 illegible lines, water-stained upper margin] [?]… the reckoning (החשבון) of the seasons (התקופות), as we have explained. The difference (הפרש) that accrues to the sun (החמה) over the lunar reckoning returns and gathers up, until from it a full additional period is completed, and the season (התקופה) is thereby established (קבועה) in its place.

[heavily stained, ~2 lines illegible] [?]… For the conjunction (המולד) and the season do not coincide at a single point; rather, each season falls later than the one before it by the surplus we have set out, and the seasons therefore travel forward through the year.

[?]… (interlinear: a short correction of two or three words above this line, replacing a deleted word; both legible only as [?])] …and when you wish to know the season of any year, take the reckoning we have established and add to it the surplus, and what results is the [season] of that year.

[~4 lines obscured by the central water stain] [?]… so that the difference returns to its place, and the established season stands fixed.

Know, moreover, that the seasons divide the [solar] year into four equal parts, each season [being] one quarter (רביע) [?] of the year. From one season to the next there pass ninety-one days [?] and a fraction; this is [the quantity] by which the seasons are reckoned. …[remainder of paragraph lost to staining] [?]

[lower half of the right-hand column on this page is largely illegible: water damage and bleed-through; ~6–8 lines of continuous prose on the spacing of the seasons and their surplus, not recoverable at this resolution] [?]…

[On the left-hand column of p. 287, the upper portion concludes a worked example continuing the same theme; the central and lower portions are stained.]

and this [is] the surplus of the season [?]… add it to [?]… and you will find the season in its place …[?]… and so for each and every year, until the cycle (המחזור) is completed, and the difference returns to its starting point.

[Red-ink structural marker not present on this page; running header above reads as below] …

[The left-hand column of this folio carries two red-ink rubricated section headings.]

[upper lines, partly stained] [?]… and the lunar reckoning (חשבון הלבנה), in the conjunction (במולד) of the moon …[?]… and what is left over [?]… of the surplus … [?]… belongs to the reckoning of the season.

[Red ink header:] **וחלקת השנית** — *And the second division* [i.e. "the second part / the second reckoning"].

Know, then, that the surplus (השן [?] = perhaps השנה, "the year") and the difference (הפרש) of the moon (הלבנה) …[stained] [?]… in the season (בתקופה) [?] of the moon, [there is] a difference (חמצה [?]) [?]…; and when you take the reckoning of the season [?]… add to it …[?]… until the difference is completed.

[several lines water-damaged] [?]… and we have already explained the matter of the season (התקופה) and its surplus, and how each season comes later than its predecessor by the surplus, until the difference returns to its place. …[?]…

So too the surplus (השן [?]) of the sun (החמה) [?] …[stained] [?]… in the season, [there is] a difference; when you take [it], add to it the surplus of the season … [?]… and what results is the established season of that year. …[remainder lost] [?]

[Red ink header:] **השביעי [?] הלכות [?]** — *The laws / rules: the seventh* [reading of both the rubric word and its ordinal uncertain; possibly "הלכות החשבון," "the rules of the reckoning," or an ordinal section number — both candidates flagged] [?].

and R. [?] [Author self-reference or verb form — not asserted as a citation; the form here is consistent with a third-person verb rather than a personal name] [?]… know that the season (התקופה) …[stained] [?]… the moon (הלבנה) [?]… in the conjunction (במולד) [?]… and the surplus …[?]…

[the lower right-hand column of p. 288 is the least damaged region of the batch but remains a small, faded hand; it continues the rules of computing the season from the reckoning, with several embedded numerals that cannot be resolved with confidence — all flagged] [?]…

take the reckoning (החשבון) [?]… add [?]… the difference (הפרש) …[?]… of the season …[?]… ninety [?] / [number uncertain] [?]… days and a fraction …[?]… and this is the [established] season (התקופה). …[?]…

[final ~2 lines, stained] [?]…

[End of legible matter for batch 144. The continuous text resumes in the following batch.]

Yesod Olam — Book Four (The Jewish Calendar)

Sephardic semicursive hand. Book Four (the Jewish calendar), continuing the chapters on the seasons (tekufot). The scribe's ש frequently loses its left stroke and reads like ע; numerals are transcribed verbatim with [?] where the glyph is genuinely ambiguous. Substantial water-staining affects the lower-right of the first folio and the central-left of the second folio, with corresponding text loss noted under Readability.

The folio carries two text columns. The reading order of this Sephardic page is right column first, then left column. A faded running header sits at the top center; the marginal foliation "142" appears at the upper left.

Right column

[Red ink: ושער] — **And the gate:** to know by how much each season is later than its predecessor.

You already know that the surplus of the solar year over the whole days of [its] cycle is the basis for this computation. Once you have grasped that the surplus,

year by year, accumulates and carries forward, you can find by how much each season comes later than the season before it. For the season is not fixed at a single point: it shifts onward, year after year, by the measure of that accumulated surplus.[?]

Therefore, when you wish to know the established (קבוע) season for any year you choose, take the quarter-year (רביע) (interlinear: as the foundation), and add to it the accumulated surplus that has gathered up to that year, and the result is the season you seek.[?]

[Several lines here are abraded by water-staining; the procedure continues with the addition of the surplus and the carrying of hours and parts (חלקים). The legible fragments read:] …the surplus of the season… each season… the hours and the parts (חלקים)… and it carries over.[?]

Left column

parts (חלקים), each one [of the] day(s)… so that this surplus may be found.[?]

You already know that the surplus accumulates year upon year, until from the gathered surplus a full day [is completed], and from there [the reckoning] begins anew. Thus each season is later than the one before it by a fixed measure, and the hours and the parts carry forward accordingly.[?]

And the foundation (היסוד) of the whole matter is this: hold to the quarter-year and to the surplus, for from these two together the established season is reckoned. By them you compute, and by them you carry over.[?]

[Red ink: ועתה] — **And now,** consider well what we have set down, for upon this rests the whole of the reckoning.[?]

[The remaining lines of this column are heavily abraded by a large water-stain at the lower right of the folio. Scattered legible words: …the surplus… when you compute… the day… the season… and add… the parts… so that this be established for you.[?] The passage cannot be recovered with confidence at this resolution — see Readability]

Two text columns; reading order right column then left. A faded running header sits at the top center; a marginal mark appears at the lower left. A large water-stain crosses the central-left of the folio, obscuring the inner ends of several left-column lines.

Right column

and add it to the remainder that is in your hand, and what you obtain is the established season for that year. So the matter is settled.[?]

And by this method you will find the season of every year you wish, whether it be a common year (שנה פשוטה) or a leap year (שנה מעוברת); for in the leap year the surplus is greater, since its months are more.[?]

[Red ink: וכבר] — **And already** [it has been explained]… the surplus of the season over the whole days… when you reckon… and it carries… the day.[?]

You should know that the four seasons are spaced one from another by a quarter of the year, and that each of them is later than its predecessor by the measure of the surplus. When you have computed the first of them, the rest follow from it by adding a quarter-year to each in turn.[?]

[A run of lines here treats the spacing of the seasons across the year and the addition of the quarter-year and its surplus, hour by hour and part by part; the procedure is consistent with the left-column summary on p. 289. The inner ends of several lines are touched by the stain — legible words: …the season… the quarter… the surplus… the hours… the parts (חלקים)… and it is established.[?]]

Left column

[The upper-left lines are crossed by the water-stain; legible fragments:] …and you add… the surplus… the day… the season… so that it be established for you.[?]

and the remainder that is in your hand you keep, until from it a full day is completed; and when a day is completed, you drop it, and what remains is the surplus carried forward to the season that follows.[?]

[Red ink: ואחר] — **And after** [this]… you compute the next season by the same method, adding the quarter-year and the accumulated surplus, so that each season is established in its order.[?]

[The remaining lines of the column treat the carrying-forward of the surplus from season to season and from year to year. Several inner-line ends are lost to the stain. Legible fragments: …the surplus… the hours… the parts… each season later than its predecessor… until the day is completed… and it carries over.[?] for the stained portion.]

Yesod Olam — Book Four (The Jewish Calendar), continued

Manuscript: Vatican Library, Vat.ebr.380. Sephardic semicursive hand. Primary text in black (carbon) ink; structural rubrics and lead-words in red (iron-gall) ink, several substantially faded. Both pages carry heavy water-staining (lower and gutter regions), edge foxing, and ink bleed-through from the facing folio — bleed-through ignored throughout per convention. A diagonal Vatican Library watermark overlays both pages and is ignored.

Page 291 (folio 143)

Right column (top of the spread)

[Damage: water-staining and faded ink across the upper-right; several lines only partly legible.]

[?] for the sun (החמה) [?], when you have taken [?] in its place (במקומו), it was [?], and you shall add [?] the surplus (התוספת). And the season (התקופה) [?] will be later [?] by that amount [?]. And [?] the day [?] thus [?] for you the reckoning (החשבון) [?] [several words illegible].

[?] when you examine (השקף [?]) the reckoning, you will find [?] that it agrees [?]. And after this [?] take [?] the surplus (ההפרש [?]) and you shall know [?].

[?] you shall set down (תקבע [?]) this [?] in its place (במקומו), and you shall know [?] that [?] [?] later (מאחר [?]) by [?]. And place [?] for yourself [?] the season (התקופה) — and know that it [?] from the day [?].

For this [?] place [?] later (מאחר [?]) than the [first] one (הראשון [?]) [?] [?]. And [?] the season [?] this [?]:

[Red ink: וזה — "And this"] [?] the season [?] of [?]. The way (הדרך) — the season of [?] [?].

[Several lines of black text, water-damaged.] …the way (הדרך) in its place [?]. And the fourth (הרביעי [?]) — [?] you shall examine [?].

The fifth (החמישי [?]) — take [?] the surplus of the seasons (התקופות), the surplus [?] and you shall divide [?] over [?] the cycle (המחזור [?]). The [seasons / count] (התקופות [?]) shall be later [?] for you, so that [?] all of them (כלם [?]) [several words illegible].

[?] half (חצי [?]) [?] later by [?] [?] one (אחת [?]); and another [?] [?] [?] another [?] [?] later by [?] two (שתי [?])… [a sequence of ordinal/numeral entries follows, several illegible:] [?] [?] [?].

the order (הסדר [?]) [?] and [?] the seasons. And the way [?] is established (נתכון [?]) [?] the calculation (לתקן [?] / "to correct") [?] the sun (החמה [?]). And from this [?] [?] [?] [?] later by [?] two (שתי [?]). And know [?] all [?] [?] later [?] [?].

To establish (לתקן [?]) the season (התקופה) by the [reckoning of the] cycle (המחזור [?]) — the season [?] [?] for you [?]. And it shall be later [?] [?] [?] [?] half (חצי [?]).

[?] the seasons [?] [?] [?] [several words illegible] [?] later [?] of the season (התקופה [?]). And [?] [?] [?] the surplus [?] all [?] later by [?] [?]. [Damage: ~1 line lost to water-stain.] [?]

[Red ink: וזה — "And this"] [?] you [?]. The way (הדרך) [?]:

[?] place (מקום [?]) [?] [?] [?]. And [?] [?] later [?] [?] [?] half (חצי [?]) [?] one (אחת [?]).

[?] hours (שעות [?]) [?] [?] [?] [?] two (שתי [?]). And know [?] [?] [?] [?] [?] the surplus [?] [?]. And from [?] the season [?] [?] [?] [?] [?] [?] half (חצי [?]).

[Damage: lower-right of the column is heavily water-stained; ~3–4 lines reduced to scattered legible words:] …seasons (תקופות [?])… surplus (הפרש [?])… one [season] (תקופה [?])… and [?] another [season] (תקופה [?]) [?].

Left column (folio 143)

[Top lines, water-damaged:] …[?] take [?] [?] in its time / in days (בימים [?]) [?] it was [?]. And [?] [?] and they shall add [?] [?] [?] in the days [?] [?]. There rose (עלה [?]) [several words illegible].

[Red ink header — chapter rubric:]

פרק שמיני [Chapter Eight]

[Red ink, the chapter's topic-list, in the manuscript's rubric register:]

> **Chapter Eight** — on how the seasons (התקופות) are established (כפי [?]); whether [their reckoning] is correct or not. [Red ink:] The matters that are needed (הדברים שהוצרכו [?]) for its establishment [?] — namely (דהיינו): the year (השנה), its surplus (תוספתו / תוספתה [?]), the surplus (העבור [?] / "intercalation") and its kinds (וחלוקותיו [?]), and the seasons (ובחלוקיו [?]) [?] in [?] [?] [?]. The matter (דבר [?]) of which I have spoken

[?] before [?]. And now (ועתה) I shall set down (אסדר [?]) for you the rule (הכלל) and the reckoning (החשבון [?]) [?] entirely (בכלל [?]).

[Red ink:] **The rule (הכלל [?]) is short (קצר [?]).**

[Resuming black ink — body of Chapter Eight:]

The chapter (הפרק [?]) — [?] [?] now [?] I shall explain (אבאר [?]). According to (עפ"י [= על פי, "according to"]) [?] the [reckoning of the] seasons (התקופות [?]), [?] in the rule (בכלל [?]):

Take (קח [?]) the year (השנה) according to its [proper] count (בחשבון [?]); the surplus of the intercalation (עבור [?]); and [the rule] for [intercalating] (ולעבר [?] / "and to intercalate") the seasons (התקופות [?]). [Damage: ~half a line lost.] [?] the [computation] of the seasons (החשבון [?]), and you shall know (וכאשר [?]) [?] [?] the surplus (החדש [?] / "the new"?) [?].

And go (וצא [?]) [?] thus [?] over the months (מהחדשים [?]), and from them (ובאותם [?]) [?] the surplus (החדש [?]) [?]. And just as (וכמו) [?] the matter (הענין [?]) [?], and according to (ובפי [?]) [?] [?] [?] [?] the [computation] (יקח [?]).

And there rose (ונעשה [?]) [?] you [?] the season (התקופה) in its time (בזמנו [?]), and [?]:

[A short construction-list / worked example follows, each entry introduced by a Hebrew letter-of-reference; several letters and values uncertain:]

- ידעת (= "you know") [?] [?] [Red-letter pair / code: דאל"ר?] — [?] [?]
- חלוב [?] [Red? letter-pair: שמאל / "left"?] [?]
- לתקנה [?] [?] יכלגם (= "to establish it") [?] — קבוד [?]

[?] the way of [?] [?]. And from [?] [?] [?] [?] the seasons. [?]:

שמאלו [?] [?] חבוה [?] [?] [?] [?] hidden / the secret (דעת מרהן [?] / "knowledge of …"?) דחשבון [?]. The intercalation of the season (עבור התקופה [?]) — the whole (כלו [?]) before (קודם [?]) [?] [?], or you shall establish [it] (חברו [?]) [?].

[?] for it (לה [?]) [?] [?] — [?] [?] not (לא [?]) you shall know (תדע [?]) [?].

[?] [?] after them (אחריהם [?]) [?] [?] [?] he shall know (ידע [?]) [?] [?]. And [?] this (זה [?]) [?] you shall set down (תיכן / תקבע [?]) before (קודם [?]) the day (יום [?]) [?] [?].

And he who (ומי [?]) [?] [?] [?] [?] place (מקום [?]) the season (התקופה [?]) [?]. And [?] the intercalation (העבור [?]) [?] [?] [?] for himself (לעצמו [?]).

[Damage: ~2 lines water-stained at mid-column.] …take (קח [?])… the seasons (תקופות [?])… surplus (הפרש [?])… before (קודם [?])… and [?] another (אחר [?]) you shall know (תדע [?]) [?].

[Resuming, lower portion, water-stained:] And just as (וכמו) [?] the [computation] (תלמדהו [?] / "you shall learn it") [?] [?] before (קודם [?]) the seasons (תקופות [?]) [Red ink: טירוד? / a faded red lead-word, possibly **וזה** ("and this") — illegible].

[?] you shall examine (שתשקף [?]) [?] [?]:

The seasons (חצות [?] / "the midpoints"?) [?] [?] [?] [?] before (קודם [?]) the seasons (תקופות [?]) [?]. [?] not (לא [?]) you shall know (עכ"ל [?]). [?]:

[?] the seasons (תקופות [?])… you shall know (תדע [?])… for himself (לעצמו [?])… the seasons (תקפות [?]) [?] [?].

[?] he who (מי [?]) [?] [?] [?] [?]. And [?] another [season] (אחר [?]) [?] [?].

The day / the new-month (החדש [?]) [?] [?] [?] [?] he shall know (ידע [?]) [?] [?] [?] before (קודם [?]) the seasons (תקופות [?]).

[Damage: bottom ~4 lines of the column are heavily water-stained and largely illegible; scattered legible words:] …the secret (קרי / הסוד? [?])… [?]… two seasons (שתי תקופות [?])… and the [computation] (וחשבון [?])… [?].

Right column

[Top lines, water-damaged and faded:] [?] one (אחת [?]) [?] [?] [?] [?] the surplus (הפרש [?]) [?] from [?] the surplus (התוספת [?]) [?] [?] [?] another [season] (תקופה אחרת [?]).

[?] one (אחר [?]) [?] [?] [?] from [?]. And [?] [?] [?] [?]. [?] the day (יום [?]) [?] [?] the season (התקופה [?]) [?]. [?] [?] one (אחד [?]) [?] [?] [?] [?].

I shall take (יקח [?]) [?] [?] and you shall add (וחשב [?]) [?] [?] the season (תקופה [?]) [?] [?] [?] [?].

[?] [?] the [computation] (החשבון [?]) [?] one (אחד [?]). [?] [?] half (חצי [?]) [?] [?].

[?] [?] [?] [?] [?] [?] [?]. And you shall know (ותדע [?]) [?] [?] [?] [?] the season (התקופה [?]) [?].

[Red ink lead-word, faded:] [Red ink: דעת — "Know" / "Knowledge"] [?] [?] the day (היום [?]) [?] [?]. The rule (הכלל [?]) is short (קצר [?]).

[Resuming black:] For the seasons (לתקופות [?]) [?] the [computation] (החשבון [?]) and the deferments (הדחיות [?]) [?]. [?] [?] [?] [?] the surplus (חשבון [?]) [?] before (קודם [?]) [?].

And the [reckoning of the] seasons (ולהתקופות [?]) [?] — the month (חדש [?]) [?] from [?] [?] and you shall set [it] down (ותקבע [?]) [?].

The rule (הכלל [?]) [?] [?] [?] the [computation], one [season] earlier [?] [?] the seasons (תקופות [?]) [?]. And the way (הדרך [?]) [?] [?].

[Damage: ~3 lines water-stained mid-column; scattered words:] …the season (תקופה [?])… the surplus (הפרש [?])… and you shall know (ותדע [?])… before (קודם [?])… [?].

[?] the [computation] (החשבון [?]) [?] [?] [?] [?] the season (תקופה [?]) before (קודם [?]) [?]. [?] [?].

[Large red-ink rubric — section / counter marker:]

רנב — החרוף [?]

[Red ink, partly faded; the numeral-like form **רנב** could be a running-section counter (= 252 by gematria, but in this manuscript the red letter-codes are calendrical/structural, not gematria — flag for further review). The following red word reads **החרוף** [?] or **החדוש** [?] — "the renewal / the establishment" [?].]

[Resuming black:] The rule (הכלל [?]) [?] [?] and the [computation] (וחשבון [?]) [?].

And [?] [?] you shall give (תתן [?]) [?] [?] [?] [?]. And remember (וזכור [?]) the surplus (העבור [?] / "the intercalation") [?] [?].

[?] [?] [?] [?] he shall set up (שיקדם [?]) [?] later (מאחר [?]) [?] [?]. The [computation] of the year (חשבון השנה [?]) [?]:

[?] [?] [?] [?] [?] the seasons (השנים [?] / "the years"?) [?]. And from this (ומזה [?]) [?] the [computation] [?] [?] [?].

[?] [?] [?] [?] [?] [?] [?] [?] [?] [?].

And the [computation] (וחשבון [?]) [?] [?] [?] [?] [?] [?] [?] [?] [?] the seasons (תקופות [?]) [?].

[?] before (קודם [?]) [?] [?] [?] [?]. And [?] [?] [?] [?] the year (השנה [?]) [?] [?].

[?] [?] [?] [?] [?] the [computation] (החשבון [?]) [?] [?] [?] [?].

[Damage: lower-right of the column heavily water-stained; ~4 lines largely illegible:] …[?]… the season (תקופה [?])… and the [computation] (וחשבון [?])… before (קודם [?])… [?].

Left column

[Top, water-damaged:] [?] [?] of the day (ליום [?]) [?] [?] [?] before (קודם [?]) the seasons (לתקופות [?]) of [?]. And [?] [?] [?] [?] place (מקום [?]) [?]. And [?] [?] [?] [?] later (מאחר [?]) [?] [?].

[?] [?] [?] [?] [?] the seasons (התקופות [?]) [?] [?] [?]. And [?] [?] [?] the surplus (הפרש [?]) [?] [?].

[?] he shall give (יתן [?]) [?] [?] [?] [?] later (מאחר [?]) [?] [?]. And [?] [?] another [season] (אחר [?]) [?] [?] [?] [?].

[?] [?] [?] [?] the seasons (התקופות [?]) [?] [?]. And one [season] (אחד [?]) [?] [?] [?] [?].

[?] [?] [?] the surplus (הפרש [?]) [?] [?] [?] the season (התקופה [?]) [?] [?].

[Red ink lead-word, faded:] [Red ink: ועתה — "And now"] [?] [?] of [?] [?] not (לא [?]) [?]. The [computation] of the new-month (חשבון החדש [?]) [?] [?] for himself / by itself (לעצמו [?]).

[?] [?] [?] [?] [?] the new-month (החדש [?]) [?] [?]. And the season (והתקופה [?]) [?]:

[Red ink lead-words, faded:] [Red ink: כפי הלבנה — "according to the moon"] [?] [?] place (מקום [?]) [?] [?]. The new-month (החדש [?]) [?] one [season] (אחד [?]) [?] [?] [?] [?] [?].

The surplus (החדוש [?] / "the renewal"?) [?] [?] [?] [?] [?]. And [?] [?] [?] before (קודם [?]) [?] [?] place (מקום [?]).

[?] [?] [?] [?] [?] [?] [?] [?] [?] [?] [?] the [computation] (החשבון [?]). [Several words illegible.]

[?] [?] [?] [?] the [computation] of the month (חשבון החדש [?]) [?] [?]. And from this (ומזה [?]) [?] later (מאחר [?]) [?].

[Red ink lead-word, faded:] [Red ink: ואחר — "And after"] [?] [?] [?] [?] the [computation] [?] before / for himself (לעצמו [?]).

[?] [?] [?] [?] [?] [?] [?] [?] [?] [?].

[Resuming black, lower portion:]

[Section marker — a single red letter at line-start:] [Red ink: שמאל — "left"? / a red letter-pair: שמאל [?]] [?] [?] [?] [?] [?] in its place / fixed (קבוע [?]) [?] [?] [?].

[?] he [?] [?] [?] [?] [?] [?] [?] [?] [?] [?] he shall know (ידע [?]).

[?] place (מקום [?]) [?] [?] [?] [?] [?] [?] [?] he shall give (יתן [?]) [?].

The new-month (החדש [?]) [?] [?] [?] [?] [?] [?]. And the surplus (העבור [?] / "intercalation") [?] [?] [?] [?].

[?] [?] [?] [?] [?] one (אחד [?]) [?] [?] [?] [?].

[Several lines, water-damaged and faded:] …[?]… the new-month (החדש [?])… and the season (והתקופה [?])… before (קודם [?])… he shall know (ידע [?])… [?].

[Marginal / line-start red letter, faded:] [Red ink: 28" — כח" or the letter-pair כ״ח / a structural counter; in this manuscript's red-code convention this is a calendrical/structural marker, not necessarily gematria 28 — flag for further review.]

[?] [?] true (אמת [?]) [?] [?]. And [?] in its place (במקומו [?]) [?] [?] [?].

And it shall not (ולא [?]) [?] [?] [?] place (מקום [?]) [?]. The new-month (החדש [?]) [?] [?] for himself / fixed (לעצמו [?]) [?] [?].

[Closing lines of the column, water-damaged:] And go (וצא [?]) and learn (ולמד [?]) [?] [?] [?] take (לקח [?]) the rule (הכלל [?]) [?] [?] [?] [?].

[Foot of column, faded:] [?] [?] [?].]

Yesod Olam — Book Four (The Jewish Calendar), Chapter Eight (Seasons / Tekufot)

Vat.ebr.380, batch 147. Sephardic semicursive hand. Continuation of Chapter Eight (פרק שמיני) on the establishment and verification of the seasons (tekufot). Both folios are heavily degraded by water staining, foxing, and faded brown ink; readings are correspondingly conservative.

The page carries running headers across the two columns reading (left/top of right column) and the marginal foliation "144" *(left column, upper margin).*

Right column

[?] So that [?] for one season the day-portion [חלקון] [?] is reckoned, and it is established that the season [?] comes out [?]. And from this you should know [?] that the day-portion of the season [קצת חלק] comes out [?]; so that it comes out on the same day [?] [?]. [The opening four lines are badly faded; only fragments are secure]

And he reckons [?] [?] [?] to verify [?] the season [?] in the day-portions [בחלקים] [?]. And one [?] should not [?] [?]. And in this way [?] [?] he reckons [?] the [?] [?]. Therefore [?] [ולזה?] you will know [תדע] that the day-portion of the seasons is [?].

He has already explained [?] [הסברנו?] (interlinear: ?) that the seasons [התקופות], each season of them [?] [?]. And so [?] the difference [ההפרש?] of the season [?]; whether [?] [?] he reckons [?] the season comes out [?] [?] one season; and he subtracts [?] [?] [?] season [?] comes out [?] the day-portion [?]; in another season [?] [?] he reckons [?] one season; and he subtracts [?] [?] in the season comes out [?] the day-portion [?].

The day-portion of the day [?] [?] [?] [?] [?] [?] from it [?]; that is [?] [?] [?]; that is [?] [?] [?] [?] [?]. He has already explained [?] [?] [?].

[Several lines here are too faded to recover with confidence] …the season [?] [?] [?] [?] he has already explained [?] the day-portion of the season [?] [?] the verification [?]. [?] [?] [?] [?] [?] [?] [?] [?] more [עוד] than [?] [?] [?] [?] [?] [?]. He has already [?] [?] [?] [?] [?] [?] [?] [?] [?] [?] [?] [?] [?]. The verification of the seasons [?] [?] [?] [?] [?] he has already explained [?] this season [?]. [?] [?] [?] [?] [?] [?] [?] [?] [?] [?].

[The lower half of the right column is severely water-damaged; only scattered words — "the season," "he has already explained," "he reckons," "the day-portion" — recur. Treat as a further review region.] …and [?] [?] [?] [?] [?] [?] [?] more [?] [?]; and they are [?] [?] [?] the months [?] [?] [?] [?] [?]; they are [?] [?] [?] [?] [?] [?] [?]. …on the day [ביום] [?] [?] [?]. …[?] [?] [?] there is to it [?] [?] [?] [?] [?] in [?] their reckoning [חשבונם?] [?] [?].

Left column

we [?] [?] the reckoning [החשבון] [?]; and their seasons [תקופותיהם?] [?] [?]. And after [?] [?] the season [?] [?] [?] [?] [?] [?] [?]. The day-portion [?] [?] [?] [?] [?] [?] [?]; and verily [?] [?] [?] [?] [?] [?] [?]. And from this [?] [ומזה?] [?] [?] [?] you [?]; and the matter [?] [?] [?] [?] [?] [?] [?].

The seasons [?] [?] [?] [?] [?]; this [?] the matter [?] [?] [?] [?] [?] [?]; and there is [?] [?] [?]. And he reckoned [?] [?] [?] [?]; and after [?] [?] [?]. And [?] [?] [?] [?] [?] [?] [?] [?] [?] [?] [?] [?].

The verification [?] [?] [?] [?] of the seasons [התקופות] [?] [?] [?]; and the [?] [?] [?] [?]. He has already explained [?] [?] [?] [?] of the day-portions [?] [?]; and there is [?] [?] [?] [?] [?] [?]. [The middle of the left column is the most legible passage of the right-hand folio but remains fragmentary; the argument concerns how each season's day-portion (חלק) is carried forward and verified against the reckoning (החשבון).]

[Lower left column — faded:] …on the day [?] [?] [?] [?] [?] [?] [?]; and after [?] [?] [?] [?] [?]; and after [?] the reckoning [?] [?] [?] [?] [?]; and verily [?] [?] [?]. The day-portions [?] [?] [?] [?] of the season [?] [?] [?] [?]; and there is [?] [?] [?] [?]. …the seasons [?] [?] [?] [?] [?] [?] [?].

Running header (faded, top center). Foliation/catchword "לח" *(or similar) appears in the lower-left margin —*].

Right column

[?] in the establishment of the seasons [בקביעות התקופות?] [?] [?] [?] [?]; and after [?] [?] [?] [?] [?]; and we have explained [?] [?] [?] the season [?] [?] [?]; and after [?] [?] the establishment [?] [?] [?] [?] [?] [?]. The season [?] [?] [?] [?] [?] [?] [?]; and after [?] [?] [?] [?] [?].

The verification [?] [?] [?] [?] each [?] [?] [?] [?]; for [?] [?] he reckons [?] [?] [?]; one [?] [?] [?] he reckons [?] [?]. And there is [?] [?] [?] [?] [?] [?] [?]; and after [?] [?] [?] [?] [?] [?].

To this [לזה?] [?] [?] [?] [?] [?] [?] [?] [?]; the establishment [?] [?] [?] [?] [?] [?] [?] [?] [?] [?]. And [?] [?] [?] [?] [?] [?] [?] [?] [?] for [?] there is to it [?] [?]. The seasons [התקופות?] [?] [?] [?] [?]; in [?] [?] [?]. [Mid-column lines faded]

to verify [?] [?] [?]; and after [?] [?] [?] [?] [?] [?] [?] [?] [?] [?] [?] [?]. The seasons [?] [?] [?] [?] [?] [?] [?] [?] [?] [?] [?] [?] [?]; and after [?] [?] [?] [?] [?] [?] [?] [?] [?] [?]. And the day [?] [?] [?] [?] [?] [?] [?] [?]. …to it [?] [?] [?] [?] [?] [?] [?]; and there is to it [?] [?] [?] [?] [?] [?].

[Lower right column severely faded — further review region.] …the day-portion [?] [?] [?] [?]; and the seasons [?] [?] [?] [?] [?] [?] [?]; in [?] [?] [?] [?] [?] [?]. …more [?] [?] [?] [?] [?]; and there is [?] [?] [?] [?] [?] [?]. …and verily [?] [?] [?] [?] [?] [?] [?] [?] [?].

A new sub-section opens with a red lead-word near the foot of the column:

[Red ink: אחר] **And another [season] …** ("And another"). …He has already [?] [?] [?] more [?] [?] [?] [?] [?] [?]. [The red lead-word אחר ("another") opens a fresh treatment — apparently "and another [season / reckoning]." The following lines are faded.]

Left column

[?] [?] [?] [?] [?] [?] [?] [?]; and after [?] [?] [?] [?] [?] [?] [?]. The verification [?] of the season [התקופה?] [?] [?] [?] [?] [?] [?]; whether [?] [?] [?] [?] [?] [?]; and after [?] [?] [?] [?] [?]. He has already explained [?] [?] [?] [?] [?] [?] [?].

[?] [?] [?] [?] [?] [?] the [?] [?]; and there is to it [?] [?] [?] [?] [?] [?] [?]. The matter [?] [?] [?] [?] [?] [?] [?]; and after [?] [?] [?] [?]. …the seasons [?] [?] [?] [?] [?] [?]; and the [?] [?] [?] [?] [?]. He reckons [?] [?] [?] [?] [?] [?] [?] [?].

[Mid-to-lower left column — fragmentary:] …in the seasons [בתקופות?] [?] [?] [?] [?] [?] [?]; and after [?] [?] [?] [?] [?] [?] [?]. The day-portion [?] [?] [?] [?] [?] of the season [?] [?] [?] [?]; and there is [?] [?] [?] [?] [?] [?] [?]. …and verily [?] [?] [?] [?] [?]; he has already explained [?] [?] [?] [?]. …on the day [?] [?] [?] [?] [?] [?] [?]; in [?] their reckoning [?] [?] [?] [?].

A foliation/catchword sits in the lower-left margin —].

Yesod Olam — Book Four (The Jewish Calendar)

Script: Sephardic semicursive, single primary hand throughout. Both folio sides are severely degraded by water staining, foxing, and ink bleed-through; large stained regions render substantial stretches of text only partially legible or illegible. Running text continues Chapter Eight (פרק ח, מאמר ד) on the seasons (tekufot) and their computation. Readings below are conservative; heavily damaged regions are flagged `[?]` and surfaced as

Right column (badly water-stained; only fragmentary reading possible)

[Damage: large water stain across the upper and central right column, ~10–12 lines with heavy text loss] In the matter of the season (tekufah), as it has been established, [?] one investigates the position of the planet [?] … the days of the [?] and the years [?] of the cycle (machzor) … [?]

and the difference (הפרש) between this season and that which precedes it [?] … and the remainder (השארית) [?] of the [?] portions (חלקים) … [Damage: ~3 lines

illegible] … and behold, the seasons (התקופות) [?] … the four seasons of the year [?] … and when you reckon [?] the season of the sun (תקופת החמה) [?] …

one knows [?] the [?] portion (חלק) that remains [?] from this and adds it [?] to that which is before it [?] … and behold the reckoning (החשבון) [?] … [Damage: stain, ~4 lines illegible] … and so [?] in every place (ובכל מקום) … and understand this (והתבונן) [?].

Left column (better preserved at top; degraded toward foot)

[Red ink: ונאמר] ("And we say"): When you wish [?] … the season [?] … and that the [?] … the [?] of the days [?] … [?]

the difference [?] which falls (שנופל) between [?] this season and that, [?] and the remainder of the portions [?] … [Damage: ~2 lines stained] … and behold, when you [?] add [?] … from the [?] cycle (מחזור) [?] … the [?].

[?] the season of [?] … [?] and you reckon [?] … each season [?] in its time [?] … and it has already been explained [?] to you [?] above [?] … that the seasons [?] … [Damage: ~3 lines illegible at the foot of the column].

Right column (top legible; large stain mid-column)

it was [?] … and behold the position [?] [?] of the [?] … in this [?] reckoning (החשבון) [?] … was [?] in the night [?] of the [?] of the seasons (התקופות) [?] … [?].

[Red ink: ונאמר] ("And we say"): When you wish [?] to know the [?] of the season [?] … take [?] the [?] … before [?] … [Damage: ~4 lines water-stained, heavy loss] … the [?] … and one adds [?] … the portion (חלק) [?] … and behold [?] … the [?] difference (הפרש) [?] …

[Damage: large central stain, ~6–8 lines largely illegible] … and the [?] of the seasons [?] … and so [?] in every place [?] … the four seasons [?] of the year [?] … and one knows [?] … and understand this [?] (והתבונן) … [?].

for [?] all [?] the [?] … the [?] is established (קבוע) [?] … and behold [?] … [?] from this [?] forward [?] … and the reckoning [?] … the [?] of the cycle (מחזור) [?].

Left column (degraded throughout; foxing and stain)

[Damage: ~5 lines water-stained] … and behold [?] … the season [?] … the portion [?] that [?] remains [?] from [?] this [?] … and adds it [?] to that [?] before it [?] …

and so [?] one does [?] in each [?] season [?] … and the difference (הפרש) [?] between [?] the seasons [?] … [Damage: ~3 lines illegible] … and the [?] reckoning (חשבון) [?] … and understand this (והתבונן) [?] … [?].

[?] the season of the sun (תקופת החמה) [?] … and the [?] … the rule (הכלל) [?] … [Damage: foot of column, ~3 lines illegible].

Yesod Olam — Book Four (The Jewish Calendar)

Sephardic semicursive hand. Book Four (calendar), Chapter Eight continues. Heavy water damage and ink fading on both folios; the right-hand column of the first page and large regions of the second page are severely degraded, with extensive bleed-through. Many readings below are provisional; the most damaged passages are flagged as rather than reconstructed.

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the reckoning concerning it, when one says that the season (tekufah) falls in a [given] place, this is the place in which it falls — understand this. [?]

For we have already established the seasons (the tekufot) and their places, [each] season in its place according to its degrees. So too the reckoning of the moon (?), since it has its quarter (revia) and its remainder [?] — and after this reckoning [?] further [?]. [?]

[and behold (?)] the days [?], and they shall be [?] for him [?], according to the reckoning [?] [several heavily faded lines — the passage continues to track day-portions and their carry-forward across the seasonal reckoning]. [?]

the seasons which fall, and one [season] [?] like the [first?] season [?]. [?] And by this means [?] you shall know [?] the season which falls [?] before [?] the seasons [?]. And so the reckoning [?] in [?] [?] of the day [?], that there is none [?] [?]. [?] [Damage: water stain, mid-column, ~2 lines partly lost]

The reckoning of the season [?] [?] in [?], that there is none [?] for it [?]. [?] And the remainder (he-otef, "the surplus") [?] [?] to it [?] of the [?] [?]. [?]

and bind (or: connect, ve-nikbatz [?]) [?] for the moon (?) [?], and likewise the season (?) [?] [several faded lines on the carrying-forward of the surplus portion]. [?]

another, and one [?] before [?] [?] [?]. [?] And the reckoning [?] [?] of [?] [?], that [?] [?]. [?]

[Damage: lower-left quadrant heavily water-stained, ~5 lines mostly illegible. The legible fragments continue the procedural treatment of the seasonal reckoning — "the reckoning" (ha-cheshbon), "the season" (ha-tekufah), "the place" (ha-makom), and "the day" (ha-yom) recur, but no continuous sense can be recovered at this resolution.] [?]

and so it is (ve-khen hu) in [every?] place [?], and understand this (ve-hitbonen). [?]

[The right column of p. 297 is badly degraded by water staining and ink loss. The opening lines mention a numeric value — "…six [and] ten/sixteen [שש עשרה (?)] …" — and continue the seasonal reckoning. A red lead-word appears partway down.]

[?] sixteen [?] [?]. [?]

[Red ink: ונאמר ("And we say") (?)] [the red lead-word opening a computational sub-passage is partly visible but its exact form is uncertain] [?] — and we say [?] [?] before (?) the seasons [?].

[?] and the reckoning [?] [?], and likewise [?] [?] [?]. [?]

[Damage: ~3 lines lost to water stain.]

[?] for him [?] upon [?] [?] [?]. [?] And [?] the season [?] [?]. [?]

[and we have already (?)] explained [?] [?] [?] another [?] [?], and the seasons [?] [?]. [?]

[Damage: middle of the right column, ~4 lines largely illegible. Recurring legible tokens: "the season" (ha-tekufah), "the day" (ha-yom), "the moon" (ha-levanah?), "the reckoning" (ha-cheshbon).] [?]

and behold [?] [?], one knows [?] [?] the season [?] [?] [?]. [?]

and so [?] [?] [?], and understand this. [?]

[Damage: lower right column, ~6 lines mostly lost to staining and fading. The procedural calendar vocabulary persists — seasons, reckoning, portions (chalakim) — but continuous translation is not possible here.] [?]

[Top of column, faded:] …the fifth [?] [?] and the season [?] [?], the day [?] [?], it shall be [?] drawn (nimshakh) [?] in the place [?]. [?] [And we have already (?)] renewed (chiddashnu) [?] [?] [?] the difference (ha-hefresh) [?] [?]. [?]

the season [?] [?] in the place [?] [?] [?]. [?]

the season [?] [?] [?] in the place [?] [?]. [?] [Damage: ~2 lines faded.]

[?] [?] another [?] [?] the moon (?) [?] [?]. [?] And it [?] [?] in (?) the day [?] [?]. [?]

[?] [?] the season [?] [?] for him [?] [?] [?]. [?] [several faded lines tracking the seasonal reckoning across places and days]

the difference (ha-hefresh) [?] [?] for him [?] [?]. [?] And the surplus [?] [?] [?] for him [?] [?]. [?]

the season [?] of the day [?] [?] [?] this [?] [?] [?] [?]. [?] [Damage: ~3 lines lost.]

[?] and there is none [?] [?] in [?] [?]. [?] And so [?] [?] [?] [?], and understand this. [?]

[Lower part of right column — heavily stained, ~8 lines fragmentary. Calendar procedural vocabulary recurs: the season (ha-tekufah), the difference (ha-hefresh), the place (ha-makom), the day (ha-yom), the reckoning (ha-cheshbon). No continuous sense recoverable.] [?]

[Top, faded:] …the moon (?) [?] [?] [?] [?] [?] [?]. [?] [?] in the place [?] [?] [?] for him [?]. [?]

the place [?] [?] for him [?], and so [?] [?] [?] of the season [?] [?], and the seasons [?] [?]. [?]

until [?] [?] [?] [?], and [behold (?)] [?] hours [?] [?] [?] and so [?] [?] [?]. [?]

[Here the column reaches the **diagram** (a circular figure with red-ink labels — see below). The text immediately above and below the figure names the figure's parts.]

Diagram. A circular figure in the left column, drawn as two concentric circles with a central point and a vertical diameter line descending from the inner circle to the lower edge. The labels are in **red ink**. At the top, above and within the figure, stands the caption/label *העבור* ("the intercalation / the leap-cycle"); on the left side a red-ink label *לדריהן* [?] (apparently "to their generation/cycle," le-

doreihen [?]); and at the foot a red-ink label *היסוד* [?] ("the foundation/epoch," ha-yesod [?]). The construction illustrates the cyclical reckoning of the intercalation (ha-ibbur). Smaller black-ink notations appear beside the circle but are too faded to read with confidence.

- (apex / top): [Red ink: העבור] ("the intercalation") [?]
- (left): [Red ink: לדריהן] ("to their generation/cycle") [?]
- (foot): [Red ink: היסוד] ("the foundation/epoch") [?]
- (center): central point with descending diameter line [unlabeled]

This diagram has 3 of 4 labels flagged [?]

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the day [?] [?] in the place [?] [?]. [?] [And we have already (?)] renewed (chiddashnu) [?] [?] [?]. [?]

the place [?] [?] for him [?], and so [?] [?] [?]. [?]

[?] [?] the moon (?) [?] in the place [?] [?] [?], and not [?] [?]. [?]

seven [?] [?] [?] [?] until [?] [?] another [?] [?]. [?]

[Damage: ~3 lines water-stained.] …the reckoning [?] of the season (ha-ibbur?) [?] [?] [?]. [?]

the seasons (ha-tekufot?) [?] [?] like the difference (ka-hefresh?) [?] [?] the eve (erev?) [?] [?] day [?]. [?]

the difference [?] [?] [?] [?] [?] [?] day [?] [?]. [?] And so [?] [?] [?], and the season [?] [?]. [?]

[Lower-left column — fragmentary, ~5 lines. The closing lines continue the seasonal/difference reckoning; legible tokens include "the season," "the difference," "the day," and a closing "and understand this" formula.] [?]

Yesod Olam — Book Four (The Jewish Calendar), Chapter Eight (continued)

*Vatican Library, Vat.ebr.380. Sephardic semicursive hand. Batch 150 — *

> **Readability note.** This is one of the most heavily degraded openings in the manuscript. The right column of p. 299 is washed by a broad

water/foxing stain through its lower two-thirds, and ink-fade plus bleed-through obscure many words throughout both columns. The translation below renders what can be read with reasonable confidence; large stretches are flagged `[?]` and the folio is marked a The two ruled boxes at the foot of the page (with red-ink labels) are transcribed as tables.

Right column (the column read first, right-to-left)

[?] So when the seasons (tekufot) [?] differ [?] one from another, the reckoning likewise [?] differs [?]. The matter [?] is not [?] in the [computation/reckoning] [?] than [?] this, and [?] the differences [?] when the seasons [?] [Damage: ~2 words illegible, water stain]. And [?] understand [?] that there is none [?] [Damage] and so [?] you shall find [?] [Damage] in the seasons (tekufot) [?] [Damage: ~1 line lost to staining].

and the matter [?] is that [?] when [?] the day-portions [?] are not equal [Damage] one [?] in the place of another [?] [Damage]. And [?] therefore [?] the [?] day [?] [Damage] [?] and after [?] another [?] [Damage] there [?] [Damage] little by little [?] until [?] [Damage] much [?].

[?] I have already [?] informed [?] you [?] of this, that [?] the difference [?] is [?] [Damage: ~2 words] in [?] the place [?]. For this reason [?] [Damage] one [?] of the wise men [?] said [?] [Damage] that [?] [?] [Damage: ~1 line illegible].

[?] between [?] the seasons [?] [Damage] the day [?] [Damage] [the sun's course] [?] [Damage]. And in every day [?] [Damage] [?] of the sun [?] as [?] [Damage]. And [?] each night [?] and day [?] [Damage] in [?] the [?] sign (mazal) [?] [Damage], so [?] [Damage]. And [?] not [?] [Damage] [?] of the [?] [Damage].

[?] and [?] in [?] every night [?] and day [?] [Damage] than [?] the wise men [?] [Damage] [?] [Damage]. And [?] not [?] [Damage] night [?] and day [?] [Damage] [Damage: ~1 word]. **And now [ועתה] [Red ink? — uncertain]** [?] [Damage].

[?] the moon (or: the white one) [?] [Damage] [?] [Damage]. And [?] [Damage] [?] [Damage] that [?] from [?] [Damage] like [?] the seasons [?]. And after [?] [Damage] the sun's course [?] [Damage] their [?] [Damage] [?] [Damage] in [?] [Damage] [Damage: ~1 line lost to water stain].

[Damage: ~3 lines at the foot of the right column are effaced by the water stain; isolated words "[?] season [?]", "[?] day [?]", "[?] the reckoning [?]" can be made out but not connected].

Left column (right-to-left)

[?] [Damage] and they [?] go out [?] in their seasons [?] [Damage] [?] when [?] one [?] in the place of another [?]. And [?] [Damage] [?] is [?] one [?] than [?] this, the other [?] [Damage] this [?] [computation] [?] [Damage].

and [?] [Damage] the strength [?] [Damage], for [?] [Damage] [?] [Damage] they go out [?] in their seasons (tekufot) [?] [Damage]. And [?] we [?] [Damage] [?] this [?] [Damage] in the [?] computation [?] [Damage] their [?].

[?] one [?] of the wise men [?] [Damage] in [?] them [?] [Damage] understand [?] [Damage] [?] [Damage] day [?] [Damage]. And the seasons (tekufot) [?] [Damage] in their [?] [Damage] [?] [Damage].

[?] [Damage] in [?] them [?] [Damage] [?] [Damage] the [?] [Damage] [?] place [?] [Damage]. And [?] [Damage] [?] [Damage] [?] [Damage] [Damage: ~1 line illegible].

and on every day [?] [Damage] [?] [Damage] the seasons [?], and so [?] the [?] [Damage]. And [?] [Damage] [?] day [?] [Damage] [?] is [?] [Damage] little by little [?] [Damage] until [?] [Damage].

[?] [Damage] the moon (or: the white one) [?] [Damage] [?] [Damage] [?] [Damage] [Damage: ~1 line]. And [?] [Damage] in [?] the [?] [Damage] [?] [Damage] one [?] [Damage].

and on every Sabbath [?] [Damage] of the [?] new-moon [?] [Damage] [?] [Damage], and so [?] [Damage] the seasons [?] [Damage] [?] [Damage].

[?] [Damage] [?] day [?] [Damage] [?] [Damage]. And [?] [Damage] [?] [Damage] the [?] [Damage] [?] the season [?] [Damage] [?] [Damage] [Damage: ~1 line].

and on every Sabbath [?] [Damage] [?] [Damage] [?] [Damage] [?] [Damage] [?] [Damage]. And [?] [Damage] [?] their [?] [Damage] [?] [Damage].

[?] [Damage] [?] [Damage] [?] [Damage] [?] [Damage] [the seasons] [?] [Damage] [?] [Damage] [Damage: ~1 line, water stain].

[?] [Damage] [?] hours [?] [Damage] [?] [Damage] [?] [Damage]. And [?] [Damage] [?] [Damage] he [?] receives [?] [Damage] the computation [?] [Damage] [?] [Damage].

[?] [Damage] of the [?] seasons [?] [Damage] [?] [Damage] [?] their [?] [Damage]. And [?] [Damage] [?] [Damage] he [?] receives [?] [Damage] the computation [?] [Damage] [?] [Damage] [?] [Damage] [Damage: foot of column lost to staining].

Lower box / table (foot of p. 299)

Two ruled rows of paired cells run across the foot of the column block, each cell carrying a short red-ink label followed by a black-ink phrase. These appear to be weekday-character / קביעה-type tabulated entries (day-of-week labels paired with a phrase), not gematria numerals. The red labels open with **יום** ("day of …"). The structure is reproduced; faded/uncertain cells are marked `[?]`.

[Red ink] label	Entry (black ink)
[Red ink: יום] [?]	[?] לדין [?] … של [?] שבת [?]
[Red ink: יום] [?]	[?] החל [?] בעבור [?] שבת [?]
[Red ink: יום] [?]	[?] החל [?] בעבור [?] שבת [?]
[Red ink: יום] [?]	[?] [?] בעבור [?] טובר [?] [?]
[Red ink: יום] [?]	[?] [?] שבת [?] בעבור [?] לדין [?]
[Red ink: יום] [?]	[?] [?] בעבור [?] [?] [?]

Box note. The red-ink heads are legible as the word *יום* ("day"); the black-ink remainder of each cell is largely effaced and only fragments (*שבת* "Sabbath/week"; *בעבור* "on account of / for the intercalation"; *לדין* "for judgment/reckoning") survive. Cell count and column pairing are approximate. **Marked as a**

Readability note. A large brown water/foxing stain covers the lower-right quadrant and bleeds up the gutter; bleed-through from the facing folio is heavy in the upper portion. The right column is more legible at the top than the bottom; the left column is moderately legible throughout its upper half and degrades toward the foot.

Right column (right-to-left)

[?] [Damage] [?] when [?] he [?] [Damage] so [?] [Damage] of the seasons [?] [Damage] [?] [Damage]. For [?] he [?] [Damage] [?] [Damage] [?] [Damage] of the [?] seasons (tekufot) [?] [Damage].

[?] [Damage] [?] their [?] [Damage] when [?] in [?] the [?] [Damage] the seasons [?] [Damage]. And [?] [Damage] [?] [Damage] he [?] receives [?] [Damage] [?] [Damage] when [?] [Damage] [?] [Damage].

This [?] is [?] [the matter] [?] [Damage]: [?] one [?] of the wise men [?], and [?] [Damage] [?] [Damage] [?] one [?] [Damage]. And [?] [Damage].

[?] to [?] them [?] [Damage] [?] [Damage] [?] [Damage] [?] [Damage] the [?] [Damage]. And [?] [Damage] [?] [Damage] [?] [Damage] [?] [Damage] [?] [Damage].

[?] on a Sabbath [?] [Damage] [?] [Damage] [?] [Damage]. And [?] [Damage] [?] [Damage] the seasons [?] [Damage] he [?] receives [?] [Damage] [?] [Damage] and they go out [?] [Damage].

[?] [Damage] of the [?] new-moon [?] [Damage] [?] [Damage] in [?] them [?] [Damage] [?] [Damage] [?] [Damage]. And [?] [Damage] [?] their [?] [seasons] [?] [Damage].

there is none [אין] [?] [Damage] [?] [Damage] [?] [Damage] [?] [Damage] [?] of the seasons [?] [Damage]. And [?] [Damage] [?] [Damage] [?] new-moon [?] [Damage] [?] [Damage].

[?] [Damage] [?] one [?] than [?] this [?] [Damage] one [?] [Damage]. And [?] [Damage] [?] the [?] seasons [?] [Damage] [?] [Damage] [Damage: ~1 line, water stain].

[?] [Damage] [?] [Damage] he [?] receives [?] [Damage] [?] [Damage] [?] [Damage]. And [?] [Damage] [?] [Damage] [?] [Damage] [?] [Damage] [?] [Damage] [Damage: ~2 lines lost to the lower-right water stain].

[Damage: foot of the right column is effaced by the brown stain; only isolated words "[?] season [?]", "[?] he receives [?]", "[?] the moon [?]" can be made out].

Left column (right-to-left)

[?] [Damage] for [?] [Damage] [?] [Damage] [?] [Damage] [?] [Damage]. And [?] [Damage] [?] they go out [?] in their seasons [?] [Damage] [?] one [?] in the place of another [?] [Damage].

[?] they [?] receive [?] [Damage] [?] [Damage] of the [?] seasons [?] [Damage]. And [?] [Damage] [?] [Damage] [?] [Damage] [?] [Damage] [?] in the [?] [Damage].

[?] [Damage] [?] [Damage] [?] [Damage] [?] [Damage] [?] [Damage]. And [?] one [?] of the wise men [?] [Damage] [?] [Damage] understand [?] this [?].

[?] [Damage] [?] [Damage] before [?] [Damage] [?] [Damage] the seasons [?] [Damage]. And [?] [Damage] [?] [Damage] in [?] the [?] [Damage] [?] [Damage] when [?] [Damage].

[?] [Damage] [?] [Damage] [?] [Damage] [?] [Damage] [?] [Damage] [?] [Damage]. And [?] [Damage] [?] [Damage] the seasons [?] [Damage] [?] [Damage] [?] [Damage].

[?] [Damage] [?] [Damage] [?] [Damage] hours [?] [Damage] [?] [Damage]. And [?] [Damage] [?] [Damage] [?] [Damage] [?] [Damage] [?] [Damage].

[?] [Damage] [?] [Damage] [?] he [?] receives [?] [Damage] [?] [Damage] the computation [?] [Damage]. And [?] [Damage] [?] [Damage] [?] [Damage] [?] [Damage] [?] [Damage].

[?] [Damage] of the [?] [Damage] [?] [Damage] [?] [Damage] [?] [Damage] [?] [Damage]. And [?] [Damage] [?] [Damage] of the seasons [?] [Damage] [?] their [?] [Damage].

[?] [Damage] [?] [Damage] [?] [Damage] [?] [Damage] [?] [Damage] [?] [Damage]. And [?] one [?] of the wise men [?] [Damage] [?] [Damage] [?] [Damage].

[?] [Damage] [?] [Damage] the moon (or: the white one) [?] [Damage] [?] [Damage] [?] [Damage]. And [?] [Damage] [?] [Damage] [?] [Damage] [?] [Damage] [?] [Damage].

and now [ועתה] [?] [Damage] [?] [Damage] [?] [Damage] [?] [Damage] [?] [Damage]. Until [?] one carries [?] / reckons [?] [Damage] [?] [Damage] a little [?] surplus [?] [Damage] [Damage: ~1 line at the foot, water stain].

Lower box / table (foot of p. 300)

A ruled box fragment at the foot of the left column, with red-ink labels, parallel to the box on p. 299. It is more heavily effaced; only fragments survive.

[Red ink] label	Entry (black ink)
[Red ink] [?]	[?] [Damage] [?]
[Red ink] [?]	[?] [Damage] [?]
[Red ink] [?]	[?] [Damage] [?]

Box note. Effaced beyond confident reading; structure reproduced for codicological completeness. The word **(?תהלה)** "[?] praise" or a catchword may stand at the lower-left margin. **Marked as a**

Translator's overview of the batch

Both pages continue the discussion of Chapter Eight on the seasons (tekufot): how each season falls on a different reckoning, how the day-portion (חלק) and surplus differ from one season to the next and are carried forward little by little until the difference (הפרש) accumulates, and how the resulting fixed weekday-characters (the קביעה-type entries in the foot boxes) follow. The argument repeats the chapter's earlier "one in the place of another," "little by little," and "one of the wise men said" formulae. Because of the severe water/foxing damage and bleed-through across this opening, only the structural skeleton and recurring vocabulary are recoverable with confidence; the connected sense of most lines is not. The two folios should be reprocessed at higher resolution in further review.

Yesod Olam — Book Four (The Jewish Calendar), Chapter Eight (continued)

Vatican, Vat.ebr.380, ff. 148r–[148v]. Sephardic semicursive hand. Two columns per page, read right-to-left. Heavy water-staining and foxing through the central and lower portions of both leaves; the diagonal Vatican watermark and verso bleed-through are ignored throughout. Many readings in the damaged bands are conjectural and flagged [?]; both leaves are degraded enough to be

Right column

and now that you have set this out, consider further. If the [number of] days of the season [תקופה] together with the surplus [carried forward] should fall on such-and-such a weekday, then know that the season belongs to that day [?]. By contrast, if the days of the season exceed [that count], then the surplus is added on, and the [reckoning of the] season is governed accordingly [?].

The matter, then, is this [?]: the season together with its surplus, when it falls upon the weekday in question, is fixed for that day; and if it overruns, the excess is set down and carried to the day that follows [?]. Examine this carefully and you will not err [?].

[Several lines here are obscured by water-staining and faded ink in the lower-right of the column; the surviving words speak of the surplus (מותר), the day-portion (חלק), and "the day that comes after it" (ביום שיבא אחריו), but the connected sense cannot be recovered with confidence — [?]]

[Red ink:] **וחחר** [a red-ink rubric word, conjecturally וחזר / "and he returns/repeats," or a section catch-rubric — letters not securely legible, [?]].

He recounted the matter of the [solar] season and demonstrated [?] its computation [?]. He returned [?] to [explain] the [reckoning of the] season: each season is [reckoned at] ninety-one days and seven and a half hours [?]. Thus you take the [days of the] season together [with the surplus], and you cast out [?] complete weeks; whatever remains over and above the weeks is the [weekday] character of that season [?]. And the surplus of hours [?] is carried over from one [season] to the next [?].

I have already explained to you [?] that the season [extends] up to such-and-such a day, and the surplus that remains [carries forward]. Consider this [?].

Furthermore [?], R. Yitzchak [?] said [that] the matter stands thus [?]. He set down [?] the day-portions [חלקים] and the [completed] weeks [?], and [reckoned] the season from the [accumulated] portions; whatever the portions [amount to is] the [weekday] character of the season [?]. The [reckoning] proceeds in proper order [?], one [season] to the next, so that you may grasp the matter rightly [?].

[Two lines obscured by the central water-stain — [?].]

The reckoning [?] from the [solar] season [is] just so [?]: take it [from one day], and it falls upon the next day [?]; you add upon it the [surplus] portions, and it is fixed [accordingly] [?]. Set this down [?] correctly [?].

For the surpluses [שיותרים] [accumulate] from season to season [?], in their proper order [?]; and from them [you derive] the [weekday] character [?]. Beware [?] lest you err in the days of the season [?]. Consider it well, and you will not stumble [?].

Left column

[The left column of f. 148r is more heavily damaged — water-staining runs through its lower two-thirds, and several lines are effectively lost. What follows is partial.] until the day of the season and its surplus, on such-and-such a day [?]. Thus [?]: the season [falls] in its [proper] place [?] — and if it falls short [?], you set it [back] one weekday [?].

If the day [of the season together with its portions] should fall on such-and-such a day [?], and the portions remain [over] [?], the day [is fixed] in its place [?], and [the surplus is carried] to its place [in the next reckoning] [?]. Examine this [?].

[A long stretch — roughly six to eight lines through the middle of the column — is illegible owing to the water-stain and faded ink. Recoverable fragments mention עמד ("it stood/was fixed"), חלקים ("portions"), הפרש ("the difference"), and לבנה ("moon/month") [?]. The connected argument cannot be recovered — [?]] in the place of the season [?], for it [stands] thus [?]. The matter [?] is fixed [?] in its place [?], and you set it down so [?].

I have already explained to you the rule [הכלל] [?]: that the day-portions [accumulate] from the season [?], up to the day of the season [?], with the surplus [?]. The reckoning [proceeds] thus [?].

He said [?]: the rule [הכלל] [?] is the day of the season [?] together with its [day-]portions, [reckoned] from the [solar] season [?]; and whatever the portions [amount to is] the [weekday] character [?]. The day [is] in its place [?].

Right column

[Red ink:] **וחחד** [red-ink rubric opening the column — conjecturally **וחזר** ("and he returned/repeated") or a chapter catch-rubric; the third and fourth letters are not securely legible, [?]]. He concluded [?] the matter of [the season of] Tishrei [תשרי] [?], and returned [?] to [the matter of] the months [?].

Thus [?] the rule [stands]: the season is [reckoned at] ninety-one days and the surplus [?] — the matter [is] correct [?], for the moon [?] [?]. Bear in mind [?] that the rule of the season [?] — its surplus [?] [is carried over] — and you will not err [?].

[Several lines obscured by the upper-central stain — surviving words: החמה ("the sun"), התקופה ("the season"), חלקים ("portions"), and מותר ("surplus") — [?].]

He removed [?] the [accumulated] surplus [?] from the reckoning [?], and set down [?] the day-portions [?]; and [reckoned] the season from the portions [?]. The matter [stands] thus [?] for the seasons [?], and it is correct [?]. Beware [?] lest you err.

I have already explained the [reckoning of] the season [?], up to the [weekday] character [?]. And now [?] consider it [?] in its proper order [?].

R. Yitzchak [?] of blessed memory [ז"ל] said [?] [several words lost] [?]. And [the matter of] the season [?] — its surplus [?] [carries over] [?]. He said [?]: [the matter is] thus [?].

[A line carries a name flagged for verification:] R. Yitzchak [רבי יצחק] [?] said [?] — [identification of the cited authority uncertain; the surrounding words discuss the season and its surplus, so this may be the author's own first name rather than a cited authority — [?], further verification.]

[Several further lines through the middle of the column are obscured by the heavy central stain. Recoverable fragments: קודם ("before/prior"), הקפה ("revolution/circuit") [?], החמה ("the sun"), חבור ("conjunction") [?], and ביום ("on the day") — [?]]

The day of the season [?] — its surplus [?] — falls [?] [on] such-and-such a day [?]. And if it falls short [?], it is set [back] [?] one day [?]; and if it overruns [?], its surplus [?] [is carried] to the [next] day [?]. until the day of the season [?], the surplus [?] [is reckoned thus] [?]. Bear in mind [?] the day of the season [?], that you may grasp [?] [the matter] [?].

The day-portions [?] [accumulate] from the season [?] up to the [weekday] character [?]; and [the matter] is correct [?]. If [?] the [season together with its surplus] [is] thus [?], it is fixed [?] in its place [?]. Examine [this] [?].

[Two short lines, much faded, on the day of the season and its surplus — [?].]

The day-portions [?] — and the surplus [?] [carries] from season to season [?] — [you] take [?] the day-portions [?], the [accumulated] surplus [?]. Consider it [?] and you will not err [?].

Left column

The seasons [?]: their surplus [?] [accumulates] from one [to the next] [?], up to such-and-such a place [?] [or "day"], so [?] the day-portions [?] [carry forward] [?]. Thus [?]: the season [falls] in its place [?], and if it falls short [?], you set it [back] one weekday [?].

[A long water-stain runs through the upper-middle of this column; several lines are lost.]

If [?] the day [of the season] should fall thus [?], the portions [remain] over [?]; and the day [is fixed] [?] in its place [?]. The surplus [?] [carries] to its place [?]. Examine [this] [?]. the rule of the season [?] — and its surplus [?] [carries over] — and so [?] for the months [?]. Whatever [the portions amount to] [?] is the [weekday] character [?]; and the day [stands] in its place [?].

[Through the middle of the column, the water-stain again effaces several lines. Recoverable fragments: יעקב ("Yaakov") [?], הקפה ("circuit/revolution") [?], החמה ("the sun"), הלבנה ("the moon"), הכלל ("the rule"), and עמד ("it was fixed") [?]. The connected sense cannot be recovered — [illegible] in the place of the season [?], for it [stands] thus [?]. The matter [is] fixed [?] in its place [?], and you set it down so [?].

I have already explained to you the rule [?]: that the day-portions [accumulate] from the season [?] up to the day of the season [?], together with the surplus [?]. The reckoning [proceeds] thus [?].

The rule [הכלל] [?] is the day of the season together with its portions [?], [reckoned] from the [solar] season [?]; and whatever the portions [amount to is] the [weekday] character [?]. The day [stands] in its place [?].

[A short concluding clause, much faded, on the day of the season and the rule — [illegible]. The foot of the leaf carries a catchword.]

Editorial note: Both leaves of this batch are pervasively damaged by water-staining and ink-fading through their central and lower bands. The surviving text is a continuous, highly repetitive exposition of the tekufah (season) reckoning — the 91-day-and-7½-hour quarter-year, the carrying-forward of the surplus (מותר/הפרש) from one season to the next, the accumulation of day-portions (חלקים), and the resulting weekday-character (קביעה) of each season. Because the passage is so formulaic, the general drift is recoverable even where individual clauses are lost, but the specific numerical illustrations and the identity of any cited authority are not securely legible. The whole batch is submitted as a

Yesod Olam — Book Four (Jewish Calendar), continuation of Chapter Eight

Vatican, Vat.ebr.380 — Sephardic cursive hand. Batch 152, (digi.vatlib.it images 0303–0304; foliation marker "149" visible in upper-left margin of p. 303).

PDF p. 303 (fol. 149r)

[Marginal foliation, upper-left: 149]

General readability note for this page. The text block is crossed diagonally by the Vatican Library watermark band, which runs through the middle and lower portions of both columns; the lower third of the leaf shows water-staining and foxing, and the iron-gall ink is substantially faded throughout. The left column in

particular is degraded to the point that continuous reading is not possible at this resolution. What follows is a partial reading; large stretches are flagged `[?]` and the page is marked a

Right column (read first; somewhat more legible)

The passage continues the reckoning of the seasons (*tekufot*) and the moon from the preceding batch. The discussion turns from the solar quarter to the position of the planet/luminary and the casting-out of whole weeks.

the sign(s) [מזל/מזלות?] and [?] within it [?] … this [?] [?] this [?]. [?]

the season [התקופה?] … [?] every [?] … [?] [?].

[?] when the [?] [?] … and there came out [?] … [?] to them [?].

[A connected stretch of roughly fifteen to twenty lines of running prose follows here. The hand is legible in places but the watermark band and ink fade prevent a confident continuous reading. Recognizable calendar vocabulary recurs — among the readable tokens: התקופה ("the season"), הלבנה ("the moon"), החמה ("the sun"), חלקים ("portions/*chalakim*"), מולד ("conjunction/*molad*"), and what appears to be a reference to a named authority or to "one of the wise" — but the syntactic connections binding them cannot be recovered with confidence. Transcribed verbatim where possible below; otherwise `[?]`.]

and there it is established [נקבע?] [?] … the moon [הלבנה] … he, the [?] [?]. [?]

[?] [?] … and likewise [וכן?] [?] … [?].

and he made [ועשה?] [?] … the *molad* [המולד?] [?] … [?].

[possible reference: "and the season of the [?]" — וחזר? — and it returns [?]] … [?].

the moon [הלבנה] [?] … [?] every [?] [?].

Left column (severely degraded — watermark band + fade)

[Damage / watermark: this column is crossed by the diagonal watermark band and shows heavy ink fade; continuous reading is not possible. Approximately twenty-plus lines.]

[?] … and likewise [?] … there [?] [?].

[?] the [?] [?] … [?] from the [?] [?].

[?] … and [?] [?] … [?].

[isolated readable tokens across this column: הלבנה ("the moon"), התקופה ("the season"), חלקים ("*chalakim*"), קודם ("before/prior"), שעות ("hours"), and what may be a numeral string that cannot be read letter-by-letter with confidence — therefore not transcribed as a value.]

[?] … and the season [והתקופה?] [?] … [?].

[?] … [?] hours [שעות?] [?] … [?].

[Lower-left, final lines, partly under foxing: a red-ink token appears mid-text — possibly a recap/structural word — `[Red ink: ?]` — followed by …ועתה ("and now") and `[?]`. Cannot read with confidence.]

PDF p. 304 (fol. 149v)

General readability note for this page. As with the recto, a diagonal watermark band crosses the text block (lower-left quadrant most affected), with water-staining at the lower margin and general ink fade. The right column is the more legible of the two. The single word העשרות appears at the foot of the left column, set off below the text block — it functions here as a catchword. Continuous reading is again only partial; the page

Right column (more legible)

The seasons/tekufot reckoning continues, with attention to the moon, the conjunction (*molad*), and the carrying-forward of surplus portions from one cycle to the next.

[?] … the calculations [החשבונות?] [?] … and within it [ובתוכה?] [?] … [?].

the moon [הלבנה] [?] … and likewise [וכן] [?] … [?] before [קודם?] [?].

and the moon [והלבנה?] [?] … then [אז?] [?] … the conjunction [המולד?] [?].

[A connected stretch of roughly fifteen lines follows. Readable calendar vocabulary recurs — התקופות / התקופה ("the season(s)"), הלבנה ("the moon"), החמה ("the sun"), המולד ("the *molad*"), חלקים ("*chalakim*"), שנים / שנה ("year(s)"), קבוע / קביעה ("fixing/fixed") — but the connecting syntax is not recoverable with confidence under the watermark band and fade. Where individual phrases can be read they are given; otherwise `[?]`.]

and it returns [וחזר?] [?] … the season [התקופה] [?] … [?].

[?] … every [?] … and there is not [ואין?] [?] … [?].

[?] … the moon [הלבנה] [?] … [?] portions [חלקים?] [?].

[?] … then [?] … [?] the conjunction [המולד?] [?].

[possible numeral string here — not read letter-by-letter, therefore not transcribed as a value] … hours [שעות?] [?] … and portions [וחלקים?] [?].

[?] … the year [השנה?] [?] … common [פשוטה?] or intercalated [מעוברת?] [?] [reading of the מעוברת / פשוטה pair is plausible from context but not certain — [?]].

Left column (degraded — watermark band, lower-left water damage)

[Damage / watermark: heavy fade and the diagonal band; the lower-left quadrant additionally shows water-staining. Continuous reading not possible.]

[?] … and likewise [וכן?] [?] … the season [התקופה?] [?].

[?] … the moon [הלבנה] [?] … [?] before [קודם?] [?].

[?] … [?] hours [שעות?] [?] … [?].

[isolated readable tokens: התקופה, הלבנה, המולד, חלקים, קביעה, שעות; and what reads as ועתה ("and now") roughly two-thirds down — but the surrounding prose cannot be reconstructed.]

[?] … [?] … [?].

Yesod Olam — Book Four (The Jewish Calendar), Chapter Eight (continued)

PDF p. 305 (folio numbered "150" in upper-left margin)

This leaf is heavily damaged: a large brown water-stain occupies most of the right-hand column, the Vatican watermark band crosses the center, and the Sephardic cursive ink has faded throughout. Most of both columns is illegible at the source resolution. Only isolated, partly-secure readings are recoverable; the connected prose cannot be reconstructed without distortion. What follows is a conservative partial transcription with the bulk of the text flagged [?].

Right column (p. 305)

The right column is the more degraded of the two — the water-stain covers roughly its lower two-thirds. Recoverable tokens, in reading order, include calendar-procedure vocabulary consistent with the chapter on the seasons (*tekufot*):

- … the day on which … [?] …
- … the moon (הלבנה) … [?] …
- … the season / *tekufah* (התקופה) … [?] …
- … hours (שעות) … and chalakim (חלקים) … [?] …
- … before (קודם) … [?] …
- … the surplus / difference (הפרש) … [?] …

A passage near the column's lower third carries an emphatic phrase set off in what appears to be a slightly heavier stroke: `[?]` (והאמת) — "and the truth (is) …" `[?]` — followed by illegible continuation. The reading of this rubric-like word is uncertain; further identification requires further verification.

The remainder of the right column — approximately 18–20 lines — is not legible. `[?]`

Left column (p. 305)

The left column is somewhat clearer at the top but fades and is crossed by the watermark lower down. Recoverable material is again isolated calendar vocabulary:

- … the day on which … [?] … as it falls (כמו שיפול) [?] …
- … the calculation (החשבון) [?] … hours (שעות) … and chalakim (חלקים) [?] …
- … and after this (ואחר זה) [?] …
- … the season / *tekufah* (התקופה) [?] …
- … and you shall add (ותוסיף) [?] / and there will be (ויהיה) [?] …
- … the chapter (הפרק) [?] — appears mid-line; treated as body prose ("the chapter"), **not** a display heading …
- … the calculation (החשבון) [?] … until now (עד עתה) [?] …

The connected sense of the left column cannot be securely reconstructed. The visible vocabulary (season, hours, chalakim, calculation, surplus) is consistent with the prior batch: the running procedure for computing the solar seasons

(*tekufot*) and carrying forward surplus chalakim across common and intercalated years. [?]

PDF p. 306 (verso)

This leaf is comparably damaged: a large water-stain and the watermark band dominate the right column and the lower-left, with fading throughout. As on the recto, only isolated tokens are securely recoverable.

Right column (p. 306)

Heavily stained and faded across most of its height. Recoverable tokens:

- … in the chapter / *perek* (בפרק) [?] … intercalated (מעוברת) [?] …
- … hours (שעות) … and chalakim (חלקים) [?] …
- … the season / *tekufah* (התקופה) [?] …
- … the moon (הלבנה) [?] …
- … and we shall say (ונאמר) [?] …
- … the difference / surplus (ההפרש) [?] …
- … and behold (והנה) [?] …

A short phrase low in the column appears to read [?] — (ועתה התבונן) "and now, consider …" — a discourse formula matching the established glossary, but the reading is partly obscured by the stain. [?]

The remainder of the right column is illegible. [?]

Left column (p. 306)

- [First line, partly legible:] … and the moon (והלבנה) [?] … the season / *tekufah* (התקופה) [?] … in the chapter, the surplus / *bekutah ha'odef* [?] …
- … the season (התקופה) [?] … in [number] hours (בכ[ ] שעות) [?] … and chalakim (חלקים) [?] …
- … and after this (ואחר זה) [?] …
- … and you shall reckon (ותחשוב) [?] … the calculation (החשבון) [?] …
- … the moon (הלבנה) [?] …
- … the surplus / difference (ההפרש) [?] …
- … the day of … [?] …

A phrase near the lower-middle of the column appears set off: [?] (… הרב זה היה) — "this Rav was …" / "the Master here …" [?] — possibly a citation lead-in, but the name (if any) is illegible and **no named authority can be read letter-by-letter**.

Per the marginalia/citation discipline, this is recorded only as a possible citation formula; further identification requires further verification. [?]

The lower-left of the column carries a faint mark [?] at the foot — possibly a **catchword** or quire signature, but it is too degraded to transcribe. Below the column, in the bottom margin, is a small librarian/foliation mark [?].

The connected prose of the left column cannot be securely reconstructed. The recoverable vocabulary continues the *tekufot* computation (season, hours, chalakim, calculation, surplus, moon). [?]

Yesod Olam — Book Four (The Jewish Calendar)

> Sephardic semicursive hand the right-hand column is read first, then the left-hand column. Folio 307 is foliated "151" in the upper-left margin (the manuscript's own running foliation, offset from the ount). Both pages carry the Vatican watermark overlay and show water-staining and ink bleed-through; affected passages are flagged under Readability. Numerals are transcribed with care and flagged [?] where the glyph is genuinely ambiguous.

Right column (read first):

then the surplus that the seasons (tekufot) yield over the [common] years will be plain to you, and likewise [the surplus] reckoned [?] for the [intercalated] years. So fix this difference in your reckoning. [?]

When you have grasped how the seasons run and how the surplus accrues across the years, you will be able to derive the moment of each season — both for the common year and for the intercalated year — and to know where each falls in the day. [?]

The amount by which the solar year exceeds the lunar year — that is the difference you must add. And the season that precedes [the present one], if it fell on such-and-such a day, the [next] season after it will fall a fixed interval later. [?]

So if a season falls on the first day [Sunday], the season after it [will be displaced]; and reckoning from it [?], the [following] season comes out on another day. [?] [Damage: lower right, water-staining; ~several words obscured per line.]

[Red ink header — shaʿar / section rubric, right column]: שער — "Gate"

[Red ink: שער — "Gate"] On the order of the seasons [or: of the festival-fixing] [?], the gate of … [?] before the season … the order [?].

Whether for the common year or the intercalated year — the reckoning is one and the same. We have said [it] for the common year, and the same [holds] for the intercalated; for the surplus does not [vanish] [?] … another. [?]

Behold — and reckon by it: For the [day of] the season [tekufah], if it was on the eve [erev] [?], you have it; and reckon from it across the months, month by month, so that you may know the day of each season [?] and the [hour]. So [proceed] [?] … And reckon for the common [year] … another. [?] [Damage: water-stain through the foot of this column; ~3–4 words per line uncertain.]

For the surplus [that the] solar [year carries], when you add it [?] … to the [reckoning], it will [?] … reckon for it. And [there is] still [a further] surplus … [?]

Left column (read second):

[Red ink header:] פרק תשיעי — Chapter Nine

[Red ink, sub-rubric beneath the heading: "בהכרת הפרקים והיסודות שעליהם …" — "On knowing the [calendrical] periods and the foundations (yesodot) upon which they [rest] …"] [?]

[Red ink, opening words of the chapter:] **התחבון [?] הקטן והחזק [?] שאיקרו לנו … [?] קבל[ה] לקביעת [?] ראשי [?] התקופות והחדשות** —

The lesser reckoning and the firm one [?], which have come down to us by tradition (kabbalah) [?] for the fixing of the heads of the seasons and the [new months] [?] … [Damage / red-ink fading: the rubric is the most degraded text on the page; iron-gall red has faded faster than the surrounding black.]

It is established for us in this matter [?] that there is [a fixed reckoning]. This [practice] was [the way], inasmuch as the early sages [?] arranged [?] For he gave to you [?] … from the [reckoning] of the seasons [?], so that you may know each season [?]. [?] … And he [established] [?] … in their [proper] order [?]. [?]

And reckon: the surplus is [?] … the [day] of the season [?]. … [?]

[Red ink mid-column rubric:] כלל" / [?] נ"ח" — "Rule" [?]

[Red ink: כלל — "Rule"] But this [?] … so that you may discern [?] for yourself the [season] [?], and by … [?]

the days [?] that [?] … the season [?] of [?] … [Damage: ink bleed-through heavy through the middle of this column.]

We have [already] established [?] their reckoning [?]; behold, this [?] … the [surplus] increases [?] … And [?] … reckoned [?].

[Second hand / interlinear?:] [?]

After the [reckoning] [?] … behold [?], this [?] … the [season] [?]. … And upon [?] … by hand [?] … [Damage: ~lower third of left column, water-stain; multiple words per line uncertain.]

So [you have it]: a fixed [character] [?] in this; and this is [?] … the [surplus] [?] … For [?] another [intercalated reckoning] [?] … And another [?] until [?] … the order [?]. And reckon for it [?] … by [?] …

Before it [?] … the [reckoning] [?] … the foundations (yesodot) [?] … [?]

These are the foundations (yesodot), and the [order] [?] … [Damage: foot of left column water-stained.]

[facing folio]

Right column (read first):

What [?] … explained [?] … the [reckoning] [?]. So [?] … here [?] … thus [?]. [Damage: top of right column water-stained, ~first 2 lines partly lost.]

[?] … and the [season] [?] … the [reckoning] [?] … And the day of the season [tekufah] [?] … or [if it fell] [?] before [?] … the season [?]. [?]

[?] … behold [?] … the day [?] … [?] … And there is in it [?] … [?] In the year [?] … And it [?] … in their [reckoning] [?].

[the people of] Israel [?] / [a verb form] … explained [?] … in [their] reckoning [?] … due to water-staining.] [?] So when [?] … the surplus [?] … common [year] [?] … (interlinear: short addition above the line) [?] … reckoning. [?]

And [?] … in [their] reckoning [?] … the [day] of the season [?] … behold [?] the [surplus] [?]. [?]

Behold, the [reckoning] [?] … the [seasons] [?] … and the festival-fixings (keviʿot) [?] … and they [?] … the [seasons] [?] … [?]

In [the] [?] … by [?] … the foundations (yesodot) [?] … behold [?] … the [reckoning] [?]. [?]

[Damage: water-stain through the foot of the right column; ~4 words per line uncertain.]

Left column (read second):

[?] … and [?] … the [reckoning] [?] … behold [?] … [Damage: top-left water-stain.]

[Red ink heading:] פרק י"א [?] — Chapter Eleven [?] — or **פרק י"ג** [?] [The chapter numeral here is genuinely ambiguous: the gershayim placement and a fading red letter make either י"א (11) or י"ג (13) defensible. Transcribe verbatim and flag — This also outpaces the left-column heading on the facing folio ("Chapter Nine"); a dual שער/פרק counter and/or running-header/body-heading divergence is likely.]

[Red ink sub-rubric: "בחשבון העבור …" — "On the reckoning of the intercalation (ʿibbur) …"] [?]

It came down [?] … the [reckoning] of the season [tekufah] [?], and [it was] established [?] … the early [sages] [?] … in [their] reckoning [?] … For he [gave] [?] … to you [?] … another [?]. [?]

For the [season] [?] … if it [fell] [?] … the [reckoning] [?] … And reckon [?] … the [surplus] [?] … common [?] … [?]

[?] … And [there is] in it [?] … the [day] [?] … the season [?] … another [?]. So [?] … the [reckoning] [?] … and [the surplus] [?] … And [?] … the [foundations] [?] … [?]

Whether [?] … the [reckoning] [?] … behold [?] … this [?]. [?]

And reckon [?] … each [?] … the [season] [?] … the [day] of the season [?] … [Damage: middle-left water-stained.]

[?] … and the [festival-fixing] [?] … and [?] … the [reckoning] [?] … behold [?] … [?]

until [?] … the order [?] … And reckon for it [?] … by hand [?] … the foundations (yesodot) [?] … [?]

These are the foundations, and [?] … the [reckoning] [?] … the [season] [?] [?] [Damage: foot of left column heavily water-stained; final ~4 lines largely illegible.]

Yesod Olam — Book Four (The Jewish Calendar)

Script: Sephardic semicursive, single primary hand. Red ink used for structural rubrics and emphasized lemmata. Both pages are two-column, reading right-to-

left. Heavy water-staining and edge wear affect the inner gutter columns and the lower third of both leaves; in those zones the iron-gall ink (and especially the red rubric ink) has faded substantially. Marginal foliation "152" visible top-left of p. 309; a faded running rubric "פרק" appears at the top of p. 309 and "מאמר ד" at the top of p. 310.

[Damage: water stain and fading, opening words largely illegible] and afterward when [?] the day of that [year] [?] [Damage: ~3 words lost]. The day of the season (tekufah) falls within the reckoning [?], and similarly [?] when the seasons recur in their order [?] for the [solar] surplus of the year [?] [Damage: ~2 words]. And the seasons [?] from [the] new-moon conjunction (molad), or [?] when the season precedes the conjunction [?] [Damage].

Therefore [?] the conjunction falls on this day [?]; and behold [?] [Damage: ~2 words] within the order of the seasons [?].

[Damage: ~1 line largely effaced] [?]. But [?] when you reckon [?] them — between the [?] reckoning [?] and that of [?] [Damage: ~2 words] [?] the conjunction. Or [?] when [?] the season [?] is fixed [?], let it be for you [?] [Damage].

and afterward [?] the day [?] of [?] the season [?] (interlinear: יקדם — "precedes" (?)) [?]. And behold [?] [Damage].

By the season [?] of [?] the [first] reckoning — and behold this [?] [Damage: ~2 words] [?] from [?] the season [?] [?].

[Damage: water stain across mid-column, ~1 line lost] [?].

[?] [Damage] and they [?] from [?] the season [?] [Damage]. The day [?] [?] [Damage: ~1 line, heavily stained] [?].

[The lower portion of the right column — approximately the final 6–8 lines — is severely water-damaged; only scattered words are legible: "the season" (התקופה) [?], "the day" (היום) [?], "the reckoning" (החשבון) [?]. The continuous sense cannot be recovered at this resolution.]

[Red ink: נח אלהינ֫] [?] — [a red-ink lemma opening the column; the reading is uncertain owing to rubric fading. Possibly נח֫ אלהינו or a structural marker.]

then [?] he reckoned upon [?] [Damage: ~2 words] [?]. And it shall be [?] one season [?] [Damage], and there shall be [?] [Damage: ~2 words] [?].

One time after another, and [?] [Damage] [?] within [?] the order [?] of [?] the conjunctions [?]. [?] [Damage: ~2 words], for [?] this is [?] [Damage].

And after [?] one reckoning [?] [Damage] another [?] [Damage], for the surplus [?] of [?] the year [?] [Damage].

[Damage: ~1 line stained] [?], and when [?] you fix [?] them [?] [Damage]. And the day [?] [?] [Damage].

[The remainder of the left column — roughly its lower two-thirds — is interrupted by a broad water stain and fading. Continuous legible runs are short; recurring legible words include: "the day(s)" (ימים/היום), "the season" (תקופה), "the reckoning" (חשבון), "fixed/established" (קבוע), and what appear to be weekday/festival markers. The internal logic suggests a worked example matching dates of the seasons against weekdays, but the specific numerals and weekday-letters cannot be read with confidence. Several short legible fragments:]

[?] every [?] day [?] [Damage] until [?] [?] the day [?] of [?] the season [?]; and so [?] [Damage].

[?] and the day [?] [Damage: numeral/weekday-letter illegible] [?], and the day [?] [Damage].

[?] from [?] one season [?] to [?] another season [?] [Damage], and [?] [Damage].

[?] until [?] [Damage] in [?] the [?] reckoning [?] [Damage] that [?] this is [?] [Damage].

[Damage: the final ~3 lines of the left column are effaced by the lower water stain; not recoverable here.]

[Damage: top line stained] [?] their reckoning [?] [?] [Damage: ~2 words] and [?] until [?] [Damage].

[?] their conjunction [?] [?] [Damage] [?] until [?] the season [?] of [?] the conjunction [?] [Damage]. [?] another [?] [Damage].

[?] but [?] then [?] [Damage: ~2 words], and [?] R. Yitzchak [?] said [?] [Interlinear / Second-hand correction (?): a short supralinear insertion above this line is present but illegible]. And [?] the seasons [?] [Damage].

The way [?] to understand [?] this [?] [Damage: ~2 words] [?] when [?] [Damage] within it [?].

In the [first] reckoning [?] [Damage: ~2 words] — one [?] [Damage] another [?] [Damage], or [?] it shall be [?] [Damage].

[?] when you have reckoned [?] [Damage], and [?] there is in this [?] [Damage] from [?] [Damage].

The order [?] [Damage: ~2 words] [?] the conjunctions [?] [Damage]; and behold [?] the day [?] [Damage].

[?] for [?] this [?] is [?] [Damage] the [?] reckoning [?] [Damage] [?].

[?] and the day [?] of [?] the season [?] [Damage], and the day [?] [Damage]. The remainder [?] is [?] one [?] [Damage].

[Mid-column, ~6 lines: heavily stained. Legible recurring words: "the season" (תקופה), "the conjunction" (המולד) [?], "the day" (היום), "another" (אחרת/אחר). Continuous sense not recoverable.]

[?] he reckoned [?] [Damage] for [?] the second [?] [Damage], and the [?] reckoning [?] [Damage].

[?] the surplus [?] [Damage: ~2 words], and [?] the day [?] [Damage] [?].

[The left column of p. 310 is the most legible region of the batch and contains a structured passage built on a red-ink lemma repeated down the column — apparently the letter-code שׁ / שׁנה (a weekday/קביעה-character marker) recurring as the anchor of a list. The rubric ink is faded but the structure is clear.]

[Damage: top line] [?] and the completion [?] of the reckoning [?] [Damage], or [?] [Damage].

And it shall be [?] [Damage: ~2 words], the foundation [?] of [?] the conjunction [?] like [?] the foundation [?] [Damage]. And it is [?] [Damage].

[?] this [?] [Damage] like [?] the foundation [?] of [?] [Damage] [?]. [Red ink: שׁנה] [the weekday-character code שׁנה, marking a קביעה / fixed-date pattern; not a gematria value]. And it shall be [?] complete [?].

In its completion [?] [Damage], [Red ink: שׁ] — chapter / lemma [?]. And it shall be [?] [Red ink: שׁ].

[Red ink: שׁ] [Damage]. And this [?] [Damage] like [?] the foundation [?] [Damage].

And similarly [?] [Damage] when [?] it is [?] complete [?] [Damage], and [Red ink: שׁ].

And it shall be [?] [Red ink: עׂב] [the code עׂב, likely a leap-year (מעוברת) marker]. Its rule [?]: [Damage]. And in [?] the completion [?].

The lemmata [?]: [Red ink: שׂב] — namely [?] [Damage], or [?] it [?] [Red ink: שׁ], or [?] it [?] [Damage].

[?] [Red ink: שׁ] [Damage] or [?] [Red ink: עׂב] or [?] [Red ink: שׁ] in their [?] order [?].

[Red ink: שׂב] — the [?] foundations [?]. And [?] [Red ink: שׂבׂע] [?], the [?] [Damage].

[?] [Red ink: שׁ] [Damage]. And [?] [Red ink: שׁ] — and [?] the [?] week [?] (שבוע) [?].

[A run of short list-entries follows, each opening with the red-ink letter-code שׁ / עׂב / שׂב and a weekday-numeral. The numerals are partly legible but, given the fading of the red rubric ink and the ambiguity of the weekday-letter codes against the stated scribal caveat (this hand's ש loses its left stroke and resembles ע), the values cannot be matched to days with confidence:]

- [Red ink: שׁ] — day(s) [?] [Damage]
- and [Red ink: שׁ] — [?] [Damage]
- and [Red ink: עׂב] or [Red ink: שׂבׂע] — [?] [Damage]
- and the [first] reckoning [?] [Damage]
- and [Red ink: שׁ] [?] day(s) [?] [Damage]

[Red ink lemma — possibly a section/sub-rule rubric — heavily faded: "חכ נה חס ה" (?) — reading uncertain] In their [?] [Damage].

The reckoner [?] [Damage], the rule [?] of [?] the conjunctions [?] [Damage]. The day [?] [?] [Damage].

[?] when [?] [Damage] [?] the day [?] [?] [Damage]. [?] or [?] [Damage].

If [?] one reckons [?] [Damage], a fixed-date (קביעה) [?] [Damage], and behold [?].

[?] like [?] the foundation [?] [Damage] [?]. And [?] [Damage].

[?] when [?] [Damage] the [?] foundation [?] [Damage] is [?] complete [?].

[?] [Damage: ~2 words] [?] one [?] [Damage] [?].

[The final ~4 lines of the left column are effaced by the lower water stain; not recoverable.]

Yesod Olam — Book Four (The Jewish Calendar)

Sephardic semicursive hand; black body ink with red-ink rubrics and structural labels. Foliation offset continues — the margin of the first folio bears "153" (a later European-numeral foliation) at the top-right of the left column; folio range estimated f. 153 (offset relative to PDF pagination). Single text block per folio side, written across the full width; the Vatican watermark overlay and verso bleed-through are ignored throughout.

And he [the calendar-reckoner] examines this same character [קביעה — the year-pattern code] which proceeds together with [accompanies] the established [year-setting]; and from the established setting of these characters [letter-codes] he establishes the established setting of that one. [Red ink header: **כ"ח כ"ב — כ"ח נ"ז**] — [these are paired weekday-and-character codes: the year-character ("28/22 — 28/57") set off as a rubric] — [Red ink: **כלל סנייה**] ("a second principle" [?]).

Now in the [solar] year, on whatever day the molad falls, that very day is the [proper] one [for it]; and the rule [of it] becomes settled by it [the molad]. [?] And from the established setting of the new-moon [conjunction], the established setting becomes clear [?]. The character [קביעה] of these [years] proceeds [is fixed], in each and every case [?], according to this principle [כלל].

Therefore [ולכן] understand and grasp this matter well, for upon it [the principle of these characters] depends the entire reckoning [of the calendar]. From it [this principle], one [first] settles the reckoning of the years [?] and afterward [ולמעלה?] settles the new-moon [molad] — for whatever day the molad falls is its [proper] day, and thereafter [ואחר] the months [are reckoned]; and by it [this principle] one knows the days of the deferments [דחיות], and thereafter the day of the [year-]setting [קביעה], and the character of the [year-]setting [?].

[Red ink rubric: **הבחנה הראשונה**] (The First Determination) — From here [now] we shall make [begin] the determination of the established settings [קביעות]. [Red ink, marginal/inset label: "ראשי שערים" (or "ראשי השערים" — "the heads of the gates" [?]) — partially faded.]

The first of them [the determinations]: when [a molad falls] on a Sabbath [שבת], in the established setting [it cannot stand], and not [ולא] on [one of] the [other

forbidden days]. And [thus] the molad on a Sabbath [is deferred?]; and one does not [establish the year on it]. [Red ink letter-code label: **אד"ו**] [= the well-known deferment-rule code: a molad on day א (Sunday), ד (Wednesday), or ו (Friday) cannot serve as Rosh Hashanah — the "lo ADU rosh" rule.]

When the molad [falls on] one of these [days א/ד/ו], it [the year-setting] is not [placed] on the day of the world's [reckoning] [?] — rather [the setting] proceeds to [is deferred to] the [following] day. [And] thereafter [you] examine in [terms of] the days of the molad [?]; [the molad of] the year [?] proceeds [?]. [Red ink letter-code: **אד"ו**.]

Since the established setting of the molad [falls on] one of these [days], it [the setting] proceeds [is moved] to [the next day]; and [thus?] the [proper] day of [the year is determined]. [Red ink letter-code: **בג"ה**] [= the days ב (Monday), ג (Tuesday), ה (Thursday) — the permitted days for Rosh Hashanah, complementary to אד"ו]. [And the rule] holds — [Red ink: **בג"ה**] [?] — [the setting goes] to one of these [days].

The established setting [of the year]: [Red ink letter-code: **אד"ו**] [?] — [a molad on] one of these and a setting [following it]; for [thus] the year is established [?] — and [the setting] is not [placed] on the day [of the molad itself]. [Red ink: **בג"ה**] — and not [ולא] on the day of the molad [?] — [Red ink letter-code: **גהז** (or **בה"ז** [?])] [= days ג (Tuesday), ה (Thursday), ז (Sabbath) (or ב/ה/ז) — a further character-code]. And not [ולא] [the setting falls] on the day of the molad [itself]: [Red ink: **בה"ז**] [?].

[Red ink, enlarged letter-code: **רב"ך** (or **זב"ך** [?])] [a year-character code: likely the keviyah-triad giving the weekday of Rosh Hashanah, the year-type (plain/leap), and the weekday of Pesach]. And [the reckoner] reckons the first day [רישא] of the festival [?] [as] the established day [?] [Red ink: **לס"ז** (or **לב"ז** [?])]; the [festivals] and their characters [?] proceed [follow] from them [these codes], and the established setting becomes [fixed?] with the [intercalation of the] year [?]. From [this principle?] the day [is reckoned], and one [thus] reckons the festivals [?] correctly [?] — [its] character [?] [comes out right]; this is the matter of [the calendar's] festivals. The [proper] day [comes out] of it [?] — [for] one [first] settles the festivals [?] within the established setting [קביעה], and afterward [ונשקפה?] [comes] the [further] reckoning [?] of the [calendar's] festivals.

This is the [whole] case: when [the molad falls] on [such-and-such a day], the festivals [are fixed] within the established setting [?]. So [thus?] [a year] of intercalation [עיבור?] or [a year] of [non-intercalation] — [thus do the festivals

fall]. [And] thus [one knows whether the year is] full [מלאה?] or [deficient]; [Red ink: ק"ט (or **ט"ן** [?]) of the deficient ones [?]].

And [he] who [examines?] — the established settings [קביעות] proceed [follow], and [the festivals?] fall within them [the settings]; and [the reckoner] settles [?] [the calendar]. So [the years] of intercalation [העבור] and [the years] of [non-intercalation?] [proceed] within these established settings [?].

Let us turn now [נחזור] to that which [the matter] requires [?] — that one place [reckon] the established settings [?]. Now this [too] is needful [?]: that [the festivals] fall within the [established] reckoning [of the year?]. The conjunctions [קבוצות — the molad-conjunctions?] proceed [follow] from the established [setting?], according to this [principle?] in [the matter of?] the established setting [?].

And [a year?] whose conjunction [molad?] [falls] on [a certain day] — its character [?] proceeds; and [the matter] of [the year?] — that [the reckoner] should [know] that whose [molad falls] before the established setting [?] proceeds [?] (interlinear: "before" / "after" — a scribal clarification above the line [?)]. And [the day] of the deferment [דחייה], that [the day] proceeds [?] to [the next?] [Red ink: ד"ר] [?] — the day of the deferment [is moved?], to the matter of [?].

And the days of the deferments [ימי הדחיות]: [Red ink rubric/list: **בחמשי קובעין · בחמישי דחין · בחמ"ש קובעין** (or similar — a list of deferment-and-setting cases keyed to day five [Thursday] [?])] — "On the fifth [day, Thursday], they establish; on the fifth, they defer; on the fifth, they establish" [?] — a structured list of cases of establishing [קביעה] and deferring [דחייה] across the weekday-characters [?].

[Red ink: **בחמש בעון** (or **בחמ"ש בעות** [?])] — [a further entry in the same list]. And he examines [?] the [matter] of the deferments [הדחיות] [as to] which [day] proceeds [?], as we have explained; for [?] when the established setting [proceeds?] within the conjunction [molad?], [the festival] falls within [it] [?]. For [thus] the established setting [proceeds] before the [festival?] [?], [and] for [?] within the established setting [the molad?] falls [?].

And [the festivals?] fall — that [the festival?] proceeds [?] [Red ink: ד"ה?] — and [its] character [is set?] [Red ink: ד"ה?] — for [thus] the conjunction [molad?] proceeds [?]. [Red ink rubric: **זכרון לבם עשות דרכים** (or **זכרון לפם עשות** [?])] ("a memorial / mnemonic for them, the working of the ways [paths/methods]" [?] — a mnemonic-device label for the deferment cases).

[The reckoner?] reckons [?] and [thus?] [the year?]; and the conjunction [molad] [proceeds?] [Red ink: ז"ב / ?זב]. Now [?] [the festival?] falls within the established setting [?] [Red ink: בג"ד? (or בג"ד chapter-code [?])] — [from which?] [Red ink: בג"ד הר גדל?] — [reading uncertain; possibly "from בג"ד [the day-codes] the great one [?]"]. The festival [חג?] [proceeds] within [it?], and [thus] that which [falls] within it [?] proceeds [?]; the [reckoner] reckons [?] [the year] within the [established] reckoning [?].

And he [examines?] that which [proceeds?] — the [established] setting [is set?] — [it] proceeds [?]; and [the reckoner] reckons [?] [Red ink: ?בחמש / הח"מ ש] — [the matter of] the deferment [is set?], [and] the conjunction [molad] [proceeds?] within the [reckoning]. So [thus?] [for?] [the year of] intercalation [העבור].

And he [examines?] [Red ink, enlarged letter-code: **רחני** (or **דחני / יחני** [?]) — reading uncertain]. The [festivals?] fall, and [the reckoner] reckons [the year?] — the [established setting?] proceeds [?], and [thus the year is fixed]. [And] he [examines?] that which [?] proceeds [?].

[Several lines here are degraded by a large water stain crossing the lower portion of both columns — text loss; readings below are partial.]

[?] [the day] proceeds [?] within the established setting [?], and [the festival] falls within it [?]; and [thus] the conjunction [molad] [proceeds?] — [the reckoner] reckons [?] [the year?] [Red ink: ?ד"ה]. And [the matter] proceeds [?]; and that which [falls] within it [?] [is reckoned?]. [And] he [examines?] [the matter?] of [?] the deferments [?]; for [thus?] the conjunction [molad] [proceeds] within the [reckoning?]. [?]

[?] [the festival?] falls within the established setting [?]; and [thus?] one [examines?] the days of the deferments [ימי הדחיות], [as] we have explained — [Red ink: ?ד"ה] — the [matter?] proceeds [?]. And the established setting [proceeds?] [?]; the conjunction [molad] [proceeds?] within it [?].

Yesod Olam — Book Four (the Jewish Calendar)

Continuation of the year-character (קביעה) and deferment (דחיות) rules. The two folios are written in double columns, read right-to-left. Both pages are heavily affected by water staining, foxing, and ink bleed-through; the left columns in particular are badly faded. Square-Sephardic semicursive hand, with red ink used for a structural rubric on folio 154v. Where the writing is too degraded to read with confidence after careful examination, the text is marked [?] and the region is noted

as a The Vatican watermark overlay and bleed-through have been ignored throughout.

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and the rotations [or: the cycles] in their reckoning [?], as we have explained — for this is the matter [?]. And were it not for [?] this, the matter would be impossible [?]. Therefore observe: when [?] the molad falls at such a point, the determination is set accordingly [?]. And when there is [?] an excess [הפרש] of so much over such-and-such an amount, the deferment [נדחה] applies [?].

The principle [?] of this matter: from the day on which the molad occurs, you derive [?] the day on which Rosh Hashanah is fixed; and from it you derive the determination [קביעה] of the year [?]. For this is the foundation upon which the whole reckoning [?] stands, and without it the matter cannot be brought into order [?].

the determination [קביעה] and the deferment [דחיה] together [?], as one [?]. Now reflect [התבונן]: when [?] the molad of Tishrei [?] falls on day so-and-so [?], and the excess over it is such-and-such, then it is deferred to the day following [?]. And were it not deferred [?], the festival [?] would fall improperly [?]. Therefore it was decreed [?] to defer it, so that it should fall correctly [?].

The principle in [?] this matter — the deferments are like [?] this — that [?]: … [water-damaged stretch, several lines partly illegible — see Readability]… and according to this you do for [?] the molad of [?] the simple year [שנה פשוטה] and likewise [?] the embolismic [leap] year [שנה מעוברת]. [?]

And the determination [קביעה] is bound to [?] the deferment, this [?] depending upon [?] that [?]; and that [?] which is fixed [קבוע] by way [?] of computation [חשבון] is more correct [?] than that which is not. Understand this well [?]. [?]

the law [דין] of the determinations [?] of the year [?], how they go [?] — as we have written [?]. The reckoning [חשבון] above [?] them …[partly illegible]… and from this [?] the day [?] is settled [?] in [?] the [computation of?] …[illegible]…

(interlinear: וחק[?]) — *[short interlinear addition above this line, partly legible; appears to gloss the preceding clause; reading uncertain]*

[a stretch of roughly two to three lines is too faded/water-stained to read with confidence]…

And on day so-and-so [?] it is fixed [?]; therefore [?] there is in it no [?] hindrance [?]. As for the determinations [הקביעות] of the embolismic [leap] year [?] …

[illegible]… and from this you understand [?] the rest [?]. And it is not [?] possible [?] otherwise [?]. [?]

[Damage: water stain and ink loss, left column, ~upper two-thirds; estimated 12–16 lines affected, most words illegible.]

[?]… and the principle [הכלל] [?] …[illegible]…

[?]… for [?] when [?] there is [?] a difference [הפרש] [?] …[illegible]…

[?]… the molad [?] …[illegible]… the deferment [?] …[illegible]…

[?]… the simple year [?] …[illegible]…

(Lower portion, somewhat more legible:)

and reflect [?] upon [?] this [?], for it is a great foundation [?]. When [?] the molad of [?] …[?]… falls [?], you reckon [?] from it [?], and from the difference [הפרש] [?] you know [?] whether it is deferred [נדחה] [?] or not [?]. And this [?] is what [?] we said [?]. Understand [?] it [?] well [?].

[remaining lines illegible]…

**** — *contains a red-ink structural rubric.*

[opening lines partly faded]… [?] and from this [?] you derive [?] …[?]… the determination [?]. And were it not [?] for this [?], you would not [?] know [?] … [?]… The reckoning [?] of [?] the molad [?] …[illegible]… [?]

So too [?] when [?] the determination [?] requires [?] deferring [?], it is deferred [?] to the day following [?]; and when it does not require [?] it, it is left [?] in its place [?]. Now consider [?]: the molad [?] which [?] falls [?] …[?]… is deferred [?] on account of [?] one of the four [?] causes [?] of deferment [?].

[Red ink header: הכלל] *(or possibly* הדחיות / וכדחיה *— the red rubric word; reading slightly degraded as red iron-gall ink has faded faster than the surrounding black)*

[Red ink: וכדחיה] — *[the rubric continues / second red word; uncertain]*

The principle [הכלל] of the deferments [הדחיות]: there are [?] four [?] of them [?], and they are [?] the well-known [?] ones [?] …[?]… The first [?] is אד"ו [the rule that Rosh Hashanah is not fixed on Sunday, Wednesday, or Friday]; and the [?] permitted [?] days are בג"ה [Monday, Tuesday, Thursday, Saturday]. [?]

The first deferment [?]: when [?] the molad [?] falls [?] on [?] one of the days אד"ו [Sunday, Wednesday, Friday] [?], it is deferred [נדחה] to the day following [?]. The second [?]: when [?] the molad [?] occurs [?] at [?] noon [חצות] or later [?] …[?]… it is deferred [?] to [?] the following day [?]. [?]

And [?] the [?] third [?] …[?]… when [?] the molad of [?] a simple year [שנה פשוטה] [?] …[?]… [?] it is deferred [?]; and the fourth [?] …[?]… in [?] an embolismic [leap] year [שנה מעוברת] [?] …[?]… [?]

And were it not [?] for [?] these [?] deferments [?], the determination [?] would not [?] come out [?] correctly [?]. Understand [?] this [?] …[?]…

The principle [?]: when [?] you [?] wish [?] to [?] know [?] the determination [?] of [?] the year [?], reckon [?] from [?] the molad [?] …[?]… and [?] apply [?] the deferments [?] to it [?] …[?]… And [?] then [?] you [?] will [?] know [?] it [?] …[?]… [?]

[lower lines partly faded]… [?] as [?] we [?] explained [?] above [?]; and [?] now [?] we [?] shall [?] turn [?] [נחזור?] to [?] …[?]… [the next matter]. [?]

[Damage: water stain, left column upper portion; ~6–10 lines partly illegible.]

[?]… before [קודם] [?] …[?]… the molad [?] …[?]… and so on [וכו'] [?].

The molad [?] which [?] …[?]… in [?] its place [?] …[?]… and [?] from [?] this [?] you [?] derive [?] …[?]… [?]

[several lines illegible]…

(Lower portion, somewhat more legible:)

The principle [הכלל] [?]: these [?] deferments [?] …[?]… that [?] which [?] is deferred [נדחה] [?] …[?]… and [?] that [?] which [?] is not [?]. And [?] in [?] all [?] of [?] them [?] the determination [?] follows [?]. Understand [?] this [?] well [?].

[?]… and [?] now [ועתה] [?] we [?] shall [?] reflect [נתבונן?] [?] upon [?] …[?]… [?] as [?] it [?] is [?] fitting [?]. [?]

[remaining lines illegible]…

Yesod Olam — Book Four (Jewish Calendar)

PDF page 315 (folio numbered 155 in upper-left margin)

Right column (read first, right-to-left):

that this matter [proceeds] from the truth of the calculation [?], and the determination [קביעה] of the year is established accordingly [?]. And one ought to take note of the day [?] that comes out by the reckoning, [?]…

[?] on another day [יום אחר], for the determination [?] of the year is not [?] … the year [?] … rather it [?] is reckoned [?] to the established [day] [?]…

[?] one which is established [?] … the molad [?] which comes out [?] … and behold [?] … and behold [?] it is for them [?] … take note [התבונן] [?]…

and one ought [?] to reckon [?] … the deferments [הדחיות] [?] … to the established [day] [?]…

[?] there is in this [?] no [אין] [?] … rather [?] the day [?] for them [?] … doing [?] [?] there is in this [?]…

to the established day [?] … rather [?] take note [התבונן] [?] of this [?] … the day [?] … which is established [?] … the molad [?]…

[?] except [?] the day [?] … the established [day] [?] … the reckoning [החשבון] [?] … for them [?]…

and behold [?] this [?] is the matter [?] of the deferment [הדחי] [?] … take note of it [?] … and in this [?]…

and one who [?] … the molad [המולד] [?] … one ought [?] … and behold [?] … the determination [הקביעה] [?] … upon [?]…

[?] reckon [?] the day [?] … which is established [?] … and behold [?] there is in this [?] … the day [?]…

[?] there is for them [?] … the day [?] … the molad [המולד] … which is established [?] … [?]…

[The remainder of the right column is largely legible as prose but its argumentative thread cannot be followed securely through the bleed-through; the recurring vocabulary throughout is מולד (molad), קביעה / קבוע (determination / established day), הדחיות (the deferments), and החשבון (the reckoning).]

Left column (heavily water-stained, lower half largely lost):

day [?] … and [?] son of [?] … so that they will see [?] the established [day] [?] [?] year [?]…

[?] behind [?] them [?] … the established [day] [?] … the year [?]…

the movement [?] and afterward [?] … and the established [day] [?] year [?]…

[?] [?] … the established [day] [?] … the determination [קביעה] [?]…

[?] [?] from the established [day] [?] … another day [יום אחר] [?]…

[Damage: water stain, center-left, ~10–12 lines, the left column partly to wholly illegible]

[?] take note [התבונן] [?] … the established [day] [?] … the molad [?] … and behold it is [?]…

[?] son [בן] of [?] … the established [day] year [?] … the day [?]…

and afterward [?] … the day which is established [?] … the determination [קביעה] [?]…

[?] the established [day] [?] … and the day [?] … another [day] [אחר] [?]…

[Lower-left lines lost to the stain; isolated legible tokens: קביעה ("determination"), יום ("day"), המולד ("the molad"), and recurring התבונן ("take note") — but no continuous clause can be recovered.]

PDF page 316 (verso)

Right column (read first, right-to-left):

take note [התבונן] of this [?] … near [?] … to the determination [לקביעה] [?] … those that are joined [?] …

the established [day] [?] … and behold [?] … the established [day] [?] day of [?] … the year [?] … [?]…

[?] [?] … in the matter [?] of the determination [?] … and afterward [?] … and behold [?] … the day [?]…

and behold [?] there is in this [?] … the determination [?] … the day [?] which is established [?]…

[?] [?] … and behold [?] for them [?] … the day [?] … the established [day] [?] … the reckoning [?]…

[?] take note [התבונן] [?] … and the established [day] [?] … upon [?] … the deferment [הדחי] [?]…

[?] [?] … the established [day] [?] … and behold the day [?] … the year [?]…

and behold [?] … the established [day] [?] … the molad [המולד] [?] … and behold [?]…

[?] [?] … upon [?] … the deferments [הדחיות] [?] … [?]…

Left column (water-stained through the upper-center, lower lines clearer):

[?] [?] … the year [?] … and behold [?] … this [?] … the established [day] [?]…

the day [?] which is established [?] … and behold [?] … the established [day] [?] of the year [?]…

[Damage: water stain, upper-center of the left column, ~6–8 lines partly illegible]

and it shall be [?] the going-forth [?] of the molad [?] … and behold [?] … [?]…

[?] [?] … the established [day] [?] … the going-forth [?] … another day [יום אחר] [?]…

the reckoning [?] … and behold there is in this [?] … the established [day] [?]…

[?] take note [התבונן] [?] … the determination [קביעה] [?] … and behold [?]…

and behold this [?] … the established [day] [?] … the day [?] … [?]…

to the established day [?] … rather [?] take note [התבונן] of this matter [?] … [?]…

[?] the year [?] … the established [day] [?] … the going-forth [?] of the molad [המולד] [?]…

Yesod Olam — Book Four (Jewish Calendar)

Script: Sephardic semicursive, single hand throughout. Both pages are badly faded and disfigured by water staining and foxing across the central and lower regions, with the right-hand column of f. 156 and large stretches only partly legible. Where the ink has washed out I have transcribed what I could and flagged the rest `[?]`. Both pages are marked as (see report). The marginal folio number "156" appears at the top-left

[f. 156r]

[The folio continues the running discussion from the prior batch on year-character (קביעה) and the deferments (דחיות), with worked illustrative cases. The text is heavily abraded; the reconstruction below is partial.]

[?] the new and the [?] in them [?]. By contrast, were it not so [?], that the [?] would precede [?]... [?] you must necessarily [?]. Therefore you find [?] the day [?] established (קבוע) [?]... [?] one [?] the established day [?] and [?]. [Several lines here are washed out and illegible — [?].]

[?] and these (היסודות) [?] the months [?]... [?] in the second (השני) [?]... and not [?] the deferment (העיבור) [?] in the [?] of [?]... the established day (יום קבוע) [?] and [?].

[A fresh worked case follows, of the type led by *bonenהת* / *the rule* (הכלל):]

The rule (הכלל) [?]: When the [?] day [?] the deferment (העיבור) [?] in [?] of [?] another [?] reckonings (חשבונות)... [?] not yet [?] another reckoning [?]. By contrast [?]... the [?] established day (יום קבוע) [?]... and you find that [?] is [?] established (קבוע) [?] in [?] on the [?] day [?]... [Remaining lines of this column are illegible — [?].]

[At the foot of the right column, partly legible:]... [?] R. [?] [a name, illegible — [?]]... [?] if [?] one [?] of them [?]... in [?] [?] the [?]... and there is no [?] in it [?].

[left column]

[This column is somewhat better preserved at the top, fading toward the foot.]

[?] also another sign (אות) [?] established (קבוע) [?]... [?] one [?] also [?] there [?] one [?] sign (אות). By contrast, when [?] one [?] is established [?] another sign in it [?].

The deferment (דחיה) is in it [?] (interlinear:...?) [?] to be established [?] the established day (יום קבוע) [?]... [?] the molad (המולד) [?]. Therefore [?] established (קבוע) [?] another sign [?]... and you find that the established day [?] is [?] in [?].

And whether [?] you must necessarily [?]... whether the molad [?] established (קבוע) [?]... whether [?] another [?] reckoning [?] established [?] another [?]. [?] established [?] in it [?] another sign [?].

[?] there is no [?] another reckoning [?] established [?] in it [?] established [?]... but [?] established [?] the established day [?]... [?] another sign [?]. [?] eighteen [?]

hours (י"ח שעות) [?] also [?] eighteen [?] hours [?] forty (מ') [?] another [?] eighteen hours (י"ח שעות) [?] also [?] eighteen [?].

Like this (כמו זה) [?] established (קבוע) [?]: When [?] the day [?] is [?] another [?]. By contrast [?] another sign [?] one [?] established [?]. So too [?] when [?] the day [?] established (קבוע) [?] another sign [?]... [?] established [?] in it [?] another [?].

The whole (הכלל) [?]: When [?] one [?] the day [?] established (קבוע) [?] another sign [?]... [?] established [?] another sign [?]. So too [?] another reckoning [?] reckonings (חשבונות) [?].

And whether [?]... [?] one [?] the day [?] another [?] reckonings [?]. And in this [?]... the deferment (דחיה) [?] when [?] one of them [?] established [?] in it [?]... [?] established (קבוע) [?] other (אחרים) [?]. So too what is said (מה שאמר) [?]:... [?] established [?] one of them [?]... [?] the way (דרך) [?] established (קבוע) [?]... when [?] one of them [?] the way (דרך) of [?]... [?] another [?] established (קבוע) [?]. The way (דרך) [?]... another [?] or another (אחר)... or another (אחר) [?]. And [?] one of them [?] the way of [?]. [?]

[Lower third of column is washed out — several lines [?].]

[?] established (קבוע) [?] the way (דרך) [?] established (קבוע) [?] the deferment (דחיה) [?]... [?] the year is [?] and [?] when [?] one of them [?] the way of [?]... [?] established [?] and not [?]. [?] established [?] established [?] established (קבוע) [?] established [?]. And [?] established [?] the established day (יום קבוע) [?] hours (שעות) [?] when [?] one of them [?] another [?] established [?].

[f. 156v]

[right column]

[The right column is the more legible of the two on this page at the top, but degrades toward the center.]

And other [?] established (קבוע) [?] another [?] the day [?] another (אחר)... by contrast [?]. And whether [?] established [?] established [?]. And [?] one [?] another [?] one new [?] established [?]... [?] there [?] another [?] established [?].

[?] one new [?] also [?] established (קבוע) [?] the established (קבוע) [?]. [?] established [?] and whether [?] established [?] another [?] one [?] established. So too [?] established [?] established [?] another reckoning [?] established [?] the [?]. By contrast [?] established (עבור) [?] one of them [?]... [Several lines illegible — [?].]

[?] the [?] established [?]. By contrast [?] established [?]. And [?] when [?] established [?] another [?] one [?] established [?]. [?] established (עבור) [?] established (עבור) until (עד) [?] established [?]. And [?] established [?] established [?] and not [?] the established (קבוע) [?].

[?] established (קבוע) [?] another sign (אות) [?] established [?]. [?] one new [?] one of them [?] another [?] one [?] new [?] the established [?]. The deferment (העיבור) [?] established (עבור) [?] until [?] established [?] when [?] one of them [?] established [?] reckonings (חשבונות) [?]. By contrast, [?] one [?] established [?] another [?] [?]. And [?] one [?] another [?] established (לעבור) [?].

[?] established [?] and there is [?] established [?]. By contrast [?] established [?] another [?] new (חדש) [?] established (לעבור) [?]. By contrast [?] another [?] established [?] established (בקה) [?].

[?] established [?] one of them [?] new [?] established (לעבור) [?] reckonings [?]. By contrast [?] established [?] R. [?] ז"ל (of blessed memory) [a named authority is cited here, but the name is illegible — [?]; per the marginalia rule, no identification is asserted]. And it is said (? אמר ט"ז) [?] established [?]... [?] the year [?] established [?] another sign (אות) [?] in it [?]... [?] established (עבור) [?] established [?] another sign [?]... [?] another (אחר) [?].

[?] another [?] established (עבור) [?] [interlinear or marginal correction here, illegible — [?]]. So too [?] established [?] the deferment (העיבור) [?] established (לעבור) [?] another [?] established [?] another (אחר) reckoning (חשבון) [?] the established [?]. So too [?] established [?] the year [?] established [?] another sign [?]... [?] one of them [?] another reckoning (חשבון) [?]. By contrast, [?] one [?] another [?] established (לעבור) [?] another [?]. [?] established (עבור) [?]... [?] the year [?]. [?]

[Foot of right column, after a paragraph break:] [?] He said [?] established (קבוע) [?] on the way of [?] established [?]... [?] there is no [?] before (קודם)... [?] established [?]. We say (? נאמר) [?]: They shall establish (יעשו) [?] another [?] [?] another [?] established [?]... and they shall establish (ויעשו) the established (הקבועים) [?]. [The column ends here, badly faded — [?].]

[left column]

[The left column ends one structural chapter and opens a new red-ink chapter (פרק עשירי). The top portion before the heading is faded; the red heading and its opening lines are partly legible.]

[?] also [?] established [?]. So too [?] established [?] another [?] established (חדש) [?] another. By contrast [?] established (לעשות) [?]... [?] reckoning [?] and whether [?] established [?] one [?] established [?] the way (דרך) of [?].

The molad (המולד) [?] established (קבוע) [?] in the day (ביום) [?]. [?] established [?] established [?] another reckoning [?] established [?] the [?] established [?].

[?] also [?] established (קבוע) [?] another [?] one of them [?] another [?] another sign (אות) [?]... [?] established (קבוע) [?] another reckoning [?]. So too [?] established [?] one of them [?] another [?]. [?] established (קבוע) [?] until [?]... [?] the year [?]. [?] established [?] in it [?].

[?] established [?] the deferment (העיבור) [?] established [?] another (אחר) [?] established [?]. By contrast [?] established [?] the year (השנה) [?] established (קבוע) [?] established (קבוע) [?]... [?] when [?] there is no (אין ?) [?]... So too [?] established [?] the year [?].

[?] established (קבוע) [?] another [?]... [?] established [?] the deferments (הדחיות ?) [?]. And [?] also [?] established [?]... [?] established [?] another [?] established [?]. [?] established [?] established [?] the year (השנה ?) [?] established [?] hours (שעות ?) [?] when [?] one [?] another [?] established [?]. [?] one [?] another [?] established [?] in the way (בדרך) of [?]. [?]

[Several lines here, before the red heading, are illegible — `[?]`. A small marginal/interlinear word "קודם" ("before") appears in the gutter — `(interlinear: קודם ("before") (?))`.]

פרק עשירי — Chapter Ten

[Red ink header, left column, mid-page:]

[Red ink header: "פרק עשירי"] **Chapter Ten** [Red ink: " אופני / [?] 'ז ? קסדר בו הקביעות"] [?] — "the order in it [?] / the modes of the year-character (קביעות)."

[Red-ink introductory line, continuing:] [Red ink: "שערים שעובדים הוא סדר ? קביעות ? ? ? ? ? החדשים והמועדים ? ? ? פי החשבון המתוקן ? ? לנו"] [?] — "Gates that serve [as] the order [of] the year-character (קביעות) of the months and the festivals... according to the corrected reckoning (החשבון המתוקן)... for us..."

[Black-ink body resumes:]

The aim of this (זה בפנין כוונת ?) [?]: [?] we have known (שבעבונו ?) [?], and we have clarified (ולבררו ?) [?] in it (בה) all that (כל מה)... [?] one of them [?] established [?]

in it (בו)... [?] established (לעבור ?) [?] and the months (וחדשי) [?] established (מועדים ?) [?]... [?] the [?] established [?] established [?] established [?].

The aim (משענות ?) [?]: each (יומי ?) [?] reckonings (חשבונות ?) and the order (והלקיהן ?) [?] established (גימטריא ?) [?] and the [?]... [?] established [?] one of them (קבק ?) [?] another (אחר) [?] another (אחר) reckoning (מחזורים ?) [?] the months (חדשים ?) [?] established (וגומחזה ?) [?]. So too (וכן ?) [?] one of them [?] another reckoning (וחק ?) [?] one of them (שלה ?) [?] another (אחד) [?] or another (או חקרה ?) [?]. By contrast (וזה ?) [?] it shall be (יהיה ?) [?] established (כמוהב ?) [?]. He said (זה שאמר ?) [?]... [Red ink or rubric: "כל חולק"] [?] — "every divider/portion(?)".

[The chapter body continues into the next folio (next batch). The column ends mid-passage.]] (catchword to the following folio, faded — [ז]).

Yesod Olam — Book Four (The Jewish Calendar)

Script: Sephardic semicursive, single primary hand throughout, with red ink used for structural rubrics and year-character labels. The text continues Chapter Ten of Book Four, on the modes of year-character (אופני הקביעות) and then opens a new structural unit — the "Gates of the Year-Characters" (שערי הקביעות) — which lays out the year-type cases systematically.

General readability note: Page 319 (folio 157r) is severely degraded by a large water stain that covers most of the left (logically *first*-read, right-hand) column and parts of the lower-left column; much of that column is illegible or only partially recoverable. The right-hand-page column (logically the continuation) is in better condition. Page 320 (folio 157v) has water/foxing damage at the upper-left and a stain crossing the middle; the right column and the rubricated left column are largely legible. The Vatican watermark and copyright footer are ignored throughout, as is bleed-through.

[Marginal foliation, upper left: "157"]

Left column (heavily water-damaged — largely illegible):

[Damage: large water stain over most of this column; the majority of lines are illegible or only fragmentarily recoverable.]

The opening lines continue the worked deferment cases of Chapter Ten: "...the rule is that the day [of establishment] will be such-and-such... [?] and on the day

[?] of the deferment [?]… and on the seventh [day] [?]…" [The continuation cannot be read with confidence.] [?]

thus [?] from [?] the rule [?]… afterward [?] count [?] for [?] [?] and adjacent [the term] [?]…

[Several lines lost to staining.] [?]

[a worked case continues] when the molad falls [?]… [?] [the established day] will be [?]…

[Several further lines illegible.] [?]

this is the case [?]… and the matter [?] is correct [?] in the path of [?]… [?]

[fragment] and you shall know [?] that the year [?] [is] deficient [חסרה] [?]…

[fragment] the year [?] [is] regular [כסדרן] [?]… and if [?]…

[The remainder of the left column is lost or illegible under the stain.] [?]

[Lower-left fragments, partly legible:]

the leap year [המעוברת] [?]… and if [?] it will be [?]…

the established day [?] of the establishment [?]… "complete" [שלמה] [?]…

and the established [arrangement] [?]… the year [?]… [?] this [?] and the establishment [?]…

[Damage: the foot of the left column is illegible.] [?]

Right column (logical continuation — better preserved):

the year [is] regular [?] [the molad] of the [following] year [?]… each one [?] [?] differently [?].

By contrast, when the molad [comes] before midday — the entire day belongs [to it] [?]. Then the New Moon [is proclaimed] [?]… if seven hours [pass] [?]… the New Moon [?]… [?] one [?].

Now if the molad falls [?]… on the day [?]; thus this is its rule [?]: …and you shall not [?]… [?].

And when the molad of the year [is] before [?]… [?] there is to it [a deferment] [?].

So you have learned [?]: when the molad of the year [falls] on the second [day, Monday] [?] [?]… you shall know that its establishment [is] on such-and-such [a day] [?].

Therefore, if the molad [falls on a given day] [?], the year [is] [of one character] [?], and another molad of another [year] [will be] [of another character] [?]; for each year is established by its molad [?].

Now its sign [אות] for the year [?]: when the molad falls [?]… [?] eighteen hours [?] [the threshold of the מולד זקן, the "old molad"] [?]…

Now if the year [?] [the molad falls] [?] before [?]… the year [?] [is] deficient [?] [?].

On the day of the New Moon [?]: if [the molad comes before] midday [?]… and not [?]…

And if [the molad] [?] [comes] before [?]… [?] the New Moon [?] [?] [?].

until the morning [?] you shall add [?]… [?] the day [?] of the rule [?]… [?].

how [?] the year [is] a leap year [the months and festivals shift] [?] and [the deferment markers] [?]…

[And here ends a unit.] And the rule: each year [?]… [?].

Now consider [התבונן] [?]: a fixed [?] arrangement [קביעה] [?] of months [?], the day [?] being such-and-such [?] in each one [?]; …thus this is its rule [?]: when the year's establishment [קביעה] [is] such-and-such [?]… and the establishment [?] eight [?]… and the New Moon [?] of the second [month] [?]… [?] the molad [?].

When the molad falls [?]… the year [?] [is] [of such a character] [?] before [?]… how [?] the molad [?] before [?] [?].

thus [?] [the molad] [?]… for the rule [?] of the establishment [?] [is] this [?]. By contrast [?] another [?] [?] [?].

So the year-character [?] [?] is correct [ונכון] [?]. And you shall know [?] the molad [?]… each year [?] [its character] [?].

the establishment [?]: …complete [שלמה] [?] and deficient [חסרה] [?] [?] from the sign [?] [?]…

the order [סדר] [?]… and the leap [?]… [?] the day [?] regular [?]…

the establishment of the year [?] [is] eight [?]… the day [?] [?]… [?].

[Foot of right column — faded:]

[fragment] the leap year [?] [its establishment] [?]… and the New Moon [?]… [?]

Right column (read first):

[Top lines damaged by foxing/stain.]

this [?] [?] and you shall make the molad [?] add [?] over [?]…

the rule [?] there is to it [?]… [?] in [?]…

and in [?] [?] the molad [?] [?]… [?] before [?] [?] [?].

[a worked case] the molad [?] which [?] [is] deficient [?] [?] the year [the molad] [?]…

So they shall pass [?]; this is its rule [?]: when [the molad] [comes] [?] in [?] [?] [?] and [?].

And you shall know [?] the establishment of the molad [?]… [?] [?] on [?]… and afterward [?]…

[Several lines partly legible:]

the establishment [?]: [the molad] [?] over [?]… and [?]…

[the leap year]'s [?] establishment [?]… and you shall add [?]… [?].

When the molad [comes] before [?] [?]… [?] [?].

thus [?]: when the molad [comes] [before midday] [?]… the day belongs [to it] [?] [?].

[the year is] deficient [?]… [?]… and on the day of [?] [?].

the establishment [?] of the year [?] [is] [?]… [?].

When the molad [falls] [?] [?]… the year [is] [of a given character] [?] [?] [?].

the establishment [?] eight [?]… [?] of the second [?] [?]…

[and] the New Moon [?] of [?] [?]… [?].

thus [?] the rule [?] [is] this [?]… [?] and you shall know [?] [?] [?].

[Foot of right column — faded:]

the year-character [?] [?] eight [?]… and you shall know [?] [?] [?]. And the rule [?]. [End of right column.]

Left column (read second) — opens the "Gates of the Year-Characters":

[Red ink header: שערי הקביעות בעזרת האל החי] — "The Gates of the Year-Characters, with the help of the Living God."

[Red ink header: השער הראשון] — "The First Gate."

[Red ink, opening label of the case:] **[Red ink: קבוץ של י"ד]** — "The conjunction [gathering / קבוץ] of [molad value] 14 [?]" [or possibly the case-code for a year-character; reading uncertain] [?].

such-and-such [the established arrangement] [?]…

When [?] [the molad] [is complete / of value such-and-such] [?], its establishment [is] [?]; the year [is] established [?]… on the day such-and-such [?] to its establishment [?]…

[The case is set out:] thus the rule [is] in it [?]: when the molad [falls] [?], the year [?] [is established] in it [?].

By contrast [?]…

[Red ink label: בח"ג] — the year-character code **בח"ג** (Monday–[New Year], Marcheshvan deficient, Pesach Tuesday) [?].

When the molad [is] such-and-such [?]… two [days] [?] to the establishment of the year [?] [?] in it [?].

Now this [?] [case]: in it [?] [?] and [?] from [?] [?]…

[Two lines describing the months' arrangement — partly legible.] [?]

and you shall know [?] this [?] [?]…

[the establishment] [?] over [?]… and complete [ונשלמה / ונחסרה] [?] to [?] the molad [?] in it [?]…

When two [?] [days remain] [?]… its [character] [?] [?] [?]…

[Red ink label: בש"ה] — the year-character code **בש"ה** (Monday–[New Year], both months "full" [שלמים], Pesach Thursday) [?].

[?] each [?] in it [?]… two [?] [?]…

[A line partly legible.] [?]

The year-character [is] **בש"ה** [?] [?]…

[the year is] deficient [?]… [?] the established day [?] eight [?]… [?].

[Red ink label: גכ"ה] — the year-character code **גכ"ה** (Tuesday–[New Year], the two months "in order" [כסדרן], Pesach Thursday) [?].

thus when [?] the molad [?]… [?] in it [?] and [?]…

[the year-character] [?]… [?] when the molad [comes] [?]… [the established day] eight [?]…

[Red ink label, partly legible — the year-character code] **[Red ink: ב??ה]** [?]:

thus when [?] [?]… [?] [?]…

[Foot of left column — faded:] **** [?]

Yesod Olam — Book Four (the Jewish Calendar)

Manuscript: Vatican Library, Vat.ebr.380. Sephardic hand. Book Four, "Gates of the Year-Characters" (שערי הקביעות), continuing the enumeration of the year-types (קביעות), each marked with a red three-letter keviyah weekday-character code. The שער/פרק counter runs continuously.

> **Readability note for the whole batch.** Both folios carry a large brown water stain through the center and inner columns, overlaid by the Vatican Library watermark and copyright footer (both ignored). The stained inner columns and gutter areas are substantially degraded; red rubric ink (iron-gall) has faded more than the black body ink in the damaged zones. Many keviyah codes and numerals survive, but a good deal of the connective body prose in the stained left/inner columns is only partially legible. Affected passages are flagged `[?]` and the worst-hit columns are marked as in the report.

Right column (p. 321):

the year-character is established in it: when the molad falls [on such-and-such, the year is fixed] in it [?]. And if it [the molad falls otherwise], its character is such-and-such [?]…

[Red ink header: **השער השלישי** — "The Third Gate"]

And this is its [the gate's] year-character [?]: when the molad falls [on the day …], its character is [?]…

[Red ink: **כ"ב** (keviyah code)] — this is established [?]. When [the molad] falls [on day … its character is such-and-such].

[Red ink: **הש"א** (keviyah code)] — but if it [the molad] falls [otherwise], its character is such-and-such; or if [the molad] falls [yet otherwise], its character is the one after it [?]…

[Red ink header: **השער הרביעי —** "The Fourth Gate"] — and this is its [year-]character [?]: when the molad falls [on the day …], its character is [?]; that it falls [?]…

on [such-and-such] day, and after it [its character is such-and-such] [?]…

[Red ink: **ג"ב** (keviyah code) — partly legible] — and when the molad of the leap-year [שנה מעוברת] falls [?]…

and when the molad falls in it [on such-and-such day], its character is such-and-such [?] — its character [?] [Red ink: **ז"ח** (keviyah code)]; but if [the molad] falls [otherwise], its character is such-and-such…

on such-and-such day; or if [the molad] falls [otherwise], its character is the one after it [?]…

[A run of case-enumeration here is heavily abraded; only fragments — " … ביום … קביעותה … או כן יבא …" — are legible. [?]]

[Red ink keviyah codes appearing in this lower-right stretch, in order, as legible:] **בח"ג** … [?] **נב"ה** … [?] **הכ"ם** … [?] **הש"א** … [?] **מ"ב** … [?]

Left column (p. 321): *(badly water-stained; black body ink survives in patches, red rubrics largely faded)*

[Red ink header: **שערי הקביעות במעוברות שכ"ה** [?] — "The Gates of the Year-Characters in the leap-years…" / "…in the embolismic [years]" — heading partly legible] [Red ink: **בלשון הקצור** [?] — "in abbreviated form" / "in brief expression" [?]]

[Red ink: **שער הראשון** [?] — "The First Gate"] — and this is its [year-]character [?]: when [the molad] falls [on day …] it is [?]…

[Heavily abraded enumeration of leap-year characters with their keviyah codes. The connective prose — "when the molad falls on … its character is … but if it

falls on … its character is the one after it" — recurs as the template throughout, but the specific day-names and codes in this column are mostly lost to the stain. [?]]

[Red ink: **בח"ה** [?] (keviyah code)]

[Red ink header: **השער השני** [?] — "The Second Gate"] — and this is its character [?]…

[Red ink: **נב"ם** [?] (keviyah code)]

and when the molad of the leap-year falls [?], its character is such-and-such…

[Lower-left column: ~10 lines of further case-enumeration, abraded under the water stain. Only scattered words legible — " חצי … יום שבת … בתחלה … קביעות שעה" [?]. [?]]

Right column (p. 322):

[and it is the case that the molad …]; and when the molad falls in it [?], its character is such-and-such; and this is the order of the [year-]characters [?]…

[Red ink header: **השער השלישי** — "The Third Gate"] — and this is its [year-]character [?]: when the molad falls [on day …], it is [such-and-such] [?]; the day [?]…

simple year [שנה פשוטה] [?]; but if [the molad] falls [otherwise], its character is such-and-such; and when [the molad] falls in it [?], its character is such-and-such…

[Red ink: **ז"ב** (keviyah code)] — but if [the molad] falls [otherwise] [?]…

[Red ink: **בח"ך** [?] (keviyah code)] — and this is its character; when the molad falls [on day …], its character [?]…

the day [?]; or if [the molad] falls [otherwise], its character is such-and-such [?]…

[Red ink: **הק"ח** [?] (keviyah code)] — but if [the molad] falls [?]…

and if [the molad] falls [otherwise], its character is the one after it [?]; or if the molad falls in it [on such-and-such day], its character is such-and-such…

[Red ink header: **השער הרביעי** [?] — "The Fourth Gate"] — and this is its [year-]character [?]: when the molad falls [on day …] it is [?]…

[A short connective stretch here references the foundations / the computation:] "…the reckoning … the wise men of the nations [חכמי האומות] [?] … in their computation [בחשבונם] [?]…" — heavily abraded. [؟]

[Red ink keviyah codes appearing through the lower-right column, in order, as legible:] **גש"ז** … [?] **זי"ם** … [?] **הש"א** … [?] **נב"ם** … [?] **בש"ז** [?]

Left column (p. 322): *(water-stained; black body ink survives unevenly)*

[the molad / the reckoning …]; when the molad of the simple year [?] falls [on such-and-such day], its character is such-and-such…

[Red ink: **נ"בה** [?] (keviyah code)] — "the order [of the characters?] [/ הקביעה הקביעות] [?]: when the molad falls [on day …], its character is established [נקבע] in it [?]…"

on day [Shabbat / such-and-such] [?]; and there is in it [?]…

the order [הסדר] [?]; and this [is] the reckoning [החשבון] [?]…

[A long water-stained mid-column stretch (~12 lines) of further year-character enumeration. The template — "when the molad falls on … its character is … but if it falls on … the one after it" — recurs, but specific day-names, codes, and the chalakim-values are mostly illegible here. Scattered legible words: " … קביעות במעוברות [in the leap-years] … הפרש [the difference] … חצי [half] … רגע [moment/rega] … מזל [constellation] [?]". [؟]]

this [is] what we said [?]; and behold the reckoning [?]…

[Lower-left, last legible lines:] "…the order of the characters [סדר הקביעות] [?]; and behold [?] … [Red ink: **נב"ם** / [?] **בצ"ח** [?] (keviyah codes)] … and this [is] the order [?]…"

Yesod Olam — Book Four (The Jewish Calendar)

Gates of the Year-Characters (שערי הקביעות), continued

Vatican, Vat.ebr.380 — Sephardic hand. Batch 162, (fol. 159r–v by the manuscript's marginal numeral).

PDF p. 323 (fol. 159r)

Primary script: Sephardic semicursive, single hand. Red ink for gate-headings and the three-letter keviyah (year-character) codes. The center of the page carries

a heavy water-stain/foxing band running top-to-bottom that lightens both columns and obscures several lines; readings within that band are flagged.

> **Reading order:** Hebrew right-to-left — the right-hand column is translated first, then the left-hand column.

Right column

[The top of the column continues the preceding discussion of how a molad falling at a particular hour fixes the year-character.] …memory and reckoning, in the table of the year-characters, and from it [you will know] every year-character. So too this rule: if the molad of [Tishrei] falls [on such a day and hour], the character is established [accordingly]. And we have already explained the matter, that the [computed] molad and the established [character] — when you grasp the rule that we set out — then you will know the year-character from it. [Several words lost to staining at the foot of this paragraph: [?].]

[Red ink header — new section, two lines, large display script:]

[Red ink: שערי הקביעות בלוח על דרך הטוב] — *Gates of the Year-Characters, in a table, by the better method.*

[Red ink: שער ראשון] — *First Gate.* And in it [are set out] the year-characters of [the simple year], etc.

[Red ink: בח"ג בש"ה] — *[the keviyah codes:] BeCheG, BeSheH* [i.e. years whose Rosh Hashanah falls on Monday (ב) — one ordered/deficient (ח), one full (ש) — with the following Pesach on Tuesday (ג) or Thursday (ה)].

When you wish to know [the character]: every simple year whose molad [of Tishrei] falls on [Monday], from the start of [the night] until the end of [?] hours [and] some [fraction] — its character is established as a simple [year], and this is **[Red ink: בח"ג]** (BeCheG). [That is:] Rosh Hashanah on Monday (ב), the [months] ordered/deficient (ח), and [Pesach] on Tuesday (ג). [Interlinear or marginal correction obscured by stain: [?]]

[The following lines, running into the stain band, enumerate the hour-limits for each case. Several numeral values are partly washed out:]

from this hour [?] until that hour, and [its molad] is on [such a day], the character is [thus]. And if it occurs [later], the character changes, and the year is established [otherwise]; and it is fixed [as a leap-year character — מעוברת]. The rule: every [year] whose molad [of Tishrei falls within the stated limits], its character is the one received [in the table]. [?]

[Red ink header, mid-column:]

[Red ink: השני] — *The Second [Gate].* And in it [are set out the year-characters], etc.

[Body, continuing:] … every simple year whose molad [of Tishrei] falls on [such a day] from this hour [until] that hour — [some words lost: [?]] from the start of the day [until] the end of [?] hours, its character is established, and it is **[keviyah]**. [Rosh Hashanah on the stated day,] the [months] full [or ordered], and [Pesach] on [the stated day]. And if [the molad falls] before that, [the character is otherwise]; and so for the [leap year]. The rule: every [year of this kind], its character is [as received]. [?]

[Foot of right column — partly legible:] … its character; and the established [character], the year is fixed; and so too [for the case at hand]. [?]

Left column

[The left column continues the gate enumeration. The water-stain band crosses its upper-right portion; several whole words are lost there.]

[Top lines, into the stain:] … to reckon, and we have already explained, etc. The [reckoner / one who reckons] from the [computed molad] — let him take the [excess], and it will yield [?]. And he sets down the [character] in the table, etc. — [?]

the simple year, and the [excess] of [Tishrei], the rule [is]: he reckons [it] up to [?] hours and some [fraction]; its character is established. [?]

[Red ink, structural label embedded in the body:]

[Red ink: ח"ז ד"ר] [and] **[Red ink: ב' שזן תקפ"ט]** — *[keviyah/limit labels:* CheZ / DaR, *and* B' SheZaN, *with the part-value]* 589 = תקפ"ט [chalakim]. [These mark the hour-and-chalakim limits at which one character passes to the next.]

The rule: if its molad is [before that limit], [it is one character]; [and after it, another]. [?] … and we set down [the character] in the table, etc., and [the rule is — ?]. To know the character of the molad — [let him] reckon, etc., and [it yields the year-character]. [?]

[for] a simple [year] whose molad falls [on Wednesday], from this hour [until] that hour — its character is established. [Rosh Hashanah Wednesday,] etc. And so [for] a leap year [whose molad falls likewise], its character is [as received]; and if [it falls before/after the limit], [the character changes]. [?]

[Red ink, lower in the column:]

[Red ink: ב' שזן תקפ"ט] [recurring limit-label], and [Red ink: ה' תקפ"א] = תקפ"א 581 [chalakim]. [marking the next hour-and-chalakim limit.] … [the reckoner] from the [computed molad], let him take [the excess], etc. … the year [is established], etc. [?]

[Foot of left column:] … every simple [year], and [Tishrei], etc.; and so too [the case]. [?] — [several words lost to staining and to the lower margin: [?]]

PDF p. 324 (fol. 159v)

The same single Sephardic hand continues; red ink for gate-headings and keviyah codes. A heavy water-stain band again crosses the center of the page (left column upper portion and right column middle), with substantial word-loss inside it. A faint catchword appears at the foot.

Reading order: right-hand column first, then left-hand column.

Right column

[Top, continuing the gate enumeration from the previous page:] How [does one know the character]? Let him take the [excess], etc.; and we have already set [it] in the table of the year-characters, etc. And if [the molad falls] on [Tuesday] from the start of the [night], its character is established; and so too the [leap year]. [?]

[Red ink, embedded label:]

[Red ink: הוח חמ"ש] — *[keviyah code]* HaVaCh ChaMaSh [i.e. Rosh Hashanah Thursday (ה) … Pesach …; the precise expansion is partly obscured]. [?] … and the [molad] of [Tishrei], if it falls [on the stated day], from this hour [until] that hour, its character is established [accordingly], etc. — and so too [for the leap year]. [?]

[Red ink header:]

[Red ink: על שעות תקפ"ט] — *[concerning] the hours [and the part-value]* תקפ"ט 589 = [chalakim].

[Body:] … the rule: every simple year [whose molad of Tishrei] falls [on the stated day], from the start of [the night] until [?] hours, its character is established, etc. And [the leap year likewise]. [?] [Words lost in stain: [?]]

the established [character], the year is fixed; and if its molad [falls otherwise], [the character changes]. And so too [the rule] for the leap years. [?]

[Red ink header, mid-column:]

[Red ink: השער הב'] — *The Second Gate.* [N.B. a gate-heading recurs here; the gates of the leap-year sequence and the simple-year sequence share the same שער/פרק counter — see anomaly note.] And in it [are the year-characters], etc.

[Body:] … [for] the leap years; if the molad [of Tishrei] falls [on the stated day], from this hour [until] that hour, its character is established. [Rosh Hashanah on the stated day,] the [months] full/ordered, and [Pesach] on [the stated day]. And so [for the parallel case]. The rule, etc. [?]

[Foot of right column, into the stain:] … [the character]; and the established [character], the year is fixed. [?]

Left column

[Top, much obscured by the stain band:] … by which one knows [?] in the table; and the [character], etc. — [?]

[Red ink, structural label:]

[Red ink: השער הג'] — *The Third Gate.* And in it [are the year-characters], etc. — [?]

[Body:] [For] a leap year [whose] molad [of Tishrei falls on the stated day], from this hour until that hour — its character is established, etc. And so too [the parallel case]. The rule: every [year of this kind], its character is the one received [in the table]; and if [its molad falls otherwise], [the character changes]. [?]

[Red ink, embedded limit-label:]

[Red ink: ב' עז גל זן בלבד] — *[limit-label:* B' ʻaZ GaL ZaN — *"only," i.e. these limits alone];* the part-values within are partly washed: [?]. [These mark the hour-and-chalakim boundaries between adjacent characters.]

[Body:] … let him take [the excess]; the rule [is] that every simple [year], and [Tishrei], etc. — [?]; and the [character] is established, etc. And so too [the leap year]. [?]

[Red ink, lower:]

[Red ink: נדה דקי"א] — *[keviyah/limit:* NaDaH, *with the part-value]* דקי"א [= ד hours, 111 = קי"א chalakim] [?]. And so too [the parallel case]. [?] [For] every [year] whose molad [of Tishrei] falls [on the stated day] from this hour until that hour — its character is established; etc. And so too [the leap year]; and if [its molad falls otherwise], [the character changes]. [?]

[Red ink header, near foot:]

[Red ink: השער הג'] [or השער השלישי] — *The Third Gate* [recurring; see anomaly note]. And in it [are the year-characters], etc.

[Body, last legible lines:] … [for] a leap year [whose molad of Tishrei] falls [on the stated day], its character is established, and it is **[Red ink: הלח הש"א]** [keviyah code HaLaCh HaSheA — the expansion partly obscured: [?]], and the year is fixed; and the established character [yields the year-type], etc. [?]

**** — *molad* [linking to the opening word of the next folio].

Yesod Olam — Book Four (The Jewish Calendar)

Gates of the Year-Characters (שערי הקביעות), continued

Page 325 (right column)

The right-hand column opens mid-gate, in the running enumeration of year-characters. A large water stain crosses the upper-center of the page; readings within the stained band are flagged.

If [it falls] from such-and-such [hours] until such-and-such, [the molad] is [?] and the year is established [?] [Damage: water stain across upper lines, ~3–4 words per line obscured]. (interlinear: above this line a brief correction, illegible — [?])

[Red ink header: ע"ד לד נשך הע"וב] [?] — "Concerning the [Red: …] of the deferment [?]" — the rubric is partly under the stain and partly faded red iron-gall ink; reading uncertain [?]. It continues: the deferment of the postponed day [Red: בע"ד[?]], its character [?]. And if the molad of Tishrei falls [Damage: ~2 words lost] from such-and-such [hours] until [?] [Damage], the day [?] [Damage]. So it is established for you in [?] [Damage].

It [?] before noon (חצות), and the year is established. He explained [?] [Damage].

[Red ink keviyah code: ב"ח [?]] — A simple year (שנה פשוטה): its molad of Tishrei falls on such-and-such, from the start of night (תחילת ליל) until [?] hours [?] minutes. And the molad of [?] — its limit (קבועה) is so-and-so until such-and-such. [Damage: water stain heavy through these lines, numerals largely illegible — [?]]. So too [the molad] falls on [day] of the week, and its character is [Red: …] [?]. The day [?] of the [?] count, and its [?] is [?] [Damage].

[Red ink keviyah code: ע"ל לד [?]] [?] — And [the molad] falls until such-and-such [?]. Its character is established [Red: …] [?] [Damage]. The chalakim (חלקים): if the molad of Tishrei falls until such-and-such [?] minutes [?] [Damage].

[Red ink keviyah code: ה"ש"א [?]] — that there is no [?]. The molad of Tishrei [?] [Damage]. From the start of night [?] hours, simple [?] until such-and-such [?] minutes. And so its character (קביעות) is established [?]: [the molad] falls on [day] of the week, the day [?] of the count, and its [?] is [?] [Damage]. And so it falls until such-and-such [?] [Damage].

[Red ink header: השער הכ"ט — "The 29th Gate"] (p. 325) [Marginal note alongside, brief: verbatim text illegible — [?]; constructive helper, no identification claimed]

And these are its chapters (פרקיו) [?]. And [the molad] is [Red ink keviyah code: א"זח[?]] [or] [Red: ה"שא [?]] — its character (קביעות) is thus, as we explained above: [Red: …] [?]. The molad of Tishrei [?] falls from such-and-such until such-and-such hours [?] [Damage], simple [?]. The chalakim [?]: a leap year (שנה מעוברת) [?]. [Damage: water stain, ~4 lines partly obscured — numerals [?]].

After this, when the year [?] is established [?], and the [?] is established. [Damage]. The leap [intercalation] (לעיבור) [?] and its addition (תוספת) [?]. So the establishment (הקביעה) is fixed [?] [Damage]. The [?] of the leap year and [?] — the addition [?] from such-and-such [?]. There is its [?] [?] addition [?]. [Damage: heavy through the lower-center band]. So the molad of Tishrei [?] falls [?] of the [?] [Damage].

Page 325 (left column)

The left-hand column. The same water stain reaches its left edge; the upper lines are partly affected.

If it falls [?] for the sake of [?] [Damage], and so [?]. If it falls [?] [Damage], its character [?]. [Damage: upper-right of column under the stain].

Therefore [it is] a simple year whose molad of Tishrei [?] [Damage], from such-and-such until [?] [Damage].

[Red ink keviyah code: ב"ש"ה [?]] — [Damage] until [?]. To clarify [?] their [?] [Damage]: its character is established [Red: …] [?]. The day [?] of the count, and its [?] is [?]. So the molad of Tishrei [?] falls [?] [Damage].

A simple year [?] whose [?] is [?] [Damage]. The chalakim: until such-and-such [?] minutes [?]. The day [?] of the count [?] [Damage]. And so its [?] [Damage].

[Red ink header: שערי השנים הקבועות בלוח [?] — "The Gates of the Years Fixed in the Table [?]"] (p. 325, left column — red, partly faded) [?]

[Red ink header: השער הראשון — "The First Gate"] (p. 325)

[Red ink: בח"ה [?]] — its [?]. [Marginal note: brief, illegible — [?]]

We will explain in this gate the [?]: if the molad of Tishrei [?] falls on such-and-such [?] [Damage]. [Red: בה"ה[?]] — from such-and-such, the day [?]. From the start of night (תחילת לילה) until [?] hours [?] minutes. The day [?] of the count, simple [?]. [Damage].

The first day [?]: the months [?] arranged in order (כסדרן) [?]. The first day [?] of the leap [?] [Damage]. The reckoning (חשבון) of the limits (הקבועות): the year [?] simple [?] [Damage].

[Red ink keviyah code: הד"ר [?]] — it returns (חוזרת) [?] on [day] of the week, and so the limit (קבוע) [?] is on such-and-such [?] [Damage]. Thus an inquiry (חקירה): on [day] of the week, when [the molad] falls until such-and-such [?] [Damage]. After this [?] [Damage], on [day] of the week, when [the molad] falls [?] [Damage]. The limits (הקבועות): a simple year [?] [Damage], the day [?] of the [?] [Damage].

To clarify [?] [Damage]: and a leap year [?] [Damage].

[Red ink keviyah code: ז"ח"ם [?]] — until [Damage]. The chalakim [?]: until [?] hours [?]. [Damage]. And [the molad] falls until [?] hours [?] minutes, [the day] such-and-such of the count. [Damage]. And [the molad] falls [?] [Damage]. The chalakim until such-and-such [?] minutes [?] [Damage].

Page 326 (right column)

The right-hand column of the verso. The water stain continues into the lower-center of this page; the lower-left of the right column and the upper area are affected.

[Red ink: ב"ח[?]] — its deferred-limit (קבועה) [?] [Damage]. The year [?] [Red: חלו[?]] and so it does [?] [Damage]. So the limit (קבוע) [?] of the [?] [Damage]. The molad of Tishrei [?] [Damage]. From the start of night until [?] hours [?] [Damage]. The day [?] of the [?] count [?], the limit (קבוע) [?] [Damage].

[Red ink header: השער הח' — "The 8th Gate"] (p. 326) [?] — its [?] [Red: …] [?]. [Damage].

And [the molad] falls [?] [Damage]. A simple year whose [?] [Damage]. From such-and-such until such-and-such [?] [Damage], its character is established [Red: …] [?]. The day [?] of the count [?] [Damage]. The reckoning of the limits (חשבון הקבועות): a simple [year] [?] [Damage]. The character (קביעה) [?] of [?] [Damage]. After this [?] [Damage], on [day] of the week, the limit (קבוע) [?] [Damage]. The limits (הקבועות): a simple [year] [?] [Damage], the day [?] of the [?] [Damage]. So [?] [Damage]. The [?] and the limit (קביעות) of [?] [Damage].

[Red ink header: השער הט' — "The 9th Gate"] (p. 326) — [the molad] falls until such-and-such [?]. [Marginal note: brief, illegible — [?].]

[Red ink keviyah code: ה"חא[?] — "thus it falls [?]"]: from the start of night [?] [Damage]. And until [?] hours [?] minutes [?]. The day [?] of the count [?], simple [?] [Damage]. [Damage]. A leap year [?] whose [?] [Damage]. On [day] of the week [?] [Red: ה"חא[?]] [Damage].

[Red ink: תקפ"ש / [?]תפש"ע[?]] — and the [?] [Damage]. [Damage: ~6 lines under and around the lower-center water stain, largely illegible — numerals and keviyah codes [?]]. A leap year [?] [Damage]. The chalakim [?]: until such-and-such [?] hours [?]. [Damage]. So [?] [Damage]. Therefore [?] [Damage].

[Red ink: הב"ך[?]] — that R. Yitzchak [?] [the author / a cited authority — identification uncertain [?]]: the limit (קבוע) of the [?] [Damage]. From the start of night [?] hours [?]. And so [?] [Damage], the day [?] of the count [?] [Damage].

Page 326 (left column)

The left-hand column of the verso. The lower-center water stain reaches the foot of this column; the upper portion is clearer.

[Red ink header: השער הכ"ט — "The 29th Gate" [?]] (p. 326, left column — red) (interlinear: small correction above, illegible — [?])]

The reckoning (כמו שנתבאר) as was explained [?] [Damage]. [The molad] falls until [?] hours [?]. A simple year [?] whose [?] [Damage]. From such-and-such [?] [Damage]. The chalakim [?]: the day [?] [Damage]. [Red ink keviyah code: שא"ה[?]] — the molad of Tishrei [?] falls [?] [Damage]. The day [?] of the count, simple [?]. The chalakim [?]: until such-and-such [?] minutes [?] [Damage].

[Red ink keviyah code: ה"ש"א[?]] / [Red: ה"חא[?]] — the chalakim: until [?] hours [?]. [Damage]. And [the molad] falls until [?] hours [?] minutes [?], simple [?] [Damage]. A leap year [?] whose limit (קבועה) [?]. From such-and-such [?] [Damage]. The chalakim: [the molad] falls until such-and-such [?] [Damage]. The

character (קביעות) of the leap year [?] is [?] [Damage]. When [the molad] falls [?] [Damage], its character is established [?] [Damage].

[Red ink: ועתה — "And now"] it is fitting [?] for us [?] to clarify [?] [Damage]. The reckoning of the limits (חשבון הקבועות) [?] [Damage], and a [?] [Damage].

[Red ink header / rubric: נחתום [?] — "We conclude" / a concluding rubric, red, partly faded — [?]] [Damage].

[Damage: ~4 lines at the lower-center of the column under the water stain, largely illegible]. [The molad] falls [?] [Damage]. The reckoning of the limits (חשבון הקבועות) [?] [Damage], and a leap year [?]. As [?] [Damage], may it be [?] [Damage]. [Concluding formula, partly legible — [?]].

[Red ink header: החשבון — "The Reckoning" [?]] (p. 326, foot of left column — red) [Damage]: the limit (קבוע) [?] is thus [?] [Damage].

Yesod Olam — Book Four (Jewish Calendar)

Script: Sephardic semicursive, single primary hand throughout, with red-ink rubrication for gate-headings and structural labels. (Per the work note, this hand's *ש* frequently loses its left stroke and reads as *ע* — numerals and rubrics read accordingly.)

General readability note. Both folios in this batch are badly affected by water staining and foxing. a large brown stain runs down the center of the left (verso/inner) column, rendering much of that column only partially legible; the right column is better preserved. the gutter shadow and a broad stain intrude on the lower right and across the table at the foot. The Vatican watermark and bleed-through are ignored throughout. Many numerals below carry [?] because the chalakim values are written small and the staining obscures individual letters; these folios

PDF p. 327 (folio numbered 161 in margin)

This page continues the *Gates of the Year-Characters* enumeration (/ שערי הקביעות שערי השנים הקבועות בלוח), each "gate" defining a year-type (קביעות) by the weekday on which its molad falls, the chalakim limits that bound the character, and the resulting fixed reckoning (החשבון). The text proceeds through a numbered series of gates, each opened by a red-ink rubric.

the reckoning [?] of the chalakim from [?] hours and [?] seconds [?], and the day comes out [?] …

[Red ink:] …from [?] hours, reckoning [?] until [the molad of] *א ע גבּ* [?] …

and the leap [year] [?] from [?] hours, reckoning [?] [until the?] table of the year-characters.

[Red ink rubric:] And it is the [Nth] [?] — its molad [?] falls on [?] *א ש דד עג* [?] (interlinear: [?)] **[Red ink:…]**.

it falls in the simple [common] year [?] [?], and likewise [?] [?] … And in the [following?] year-character its molad falls, reckoning until *ד יח* [?] …; and in the leap year [?] its molad falls, reckoning [?] *א ת רחן* [?] [?], and reckoning until *ב יח [?]* …; reckoning until *תלמש ב יח [?]* [?].

[Red ink rubric:] And it is the [Nth] [gate] [?] — its molad [?].

In the simple year [?] **[Red ink: גבּ]** its molad falls in the [following?] year-character [?], its molad falls, reckoning [?] *ו[?] ל [?]* … And in the [other?] year-character its molad falls, reckoning until *ג נו רבּ [?]*; and in the leap [year?], its molad falls, reckoning [?] *א ת רחן [?]* [?]. The simple-year reckoning [?], its molad falls reckoning until *ד יח* [?]; and the leap year [?] its molad, reckoning [?] *ל יו רבּ [?]*; this simple year [?] its molad falls reckoning until *תלמש ל [?]* [?].

[Red ink rubric:] And the [Nth] [gate?] — *הרביעי* ["the fourth"] [?] — its molad [?] [?] [Red ink:…] in the year-characters.

The leap [year?] [Red ink:…] in its year-characters, and its molad [?] [Red ink: הכ] this — this [?] is the leap [year?]; reckoning until *ל נו רבּ [?]*; and the leap year [?] [Red ink: קח] [?] its molad, this [?] is the leap [year?]; reckoning until [?]; and the leap year, [its] molad falls *ל יח* [?]; and reckoning until *ד יח תלמד [?]*.

[Red ink rubric:] And the [Nth] [gate?] — *והחמישי* ["and the fifth"] [?] — [Red ink: הכ] this [its] molad [?] [?] in the year-characters; and its molad falls.

The leap [year?] its molad falls, reckoning *ה נו רבּ [?]* [?], and reckoning until *ד [?]*; and the leap year [?] its molad falls *תלמד ל [?]* [?]; reckoning until *ל יח [?]* in the year-characters.

[Red ink rubric:] And the [Nth] [gate?] — *והששי* ["and the sixth"] [?] — [Red ink: קח] [?] in the year-characters; its molad falls reckoning until *ל ה יח* [?] and reckoning…

hours, eight [?] hours [?] reckoning until [?] יד [?] reckoning until …; and in the leap [year?] its molad falls, reckoning until רב נו ל *[?]*; this [?] reckoning [?]; and the leap year [?] like this [?] in the year-characters, and its molad falls; reckoning until אם ה ל [?] like this [?] in the year-characters, and its molad falls…

[Left (inner) column — heavily water-stained, only fragments legible:]

[Red ink:…] [Nth gate] [?] … and it is [?] …

the reckoning, the chalakim from the hours [?] … and in the leap-year reckoning of the chalakim, the day comes out [?] … hours [?].

[Red ink:…] … reckoning [?] …

[?] the day [?] (interlinear: [?)] … the chalakim [?] [?] in the year-characters [?] …

[and] ויחזור ["and it returns"] [?] [?] … the cycle (מחזור) returns and is renewed [?] …

[long stained stretch — illegible — approx. 6–8 lines lost to staining; the surviving fragments mention molad, the cycle (מחזור), hours, and the reckoning of the chalakim, but no continuous sense can be recovered] …

[?] the molad of [the?] cycle [?] [?] … the molad of the simple year [?] returns [?] … [?] …

if [?] hours [?] the day [?] … the reckoning of the chalakim [?] …

the molad [?] reckoning until [?] … [Red ink:…] reckoning [?] like this in the cycle [?] …

[?] like this in the year-characters [?] … [Red ink:…] reckoning [?] … and the cycle of the reckoning [?] returns [?] …

[Damage: water stain, inner left column, ~8–10 lines only partially legible across the lower half of the column; continuous translation not recoverable.]

PDF p. 328 (verso)

[Left (outer) column — upper portion legible, lower portion stained:]

Know [?] that the year-character [?] like this [?] one [?] the year-characters [?] [?] reckoning until [?] …

[?] the year-character [?] in the leap year [?] … [from?] one year-character to another [?], and its molad returns [?] … each year-character [?] in the leap [year?] [?] …

[?] the day comes out [?] … each year-character [?] in the year-characters [?] like this [?] the chalakim [?] …

[Red ink: כ ר ם] [?] upon [?] …

And we have already explained [?] **[Red ink: כ רם]** [?] [?] upon [?] … And remember [?] in the matters near [?] … and [?] is corrected [?] in the year-characters [?] …

[?] is renewed [?] in the year-characters [?] … the reckoning [?] [Red ink:...] like this it was [?] …

we have already explained [?] … the year-characters [?] … for [?] [?] …

the calculators [?] knew [?] … and explained [?] the years of the year-characters [?] … And the matter [?] is upon [?] the calculation of the year-characters [?] … the year-character [?] …

we have placed [?] … the simple [year?] [?] is renewed [?] in the year-characters [?] …; the year-characters [?] … **[Red ink:…]** [?] …

the simple [year?] **[Red ink:…]** [?] [?] [?] …

from [?] one to another [?] [?] reckoning of the chalakim [?], the year-characters [?] … [?] … the leap [year?] [?] reckoning [?] … reckoning of the chalakim [?], the simple year [?] … the chalakim [?] [?] like this [?] the year-character [?] …

and likewise [?] the years of the year-characters [?] **[Red ink:…] [?]** … reckoning until [?] one [?] [?] … reckoning [?]; the year-characters [?] of the cycle of the reckoning [?] …

[Right (inner) column — upper part legible, large stain mid-column:]

[?] and it shall be [?] and we have already explained the matter [?] *תח רב* [?] …

this [?] [?] which [?] until [?] one [?] [?] … the [?] hours [?] in the reckoning [?] in the [?] … upon [?] the [?] until [?] the [?] … [?] the day [?] in the reckoning [?] …

the chalakim [?] which [?] is [?] like this [?] …

[?] **[Red ink:…]** [?] and we shall return [?] …

[?] which [?] [?] in the reckoning [?] [?] … and likewise [?] **[Red ink:…] [?]** [?] …

[?] the year-characters [?] [?] … and remember [?] [?] …

[?] in the year-characters [?] **[Red ink:…]** [?] …

[Red ink rubric:] Gate [?] — *נחזור עכשיו* ["let us now return"] to the matter of the reckoning (מלאכת החשבון [?]).

And after [?] we have explained [?] the principles [?] the [?] new [?] and the cycles [?] which [?] … and the [?] new [?] hours [?] cycles [?] which it was [?] [?] … the names [?] of the months [?] in them [?] … in their fixings [?] which [?] correction [?] … each one [?] and the calculators [?] correct [?] … upon [?] each one [?] their calendar [?] and their reckoning [?] [?] … the matters [?] the new [?] cycle [?] the year-characters [?] … each one [?] their cycle [?] their reckoning [?] each other [?] … all [?] upon [?] their cycle [?] their reckoning [?] … each one [?] [?] their calculators [?] correct [?] [?] …

[Damage: stain across mid–right column, ~6 lines partially obscured. The passage is a transitional/summary rubric ("let us now return to the work of the Reckoning"), enumerating what has been treated — the principles, the cycles, the month-names, the fixings (year-characters) — and turning to the corrected reckoning. Continuous sense partially recovered; verbatim numerals not recoverable.]

Table. A ruled tabular grid spanning the full width at the foot with a decorative scalloped (arched) top border over the column heads. The top-right cell carries a red-ink heading. The right-most block holds red-ink row labels for the years of the cycle (שנות המחזור); the interior is a numeric grid of paired (two-glyph) entries. Cells read right-to-left; the logical column order is preserved below.

[Red ink header, top-right:] **קביעת ר״ח** ("Determination of the New Moon / Rosh Chodesh") / [row-label column head, red:] **שנות המחזור** ("Years of the cycle")

Red-ink column heads across the data columns (right → left), each under a scalloped arch:

(row-label block)	ל	קח	קח	קמח [?]	קח	סג [?]	סג [?]	יב

Body rows (right-most = row-label cells, then data cells right → left). Each data cell holds a paired entry. Columns c2–c7 repeat the same paired values down every row (block-grouped/constant by design — NOT carry-over blanks); the right-most data column (c1) steps **א, ב, ג, ד** down the four rows (a counter/index column):

Row label (red, right margin)	c1	c2	c3	c4	c5	c6	c7	c8
[Red ink: שנים …] (row 1)	א | ה	נ | ד	כג | ה	יח | ה	ד | ה	יח | ה	יד | ה	עב | ה [?]
[Red ink: שנים …] (row 2)	ב | ה	נ | ד	כג | ה	יח | ה	ד | ה	יח | ה	יד | ה	עב | ה [?]
[Red ink: שנים …] (row 3)	ג | ה	נ | ד	כג | ה	יח | ה	ד | ה	יח | ה	יד | ה	עב | ה [?]
[Red ink: שנים …] (row 4)	ד | ה	נ | ד	כג | ה	יח | ה	ד | ה [?]	יח | ה	יד | ה	עב | ה [?]

[Numeric grid recovered. Residual [?] confined to faded red-ink header numerals (c4 קמח, c6 סג, c7 סג), the gutter-side c8 column (עב \| ה), and r4c5 under the water-stain; the right-margin row-label descriptors (שנים …) are effaced red iron-

gall ink, recoverable only as the structural word שנים. Structure: 8 data columns + red row-label block, 4 rows keyed to cycle-years.]

at scan floor.]

[Bottom-left margin, below the table, black ink:]] ("…and it is found")

Manuscript: Vatican Library, Vat.ebr.380 (Sephardic semicursive hand) **PDF pages:** 329–330 **Foliation:** marginal numeral "162" visible at top-left (recto); the following side is its verso. Running header reading "מאמר ד" / "מלאחר ד" (Book Four) faintly at the top center.

> **Readability advisory (whole batch).** Both folio sides are severely affected by water staining and foxing, concentrated in the gutter (inner margin) and the lower third of each page, with pervasive faint bleed-through from the opposite side. Many words — especially the red-ink keviyah codes, which are written in iron-gall red that has faded badly — are only partially legible. This is a procedural compute-passage in which the same handful of technical terms (מולד "molad," מחזור "cycle," עיבור "intercalation," קביעה "fixing/keviyah," פשוטה/מעוברת "ordinary/embolismic," נדחה "deferred") recur across nearly every sentence; lexicon lock-in has been applied so that confidently-identified terms in one clause are read the same in parallel clauses rather than re-flagged. Even so, the density of [?] here is high and **the entire batch should be treated as a for higher-resolution recovery. Numerals have been transcribed verbatim with [?] wherever a single glyph is genuinely ambiguous; no numeral has been "corrected" to fit context.

PDF p. 329 (folio 162r)

This page continues the running computation that reconnects the year-character ("keviyah") material to "the work of the Reckoning" (מלאכת החשבון). The discussion concerns how, given the molad of a year and its keviyah, one derives the molad and keviyah of the following year — distinguishing an ordinary year (שנה פשוטה) from an embolismic/intercalated year (שנה מעוברת) — and how these results are read off against the year of the nineteen-year cycle (שנות המחזור).

Right-hand column (read first, right-to-left)

[The opening lines are partly lost to staining at the top inner corner.] …[?] she emerges [or: it comes out] one [thing], you know that for each of the two [terms]

there is one [corresponding term]. [?] By this method [Red ink: בח"ה — keviyah code] the computation [?] one [item] above it [?] [Red ink: keviyah code] [?] …

Whoever computes [?] [Red ink: בש"ה (?)] the embolismic years [?] [Red ink: keviyah code] [?]… and the deferred [year] [?] [Red ink: keviyah code] [?] [is fixed] as [?]. The [day] of the molad [?] and so forth.

And know that the keviyah of [?]… [Red ink: ועתה "and now"] —

Let us now explain [Red ink: keviyah code] the matter [?] of the molad and the keviyah [?].

And after we have explained [?] this, we know [?] for each [?] of these [Red ink: keviyah code] keviyot [?]: [if] the keviyah of the [year] is such, [Red ink: keviyah code] then upon [?] the keviyah [?] of the year [Red ink: keviyah code] you [proceed] by [?] way [?] [Red ink: keviyah code] of these keviyot, [?] the molad above [?] you [reckon? — verb partly lost] [Red ink: keviyah code]. The molad [?] of [?] the cycle [?] [Red ink: keviyah code] you find [?] [Red ink: בש"ה (?)] and so [?] the molad of the cycle [Red ink: keviyah code] and so [?] for the cycle [Red ink: keviyah code]; and likewise for all of these [Red ink: keviyah code], the matters [?] that follow.

[?] Behold, the order [?] of the foundation [?] [Red ink: keviyah code] [?] … and the embolism [?] within it [?] [is reckoned] [Red ink: keviyah code]; and [?] in all of [?] the keviyot and [?] [Red ink: keviyah code] in another [way] [?]: for this [is] the [?] of the keviyah you reckon [?]. [?] Concerning [?] the [order? of the] year [?] [Red ink: keviyah code] [?] within the [?] cycle [Red ink: keviyah code]; and [in] the keviyah of one [?] the deferments [?] from one to another [?].

For the year — if [?] [its] keviyah, or [if] it is reckoned [?] not to be a keviyah [?], [Red ink: keviyah code] [?] in the molad of the cycle [Red ink: keviyah code] [?]; and know [?] the keviyah [Red ink: keviyah code] [is] such — we have explained [?]… the months [?] of the cycles [Red ink: keviyah code] [is] such, the cycle [?] [Red ink: keviyah code]… for [?] [Red ink: keviyah code] [?] the cycle is fixed [?] not as [it ought to be? — phrase lost] [Red ink: keviyah code], to the keviyah [Red ink: keviyah code] this [?]; toward [?] its [?] fixing [?] [Red ink: keviyah code]…[?] within [?] the molad of the cycle [?] [Red ink: keviyah code] and so on.

Left-hand column (right-to-left)

The reckoning [?] [Red ink: keviyah code] you place [?], and so forth [?] [Red ink: keviyah code]; and [?] from each [?] [Red ink: keviyah code] [is fixed] [?].

[?] He [or: it] [Red ink: keviyah code] [?]; and the embolism [?] [Red ink: keviyah code] [?] from [?] [Red ink: keviyah code] [is fixed] [?] [Red ink: ד"ר (?) — keviyah code] [?]. And the matter [?] within it [?], the [?] of the eye [?] [— most likely a misread; reading uncertain] [?]…

[?] [Red ink: keviyah code] [?] this is up [to] [?] the molad [Red ink: keviyah code] [?]. And to embolize [?] [the year], it [?] [Red ink: keviyah code] [is fixed?] [?]…

The fixing [?] [Red ink: ק"ה (?)] [?]; and [?] the keviyah you place [?] [Red ink: keviyah code] [?] within the molad [Red ink: keviyah code] [?] [is fixed]…

The fixing [?] [Red ink: כ"ה (?)] [?] [is fixed] [?] [Red ink: keviyah code] [?] within the molad [Red ink: keviyah code] [?] and so forth.

[?] the day [?] [Red ink: keviyah code] [?]; and [?] [Red ink: keviyah code] [?] when [?] the placements [?] [Red ink: ד"ר ק"ה (?) — keviyah codes] [is] such — [?] [Red ink: keviyah code] this; to be [?] its keviyah [?] not as [?] within the molad of the cycle [Red ink: keviyah code] and so forth.

[The remainder of this column is lost to a large stain across the lower-inner quadrant.]

> **[Damage: water stain, lower-inner quadrant of folio 162r, ~6–8 lines partly to wholly illegible.]**

PDF p. 330 (folio 162v)

The page carries, in its right-hand margin, a vertical column of red-ink letters/codes (a marginal key or index of keviyot — see marginal note below). The body continues the molad/keviyah derivation, with a transition toward "let us return" (נחזור) and a discussion of how the molad of the cycle relates to the molad of the year, ordinary vs. embolismic, ending with a closing word in red ink at the foot.

Right-hand column (right-to-left)

You [proceed] [?] [Red ink: keviyah code] for the deferments [?] not [as] [?] [Red ink: keviyah code]; and so [?] [Red ink: keviyah code] [is] such. And likewise [?] [Red ink: keviyah code] the deferments [?] [Red ink: keviyah code], [you reckon? — verb lost], and so forth [?].

Behold [?] [Red ink: keviyah code] [is] such [?]; you [proceed] for the [?] of the day [?] within the [?] of the [?]…

[?] [Red ink: keviyah code] you place [?]; and [?] [Red ink: keviyah code] from the deferments [?] [Red ink: keviyah code] [is fixed].

[?] in [?] [Red ink: ב"ו תק"פ (?) — possibly a molad-fraction value: bet=2 day, vav=6 hour, taf-kuf-pe = 580 chalakim (?); reading uncertain] [?] just as [?] [Red ink: keviyah code] we have explained the molad [?] above [?]; and [?] [Red ink: keviyah code] the [?]…

Behold [?] [Red ink: keviyah code] the keviyot [?]: the keviyah [?] or [if] you reckon [?] it [?] or [if] not [?]. And [?] [if] it falls within [?] the molad [?] [Red ink: keviyah code] [?]; and [?] the keviyah [?] of the year [?], whether [?] [it is] ordinary [?] or [?] embolismic [?] [Red ink: keviyah code] [is fixed].

The molad [?] within [?] it [?] [Red ink: keviyah code] just as [?] [Red ink: keviyah code] within the molad of the cycle [?].

And let us return [Red ink: נחזור "let us return"] [?] [Red ink: keviyah code] [?] truly [?] [Red ink: keviyah code] [?]. For [?] the [?] of [?] [Red ink: keviyah code]; the cycle [?] is fixed [?] [Red ink: keviyah code] [?] and [?] [Red ink: keviyah code] within it [?].

The cycle [?] [Red ink: keviyah code] [?] within it [?] [is fixed] [?]; and so for the embolism [?] [Red ink: keviyah code] [is fixed], and so for [?]. And we [?] [Red ink: keviyah code] this [?] [Red ink: keviyah code] [?] truly [?].

And [if] [the year] is to be embolismic [?] [Red ink: keviyah code] [is] such, the embolism [?] this [?]; [Red ink: keviyah code] and so forth.

It [?] [Red ink: keviyah code] [?] [if] the molad [?] [Red ink: keviyah code] ordinary [?] [Red ink: keviyah code] [is] such [?]; and the deferments [?] [Red ink: keviyah code] [?]…

You [?] [Red ink: keviyah code] [?] [if] the keviyah [?] of the year [?] [Red ink: keviyah code] [is] such, [if] [its] molad [?] [Red ink: keviyah code]…

[?] [Red ink: ד"ר ק"ה (?) — keviyah codes] [if] the molad of the year [?] [Red ink: keviyah code] [is] such, or [if] [Red ink: keviyah code] [?] [Red ink: ד"ר (?)] it is [?]; ordinary [?] [Red ink: keviyah code] within it [?] [is fixed]. And the deferment [?] [Red ink: ד"ר ק"ש (?)] [?] [is] such, the keviyah [?] [Red ink: keviyah code] [?].

The fixing [?] within [?] [Red ink: ק"ה (?)] [?] [Red ink: keviyah code] [is] such, [if] within it [?] the deferments [?] [Red ink: keviyah code]; whether [?] the embolism [?] [Red ink: keviyah code], [if] within the molad [?] [Red ink: keviyah code] [is fixed].

The deferment [?] [Red ink: ד"ר ר"ה (?)] [?] just as [Red ink: keviyah code] within the deferments [?] [is] such, [you reckon? — verb lost] [Red ink: keviyah code] [?] and so forth [?].

Left-hand column (right-to-left)

[The top of this column is partly lost to a stain at the top-inner corner.]

A year [?] is fixed [?], such [?]; and likewise [?] [if] it is fixed [?] [Red ink: keviyah code] [?]…

It [?] is ordinary [?]; to be [?] within it [?] [the year] [?], the deferment [?] of [?] [Red ink: ד"ר תשב (?)] [?]. He [or: it] is ordinary [?] [if] within it [?] the molad of the cycle [?]; [it] is ordinary [?] [Red ink: keviyah code] [?].

And likewise [?] [Red ink: keviyah code] of the year [?] [Red ink: ב"ה תשב (?)]; [you reckon] [Red ink: keviyah code] [?] [is fixed]. And the [?] [is] such, the keviyah [?] [Red ink: keviyah code]…

> **[Damage: water stain + foxing, mid-to-lower left column of 162v, ~5 lines partly illegible.]**

The order [?] [Red ink: ל"ה (?) — keviyah code] [?] this [?] [Red ink: keviyah code] [is] such; for each [?] one [?] another [?] [Red ink: keviyah code] [?]…

In the cycle [?] in the recurrence [?] [Red ink: keviyah code] [?] within them [?] [the keviyot]; not [?] within them [?] there is [?] for each [?]. There [are] keviyot [?] these [?] [if] there is [?] within them [?], such [?]…

So [?] for the [?] [are] [Red ink: keviyah code] keviyot [?]; [if] within it [?] is not [?] [a keviyah] [?]; the year [?] of intercalation [?] [Red ink: keviyah code] is fixed [?].

[?] By contrast [?], let us reckon [?] [Red ink: keviyah code] [?] and reckon [?] [Red ink: keviyah code].

And let us place [?] in [?] [a sign / mnemonic] [?].

For computation [?] [Red ink: keviyah code] [?].

[?] [is] not [?].

Within the intercalation [?] ten [?] [or: עשר "ten" / עשור (?)] [Red ink: keviyah code].

Of [?] it [?].

By contrast [?]: we have placed [?] the [?] of the keviyot [?] [— phrase partly lost]; [?] within them [?] [Red ink: keviyah code] [?]; according to [?] their [?]…

[?] there [?]…[?] for [?]. The [?] is fixed [?]; [for] each one [?] [there is] another [?]; we have placed it [?].

And behold [?] the rule [?] [is] established [?] for you [?] [— closing-flavored clause] and it is set in order [Red ink: ויתחבן / ויתחבר (?) "and let it be joined/reckoned" — final word, uncertain].

> **`. Cannot be confirmed as a true catchword vs. a closing rubric at this resolution.]**

Marginal note (folio 162v, right margin)

A vertical column of red-ink letters runs down the outer-right margin of folio 162v, set apart from the body. These appear to be a short index/key of keviyah codes (single-/double-letter weekday-character abbreviations) keyed to the body's keviyah discussion, **not** a citation of a named authority.

> **[Marginal note (red ink, right margin of 162v): vertical column of keviyah-code letters; verbatim text only partly legible — reading approx. "ו… ב… ה… ר… ד…" [?]. Constructive keviyah-index helper; further identification (and whether the full code-set is recoverable) requires further verification.]**

Yesod Olam — Book Four (The Jewish Calendar)

Vatican Library, Vat.ebr.380. Sephardic semicursive hand. Book Four ("the work of the Reckoning," מלאכת החשבון) continues — within the keviyah / year-type reckoning, with a large tabulated panel of molad values and weekday-character (keviyah) codes.

At the very top of the page, above the table, two lines of dense running prose stretch across the full width as a header band, partly in red ink and heavily abraded:

> [Red ink, table-banner, partly legible:] "…this table sets out the molad of each year of the cycle … and its keviyah … [?]" — the banner is largely effaced by water-staining and the abrasion across the upper-right; only fragmentary words ("מולד", "כל שנה", "קביעה") are recoverable. [Damage: upper margin abraded, ~2 banner lines mostly lost.]

Table. A wide ruled keviyah / molad table occupying the upper two-thirds of the page. Reading right-to-left, each row gives, for a year of the 19-year cycle (or a keviyah case): a red-ink weekday-character code (keviyah, a 3-letter כסדרן/חסר/שלם-type code — **NOT** gematria), and the molad expressed in **day** / **hour** / **chalakim**, with several further parallel columns repeating the structure (the panel carries multiple molad-derivation columns side by side, one block per derivation step). Red ink marks the structural/keviyah codes and several column captions; black ink carries the numeric molad values.

The table is **severely damaged**: a broad water-stain and abrasion run diagonally through the center-left third, and red iron-gall rubrics have faded faster than the black numerals. Many interior cells are illegible. Structure is preserved below with `[?]` for unreadable cells; the logical column order is right-to-left.

#	Col 1 (rightmost: red group-label)	Col 2	Col 3	Col 4	Col 5	Col 6	Col 7	Col 8	Col 9	Col 10	Col 11	Col 12	Col 13 (leftmost, red index)
H	[Red ink header strip — ab												

#	Col 1 (rightmost: red group-label)	Col 2	Col 3	Col 4	Col 5	Col 6	Col 7	Col 8	Col 9	Col 10	Col 11	Col 12	Col 13 (leftmost, red index)
	raded; sub-labels not separately recoverable]												
1	[Red: א]	ד	יח	תשנא	ה	יד	—	—	—	—	—	—	[Red: א]

#	Col 1 (rightmost: red group-label)	Col 2	Col 3	Col 4	Col 5	Col 6	Col 7	Col 8	Col 9	Col 10	Col 11	Col 12	Col 13 (leftmost, red index)
2	ב	יח	תשנב	ד	יד	—	—	—	—	—	—	—	[Red: ב]
3	[Red: ב]	עו	קפא	—	—	—	—	—	—	—	—	—	[Red: ג]
4	ד	ל	תקטז	ב	ד	—	—	—	—	—	—	—	[Red: ד]
5	ה	יד	רכו	ד	סמך	—	—	—	—	—	—	—	[Red: ה]
6	[Red: ג]	ו	תקה	ב	רכו	ב	—	—	—	—	—	—	[Red: ו]
7	ב	יב	תשמח	ב	מתקסה[?]	ב	שלב	ד	מתקסה[?]	—	—	—	[Red: ז]
8	ו	שלב	ב	תתלב[?]	ג	מ	שלב	ד	שלב	—	—	—	[Red: ח]
9	ב	יב	תת	ב	תש	ה	מ	של	ד	מת	—	—	[R

#	Col 1 (rightmost: red group-label)	Col 2	Col 3	Col 4	Col 5	Col 6	Col 7	Col 8	Col 9	Col 10	Col 11	Col 12	Col 13 (leftmost, red index)
			קט[?]ו		מא			ב		שמ[א?]			[Red: ט]
10	יב	תשסד[?]	ב	קעב	ה	שעו	ב	קעב	ה	סדו	—	—	[Red: י]
11	[Red: ד]	ב	תקלא	ב	תתמה[?]	ד	תתקמג[?]	ב	תתמה[?]	ה	סדו	—	[Red: יא]
12	ג	ב	תנקמא[?]	ד	תרמ[?]	ד	תתקמג[?]	ב	תרמ[?]	ה	שעו	—	[Red: יב]
13	שמא	יד	רעא	ד	שמא	ב	שמא	ד	שמא	ב	שעו	—	[Red: יג]
14	תמ	מח	ב	שעא	ד	שמא	ב	שמא	מ	תתסב[?]	—	—	[Red: יד]
15	[Red: ה]	יא	תקס	מ	תכבס[?]ו	ב	תקס	מ	תקס	מ	תתסב[?]	—	[Red: יה]

#	Col 1 (rightmost: red group-label)	Col 2	Col 3	Col 4	Col 5	Col 6	Col 7	Col 8	Col 9	Col 10	Col 11	Col 12	Col 13 (leftmost, red index)
					]								

[Damage: a large brown water-stain runs diagonally across the center-left of the grid (middle columns, rows 4–11), bleaching and blurring ink; edge/corner abrasion at the upper-right and along the right margin. The right-hand numeric block (Cols 1–5) is the best-preserved zone and is read with confidence except for the four-letter myriad-compound and tav-tav-ligature forms flagged [?]. Cols 6–13 fall into the stained/abraded left half; ruled cells shown – are genuine structural blanks / carry-overs in this right-weighted table, NOT illegible data. Col 13 (leftmost) is a clean red **running index (1–15) א…יה**, letter-by-letter legible; Col 1 (rightmost) carries red **group-label letters א,ב,ג,ד,ה** once per row-block (rows 1,3,6,11,15), carrying over beneath each (the black Col-1 cells between labels are the block's own data). Residual [?] cells (16) all lie under the single contiguous center-left water-stain and remain at scan-floor; no values were fabricated to complete rows. Table is a **higher-DPI rescan candidate** (one capture of the center-left grid would likely clear all 16 at once).]

at scan floor; fol. 163r flagged as a higher-DPI rescan candidate.]

[Red ink: down the left (outer) margin of the table runs a vertical column of red 3-letter keviyah codes, one per row — these are weekday-character codes, not numerals. Mostly effaced; "שלם" and a "ב…" code are partly legible.]

[Prose below the table — right column]

The chalakim, the hours, and the day [of the week] for each year [of the cycle], according to the order of the reckoning of the years of the cycle. By contrast, [?] the cycle, with the chalakim that come out [of the reckoning], in the place [column?] for that [year] [?].

This is the rule: whenever its molad comes out [as one value], its keviyah is fixed accordingly; and whenever the day of its molad comes [as another], [you find] another fixing [keviyah] for it. And when you have arranged them [the years] in the place [columns] of the reckoning, [the molad of the cycle is fixed] [?] upon them; and you set down [each] keviyah-fixing [code] across from [its row] [?]. And when the day [of the week] comes out [again] in [its proper] order, its fixing is [thereby] established. [?]

[Prose below the table — left column]

[The water-stain] alone [obscures] their order [as we have] arranged [them] [?]. And the matter [that] he [the author] taught is in order to make known to you the way in which [?] each fixing follows from its [molad]; and within the calculation of the years [?] of the cycle [?]. Take note of this, [for] from this you will [further] know the [other] fixings, and you will [arrive at] the [correct] keviyah for [?] for [?]. According to the foundations [yesodot] [?] of this matter [you will] establish [the rest], [for the whole of it] is built upon [these foundations]. So take care to fix [it] in your memory: this is the way [?] [and] then [?] another matter, with God's help, an end [here] [?].

[The lower prose is damaged across its middle by the same stain that crosses the table; readings carry heavy uncertainty.]

" — marginal note; further identification requires further verification.]

---

the reckonings [?] [as] they are, until the keviyah of [?] of the present [year] comes out, and you [?] reckon the [?] further. The [two] reasons [?] differ from one another in the [matter of the] keviyah. And now [ועתה] take note [?]: [when] the molad comes and is fixed, you [?] [will] say [?] that this is the keviyah [?].

[Red ink: short rubric / sigla "תח[?]ל" — appears to be an abbreviation or marker; illegible. [?]]

[?] Now take note [התבונן] [?] in this: that there are years in which they [?] are [?] in them; [as for those] in which there is no [?] additional [day?], the keviyah [?] in

them is [?] [?]. By contrast, those [years] of the embolismic [order] — they [?] for the [?] [?] reckoning of [?] [?].

[The right column continues for roughly twenty lines of dense compute-prose on which years take a given keviyah and which an additional [embolismic] adjustment; the middle of the column is crossed by the page's large water-stain and is largely illegible. Recoverable fragments: "the way" (הדרך), "and its keviyah" (וקביעתה), "the molad of the cycle" (מולד המחזור), "the deferments" (הדחיות), "the embolismic [year]" (המעוברת), "and its keviyah upon the [foundation]" (וקביעתה על ה…). The argument concerns deriving the keviyah from the molad of the 19-year cycle together with the deferments [דחיות], distinguishing the ordinary [פשוטה] from the embolismic [מעוברת] case. [Damage: ~12 central lines of the right column lost to water-staining]]

Near the foot of the right column: "… and not [אל]…" / "until we make known [להודיע] [?] … so that you may know [?], when its molad is [such], the keviyah of [that] year is [such] [?]."

[it will be] for [some particular] year [shel some] cycle, [its] day/hour/chalakim — [example fragment of a molad triple]: "ד / [?] / [?]" — [it will be] thus and so. And its keviyah is [?], and likewise [the next] cases. And afterward [ואחר כן] … [there follows a worked sequence of cases, each of the form:]

> [Red ink keviyah code / day-hour-chalakim] "… for them another [year] [?]"; "another keviyah [נחזית?] … the keviyah-cases [are] thus and so."

The left column lays out a **run of worked keviyah cases**, each line giving a red-ink 3-letter keviyah code (weekday-character code) followed by a molad triple (day / hour / chalakim) and the resulting fixing. Recoverable lines (red codes in brackets):

- [Red ink: keviyah code, partly legible "ב…[?]"] — molad "תקנ / [?] / ב [?]" — "another [fixing] for them [?]"
- [Red ink: code "ד [?]"] — molad "ד / [?] / [?]"
- [Red ink: code "ה[?]ב" or "בג[?]"] — "another keviyah for them [?]"
- [Red ink: code "ה [?]"] — "and so for them another [?]"
- "and afterward [ואחר כן], the matter being arranged [?] thus, the keviyah-cases [are] established [?]."

[Red ink display rubric, mid-left-column: **"ונחזור כן"** ("And so let us return") — a structural transition rubric in larger red letters, set off on its own line.]

Following the rubric: "Let us return [now] to make plain [?] our words, [for] the matter [is] arranged [?] [as] it is. And [there are] two [kinds of] year [?]: the simple [ordinary, פשוטה] [?] of the cycle, and [?] one in [which there is] an additional [embolismic adjustment] [?]. By means of them [?] [come] the keviyah-cases, the deferments [?] [?] [?]. By the [?] reckoning [?] — [?] [the keviyah] of the simple [year] [?], for [its] molad [?]; and [the keviyah] of the embolismic [?]. So learn [?] [this], for from it [?] [you] reckon [?] the keviyah [?] from the molad of the cycle [?]." [?]

[Damage: the left column is somewhat better preserved than the right but its lower third is faint; red keviyah codes throughout are faded (red iron-gall fading faster than the black numerals). Multiple [?] reflect genuinely ambiguous glyphs after careful examination for the worked-case red codes.]

Yesod Olam — Book Four (The Jewish Calendar)

> **Script:** Sephardic semicursive, single primary hand. Red ink (rubrication) used for keviyah weekday-character codes (3-letter year-type codes such as ב״ש, ה״ש, ז״ח, ג״כ, etc.), for structural transition-words, and for occasional emphasis. The three-letter red codes are **keviyah codes, not gematria**.
>
> **General readability warning:** Both folios carry a large central water/foxing stain (an oval roughly through the middle third of each page) plus heavy ink bleed-through from the facing side. Many lines in the affected band are only partially legible; degraded readings are flagged [?] inline and the worst-hit lines are listed as in the QA report. This is a continuous, unrubricated compute-section of "the work of the Reckoning" (מלאכת החשבון) — no new שער/פרק display heading opens in this batch.

And know that whenever the months [?] are completed in their reckoning, take the remainder and cast it out; and the remainder [?] that is left to you is what you seek. [Red: ב״ש (keviyah code)] [?]

When you wish to know the keviyah of the year that you are reckoning [?], look at the molad and at the deferments (דחיות), and act accordingly. [Red: ה״ש (keviyah code)]

The reckoner who acts by this rule [?] — if the molad falls before midday (חצות), [?] and there is no deferment, then the keviyah is fixed (קבוע) on that very day. [Red: ג״כ / ז״ח (keviyah codes) [?]]

And if [the molad] falls after midday, the day is deferred [?] to the following day, and the keviyah is established (נקבע) on the morrow. [Red: ב״ח (keviyah code) [?]]

[Several lines here pass through the water stain and are largely illegible — degraded; transcribable only in fragments: "…the molad… and the deferment… and the keviyah… ordinary year (פשוטה)… embolismic (מעוברת)…" — flagged for review.] [?]

And [Red: ונחזור — "let us return"] to this matter: when the molad of the cycle (מולד המחזור) is known to you, add to it the surplus of the [nineteen-]year cycle [?], and from the total you derive the molad of the year you seek. [?]

[Red: וְאַחֲרֵי כֵן — "And thereafter"] we shall set forth the rule of the keviyot (קביעות).

Know that the reckoner who reckons by this method, [?] when he comes to fix [?] the keviyah of the year, looks first at the molad of Tishrei and at the deferments [?]; and according to the four deferments (אד״ו [the deferment-rule that Rosh Hashanah may not fall on day 1 = Sunday, day 4 = Wednesday, or day 6 = Friday]) [?] he determines the day. [Red: ז״ח / ה״ק (keviyah codes) [?]]

For the principle (הכלל) [?] is this: every ordinary year (שנה פשוטה) and every embolismic year (שנה מעוברת) has its fixed keviyot, and from them all the years are reckoned [?]. [Red: ב״ש / ה״ש (keviyah codes)]

And when you have grasped this — [?] that the molad of one year [?], when you add to it the surplus of the [year], yields the molad of the next [?] — then you have the whole reckoning [?] in your hand. [Red: ג״כ (keviyah code) [?]]

[Red: ז״ך / ה״ש / ב״ח (keviyah codes) [?]] — And the keviyot of the embolismic year [?] are otherwise [?], as we shall explain. [?]

[Red: ב״ש / ה״ק (keviyah codes) [?]] And return, [?] for every ordinary year [?] has [its] keviyot and every embolismic year has its keviyot. [Red: ה״ק (keviyah code) [?]]

Look, then — [?] and so [Red: וְכֵן] you will find for the rest of the keviyot, each one in its [proper] place. [?] And this is the matter [?] that we explained at the outset: [?] the holiness [?] of this reckoning [?]. [?]

[Red: ה״ק (keviyah code) [?]] We shall now [?] set out for you, year by year [?], each one with its keviyah and its deferments [?], so that the whole of it [?] will be clear to you [?]. And this is it: [Red: כָּכָה — "thus"].

[Red: וּרְאֵה — "And see" (or וּנְשַׁבֵּן [?]] this, [?] which we have arranged for you [?]: [?]) The principle [?] of the deferments and the keviyot [?] [is] one [?]; the keviyot [?] are established [?] from them [?]. And after [?] [you grasp] the reckoning [?] in this manner [?], the reckoner [?] will derive [?] from it [?] the molad of the cycle [?] [— line through the stain, largely illegible —] [?]. The whole [?] is one [?]; and after this [?] the principle [?], by this same method [?]. [?]

[First lines partly under the gutter and stain.] …and so [Red: וְכֵן] in this manner [?]. [Red: ה״ש (keviyah code) [?]] And it [?] is established [?] in the keviyah [?]. [Red: ב״ך / ה״ק / ז״ח (keviyah codes) [?]]

The year [?] and its month [?]: cast out [?], and the remainder [?] is what you seek [?]; [?] for they are [?] in their reckoning [?]. [Red: ב״ך / ה״ק (keviyah codes) [?]]

[A run of lines through the central stain is largely illegible — only fragments recoverable: "…the molad… one… and from it… the years (השנים)… cast out (תקבץ)… ordinary (פשוטה)…" — flagged for review.] [?]

and one of them [?] is the keviyah [?]; [?] and from it [?] you take [?] the rest [?]. [?] And the years (השנים) [?] [— illegible —] [?].

The molad [?]: the day [?] of the molad [?], when [?] there falls [?] [the deferment?] [?], the keviyah [?] is established [?]; [?] but if not, [?] it is established [?] on its [own] day. [?]

And the matter [?] of the keviyah [?] [— a line through the stain —] [?] as we explained [?]. [?]

[Red: לְבַד — "alone" / "only" [?]] Take [?] [Red: גַּם — "also" (or נַ״ך [keviyah code]) [?]] for yourself [?] [Red: לְזֶה (keviyah code) [?]] the keviyah [?]. [?] As [?] we

explained [?] [Red: לְהַד / לְהֵם (keviyah codes) [?]], the keviyah [?] [is established]. [Red: ה״ק / ה״ך / ב״ש / ה״ק (keviyah codes) [?]]

This [?] is what was established [?]: [?] for [?] the holiness [?] of the reckoner [?] [— stain —] [?] year by year [?], each one [?], according to its keviyah [?] [and] its deferments [?], the whole of it [?] one [?]. And after this [?] [— a line largely illegible —] [?] [Red: ד״ר [?]].

In its month [?], the keviyah [?] [is] of [?] the holiness [?] [of] the reckoner [?]; [?] and after [?] [— illegible —] [?]. The reckoner [?] will derive [?] the molad of the cycle [?] [— line through the stain —] [?]; [?] to one [?] and after [?] the keviyah [?]. [?]

For the principle (הכלל) [?] is one: the deferments (הדחיות) [?] and the keviyot (הקביעות) [?] — [?] from them [?] the keviyot [?] are established [?]. And after [?] the reckoning [?] in this manner [?], [— illegible —] [?]. And the rest [?] each in [its] place [?], so [Red: וְכֵן] you will find for the rest of the keviyot, [?] [— illegible —] [?].

[Top lines under the stain — fragmentary.] …all [?] of it [?] one [?] in [?] [the?] reckoning [?]; [?] and so [Red: וְכֵן] you will find [?]. [?]

And know that [?] the molad [?] [— illegible —] [?]; [?] and when [?] there falls [?] [a deferment] [?], [?] [Red: ה״ש (keviyah code) [?]] [?].

[A run through the stain — fragments: "…the molad… and the deferment… cast out… and from it… the keviyah… the years…"] [?]

and the years (השנים) [?]; [?] cast them out [?] [Red: ונְשַׁבֵּן / נ״ך [?]] in their reckoning [?] [Red: ב״ך (keviyah code) [?]]. And know that [Red: וְדַע כִּי] [?] the keviyah [?] [— illegible —] [?] one [?] from [?] them [?].

[Red: וְדַע — "And know"] that whenever [?] [a thing recurs?] [?] one after another [?] in the years [?], [?] each year [?] [has] its keviyah [?]; [?] and from them all [?] the years are reckoned [?]. [?]

[A further run through the lower stain — fragmentary: "…the keviyot… ordinary… embolismic… the molad… deferments… each one in its place…"] [?]

[Red: ה״ש (keviyah code) [?]] And this [?] is the first [?] [keviyah?] [?], and these [?] are the [— illegible —] [?]; [?] and when [?] [— illegible —] [?] one after another [?] [?].

[Red: ב״ך (keviyah code) [?]] In its reckoning [?] [— illegible —] [?], for [?] [the?] reckoning [?].

[Red: ה״ש (keviyah code) [?]] This [?] [— illegible —] [?]; [?] and so [Red: וְכֵן] in this manner [?]. [?]

[Red: ב״ש / ה״ך / ה״ק (keviyah codes) [?]] [— two lines largely illegible through the lower stain —] [?] for there is [?] [in?] the keviyah [?] [?].

[Red: ה״ק (keviyah code) [?]] [— illegible —] [?] in [?] the embolismic [year?] (מעוברת) [?]; [?] the deferments [?] [— illegible —] [?].

[Last lines of the column, partly worn:] …and after [?] this [?], the principle (הכלל) [?] of the embolishment / the reckoning [?] [— illegible —] [?].

QA Report

Yesod Olam — Book Four (the Jewish Calendar)

Script: Sephardic semicursive, single primary hand, with red-ink (rubricated) chapter headings, structural labels, and transition cues. Both folio sides are damaged: page 335 has a large water/foxing stain through the lower-center and left margin; page 336 has water damage through the center and a torn/eroded outer (right) edge with text loss. The Vatican watermark overlay and ink bleed-through are present and ignored throughout.

[The two columns of this folio side carry the close of the preceding discussion of keviyah-derivation and then a new red-ink chapter heading near the foot of the inner (left) column. The lower-center and left margin are heavily water-stained; many words are recovered only partially.]

the reckoning, were it whole, would have been [?] for all the keviyot. [Damage: water stain, ~2–3 words lost per line, left column, several lines] …and were they not [?] [?], [?] would not be [?] [Damage]. And so you will find, when you examine it, that the keviyah [?] [Damage].

[Red ink: וזה] — And this [Damage] …in the [?] year of the cycle [Damage, ~1 line].

[Red ink: כן] — Thus [?] [Damage].

[The following short clauses are interspersed with small red-ink numeral/code labels marking year-positions or keviyah characters; the surrounding black prose is largely lost to the stain. Each red token is recorded verbatim as a structural label, not expanded as gematria:]

- [Red ink: ב יה] [?] [Damage]
- [Red ink: ז ון] [?] [Damage]
- [Red ink: ולנכ"ה(?)] [?] — [Red ink: ז(?) ת תפ"ב] [?] [Damage] [the red codes here are uncertain after the stain]
- [Red ink: ב ע תקב"ל(?)] [?] [Damage]
- [Red ink: ולנ"ך(?)] [?] [Red ink: ז ח תק"עם(?)] [?] [Damage]

[The remainder of the inner column above the new chapter heading is too water-damaged for a continuous reading. The clauses concern, by their surviving fragments, the assignment of keviyah-character codes (weekday/year-type triples) to successive cycle-years, and a closing remark that the codes are set "for them" (לפי השעון / "according to the clock"[?]) and "established" (ותקין). Marked as a]

thus to them [?], this is [?]. [end of pre-heading material]

[Red ink heading: פרק אחד עשר] — Chapter Eleven

[Red ink, rubric: a short verse-like couplet introducing the chapter:]

> [Red ink: קטנה ועתיקה ונקטנת השברים שבדרך] [Red ink: לאחד דרך תקון על פי החשבון]

A small and ancient [matter], and the diminishing of the fractions that lie along the way — toward a single mode of correction by the reckoning. [The couplet is rubrical; its sense is "the small, time-honored business of paring down the leftover fractions, so as to bring everything to one rule of adjustment by the calculation."]

[Red ink: דע] — Know that in this chapter [?] [the matter] is whole and complete, [and] in it I shall return [to] the chapter [?] [Damage] …

[Damage: water stain across the foot of the column.] …in [?] the leap-counting [?] and [?] [Damage] …the years, and [?] this is so, that the fractions [?] [Damage] … and I shall return [?] from [?] the reckoning, which we [?] [Damage, end of column].

[Outer (right) column of page 335 — the upper portion is legible; the lower-center is stained.]

and the keviyot [that come] one after another [?], for two keviyot [?] [Damage] …

[Red ink: שער] [?] [Red ink: יד] [?] — [structural label: "Gate 14"(?), red ink; reading uncertain after stain] [Damage] …

[Red ink: חרם] [?] [the people] divided [?] [Red ink: שעות] hours [?] [Damage] … And they said [?] that the [?] reckoning is [?] for the keviyot [?] [Damage] …the leap-years, that [?] occur [?] [Damage] …

over against [?] keviyah after keviyah [?]: [?] so that the keviyah comes after [?] another [?]. For in the [?] keviyot the deferments [דחיות] are [?] [Damage] …the deferment [?] thus [?] that this [?] is one [?] [Damage] …the deferments, the keviyah [?]. And so [?] the keviyot are [?] [Damage] …

the keviyah [is] thus [?] all of it, and in the keviyah of the cycle there [are] [?] [Damage] …and we examine [?] that [?] this is [?]. [?] [Damage] in this [?] [the leap-years (?)] [Red ink: יג] [thirteen][?] in the cycle [?]. The keviyah [?] [Damage] …shall come [?] [?] hours, for the [?] reckoning [?] is [?] [Damage] …

the keviyah of the cycle [?] [Damage]. And so in [?] keviyot [?] [Damage] …the keviyah [is] established [קבוע], and we move [?] hours [?] [Damage] … until you [?] in the calculation [בחשבון] [you] take [?] the [?] which is left over [?] from them. And this is [?] [Red ink: ע זו תקנה] — "this is the correction" [?] [Damage] … it shall rise [?] for the keviyot [שלשום (?)] [?] [Damage] …shall rise [?] [Red ink: תקנה] correction [?]. The portions [חלקים] [?] alone, and we move [?] that there is no [?] in them [?] [Damage] …after [?] that they made [?] [?], and [?] that the deferment [?] [Damage] …shall be [?] the hours, when [?] [Damage]. And we return [נחזור] to the matter [?] [Damage] …shall be the [?] portions [?], and when the keviyah [?] [Damage] …

after [?], and behold, behold he knows [?] [Damage] …another, and after the keviyah the reckoning [?] [?] [Damage]. Behold, the [?] reckoning [?] [Damage]. They are not [?] [?] the portions [?] [Damage] …have completed [?], and behold [?] [Red ink: התקנה] the correction [?] [Damage] …to be [?], for [?] he knew [?] the keviyah, the [?] keviyah [Damage] …took [?] in [?], and behold [?] [Damage] [?] [Damage] …in the calculation [?] for the keviyah [?] to [?] the keviyah [?] [Damage] …time after time, this is what [?] [Damage] [end of column].

[The lower third of both columns of page 335 is too water-stained for continuous reading. The surviving fragments are consistent with a discussion of how successive keviyot arise from one another, the role of the deferments (דחיות), and

the "correction" (תקנה) by which surplus fractions/portions (חלקים) are reduced. Marked as a]

[Outer (left) column of page 336 — upper portion legible, lower-center stained.]

[?] that it was [?] for the cycle [?], and behold, the keviyot [?] [Damage] …[?] that it was [?] the [?], and the [?] keviyah [?] [Damage] …

and [?] is whole [?], and behold, [it is] in [?] the keviyah [?] and [?] another [Damage] …the matter [?] [?] return [?] only [?] [Damage] …and in the [?] keviyah, the portions [?] [Damage] …

[?] behold the keviyah [?], for the keviyah of the cycle [?] [Damage] …behold [?], for [?] [?] before [?] the keviyah [?] [Damage] …and we examine [?] its [?] sign [?], that the keviyot [?] [Damage] …after [?], that [?] eyes [?] also [?] [Damage] …

in the matter [?] [Damage] …and behold, the keviyah [?] [Damage] …was [?] in the leap-counting [?] and [?] there were [?] for the leap-years [?] [Damage] …all the years [?] [?] over [?] of the cycle [?] [Damage] …upon the matter [?] [?] portions, and [?] [?] life [?] [Damage] …it [is] in [?] [?] the portions [?], and [?] [Damage] … after the seventh [?] portion [?] [Damage] …the [?] heavens [?] which [?] [Damage] [end of upper block].

[Red ink label: עולה · שובו] — "[It] rises · Return"

[Red-ink structural cue introducing a summary clause; "rises" (עולה) of the accumulated portions and "return" (שובו) to the rule.]

[Red ink: התעולים(?)] [?] — The "risings" [the accumulated surplus amounts][?]: behold this is the [?] [Damage] …in [?] the beginning [בתחלה], [?] [?] the portion [?] [Damage]. [?] is [?] the day [?] [?] hour [?] [Damage] …the day, [?] day [?], and behold [?] the day [?] [Damage] …upon [?], and when [?] [?] the days [?] [Damage] …in the calculation [בחשבון] [?] no [?] [?] hour [?] [Damage] [end of block].

[Red ink heading: ותקופת תמוז] — And the Tekufah of Tammuz

[The "Tekufah of Tammuz" — the summer solstice — opens a rubricated treatment of the four seasonal tekufot.]

This is [?] the day [?] [Damage] …the heat [החמה] [?] for the cycle, [?] hour [?] [Damage] …upon the [?] first [?], and [?] is [?] the day, the [?] portion [?], and [?] the [?] [Damage] …the time of the heat [זמן החום], and [?] the heat [?] [?] [Damage] …also the portion [?] [?] of the [?] hours, the [?] [Damage] …the [?] portions, alone [?], [?] there [?] [Damage] …

[Red ink: קלקן(?)] [?] — [Red ink: חליה (?)] [?] — [Red ink: בתולה] Virgo [?] — [Damage] [These red-ink tokens stand for zodiacal-sign / season labels; "Virgo" (בתולה) is legible. Adjacent labels uncertain after stain]

[?] upon [?] the heat [?] [?] the cycle [?] [Damage] …upon the [?], and when [?] the [?] day [?] [Damage] …the tekufah [התקופה] of the heat [?] [?] [Damage] …to the day [?] [?] [Damage] …and thus it was [?] until [?] [?] [Damage] [end of block].

[Red ink heading: ותקופת תשרי] — And the Tekufah of Tishrei

[The "Tekufah of Tishrei" — the autumnal equinox.]

This is [?] the day [?] [Damage, ~1 line] …for the cycle [?] [Damage] [The remainder of this column is heavily stained; only the heading and the opening words are recoverable. Marked as a]

[Outer (right) column of page 336 — upper portion legible; the right edge is torn/eroded with loss of the final ~2–4 characters per line; the lower-center is stained.]

[?] [the] hot season of the heat, as [?] [Damage: edge loss, ~3 characters] …it was [?] the law [?] [Damage], [?] the heart of the [?] [Damage: edge loss] …

the tekufah [?] heat [?], and behold the heat [החמה] [?] [Damage: edge loss] …the [?] in the [?] of the heat [?] [Damage] [edge loss] …in the [?] for the season [?] [?], and after [?] [Damage] …that the [?] season [?] [?] for the keviyah [?] [Damage: edge loss] …

for [?] the [?] season [?] [?], that [?] [?] [Damage] …also [?] the season [?] for the [?] another [?] [Damage] …behold the time [?] [?] [Damage] …

the [?] season [?], when [?] the [?] [Damage] …also [?] the [?], and [?] the season [?] [?] another [?] [Damage] …after [?] the [?] season [?] another [?], and behold [?] [Damage] …examine [?] [?] this [?] [Damage] …

[Red ink heading: תקופה] — Tekufah

[A red-ink "Tekufah" sub-rubric.]

and behold the [?] heat [?], the [?] season [?] [Damage: edge loss] …examine [?] upon [?] the [?] also [?] thus [?] the [?] [Damage] …also [?], and behold, that [?] [?] [Damage] …behold [?] the [?] heat [?] upon [?] the heat [החמה], and [?] [Damage] …in [?] also [?], for [?] the [?] [Damage] …

and in the [?] of the season [?] the tekufah [תקופת] [?] [Damage] …[Red ink: תקופה] tekufah [?] [Damage] …and [?] for [?] the season [?] [Damage] …also [?], when the season [?] [?] upon one [?] one [?] [Damage] …after this [?] that [?] [?] [Damage] …

[?] also [?], for [?] [?] season [?] [?] [Damage] …and behold the season [?] [?] the time [זמן] [?] [Damage] …and behold the time [?] [?], and over against [?] this [?] [Damage] …thus [?] [?], for [?] [Red ink: כב(?)] [?] [Damage] …[Red ink: לעבד כב(?)] [?] — [Red ink: ותקופת(?)] tekufah [?] [?] season [?] up to [?] [Damage] …

[?] [?], and behold, another [?] shall be [?] [Damage] …the leap-counting [?] [?] this [?] [?] was [?] [Damage] …also [?] another [?] in the tekufah [?] [?] another [?] [Damage] …[?] for us [?] the season [?] [?] [Damage] …and [?] for us [?] [?] the season [?] [?] [Damage] …

[Red ink: טבת [תקופ[ת] — Tekufah of Tevet (?)

[A red-ink rubric near the foot — the "Tekufah of Tevet" (winter solstice), heavily faded and stained; reading uncertain.] …and this is the [?] [Damage: edge loss + stain, ~2 lines] …examine [?] upon it [?] [end of column / foot of folio].

[The lower-center and right edge of both columns of page 336 are heavily water-stained and torn; the surviving fragments are consistent with a continuous treatment of the four seasonal tekufot (Tammuz/summer, Tishrei/autumn, Tevet/winter, with the spring tekufah presumably on the following folio), giving for each its day, hour, and portion within the 19-year cycle. The detailed numerical values are not recoverable from this witness at this resolution. Marked as a]

Yesod Olam — Book Four (The Jewish Calendar), Chapter Eleven (continued)

Vatican Library, Vat.ebr.380 — Sephardic hand. Batch 169, (folio "166" marked in margin of p. 337).

Right column (read first)

the heat (החמה), and behold this is the season (תקופה) [whose] sign is the heat (סימן חום). Likewise the season of Tishrei (תקופת תשרי): although the day and the night are then equal, nevertheless that season inclines toward cold [?], since from

it the sun begins to descend toward the lower regions [?] and toward the cold side. Thus its sign is the inclining toward cold [?].

By contrast the season of Tevet (תקופת טבת): even though it is the time [?] of greatest cold, nevertheless from it the sun begins to ascend [?] toward us once more — therefore its sign [?] is [...].

Consider, then [?], that just as the seasons (תקופות) differ in their natural characters [?], so too the names by which they are marked differ. The natural [seasons], then, are these. [Red ink: מחזוס] [?] [most likely a rubric word, partly faded — possibly מחזור, "cycle," or a marginal/structural label; flag for further review]

[Red ink header:] תקופת קֵיִת [?] · ותקופת טבת — "The season of [Kayit / summer?] and the season of Tevet"

[The red-ink header is partly faded. The first word appears to be קיץ ("summer/Kayit") written defectively, paired with טבת; read with care. The scribe's ש frequently loses its left stroke and resembles ע — bear this in mind throughout.]

This being so [?], when the season of the heat (החמה) arrives [?]: behold it is the great heat [?]; and even though the day is then longest [?] for those who dwell [?] in the equatorial regions [?] (לאקלים [Arabic-derived: al-iqlīm, "the clime/zone"]) — and in the climes (לאקלימים) [?] toward [...] [edge/damage] — nevertheless [?] the season is the corner [?] (פנה) of the heat [?], and the season of cold [?] is its counterpart [?]. And the matter [?] holds [?] thus.

And he said [?]: when the sun [?] reaches there [?], behold it [?]... and likewise [?] when the cold [?] (הקור) [...] [several words obscured by water-stain through the column center]; behold the natural [seasons (התקופות הטבעיות)?], following [?] their natural [reckoning], for [?] these [?] [...] and likewise [?] [the seasons] that we order [?] (שנסדר) by the conventional [reckoning] — for [?] the conventional [seasons (התקופות הסכמיות)?] [...] [the line runs into water-staining].

Others [?] (אחרים) [...] there [...]. And in [?] [Red ink: נֹלי לֶל הֶנֹס [?] — a faded red rubric of ~3 letters, illegible; flag for further review]

And from this you may understand [?] the rule [?] of all this [?], and [you may] arrange [?] the conventional [seasons?] [...].

And so [?] (וכן) [...] [Red ink emphasis: וכן]: just as [?] [you] arrange [?] the heat [?] [...] reckoning [?] (החשבון), [...] the conventional [season?] [...] the heat [?]; thus [?]

[...] season of cold [?] [...] in three [?] [...] the season of cold [?] (/ תקופת החמה תקופת הקור) [...]. The season of the heat [?] (יום תקופת החמה) [...] the season of the heat [?] (תקופת החמה), and they returned [?] the seasons [?] (תקופות) [...] the season of the heat [?] and the season of cold [?] (תקופת החמה… תקופת הקור) [...]. And it is [?] [the season] of [...] reckoning [?] (חשבון) the season of the cold [?] [...] [the column closes into the binding/water-stain — several words lost].

Left column (contains the seasonal diagram)

Diagram. A single large circle divided by a horizontal diameter and a vertical diameter (a cross) into four quadrants, representing the four seasonal tekufot arranged around the year. The dividing lines and several labels are in red ink; the quadrant-naming words are in black. At the center, in red, a large label reads **קיץ [?]** ("summer/Kayit") with **חורף** ("winter") opposite it across the vertical axis [?]. The four cardinal labels around the rim and the quadrant labels (in red and black) are:

- (top, red): נקודת [?] — "point of [...]" [partly faded]
- (top inner, black): החמה [?] — "the heat"
- (left rim, red, vertical letter): א [?] — a reference letter
- (left, black): מעלה [?] — "ascent / degree"
- (left quadrant, black): שבעטמקה [?] — illegible cluster, flag for further review
- (center, large red): קיץ [?] · חורף — "summer · winter" [the two solstitial seasons]
- (center, red): תקופת החמה [?] — "the season of the heat"
- (lower inner, black): חורף [?] / חום [?]
- (right rim, red letter): ב [?] / ד [?] — a reference letter
- (right, black): מעלה [?] — "ascent / degree"
- (bottom, red): נקודת [?] — "point of [...]"
- (right quadrant, black): קור [?] — "cold"

The black caption-labels outside the lower rim read (right to left): **שירשע הוא חרב [?]** and **שבטמקה [?]** — both clusters are faded and partly obscured by water-staining; transcription tentative. >**2 labels flagged** [?]

Left column prose (above and below the diagram)

[Above the diagram, top of left column — black ink:]

now, then [?] (ועתה), let us return [?] (נחזור) to that which [...]. And he came [?] to explain [?] (לבאר) [...] how [...]. And behold, this [?] is [...]. And the season [?] of [...] [edge/water damage — top lines partly lost]. And likewise [?] the seasons [...] of the cold [?] [...]; for [?] the matter [?] (הענין) [...] thus [?]; and behold [...] [?].

[Below the diagram — black ink:]

In the matter [?] of the seasons [?] (בענין התקופות) [...] the reckoning [?] (החשבון); and [...] for [?] them [?] the season [?] [...]. For [?] thus [?] [...]; and they are [?] [...]. So [?] [...] the corner [?] [...] and behold [?] [...].

[Bottom lines, partly lost to edge-staining:]

The season of [...] (תקופת [...]) [...] reckoning [?] [...]. The heat [?] (החמה) [...] the season of [...] (תקופת [...]) [...] in [...]. [Red-ink letter marks (ז / ד' / ב' [?]) appear inline as enumeration — read with care; flag.] The cold [?] (הקור) [...] season of [?] [...] cold [?] (תקופת […] הקור) [...]; and behold [?] [...].

Right column (read first)

[its] point [?] (נקודתה) was [?] [...]; and behold [?] it [...]; and likewise [?] [...] within [?] it; and [...] [edge-loss, top right]. The season [?] (תקופה) [...] reckoning [?] (תקופת […] חשבון) the season [?] (התקופה) [...]. And if [?] [...] for [?] the reckoning [?] of [...] hours [?] (שעות) [...].

The whole [?] of [the season] of the heat [?]: behold [?] [...] the season of the heat [?] (תקופת החמה), and [...]. The whole [?] of [...] within it [?] [...]; and behold [?] [...] its point [?] (נקודה) [...]. And [...] [several lines run through a heavy water-stain down the column center — partly illegible].

[Lower in the column — readable in part:]

And [?] [...] for [?] the wise men [?] of the natural [reckoning?] (חכמי […] הטבעי [?]), [for] their season [?] [...]; and behold [?] [...]; and likewise [?] [...] in the matter [?] of [...]. And [...] for [?] [...] and behold [?] [...]; and so [?] (וכן) [...]. …and the season of the heat [?] (תקופת החמה) [...]; and [...] for [?] [...] hours [?]; and so [?] [...] in [...]; and behold [?] [...] the season [?] of [...] (התקופה [...]); and [...] [the column continues with a chain of "and… and…" coordinating clauses, the technical content obscured by the central water-stain; several whole lines [illegible]].

[Near the foot — black ink:]

season [?] (תקופה) [...] reckoning [?] (החשבון); and behold [?] [...]; and now [?] (ועתה) [...].

[Red ink header:] ועתה — "And now"

[The word **ועתה** ("And now") is written in red as a paragraph-opening rubric.]

[Black ink:]

And now [?] (ועתה): a thing [?] (דבר) [...] for [?] the reckoning of the season [?] (חשבון התקופה) [...]. In this [?] [...]: behold [?] [...] the reckoning [?] (החשבון) [...]; and [...] [edge-damage at the foot of the right column — final lines partly lost].

And likewise [?] (וכן) [...] the season [?] [...] and [...] the season of Tevet [?] (תקופת טבת) [...]. [The column ends here at the foot of the page.]

Left column (read second)

[Top of left column — black ink. This column is the more legible of the two on p. 338, though still affected by foxing.]

[its] point [?] (נקודתה) was [?] [...]; and behold [?] [...]; and likewise [?] [...]; and [...] the matter [?] [...]. And here [?] [...] when [?] [...] the season [?] (תקופה) [...] for [?] [...] hours [?] (שעות) [...]; and so [?] (וכן) the matter [?] [...].

The whole [?] (כללו) of [the matter]: that [?] there is no [?] (אין) season [?] (תקופה) [...] hours [?] [...]; for [?] [...]. And likewise [?] the season [?] (התקופה) [...] hours [?] [...]; for [?] [...]. And behold [?] [...].

When [?] [...] the season [?] (התקופה) upon [?] [...] hours [?] [...]; and if [?] there is [?] (יש) [...] the season [?] (התקופה) [...] hours [?]; and behold [?] [...]. …and if [?] [...] hours [?]; and the season [?] (התקופה) [...] hours [?]; and so [?] [...]. And when [?] [...] the season [?] upon [?] [...] hours [?]; and the season [?] [...] hours [?]; and so [?] [...].

the season [?] (התקופה) [...] hours [?] [...] upon [?] [...]; behold [?] [...] season [?] [...] hours [?]. And [?] this [?] [...] when [?] [...].

[Lower — partly legible:]

and so [?] [...] for [?] them [?] (להם); and behold [?] this [?] [...]. And he said [?] [...]: behold [?] [...] hours [?]; and so [?] [...]. And [?] the season of the heat [?] (תקופת החמה) [...]; and the season [?] (התקופה) [...]; and behold [?] [...] hours [?].

[Near the foot:]

and the season of the heat [?] (תקופת החמה) [...] hours [?]; and behold [?] [...]. The season [?] (התקופה) [...] hours [?] [...]; and if [?] [...] season [?] [...] hours [?]. And

behold [?] [...] the season [?] (התקופה) [...] hours [?] [...]; and so [?] [...] the matter [?]. And behold [?] this [?] is [?] the matter [?] [...].

Yesod Olam — Book Four (The Jewish Calendar), Chapter Eleven (continued)

Script: Sephardic semicursive, single primary hand. Both folios are heavily water-stained and foxed, with the left text-column of each page substantially degraded; bleed-through from the facing side is visible but has been disregarded. Red ink is used for structural rubrics. Reading order within each page is right column first, then left column.

Right column

the season (תקופה) being its point (נקודתה), and the hours and the half-hour, and so forth [?]. The reckoning (החשבון) comes out to this for you. And the rule of the matter (כלל הדבר) [?]: when you reckon the day of the season (יום התקופה), proceed in this manner.

When you wish to know the time of any season you please — whether the season is by day or by night, and at which hour — take the [stored] season (התקופה השמורה) [?], and from it … and add to it … [the rest of this sentence is obscured by water-staining].

The season of Nisan (תקופת ניסן) [?] falls thus: so-and-so [a count of] days, such-and-such [a count of] hours, and so-and-so parts (חלקים) [?]. And when you wish to know the season of Tammuz (תקופת תמוז), take this and add to it the [interval] from one season to the next [?]. So too the seasons of Tishrei and Tevet (תקופת תשרי וטבת), each computed from its predecessor — (interlinear: וכן) and likewise.

For know that from one season to the next [there are] ninety-one days, seven hours, and a half [hour] [?], which is the quarter [of the solar year]. Take this [interval], and whenever you add it to the [stored] season (התקופה השמורה) [?], the next season comes out for you in its place (במקומה) [?].

This is the rule (זה הכלל) for [computing] the seasons (התקופות) [?]: the season of Tishrei comes after [that of] Tammuz, and the season of Tevet [after that of Tishrei]. Look (התבונן) [?] at the season and at its place, and reckon from it. (interlinear: ותקופת — "and the season of")

And the season (ותקופת) … [a clause obscured by the central water-stain] … the four seasons (ארבע התקופות) [?]. And so the season comes out for you at its hour and its parts (בשעתו וחלקיו) [?], if you reckon them well.

[several lines here are lost to the water-stain at the center-foot of the column; isolated legible words: דרך ("way/manner"), זמן ("time"), מועד ("appointed time"), מינוס [?] [Latin: minus] [?]] …

And know (ודע) [?] that this [interval], if you reckon it [?], comes out for you correctly (נכון) [?]. Take it and place it [in its proper position] [?], for it is the foundation of the seasons (יסוד התקופות) [?] and the foundation of the reckoning (יסוד החשבון) [?]. The reckoning of the season … comes out [for you] correctly [?].

[Red ink: ועתה — "And now"]

[Red ink: ועתה] — And now (ועתה) we shall return (נחזור) [?] to explain (לבאר) [?] the matter (הענין) [?]:

When you wish to know [a given season], take so-and-so days and so-and-so hours … and add to them [?] the [stored] season (התקופה השמורה) [?] … and so the season comes out [for you] [?].

[the closing lines of this column are degraded by foxing; legible fragments: להבדיל ("to distinguish") [?], שנים ("years"), חמה ("sun") [?], חצי ("half"), ימים ("days"), חלקים ("parts")] …

The season of Tammuz [?]: so-and-so days … and so forth.

Left column

[This column is severely degraded — heavy water-staining and bleed-through across nearly its whole height. Only scattered words and phrases are legible; continuous sense cannot be recovered. The matter continues the seasonal-reckoning procedure of the right column.]

the parts (חלקים) [?] … this and this … there is no [?] … the days and the hours [?] …

[Red ink: נחזור — "We return"] [?]

[Red ink: נחזור] [?] — We return … the season … [Interlinear / illegible] … and not [?] … the days [?] … in the reckoning of the season (בחשבון התקופה) [?] …

for the season (כי התקופה) [?] … and you reckon (ותחשוב) … so-and-so days … the half-hour [?] … the [stored] season [?] … and not [?] …

[a long stretch — roughly the middle third of the column — is illegible] …

it was [?] … the reckoning (החשבון) … take [?] … and so forth … another [?] … and the days [?] …

and the season (והתקופה) [?] … and not [?] … the hours [?] …

[the foot of the column is lost to water-staining; closing legible words: יום התקופה ("the day of the season") [?], אחר ,[?] ויקרב ("after"/"another"), חצי ("half"), ולכך ("and therefore") [?], מאמר ("Book") [?], השביעי [?]] …

Right column

This too is the rule (זה לך הכלל) [?] … the season (התקופה) … of the year [?]. The reckoning (החשבון) [?] is correct (נכון) [?] for you, as we explained above (כמו שביארנו למעלה) [?].

so-and-so days [?] … and the half [?] … the hours and the parts [?] … And do not be troubled (אל תבהל) [?] by this — for these are the seasons (התקופות) [?] of the four [quarters of the year] [?]. So-and-so … and the months (והחדשים) [?] … [a clause lost to foxing] …

The season comes out for you in its place (במקומה) [?] … and from it [reckon] the next [?]. So-and-so days, so-and-so hours, and the parts [?]. Look well (התבונן היטב) [?] at the reckoning, and it comes out correctly for you (יוצא לך נכון) [?].

[Red ink: קשקד החמר / "The Knot/Node of the [Sun]" [?]] — likely a sub-rubric

[Red ink header: קשקד החמ[ר?] — uncertain; possibly a section title reading something like "the Node (קשר?) of the Sun (החמה?)"] [?]

[The two words of this red-ink rubric are faded — red iron-gall ink has degraded faster than the surrounding black. The first word resembles קשר/קשקד and the second החמר/החמה. Reading uncertain; this is a structural sub-heading.]

The rule (הכלל) [?]: in the place [from which] the season (התקופה) [?] crosses over (עובר) [?] … so-and-so … this is the reckoning (החשבון) [?] … take the season (התקופה) [?] in [its] reckoning (בחשבון) [?] … and from it [you reckon] (interlinear: התקופה — "the season") …

[several lines partially obscured by the right-margin water-stain] … take [?] … days [?] … the hours (השעות) [?] and the parts (החלקים) [?] … and add (והוסף) [?] … so-and-so …

Know (דע) [?] this — for it is the foundation [?] … the season of Tishrei [?] … and the season of Tevet [?] … and so the season comes out [for you] [?] in its place …

And there is no [?] … the reckoning (החשבון) [?] … the season (התקופה) [?] crosses over (עובר) [?] … so-and-so days … the hours … take [?] … the half [?] …

[Red ink: קשקד קטן / "The Lesser [Node?]" [?]] — sub-rubric

[Red ink header: קשקד קטן — "the lesser [node/knot?]"] [?]

[Second red rubric, parallel in form to the preceding one. First word as above (קשר/קשקד, "node/knot" [?]); second word קטן = "small/lesser." Reading of the first word uncertain]

the rule (הכלל) [?] … upon the [stored] season [?] … so-and-so days … and the half-hour [?] … and this is [?] … take this [?] … in the reckoning of the season (בחשבון התקופה) [?] … it is so-and-so [?] …

So-and-so [a count of] years [?] … and the half [?] … and reckon (ותחשוב) [?] … so-and-so days … the season [?] … and from it [reckon the next] [?] … the parts (חלקים) [?] …

the hours (השעות) [?] … so-and-so … take [?] … and reckon [?] … and so the season comes out for you in its place (במקומה) [?].

Left column

[As with the left column of the recto, this column is heavily water-stained and foxed across its full height, with substantial bleed-through. Continuous translation is not recoverable; the seasonal-reckoning procedure continues. Legible fragments only.]

the parts (חלקים) [?] … of the season [?] … and so forth …

[Red ink: ועד שקר / heading — uncertain] [?]

[Red ink: ועד שקר?] [?] — *[red sub-rubric, faded; reading uncertain]* … after (אחר) [?] … and behold (והנה) … the half (חצי) [?] … the season (התקופה) [?] …

so-and-so days (שלמים) [?] … the season (התקופה) [?] … the hours and the parts [?] …

[the middle of the column is illegible] …

(interlinear: insertion above the line — illegible) … the seasons (התקופות) [?] … the reckoning (החשבון) … and the half [?] … take (קח) [?] …

and not [?] … the season comes out [?] … the place (מקום) [?] … so-and-so years [?] … the months (החדשים) [?] …

[the foot of the column is lost; closing legible words: התקופה ("the season") [?], נכון ("correct") [?], חצי ("half"), כראוי ("as is fitting") [?], ועתה [?], ויראה ("and now") [?]] …

**

Yesod Olam — Book Four (The Jewish Calendar)

Vat.ebr.380, Sephardic semicursive hand. Heavy water-staining and foxing across the right-hand region of both leaves; red iron-gall rubrics partly faded. Two-column layout, read right column then left column on each page. Folio marked "168" in the upper margin of p. 341. Numerals transcribed verbatim with `[?]` where the glyph is genuinely ambiguous after prose-pinning.

PDF p. 341 (fol. 168r)

Right column (continuation of the preceding chapter on computing the tekufot)

to add upon [the figure?] for the seasons (תקופות) [?]… And if [the season] falls before midday (חצות) (interlinear: …) [?]. Take the season and its parts (חלקים), and add to them [?]… and the hours and the parts (השעות והחלקים). [Several words lost to water-stain in the right margin.] …and add them; and if it [the season] comes out [at?] such-and-such [a value] [?], take… and this is the reckoning (החשבון). And if [there] falls, take the season [?]…

[and?] [Red ink: השער השלשי] — **The Third Gate** [Red ink rubric; the שער/פרק shared counter — see body-heading note].

(The Third Gate) Now then, what is its reckoning (חשבונו)? Indeed [?], the rule (הכלל): in the place [?] from which [you] take the season (תקופה) [?]… Shemuel [= the calendar tradition of Shmuel? [?]]… and reckon it; take that [season] in the reckoning [?]… and you shall find [?] the [completed?] season. After [?] [the figure of?] **כג [= 23?]** days, **ג [= 3]** hours, and **קל [= 130?]** parts [?] (interlinear: …) — [the season?] of [a particular] month, for this is the [stored season?]… so

reckon [?] from… and remember (התבונן) [?] this. [Several lines here are obscured by the water-stain at the page's center-right.]

its reckoning, which is [Red ink: יז יד תקפד [?]] **[14 ?17? — a stored-season figure, partly in red ink]**, [the figure?] for [?]… so reckon (חשוב) [?] for it, [the?] season (תקופה) [?]… every hour [?]… in such-and-such [a value]… [the?] season [?]… reckon this [its?] reckoning [?]. And it goes out [?], the season, and you shall find [?]… **ל [= ?30]** [for] the reckoning [?].

[Red ink: בה לד] — to reckon the month [?] [Red ink: ובמולך?] [the?] [Red ink rubric partly illegible]…

Left column

[Marginal note at top-left, secondary hand: verbatim "לדעתך… הקודם בה… לרעת… ולאחר זה… לאחר…" — a constructive marginal helper anchoring the preceding computation; further identification requires further verification.]

the prior [season] in it… [?]… and the reckoning [?]… [marginal helper continues, ~5 lines, heavily abraded] …in this [?].

[Red ink heading:] פרק שנט עשר — Chapter [3]59 [?] [chapter-numbering anomaly — see report]

[Red ink sub-line, in margin beside the heading: "בס[יע]תא / עליה" — invocation/rubric, partly legible]

The reckoning (תקנת) of the four seasons (התקופות) by the reckoning of Shmuel [the תקופת שמואל tradition], [Red ink: עליה?]. Its reckoning (חשבונה): take [?] one season [?], for it [stands] over [?]… that [?] [you?] reckon it [?], for it [is] the season [?] [?]… and you [shall] know [?] from… one season [?]… that you [should?] reckon them [?]…

that [?] it shall be by way of [?] [Red ink: …] [?]… within the season [?]… and you find [?]… [Several abraded words.]

and the rule (הכלל): a season (תקופה) is **רנא [= ?251]** [days? parts? — measure-word lost] [?]… and the hours [?]… in this [?]… and afterward [?]… in such-and-such [a value]; [the?] season [?] up to [?] [the?] season [?] reaches [?]…

from her [its] reckoning [?], and reckon [?], the season [?], and afterward [?] [Red ink: כז גזב? [?]]…

[the?] reckoning [?] [Red ink: ה י תקח [?]] [a stored figure, partly red] — for this is [?] [the?] season [?].

[Red ink: תקח י ה?]… it shall be [?] [the?] **בימי** [in the days of?] [?] one season (תקופה) [?], [Red ink: הקפד בן? [?]] [a stored-season figure]…

[Red ink: …] for this is [?] [Red ink: תקפד ,?47" / ?תקפד ז מ"] — [the?] season (תקופה) [?]…

and afterward [?] [Red ink: …] [a procedural sub-rubric in red] [?]… as [?]… the season [?]… that you [reckon?] them [?]. The season (התקופה) afterward [?], its reckoning [?], in the months [?]… each [?]… [abraded].

take the reckoning [?] [Red ink: זד כג? [?]]… reckon it [?]…

[Red ink: …] from his [its?] reckoning [?], the season (תקופה) [?]; reckon [?], the season [?]…

over [?] [Red ink: …] [partly red figure] [?]…

[Red ink: …] [a final figure in red, תקפד ?…ל?] — to reckon the month [?] [Red ink: …].

PDF p. 342 (fol. 168v)

Right column

[and?] this is [?] the season (תקופה), the season of [?] the world (העולם) [?] (interlinear: …) [?]. Or [?] [you?] reckon [?] [the?] reckoning [?], [the?] season [?]… or [?] this [?]… in reckoning [?] the seasons (התקופות), [the?] reckoning [?]…

and in [?] the reckoning of [?] the season (התקופה) [?] you [shall] [reckon?], [the?] season [?]… and you [shall?] take [?]… [the?] season [?], reckon [?]…

[Red ink: זד כג? [?]] — Now then, take [?] [Red ink: ו…?] [?] [a stored figure] [?]…

in such-and-such [a value], that [?]… and [the?] reckoning [?]… for [?] [the?] season (תקופה) [?]; and [?] [?]… reckon [?] [the?] reckoning [?] [?]… [several abraded words] …and [the?] reckoning [?]…

[the?] reckoning [?], one season (תקופה) [?]; in [?]… one season [?]… and the parts (החלקים) [?]…

[the?] reckoning [?] [the?] season [?], the parts [?] [?]… for [?] this [?] [the?] season [?]…

and reckon [?] [the?] [Red ink: תקה א ש? [?]] [a stored figure] — its reckoning [?]…

[the?] [Red ink: תקה א ש?]… the season (התקופה) afterward [?], [the?] reckoning [?]… reckon it [?]; up to [?] [the?] season [?]…

[Red ink: …] [a procedural red rubric] [?]… reckon [?], [the?] reckoning [?], [the?] season [?]…

[the?] season [?] [Red ink: זד כז? [?]]… and reckon [?], the season [?], [the?] reckoning [?]…

[Red ink: תקפד יז יד? [?]] — to reckon [?] [Red ink: …].

[Several lower-right lines heavily obscured by the central water-stain; transcribe what survives as a]

[the?] reckoning [?]… within the months [?]… each [?]… and reckon [?], the season [?]; and afterward [?], you [shall] reckon [?], the season [?] [?]…

Left column

such-and-such [?] [Red ink: תקפד יז יד? [?]] — to reckon [?] the season [?]… the reckoning [?], the prior [season?] [?]… as [?]… and reckon [?], the season [?]… the [its?] reckoning [?]…

[abraded] …and [?]… **כל [= ?]** [?]… [the?] season [?]… **טו יב לב** [= 32 ,12 ,15? — a sequence of figures in the season-reckoning] [?] (interlinear: …) [?]…

[the?] reckoning [?], one season (תקופה) [?] [Red ink: …]… and reckon [?]… one season [?] [Red ink: תקה יד עו? [?]] [a stored-season figure]…

take [?], one season [?] [?] [Red ink: תקי גה? [?]] — its reckoning [?]…

[the?] reckoning [?] [the?] season [?], [the?] reckoning [?] [?]… each [?] [the?] season [?]…

the season (תקופה) [Red ink: בג זסה? [?]]… and reckon [?], the season [?]; and you [shall] find [?], the season [?] [?]…

the season [Red ink: כג יב תשעב? [= 772 ,12 ,23? — a stored-season figure]] [?]… reckon [?], the parts [?]…

and reckon [?], one season (תקופה) [Red ink: כב יב השעב? [?] — note: this hand's ש loses its left stroke and may read ע; transcribed verbatim] [?]…

[Red ink: ה ו לד? [?]] [a procedural red figure] [?]… and reckon [?]… the seasons (התקופות) [?]…

[Red ink: תקפד יד יז? [?]] — to reckon [?] [Red ink: …].

the reckoning [?]… and you reckon [?]… the seasons (התקופות) [?]; in [?]… each [?] [the?] season [?]…

[the?] season [Red ink: תקה א ה? [?]] [a stored figure]… its [?] reckoning [?]…

the seasons [?]… the reckonings (החשבונות) [?]; the prior [season?] [?]… and reckon [?]… the months [?]…

[abraded] …the season [?]… and afterward [?]… the [its?] reckoning [?], [the?] season [?]…

[Lower-left lines obscured by foxing]

Yesod Olam — Book Four (The Jewish Calendar)

Vatican Library, Vat.ebr.380. Sephardic cursive hand. Book Four (מאמר ד), the Third Gate: the reckoning of the four seasons by the method of Shmuel (תקופת שמואל, 91 d 7½h), continuing into the reckoning by the method of Rav Ada.

> **Readability note.** Both pages of this batch are heavily affected by water staining, foxing, and edge wear. The inner (gutter) column of p. 343 and the inner column of p. 344 are the most degraded; several lines there are only partially legible. The iterative tekufah compute-template recurs throughout, so the recurring technical vocabulary (תקופה, מולד, חלקים, החשבון, מחזור) is read with confidence by lexicon-lock-in even where individual glyphs are faded; individual numerals are transcribed verbatim with [?] where the glyph itself is ambiguous.

Right column (p. 343)

[Damage: water staining and foxing across the upper portion of this column; several numerical readings degraded.]

likewise you say [?]: take its season (תקופה) and place it upon the days of the [solar] cycle, and there comes out [?] one season [?]. Take the days [?] and the remainder, and add to it [?] the season, and there comes out for you the remainder [?] of the reckoning.

And add [?] to it the days and the hours and the parts (חלקים), and there comes out for you [?] the remainder.

[Several lines degraded by water stain — only fragmentary readings possible.] … and the established season (התקופה השמורה) [?]… and you take… the days and the parts (החלקים)… and there comes out for you the season of [?]…

[Red ink: וצריך] [?] — and you must [?]… [the reckoning] [?].

(interlinear: small correction above the line — illegible, ~1 word.)

and when you have done this [?], it comes out for you the season of [the month] [?], and the reckoning [?]…

[Red ink: ה ל"ב] [chapter / fine-counter numeral, red] — As we [?] [stated / will state]: take the [days?] [?] of the season and the hours [?] and the parts (החלקים), and add to them [?]…

[Damage: lower-right of column foxed; ~2 lines partially obscured.]

Left column (p. 343)

[Red ink: rubric numeral at line-head] **[Red ink: על כל [?]]** [?]

The reckoning [?] of the season — place [?]… the remainder [?] upon the days of the cycle, and there comes out [?]…

and it [the season] falls [?] on day [?] [number uncertain — [?]], at [so-many] hours and parts (חלקים) [?]…

[Red ink: ה ל"ב] [red fine-counter numeral] [?] — [reading degraded; ~1 line lost to staining].

The season of Tammuz (תקופת תמוז) [?]: take [?]… and there comes out for you the season of Tammuz [?] on day [?] at [so-many] hours [?].

The season of Tishrei (תקופת תשרי) [?]: and likewise the season of Tevet (תקופת טבת), and the season of Nisan (תקופת ניסן) — each one [?] after [?] its fellow [?], season after season (תקופה אחר תקופה), [each] the established [season] [?].

[Damage: lower-left of column, ~2 lines obscured by water stain.]

[Red ink: וצריך] [?] — and you must [?] know [?] the reckoning of the season [?], that it falls [?]… and the established season [?]…

[Several closing lines of the column degraded.] …and you take… and there comes out for you the season [?]… and so [you do] always (לעולם) [?].

[Red ink: וְשַׁעַר / ושער] [Red ink rubric — appears to open a new structural unit; reading of the following numeral degraded] [?] — and the gate [?]… the reckoning [?]… by the reckoning of [?]…

[Damage: final ~3 lines of the column heavily foxed; only the recurring template words (תקופה, מולד, חשבון) are legible.]

Right column (p. 344)

[Damage: this entire column (inner / gutter side) is the most degraded on the spread — heavy water staining down the full height, with text loss. Readings here are fragmentary; the column]

to it [?]… and there comes out [?]… upon the [days of the] cycle [?]… the season [?]…

[place it / take it] [?] upon the season [?], the reckoning [?], the remainder [?]…

and likewise [?] you do [?] [with] the season [?]…

[~6 lines lost to staining — only scattered template words (התקופה, החשבון, החלקים) legible.]

and you must [?] [know] [?]… that the season [?] falls [?]… on day [?] at [so-many] hours and parts (חלקים) [?]…

and the established season (התקופה השמורה) [?]… [and] you take [?]…

[Lower ~4 lines of the column degraded.]

[Red ink: פרק שלשה עשר] — **Chapter Thirteen** [body heading, red ink]

[Red ink, smaller, beside/below the heading: דרך / [?] בקצור [?]] [?]

[Red ink (rubric continuing the heading): תקון עשית התקופות לדעת רב אדא] — The construction of the reckoning of the seasons (תקופות) according to the opinion of Rav Ada [תקופת רב אדא].

[Damage: first ~2 lines of the chapter's body obscured by staining.] …[we shall reckon] [?] the seasons [?] by the reckoning [?] of the seasons [?]…

that you know [?] [how] to [?]… and there comes out for you [?]… for [?]… they reckon [?] [for] them [?]…

by the reckoning [?]… one [?] from another [?]… the seasons [?]… and you take [?] [the difference / what is between them] [?]…

[Lower lines of the column degraded by water stain.]

Left column (p. 344)

[Damage: upper-left foxed; readings partial.]

upon the way [?] of [its] season [?]… [as I have / as we have] [?] already [?] [stated] [?]…

[Red ink: ב יען עולם] [?] [red rubric / catch-phrase — partly faded] — [?]: take the day [?] [number [?]] and the [number [?]] of the season [?]…

[for] the reckoning [?]… we have already [?] explained [?]… [in / by] this [?] reckoning [?]…

[Red ink: ה י' כקאב] [?] [red fine-counter / sub-rubric, reading uncertain] — take the day [?] and the [hours?] and the parts (חלקים) [?]…

[Red ink: כא תקפה / [?] כ ג תקף [?]] [red rubric numeral — reading degraded] [?]: take [?]… and place it upon [?]… and there comes out for you the season [?] on day [?] at [so-many] hours [?].

[Red ink: כא קפא מח [?]] [red rubric numeral, reading uncertain] [?] — take the season [?], and add [?]… and there comes out for you [?] the season [?].

[Body, black ink:] …it falls [?] on day [?]… and at the time [?] of the season [?], the sun (חמה) [?] [reaches] [?] the point (נקודה) [?] of [its] entry [?] [into the constellation] [?]…

[the sun] [?]… when it enters [?] [the constellation] [?] [Aries / the Ram?] [?]… [the season of Nisan?] [?]…

and there comes out [?]… the [parts / measures] [?]… of [the] reckoning [?]…

[Damage: ~3 lines mid-column foxed.] …upon the reckoning [?]… the established [season] [?]… [as] we have [?] reckoned [?] previously [?]…

take [the difference / what is between them] [?]… and there comes out for you the established season [?]…

[Red ink: ב יען עולם] [?] [recurring red catch-phrase] [?] — and so [you do] always [?]…

[Red ink: ה י' כקאב] [?] … [Red ink: כא קפא מח [?]] [further red fine-counter numerals at line-heads, readings degraded] [?] — and from the hand [?] [of?]… the reckoning [?] [of the] seasons [?]… for them [?]… and so it is [?].

[Damage: final lines of the column degraded by water staining; closing of the chapter's worked example only partially legible. Folio number "62" [?] appears in the lower margin.]

Yesod Olam — Book Four (The Jewish Calendar), Chapters 13–14

Manuscript witness: Vatican Library, Vat.ebr.380, Sephardic semicursive hand, two columns per page, red rubrication. Both leaves carry heavy water-staining through the central gutter and along the right and lower margins, with substantial fading of both the black body ink and the red rubric ink. Many numerals and rubric codes in the affected zones are degraded; readings in those areas are flagged [?] and the leaves are noted as

recto

Right column

[Damage: water-staining and gutter shadow obscure the lower two-thirds of this column; many words illegible.]

[?] when the [computed] season-value and the stored [season] are reckoned [?]. For [in] this circuit [מחזור] the seasons recur [?]…

and at the time of completing the seasons [בעת השלמת התקופות] one returns and reckons [?]… The reckoning of the season of Tishri [תקופת תשרי] [?]…

[Red ink: כ"ב [Hebrew = 22?] [?]] — [marginal/inline numeral code, degraded] … and [it] is established [?ונקבע] [?]…

and the stored [season] [והשמורה?] [?]… and [it] follows that the season [שהתקופה] [?]… and from this you may understand [ומזה תבין] [?]…

and at the time of completing the season [?]… one returns and reckons it [?]…

[Red ink: code, ~3 letters, degraded [?]] …at the time when one reckons [בעת שיחשוב] [?]…

[the text describes the recurrence of the seasonal values across the nineteen-year cycle and how, upon completing the cycle, the reckoner returns to the stored season-value and proceeds anew] [reconstruction from context; individual words flagged] [?]…

Left column

[Damage: heavy staining at the foot of the column; the chapter rubric near the bottom is in red ink, partly faded but legible.]

[?] and after [ואחר] [?]… if you wish [אם תרצה] to know [לידע] the [matter of?] the seasons [?]…

[Red ink rubric / running structural label: "התקופה" / [?] "עו"ד יו" [?]] — [degraded marginal code]

[?] and after [?] — and if you reckon [ואם תחשוב] the season-reckoning [חשבון התקופה] [?] for that day [?]…

[Red ink: "ה' תקבע" [Hebrew = ?] [?]] — [structural code, degraded]

The season-cycle [?] for the seasons [?]… and one reckons [?] for the season of Tammuz [תקופת תמוז] [?]…

and after [?] — and behold [והנה] [?]… the seasons [?]…

[Red ink rubric: "שמן" / [?] "כ"ב התקופה" [?]] — [degraded]

one reckons [?] for the season [?]… and behold [?] the [computed value] [?]…

[Red ink: "ל"ג" [Hebrew = 33] [?] / "הלל" [?]] — [a line-head numeral of the fine red series; degraded] …complete [?]…

[?] the season [?]… one reckons [?] — and these [are] the seasons [?] of the cycle [?]…

[Red ink: "שער" (Gate)] — [structural rubric, red]

For the seasons [לתקופת] [?]… one reckons [?]… and one reckons the season [?]… and one reckons the season-reckoning [תקופת] [?]… and behold [?] the season [?] [several short clauses, individual words illegible through staining] [?]…

The knowledge of the seasons [ידיעת התקופות] [?]… and one reckons [?]… for the season of Tammuz [תקופת תמוז] [?]…

and one reckons [?] the seasons [?]… and one reckons [?] for the season-reckoning [לתקופת] [?]… and one reckons the seasons [?]…

the season of Tammuz [תקופת תמוז] [?]… and one reckons [?]… upon the great [?] [hand?] [על האמצעי?] [?]…

For the completion [להשלמה] [?]… and there is no [ואין] [?]… between [בין] [?] the season-reckonings [התקופות] [?]…

and [if] there is no [?] [the season] [?]… and after [?] — and the season-reckoning [והתקופה] [?]…

and [if] he reckoned [?] in the season-reckoning [בתקופת] [?]… and behold [?] this [?]…

[?] — and [he] reckoned them [?] upon the [?] [?]…

[Red ink, degraded code: ~3 letters [?]]

[Chapter heading, red ink, display position, lower left column:]

פרק ארבעה עשר

Chapter Fourteen

[Red ink: "הקושיא" (the difficulty / objection)] [?]

[Red ink: "הקדמות" / [?] "וקושעות" [?] — preliminary remarks / premises] …in the reckoning of the seasons [בתקון עשית התקופות?] [?]…

[Damage: the text immediately following the chapter rubric runs into the foot of the page and the gutter stain; only fragments legible.]

[The chapter opens on the difficulties (questions) bearing on the construction of the seasons-reckoning, and lays out the premises required before the reckoning can proceed.] [reconstruction from rubric context; flagged] [?]

verso

Right column

[Red ink rubric, top of column, partly faded:] …and we shall return [ונחזור] to the first matter [על הקדם?] regarding the seasons [?] of the circuit [במחזור?]… upon the [?] reckoning [?] [degraded] [?]…

[Red ink: "כ"ח" [Hebrew = 28] / "כ"ה" [Hebrew = 25] [?] / "ד"ך" [?]] — [degraded line-head/structural codes; numerals uncertain]

[Red ink: code "כ"א [Hebrew = 21?]" [?]] — How many [כמה] [?] preliminary things [?]… the seasons [?]…

The season of [?] [תקופת?]… one [?] and reckons it [וחשבת?] [?]… for the knowledge [לדעת] [?]…

[?] and now [ועתה] [?] reckon [?]… the season [?] [the cycle?] [?]…

[?] and [he] reckoned [?]… and the [computed value] [?] upon [?] the season-reckoning [התקופה] [?]…

and the reckoning [והחשבון] [?]… for the [season?] [?]… and behold [?] the [stored] [?]…

[?] which [?] in [the season of] each [?] one [?] day [?] [— this clause concerns the day-value carried for each season] [?]…

This [is] the [season of?] [זה יו"ד [Hebrew = 14] [?]]… the season [?] [התקופה?] [?]… for [?] [the year?] [?]…

[?] the season-reckoning [התקופה] [?]… and the [?] one reckons [?]… [Red ink: "י"ו" [Hebrew = 16] [?]] season-reckoning [?]…

[Several short clauses in the middle of the column are legible only in fragments — recurring terms are "תקופה" (season-reckoning), "חשבון" (reckoning), "התבונן" (understand/discern), and "ועתה" (and now). Individual numerals are degraded.] [?]

[?] for the season-reckoning [לתקופת] [?]… upon the [great/middle?] [?]…

[?] — and behold [?] the seasons [התקופות?] [?]…

[Red ink: "כ"ב [Hebrew = 22] [?]" code] …upon the [?] [the hidden / stored?] [הנקבע / הכבוש?] [?]…

[Red ink rubric: "כ"ד" / [?] "נח"ם" [Hebrew = 24] [?] / "שמן" [?]] — and now [ועתה] [?] reckon [?]… day [?] [Damage: line worn]…

[Red ink: "ה' תקבע" / structural code, degraded] …one [?]… for the [season] [?] one reckons [?]… and there is no [ואין] [?]… [Red ink: "כ"ב [Hebrew = 22] [?]"] one reckons [?]…

the reckoning [החשבון?] [?]… and reckons it [?]… upon [?] [?]…

[?] [the day-value carried] [?]… and behold [?] the season-reckoning [התקופה] [?]…

and then [?] the reckoning [התקון / החשבון?] [?]…

[?] one reckons it [?]… upon the [great] [?] [hand?] [?]…

[Red ink, display, bold-ish, lower right column:] **והשלמתו**

…and its completion. [the close of a section / chapter] [?]

[Red ink rubric below: "עליה" / [?] "הבונב" (upon it / concerning it) [?]] …[?] upon the [?]… and the [?] [seasons / season-reckonings] [התקופות?] [?]…

[Red ink: "ה"ם כו / [?] "שהירעו" [?]] …[?] and now they computed [?]… upon the [season]? [?]… for the [?] reckoning of the season [תיקון התקופה?] [?]…

Left column

[Damage: heavy staining at the head and through the gutter; the upper third of this column is largely illegible.]

[?] for the [completion?] [?] of [?] the season-reckoning [התקופה] [?]…

[?] chapter [?] [פרק?] [?] — and the matter [?] [?]…

[Red ink rubric, mid-column: "כל ערב" / [?] "נח"ם" [?]] …for [?] in the season-reckoning [בתקופת] [?]… [Red ink: "כרובה" [?]] — discern [?] the season [התקופה] [?]…

[?] [the made/wrought reckoning] [?]… the way of the reckoning of the season [דרך תקון התקופה] [?]… [Red ink: "מחזב" [?]] [?]…

upon [?] in [the season] [?]… and one reckons [?]… upon the season-reckoning [התקופה] [?]…

[?] [he?] reckoned [?] the season-reckoning [?]… and behold [?] for [?]…

[?] the season-reckoning [התקופה] [?] in [the season of] each [?]… [or?] [או?] — and behold [?] the season [התקופה] [?]…

and one reckons [?]… the season-reckoning [התקופה] [?]… [Red ink: "כ"ב התקופה" [?]] [?]…

and reckoned them [?]… and the [computed value] [?] [the season] [התקופה?] [?]…

and one reckons [?]… [or?] [או?]… and one reckons [?] for [the day] [?]…

and behold [?] one reckons [?]… the season-reckoning [?]…

[?] and now [ועתה] [?]… reckon [?] the [season] [?]…

for the [?]… and behold [?]… in the season-reckoning [בתקופת] [?]…

and then [?] the reckoning [התקון?] [?]… for [?]…

[?] reckoned them [?]… upon [?] [?]…

[?] this [?] — and now [ועתה] [?] reckon [the day] [?]…

and behold [?]… upon [?] [?]…

and one reckons [?] in the season-reckoning [בתקופת] [?]… and [if] there is no [ואין] [?]… and behold [?] this [?]…

in [?] the [computed value?] [?]… and now [ועתה] [?] reckon it [?]…

and another [ואחר] [?]… [the reckoning of?] the season-value [?]… day [?]…

[Footer, lower left, red ink, faded: "וה' פ"ק" [?] — degraded catchword / quire mark]

Yesod Olam — Book Four (The Jewish Calendar), Chapter Fourteen (continued)

Manuscript: Vatican Library, Vat.ebr.380. Sephardic semicursive hand. Heavy water-staining and foxing across both pages; the right column of p. 347 and the gutter/lower region of p. 348 are substantially degraded. Faded red ink for structural markers. Readings below are conservative; degraded stretches are flagged [?] and noted as

Left column

[Red ink (faded, opening line, partly lost to edge/stain): "...זה…[?] להם [?]..." — the first two lines are a red-ink rubric, heavily faded and stained; only fragments legible [?]]

for them [?], according to this premise [?]... that the seasons (תקופות) [?]...

The reckoning (החשבון) [?] for them and [?]... according to the small remainder (קושטן [?]) in the seasons-reckoning (בתקופת [?])... [Damage: water stain across lines 3–5, ~several words lost per line [?]]

and if the days come out [?]... the season (תקופה) [?] falls (תפול)... [?]

this is the rule (הכלל [?])... [Damage: stain, ~half-line lost]

in this manner (בבחינה [?])... and if the season (התקופה [?])... it falls (תפול [?])... [Damage]

for in this examination (בבחינה [?])… and if (ואם [?])… in this [?] reckoning (בחשבון [?])…

[Red ink: "לחיזוק [?]"] — for strengthening (לחיזוק [?]) [the argument]… the premise (קנה [?]) [?]… and we shall return (ונחזור [?])…

upon the [?] of the season (התקופה [?])… [?]

and we have established the premise (הקדמה [?])… [Damage: line partly lost]

[Red ink rubric (small, mid-column): "וקם [?]"] — **And he rose / and it stands [?]**

[Red ink, larger initial-word rubric: "אלזרק [?]" or "אדרזר [?]"] — *[an opening display word, heavily faded; reading uncertain [?] — possibly a scribal section marker or catchword-like rubric.]*

The first season (התקופה הראשונה [?])… [?]…

The premise of the reckoning (הפסח [?] קבועת [?])… at its time (בזמנו [?])… it will be (יהיה [?])… and at the times (ולעתות [?])… [Damage: stain through several lines, ~2–4 words lost each [?]]

for the [?] season is [?]… the reckoning (החשבון [?])… it falls (תפול [?]) on the [?] day… [?]

this falls (תפול [?])… and the season (התקופה [?])… and the [?] reckoning (חשבון [?])… [Damage: lower-left quadrant heavily stained, ~6–8 lines only fragmentarily legible [?]]

and it comes out (ויצא [?])… in this reckoning (בחשבון [?])… that the season (שהתקופה [?])… the festival of Pesach (הפסח [?])… and it falls (ותפול [?])… on the day (ביום [?])… [?]

[Red ink rubric (lower column, partly stained): "ואם [?]"] — **And if [?]**… [Damage: ~final 3 lines of the column water-damaged and only fragmentarily legible [?]]

Right column

[The entire right column of p. 347 lies under a large water stain; the upper third is moderately legible, the middle and lower portions severely degraded. Transcription is fragmentary throughout]

The season (התקופה [?])… that it was (שהיה [?])… that the reckoning (שהחשבון [?])… [?]

and afterward (ואחר [?]) it returned [?]... that the season (שהתקופה [?]) falls (תפול [?])... and afterward [?]... at midnight (חצות [?]) [?]... and it came out (ויצא [?])...

the festival of Pesach (פסח [?])... at midnight (חצות [?])... and the season (והתקופה [?])... [?]... and it returns (ותחזור [?])...

the [?] season... at its time (בזמנו [?])... [?]

and we said (ואמרנו [?])... [Damage]

The season of Shmuel (תקופת שמואל [?])... and the [?]... it falls (תפול [?])... [?] [Damage: stain]

for if (כי אם [?])... the day (היום [?])... and the night (והלילה [?])... [?]

the seasons (התקופות [?])... and if (ואם [?])... [?]

[Damage: water stain across the entire middle band of the right column — roughly 8–10 lines reduced to scattered legible words: "... החשבון …[?] התקופה … חצות [?]… תפול [?]… יום [?]… [?] [?]..."]

and we shall return (ונחזור [?]) to explain (לבאר [?]) the matter (הענין [?])... [?]

and we said (ואמרנו [?])... that the season (שהתקופה [?])... [?]

and it does not fall (ולא תפול [?])... [?]

[Damage: lower-right quadrant heavily water-damaged, ~8 lines largely illegible]

Left column

he gathered to it (קבוץ [?]) the reckoning (החשבון [?])... [?]... and they were (והיו [?]) at the ends (בקצוות [?])... [?]

there is (יש [?]) for them... according to him (לדבריו [?])... [?]... in the explanation (בביאור [?]) of the reckoning (החשבון [?])...

and the day [?] returns (ויחזיר [?]) to the [?] day... and the days (והימים [?])... [?]... according to this (כפי זה [?])...

[Red ink rubric: "וקם [?]" or "וכן [?]"] — **And thus / and he established [?]**

in this (בזה [?])... and when (וכן [?])... the festival of Pesach (פסח [?]) falls (יפול [?])... [?] (interlinear: small inserted word above this line, illegible [?])

the season (התקופה [?])... at midnight (חצות [?])... and afterward (ואחר [?])... according to the seasons-reckoning (בתקופת [?])... [?]

The premise of the season (קבועת התקופה [?])... that falls (שתפול [?]) on the [?] day... and the night (והלילה [?])... [?]

[Red ink: "וקבר [?]" or "ועבר [?]"] — *[red-ink word, faded — likely "and it passes/transfers" (ועבר [?])]*

we examined it (חקרנוהו [?])... in the year (בשנה [?])... and we said (ואמרנו [?])... at the beginning (בראשון [?])... in the seasons-reckoning (בתקופת [?])... [?]... according to it (לפי שנה [?])...

The first season (העיבור / [?] העישור [?])... [?] this examination (זה [?])... [?]

for this reason (לכך [?])... the festival of Pesach (פסח [?])... the year (שנה [?])... it falls (יפול [?])... [?]

and afterward (ואחר [?])... the season (התקופה [?])... [?]... [Damage: ~2 lines stained, fragmentary [?]]

the reckoning (החשבון [?])... and the season (והתקופה [?])... it falls (תפול [?])... [?]

[Red ink rubric: "וקבע [?]" — "and he established [?]"]

The season of Shmuel (תקופת שמואל [?])... and we said (ואמרנו [?])... that the festival of Pesach (שהפסח [?])... [?]... and afterward (ואחר [?])...

and we shall return (ונחזור [?]) to explain (לבאר [?])... the [?] reckoning (חשבון [?])... [?]

for if (כי אם [?])... in the reckoning (בחשבון [?])... and the season (והתקופה [?]) falls (תפול [?])... [?]... at midnight (חצות [?])...

and the [?]... it does not fall (לא תפול [?])... [?]... at the time (בעת [?])...

[Red ink rubric, lower-left (faded): "...שלם [?]" — possibly a section-closing "...complete / its completion (השלמתו [?])"]]

Right column

[Upper right column of p. 348 is moderately legible; the lower and gutter-side portions are water-stained — fragmentary below.]

he weighed (שקל [?])... [?]... ten (עשר [?])... [?]... the day (יום [?])... that comes out (שתצא [?])...

the festival of Pesach (פסח [?])... and if (ואם [?]) this... [?]... that the season (/ [?] חם שהתקופה [?])... and afterward (ועבר [?])...

and we said (ואמרנו [?]) the season (התקופה [?])... that comes out (שתצא [?])... and afterward (ואחר [?])...

[Damage: ~3 lines under heavy stain, fragmentary: "...יום... [?] החשבון [?]... הלבנה [?]..." [?]]

the season (התקופה [?])... and the festival of Pesach (והפסח [?])... [?]... according to the [?] reckoning...

and we said (ואמרנו [?])... and behold (והנה [?])... the season (התקופה [?])... [?]

[Red ink: "וקם [?]"] — **And it stands / and he rose [?]**

this reckoning (זה החשבון [?])... that the festival of Pesach (שהפסח [?])... it falls (יפול [?])... [?]

and behold (והנה [?])... the season (התקופה [?])... [?]... at midnight (חצות [?])...

and afterward (ואחר [?])... and we shall return (ונחזור [?])... [?]

and at the [?] season... it falls (תפול [?])... on the [?] day...

for it does not (כי לא [?])... [?]... and the [?]...

[Damage: middle and lower right column, ~10–12 lines, severe water-staining — scattered legible tokens only: "...יום... חצות [?]... החשבון [?]... פסח [?]... התקופה [?]... ולא [?]... [?] [?]... ואחר..."]

and we shall return (ונחזור [?]) to explain (לבאר [?]) the matter of the seasons (ענין התקופות [?])... [?]

[Final lines of the right column (lower edge, stained) — illegible [?]]

Editorial note on this batch

Both pages of batch 174 are among the most degraded encountered in Book Four. The content is continuous calendar-computation prose belonging to **Chapter Fourteen** — the discussion of the seasons-reckoning (תקופות), the season of Shmuel (תקופת שמואל), the timing of the festival of Pesach relative to the season, and midnight (חצות) reckonings, worked through the recurring template "we said (ואמרנו)... and afterward (ואחר)... and we shall return (ונחזור) to explain." Short red-ink rubrics ("וקם", "ואם", "וקבע", "ועבר") punctuate the argument as paragraph markers. No new chapter heading appears with certainty in this batch; the recurring lexicon (תקופה, החשבון, חצות, פסח, ונחזור, ואמרנו) is locked from the prior batches per lexicon discipline. Because water-staining suppresses roughly a

third of each page, this batch is flagged as a whole-batch for higher-resolution recovery.

Yesod Olam — Book Four (The Jewish Calendar)

Manuscript: Vatican Library, Vat.ebr.380, Sephardic semicursive hand. Book Four (calendar reckoning), in the vicinity of Chapter/Gate Fourteen–Fifteen. These two folios are among the most degraded in Book Four: heavy water-staining at the right and lower margins, faded iron-gall ink (red rubrics especially), gutter intrusion, and edge loss on the upper margin of the second folio. Both pages carry the diagonal Vatican Library watermark, which is ignored. Numerals and red-ink three-letter codes are transcribed verbatim with `[?]` wherever the glyphs are not secure; the codes are keviyah / stored-season triples, not gematria totals.

> **Note on layout.** This opening (p. 349) carries two text columns. Following the right-to-left logic of the page, the **right** column is read first, then the **left**. Both columns are calendar-reckoning prose continuing Chapter Fourteen's discussion of the seasons (תקופות) and their relation to the established conjunction (מולד), with red-ink rubric-words and red three-letter season/keviyah codes punctuating the argument.

Right column (read first)

as the days [?] [text faded] … and we shall say that the seasons fall [?] … the season of [the cycle?] [?] … which falls [?] this [?] in the [?]. The [?] established it … [several words lost to the water-stain at the head of the column].

for if the season [תקופה] of the [given?] year was reckoned [?], you reckon [?] this and do not [?] the season [?], for it falls [?] in [?] each [?] season [?] [Interlinear/marginal text along the upper edge is too faded to recover — `[?]`].

And further [ועוד] [?]: that when [?] the season [?] [text continues, partly legible] … you shall know [?] the season [?] and not [ולא] [?] this [?] … the seasons [התקופות], the conjunction [המולד] [?] and the day [?] [?] and not [?] … [a line lost to staining].

And further [ועוד] [?]: if [?] [?] the year [שנה] [?] of [the cycle?] [?] [?] [text faded] … [?]

A general rule [כלל] in the reckoning [בחשבון] of the conjunction [המולד] [?] [?] the seven [השבת? / the week?] [?] of the seasons [?]:

[Red ink: ט [?] ב [?] ז / [?] ה [?] ב״ז [?]] — *(a three-fold season/keviyah code; individual letters uncertain owing to red-ink fading; transcribe-only)*

And the rule for [ועל כלל] [?]: [Red ink: ט [?] יד / [?] יד [?] ז / [?] גם [?]] — *(a parallel red-ink code line; letters uncertain)* — and thus they explain it [כן הוא?] [?].

The reckoning [החשבון] [?] and one half [וחצי?] [?] for the great [?] [גדול?] [?] [?] [several words lost].

For the [?] [?] one [reckons?] this [?] in the established [?] season [?] [?] [text faded across the stained band].

The [?] [?] the seasons [?] of the year [השנה?] [?] [?] which they [?] established [?] the [?] [?] [a line largely lost].

So this falls [?] [Red ink: אחר / [?] גם [?]] — *(red-ink rubric-word, "also/another" [?])* — this [?] is reckoned [?].

So thus [?] this falls [?] [Red ink: ט [?] יד [?] יב / [?] כהן [?]] — *(a further red-ink code/rubric; letters uncertain)* — these [?].

The reckoning [החשבון] [?] and reckon [וחשוב?] [?] [?] half [חלק?] [?] [?] the conjunction [?] [text faded] … [the established?] season … [a line lost].

one shall not [?] in the [?] established [קבוע] [?] [the season] [?] of the [?] [?] [?] [text faded].

And one shall add [?] [?] [text continues but is lost to the water-stain at the lower-right of the column].

Left column

for they [?] the [?] established [?] this [?] [text faded at the head of the left column].

and we have explained [ובארנו?] [?] this [?] [?] this … and [?] [?] season [?] [?] [the reckoning?] [?].

and behold [והנה] [?] the [?] [?] [?] [the established season?] [?] this [?].

According to the [knowledge?] [?] [?] [?] this [?], for in the [?] [?] of the season [?].

and behold [והנה] [?] in this [?] the [?] [?] [established?] [?] this [?] [?]. **In the [?] year [בשנת ?שנת?]** [?] of the cycle [המחזור] [?] [a line largely lost to fading].

for [?] [?] on the day [על יום] [?] [?] this [?] eight [?] [?] [hours?] … [partly legible].

And he said [ואמרו?] [?] [?] [?] this [?] reckon [חשוב?] [?] [?] [a line lost].

Upon the [established?] season [?] this [?] [?] another [אחר] [?] season [?] [?] [?] [text faded] … [a stained band].

he [?] [?] [established?] [?] the [?] [?]. So [if?] [?] he reckoned [?] in [the?] [?] [?].

The cycle [המחזור] [?] which is [?] [?] [?] [a line lost to the lower water-stain].

and [?] [?] this [?] [?] reckon [?] the [?] [?] this [?].

you shall reckon [?] [?] [?] [?] [text faded].

And reckon [וחשבו?] [?] the [reckoning?] [?] [?] half [?] [?] [?] [a stained band].

[established?] [?] reckon [?] in the [established?] [קבוע?] [?] [?] season [?].

and if [ואם] [?] [?] the year [השנה] [?] [?] of the cycle [המחזור] [?] [?] [a line lost].

[the seasons?] [?] reckon [?] this [?] [?] [the conjunction?] [?].

The [?] [?] [?] [established?] [?] the [?] [?] season [?] [?] [text faded].

and behold [?] the [?] [?] season [?] [?] [?] [the lower portion of the left column is lost to the water-stain that crosses the foot of the page] [?].

> **[Damage: torn upper margin / edge loss along the top of the folio, ~1–2 lines affected, both columns.]** The running header in the top margin is damaged but legible as "" (Book Four). Heavy water-staining crosses the right column at several bands; red-ink rubric-words and red three-letter codes recur. Right column read first.

Right column (read first)

[text lost to the torn upper margin] … and thus [וכן] [?] [?] [?] and [?] [?]. And he [?] [?] [?] them [להם] [?] this [?] [?] [partly legible after the damaged head].

and [?] [?] and [?] [?] [?] [?]. And [?] [?] and reckon [?] this [?] [?].

So thus [?] [?] reckoning [?] [?] [?]. So one shall not [?] [?] [?] [?].

and [?] [?] [?] [?] him [?] [text faded] … and [?] [?] [?].

he [?] [?] [?] [?] [a line lost to staining].

and behold [?] [?] this [?] [?] [?]. And he [?] [?] [text continues].

The reckoning of the conjunction [לחשבון המולד] [?] [?]. And [?] [?]:

[Red ink: לד [?] ב״ה [?]] — *(red-ink three-letter season/keviyah code; letters uncertain)* — and [?] [?].

he [?] [?] which [?] reckon [?] [?] this [?] [?]. The reckoning [?] [?] of the conjunction [המולד?] [?] [a line partly lost].

[Red ink: ט / [?] יד [?] ו [?]] — *(red-ink rubric/code, letters uncertain)* — and reckon [ונחשב?] [?] [?] [?] this [?] [?] conjunction [?] [?].

The seasons [התקופות?] [?] reckon [?] this [?]. Behold this [?] [?] one [reckons?] this [?] [?].

The [?] [?] [established?] [?] season [?] [?] [?] [text faded].

and reckon [וחשבנו?] [?] [?] [?] reckon [?] [?] [?].

[Red ink: מל [?] ב״ה [?]] — *(red-ink season/keviyah code; letters uncertain)* — reckon [קמיוסר? / "you shall establish"?] [?] [?] [a difficult red-and-black mixed line] [?].

reckon [?] [?] [?]. So thus [?] [?] [?] season [?] [?] [?].

[Red ink: ט [?] ל [?] ה / [?] ה [?] ה [?]] — *(red-ink three-letter code; letters uncertain)* — reckon [?] [?] [?] [?] [text faded].

and [?] [?] [?] reckon [?] [?] this [?] season [?] [?] [a line lost].

[Red ink: ש [?] לד [?] ז [?]] — *(red-ink code; letters uncertain — note the scribal ש here may have lost its left stroke and resemble ע)* — reckon [קמיוסר?] [?] [?] [?].

[?] [?] this [?] [?] reckon [?] this [?] [?] conjunction [המולד?] [?] [a line partly lost].

[?] [?] and reckon [?] [?] [?] season [?] [?]. And thus [וכן?] [?] [?] [?] [text faded].

and [?] [?] [?] reckon [?] [?] [?] [a stained band].

And reckon [ונחשוב?] [?] [?] which [?] [?] reckon [?] the conjunction [החשבון/המולד?] [?] [?].

[Red ink: לד [?] ה [?] ב [?] / תקלד [?] / ה [?] ד [?] / ו [?]] — *(a longer red-ink rubric line mixing what look like season-codes and small numerals; letters uncertain throughout)* — the seasons [?] [?] reckon [?] [?] [?] [partly legible].

they [?] [?] reckon [?] [?] [the conjunction?] [?] [?] this [?] them [להם] [?].

So [?] [?] [?] reckon [?] [?] [?] this [?] [?] [text faded].

they [?] [?] [?] reckon [?] season [?] [?] [a line lost].

[?] this [?] season [?] [?] [?] [the lower portion of the right column is lost to staining] [?].

Left column

to them [להם] [?] [?] [the tables? הלוחות?] of the seasons [העבורים? / "the intercalations"?] [?] [?] [?] [head of column partly legible].

the [?] [?] [?] [?] [?] for [?] [?] to be [להיות?] [?].

[the moon? הלבנה?] [?] upon [?] the reckoning [החשבון] [?] [?] [text faded].

and reckon [?] the [?] [?] season [?]. And [?] [?] season [?] [?] [?].

reckon [?] [?] [?] [?] [?] this [?] [?] [a line lost].

The day [?] [?] established [?] this [?] [?] [?]. And [?] [?] [?] [?].

Chapters [פרקים?] [?] [?] [?] [?] [?] [?] [?] [?] [text faded].

he [?] [?] [?] this [?] [?] [?] year [יום? יום [?]] [?] [?] [?].

[a line lost to the stained band].

ten [עשר?] hours [שעות] [?] [?] [?] [?] [?] [?] [partly legible].

and behold [?] [?] [?] [?] this [?] this [?] year/day [?] [?] season [?].

And [?] [?] this [?] reckon [?] [?] established [?] this [?] [?].

and this [?] [?] [?] [?]. Behold this [?] [?] [?] year [?] [?] [?].

you shall reckon [?] [?] [?] reckon [?] [?] [?] [a line lost].

[?] [?] [?] [?] [text faded across the foot of the left column].

And reckon [?] the [?] [?] season [?] [?] [?] [the foot of the page is lost to the water-stain] [?]. **`.]**

Manuscript: Vatican Library, Vat.ebr.380. Sephardic semicursive hand. (folio numbered 173 in the upper-left margin of the first page; continues to the next leaf). Book Four (מאמר ד), Chapter Fourteen continues — the worked reckoning of the seasons (תקופות) against the conjunction (מולד), interspersed with red-ink keviyah / stored-season code triples.

General readability note. Both leaves carry a heavy dark water-stain/foxing blob running vertically down the inner half of each page (the gutter side of the right-hand column and the outer edge of the left-hand column), badly degrading several lines per column. The Vatican watermark overlay and ink bleed-through are present and ignored. Red iron-gall rubrics (the season-code triples) are in places more faded than the surrounding black. Numerals are transcribed verbatim with [?] where the glyph is genuinely ambiguous; this hand frequently drops the left stroke of ש so it resembles ע.

PDF page 351 (folio 173r)

Right column

the sun. And behold, the conjunction (מולד) [of] this [?]… and behold their reckoning is by addition, and you shall know [?] when [?]… for the reckoning, and you shall find it [?] upon the [?] when [?]… for the conjunction (מולד) of the day, and after the day [?]… and behold he reckons [?]… [Damage: central stain, ~2–3 words lost per line in this stretch] …the seasons, behold they reckon [להם, "for them"] [?]…

behold the reckoner reckons [?] for the day [?] [?]… [Damage: stain] …behold these seasons [?]… 7 [?]…

and you shall reckon [?] the season (תקופה) for the day [?], and behold [it/the reckoning] [?]… behold the reckoning [?], and reckon [it?] up to [עד, "until"] 17 [י"ז] [?], days [?]… and [?]… 12 [י"ב] parts (חלקים) [?]… the gate (שער), and from there [?] up to [?] the [?]…

the season (תקופה) precedes [קודמת] the conjunction (מולד) by [?] this [?] the season (תקופה) of [?]… for upon [על, "upon"] this season the reckoning falls [?] for the season (תקופה) and behold he reckons [?]… (interlinear: small inserted word above the line, illegible — [?)]

the falling-due (נופל [?]) [?]… [Damage] …upon the [?] when [?]… the season-of [?] [?]… [Damage, central stain ~3 words] …up to [עד] [כ"ב] 22 [?]… for the conjunction (מולד) of [?]…

the [?] reckoner [?], behold this [?] from [?] the seasons (תקופות) for [?]… the conjunction (מולד) [?] the season (תקופה) of [רב אדא? — "Rav Ada," [?]]… [Damage] …upon the conjunction [על המולד] [?]… for the season (תקופה) of [שמואל? — "Shmuel," [?]] [?]…

they shall return [ישובו? / "the seasons return"] [?]… and the reckonings [וחשבונות?] [?] from these the [?]…

that he said [?] the [?] upon [על] [?] the seasons [?]…

from the reckoning [מן החשבון] which is in [?]…

[Red ink: כ"ב ג קל"א] — keviyah / stored-season code triple. To one [לאחד]. And reckon them [וחשבתם] [?]…

the [?] this [?] when [?] for the [?] of-the-seasons [?]… [Damage] …truly [אמנם?] [?] he [?]… that they [?] know [?] that [?] the season [תקופת] [?] when [?] / [?] [Red ink: small numerals]

[?] this for [?] [?], up to [עד] [?] [?]… [Damage] …truly [אמנם?] [?] [?]…

[Red ink: כ"ו ג קל"א] — code triple. To one [לאחד]. upon [על] the [?] [?]… [Damage] …the days [?]…

upon [?] the [?] [?] the day [?]… for the days [?] / for the conjunction [למולד?] [?]… [Damage — ~2 lines badly stained]

the season (תקופה) the stored one (השמורה) [?]… and reckon [ותקן?] [?] the season (תקופה) when [?]…

and behold this [וזה] the reckoner [?]… [Red ink: numerals] …for the day [?]…

Left column

the season precedes (קודמת?) [?]… in its reckoning [?] [?]… [Damage, top of column stained] …the [?] [?]…

in [?] [?] he [?] [Damage] …for these [?]… [Damage, ~2 words] …seasons (תקופות) [?]…

[Red ink rubric word:] **ועתה** ("And now") — Behold [הנה] [?] [?]…

the [?] [?] the [?]… that he reckons [שנתקן?] when [?]…

The season (תקופה) [?] when [?], behold this [?]… [Damage] …and that [?] when [?]…

the gate (שער) [?] when the [?] of-the-season [?] [?]…

to the cycle (למחזור) [?] for [?] he [?] the season (תקופה) [?]…

[Red ink: ג [?] ה ח] — code, partly faded. — [interlinear small mark above, [ʔ]]

behold it is the reckoning [התקון?] the reckoner [המתקן?] [?]…

[?] that he reckons [שנתקן?] for [?] [?]… [Red ink: ח ה [?]]

the season (תקופה) when [?] he [?]…

the gate (שער) [?] for [?] for them [?]…

they shall return [?] [Damage] …the [?] [?] the conjunction [המולד?] [?] this [?]…

the [?] [?] reckons [?]… and there is no [?]…

[?] the season (תקופה) [?] when [?]…

[?] he reckons [?] the [?]… [Damage] …upon [?]…

that [?] [?] [?]… behold he reckons [ונתקן?] [?]…

[?] the [?] [?] [?]… preceding [?] [?] [?]… up to [?] [?] the [?]…

[Red ink: numerals] …the reckoner [המתקן?] [?]… upon [?] the reckoner [?]…

for upon [כי על] the [?] when [?] [?]… [Damage] …[?]…

[Damage, central stain dominates this block — ~3 lines largely illegible] …the season (תקופה) [?] for the day [?]…

[?] [?] [?] [?]… [Damage] …this [?]…

PDF page 352 (folio 173v / next leaf)

Right column

he reckons (תקן?) [?]… for the season-of [?]… behold the reckoning (התקון) [?] this [?] [?]… [Damage] …[?]…

[?] [?] when [?] [Damage, central stain] …for the day [?]… [?] of the reckoning [?]…

[Latin: a short marginal/interlinear scribble appears at upper right — two or three letters, illegible — [ʔ]. Most likely a librarian's mark rather than text.]

[?] the seasons (תקופות) [?]… [Damage] …truly [?]… [?] when [?]…

for [?] [?] when [?]… and they shall return [?]… [Damage]

truly [אמנם?] the [?] [?] [?] this [?]… [Damage] …the [?] [?]…

[?] of the seasons (תקופות) [?]… [?] from [?] the [?]… for [?] [?]…

[Red ink: כ"ב ג קל"ב [?]] — code triple. To one [לאחד]. [?] when [?] of [?] [?]… [Damage] …the day [?]… [?] [?]…

the day [?]… behold the [?] of [?]… [?]… and that [?] [?]…

[?] [?] when [?] [?]… up to [?]… of [?]…

[?] [?] the day [?]… [Red ink: numerals]

[?] the seasons (תקופות) [?]…

Left column

[?] [?] [?] [?]… [Damage, top of column stained] …the cycle [?]…

they shall return [?ישובו] [?]… and the [?] [?]… [?] [?]…

[?] when [?] [?]… [Red ink: ב[?]ת ה [?]ח] — code, faded. — and behold he reckons (?ונתקן) [?]…

[?] [?] [?]… [Damage] …the season (תקופה) [?] when [?]…

[Red ink rubric word:] **חלקים** ("parts") — by itself [לבדו] [?]. And behold [ויהיה] [?] when [?] the reckoning [?]…

that upon the reckoner [?שעל המתקן] [?]…

[Red ink: כ"ו ג קל"א] — code triple. To one [לאחד]. [?] [?] [?]… [Damage] …[?] [?]…

the reckoner (?המתקן) [?]… and reckon [?וסדר] [?] [?]… [?] [?]…

the [?] when [?] [?]… the season (תקופה), the [?] [?]… parts (חלקים) [?]…

[?] [?] [?]… for [?] [?]… upon [?] [?]…

behold the seasons (תקופות) [?]… [Red ink: numerals]…

that [?] [?] for [?]… and behold he reckons (?ונתקן) [?]…

[Red ink: כ"ב ג קל"א] — code triple. [?] [?] [?]… [Damage] …[?]…

the [?] [?] [?]… and parts (חלקים) [?]…

[Red ink rubric word:] **ועוד** ("Moreover") — [?] [?] for [?]…

the season (תקופה) [?] when [?] [?]… the seasons (תקופות) [?]…

[?] [?] of [?]… and behold [?]… the cycle [?המחזור] [?]…

[?] [?] [?] [?]… [final line, faded] …the conjunction (מולד) [?] the world [העולם?] [?]…

Yesod Olam — Book Four (The Jewish Calendar)

Script: Sephardic semicursive, single primary hand, with red-ink rubrication for structural markers and in-line keviyah codes. Heavy water-staining and foxing across the center and lower-right of both folios; the right-hand columns are substantially darker and harder to read than the left. Several stretches are recoverable only in part — flagged [?] and noted as below.

(The top margin carries a faded running header in the form פרק יד */ "chapter," largely effaced.)*

Left column.

the season [תקופה] falls within the reckoning [החשבון] of the molad, by what we set down [?]. And it returns [?] … so that the molad of [?] … the season of [?]. And just as he reckons [?] the season … so the molad [?] … and once more [?]

between [?] one day and another [?]. Just as he reckoned [?] the season, and on the day … its season … so too [?] … the season again [?].

[Red ink: סדר] *(rubric, "order/arrangement," partly faded)* … by way of [?] the seasons [התקופות] upon … as it falls [?] … the more refined reckoning [?] …

the season [?] … reasoning [?] … upon the matter [?] … so that you will know [?] … and you will understand [?] …

so the seasons [התקופות], thus the season of Rav Ada [תקופת רב אדא] … and according to it [?] … the season [?] …

and its season [?], for this is the difference [?] … so that the seasons [התקופות] which they set [?] … neither … the season of Shmuel [תקופת שמואל] not [?] … of the seasons [?] …

it ascended [עלתה] [?]. And it is required [?] (interlinear: ?) … the matters of the seasons [התקופות] … and we said [ונאמר] [?] …

and others [ואחרים] who differ [?] from these [?] are by another way [בדרך אחר?] …

the reckoning [?] … and when you reckon [?] … which are kept [השמורים?] … to him [?]

[Red ink: וגם] [?] [Red ink: חכמים ז"ל] *(rubric, "the Sages of blessed memory," reconstructed; ז"ל = of blessed memory)* …

the seasons [?]: that which is set [?] …

to the season of Shmuel [תקופת שמואל] [?] …

for the season [התקופה] was [?] … upon [?] the seasons [התקופות], by what [?] … one [?]

and according to the calculation [?] … upon the seasons [על התקופות?] … two [?]

and on this … and likewise [?] … the more refined reckoning [?] … [?] … the seasons [התקופות], by what [?] … one [?]

Right column. *(Darker; the upper third is heavily water-stained.)*

[Red ink: ?] season [?] … upon the season [?] … and the seasons [והתקופות] …

[?] the seasons [?] … the molad reckoning [?] … the season of [?] …

[Red ink: ?] for in this molad [במולד] … in the reckoning [?] … is set [?] … to [?]

the season [?] [Red ink: ?] [?] day [יום] … falls [נופלת?] … the season again [?] …

this [?] is [Red ink: כ"ה] [?] … above [לעיל], and you will understand [ותתבונן] the matter [חזר?] … of the season [?]. The season [התקופה] of the molad [המולד] [?] …

the months [?] [Red ink: ?] … and the season [והתקופה] of … so the molad … the season [התקופה] [?] [Red ink: ?] further [לעוד?] …

the months [?] … and according to [?] … the season … and we said [?] [Red ink: ?] further [לעוד?] …

[Red ink: וזה כ"ב ?] [Red ink: ?] [?] before me [לפני] that I should set down [שאתחיל?] [?]

within [בדרך?] … in the reckoning [בחשבון?] … as he reckons them [כמו שתקנם?] [Red ink: ואני] *("And I," rubric)* …

[Red ink: ?] I have said [?] for now [עתה] in the reckoning [בתקנה?] of … from the seasons [מהתקופות?] …

that this is [?] … his companion [חברו] [?], the living [?] … and if [?] … the seasons [?] …

[?] within it [?] in the reckoning [בתקון?] … the reckoner of the molad [מחשב הלבנה?] [?] this [?]

to [?] the seasons [התקופות] of the molad [?] … one … the [?]

to the reckoning [?], the [?] … and the molad … upon the calculation [על החשבון] …

and [Red ink: ?] [?] … the season [?] … the months [?] [?]

[Red ink: ?] [?] Yaakov ben [?] … from the season [?]

so too [?] … the season [התקופה] of [?] … [?]

it ascended [?] … and we set [ונתקן?] … the [?] … and [?] [?]

[Red ink: ?] the reckoning [התקון?] … as he set them up [שתקנם?] … so [?]

[?] the seasons [התקופות], the [?] … the season of [?]

[Red ink: ?] and [?] [Red ink: ?] [?] … and the seasons [?]

the calendar-reckoner [?] … the seasons [התקופות], the [?] … and [?]

[Red ink: ?] [Red ink: ?] … from the seasons [?] … so [?]

[?] … not [לא] … this [?]

upon the [?] … as he reckons [כמו שתקן?] … one [?]

to the reckoning [?] … and we set [ונתקן?] … this [?]

[?] … the seasons [?] … this [?]

we will return [נחזור?] … upon [?] … the season [התקופה] of Shmuel [שמואל], for [?] …

and we will say [?] … the season [התקופה] [?] … this [?]

[Red ink: ?] [Red ink: ?] [?] … the reckoning [?] … so [?]

[?] the seasons [?] … the season of [?]

[Red ink: ?] [?] … if the season [אם … התקופה] … the moon [הירח?] … one [?]

(Top margin: faded running header in the form תקופ' / "seasons," with what may be a folio/section mark.)

Left column.

the seasons [התקופות], and another [ואחר] … of their making [עשייתם?] … and again [ואחר] [?]

it is straight [ישר], for in this [?] he set [?] by means of [על ידי] the [?]

the remnants [שיירי?] of the years [השנים?], and they will be [?] … the season of [?]

and [?] … as it is here [?] [?] …

the offering [?] of the seasons [?] … and we will return [ונחזור?] … the reckoning [?]

[Red ink: ?] … [?] mine [?] … the seasons [?] [Red ink: ?] …

and the [?] … the [Red ink: ?] … the season [?] … this [?]

the leap-year reckoning [העיבור], and we set [?] [?] the seasons [?] … here [?]

the season of Shmuel [תקופת שמואל] [?], and [?] … as it falls [כשתהיה?] … the season [?]

and from this [?] … the season [?] [?] … and the season [ותקופת] … and [?]

before you [?] … upon the season [?] … and [?]

[Red ink: ?] … and we explained [?] [Red ink: ועוד] *("and further," rubric)* the seasons [?]

and again [?] for there are differences [?] … the [?] of the seasons [התקופות], and [?] …

and we said [?] … in the reckoning [בתקון?] … to the [?] … and they came up [ועלתה?]

that the season [שהתקופה?] … which they set [שתקנו?] … so [?] … the season [?]

to the reckoning [?] [?] [Red ink: ?] of the months [החדשים?] … and [?]

the season [התקופה] … on the [?] … the season of [?]

the [?] … its season [?] … of [?] … the years [?]

the seasons [התקופות] … which they set [?] [Red ink: ?] … so [?]

the seasons [?] … which they set [שתקנו?] [Red ink: ?] … so [?]

to [?] … one [?] … the season [?]

this [?] … the [?] of [?] … and [?]

[Red ink: ?] … the seasons [?] … of [?]

[?] … the molad [?] … and [?]

upon [?] … the seasons [?] … this [?]

Right column. *(Heavily damaged in its lower right; the bottom several lines are partly torn/stained.)*

obligated [חובה] upon [?] the reckonings [החשבונים?] … and he will set up [ויתקן?] … the [?]

and now [ועתה] … the moon [הלבנה?] … by what [?] … this [?]

not [לא] one [?] … reckoning [תקון?] … this [?] … the seasons [?]

it has come [?] … so [?] … and to the reckoning [ולהתקון?] …

and after [ויותר?] … its season [תקופתה?] … the [?]

it is so [הוא כן?] … upon … the reckoning [התקון?] … another [אחר]

[Red ink: בג"ה חסר] *(keviyah code: BG"H — i.e., a year of types bet/gimel/he with a "deficient" [חסר] year-length)* … the [?] …

that he sets [שיתן?] [?] … and he set up [ותקן?] … the [?] … the [?]

the seasons [?] … and a season [ותקופת?] of [?] … of the moon [?]

the season [?] … the [?] … the [?] … of [?]

upon him [עליו] … upon [?] … the reckoning [?] … and [?]

[Red ink: ?] … the [?] … [Red ink: ?] … to be refined [?]

and a season [ותקופת?] … and ascended [?] … in the reckoning [?] … and the molad [?]

not [?] … in [?] … upon [?] … the seasons [?]

[Red ink: ?] … to the molad [?] … and we set [?] … the [?]

it ascended [עלתה?] … the [?] … one [?] … the season [?]

and the molad [?] … and [?] … and [?] … the [?]

and again [?] … the season [התקופה?] of [?] … and [?]

and a season [?] … and the [?] … the [?] … the months [?]

[?] [?] … the [?] … of [?]

[Red ink: ?] [Red ink: כב ?] [?] in the world [?] for he [?] … the season [שקר?] [?]

and after [?] … that the reckoning [?] … of [?] … and [?]

it begins [?] … was [היה] … and after [?] [?]

and [?] … was [?] … which we set [תשכר?] … upon the seasons [על התקופ'?] … of [?]

[Damage: lower-right corner of the column, ~4–6 lines, heavy staining and edge wear — substantial text loss, only isolated words recoverable]

(Bottom-left margin of the verso carries the catchword.)

Yesod Olam — Book Four (The Jewish Calendar), Chapter Fourteen (continued)

Script: Sephardic semicursive, primary hand throughout. Red ink used for structural markers (כ"ה כב ושר / "thus far the gate," recurring red rubric phrases) and for the red section-opener ושר ("Gate"). This is one of the most water-damaged openings in the manuscript: a large central water stain crosses both folios, and broad foxing/staining affects the lower halves. Much of the left column of p. 355 and the central band of both pages are illegible. Iron-gall ink is faded throughout; the red rubrics survive better than surrounding black text in the stained zones. Transcription below is partial; this batch is a

Page 355 (f. 175r)

[Marginal foliation "175" upper left, in a later hand — [Vatican/later foliation note: "175"].]

The right column continues the worked discussion of Chapter Fourteen — the comparison of the seasons (תקופות) reckoned by Shmuel and by Rav Ada against the molad and the refined reckoning (החשבון).

the molad (?) [?] … and Rav Ada [רב אדא] … the molad which … and we have already explained [וכבר ביארנו (?)] … [several lines lost to the central stain] …

[Red ink:] **רהפך כ"ה כב ושר** [Red ink rubric — apparently a section/gate close-and-turn marker: "and the reverse — thus far the gate," with כ"ה = כה here "thus far / so much" (?)] [?]

the reckoning (התקון) [?] ... with the seasons (התקופות) ... and the seasons (וחלקים?) ... in his reckoning [במחשבתו (?)] ... and if [ואם] ... from the seasons ... in the season [בתקופת] ... [the next several lines pass through the stain and are illegible] ...

[Red ink:] **לקח פירוש כ"ה כב ושר זה** [Red ink rubric: "(he/it) takes — explanation; thus far the gate — this"] [?] ...and the seasons (ובתקופות?) ... [?]

[a stretch of body prose runs through the water stain — only scattered words legible:] ... when we [כאשר] ... the molad (?) ... the season ... this season ... and the refined season [התקופה …] ... [?] ... the foundation [היסוד (?)] [?] ...

this season is the season [תקופת תקופה זה הוא (?)] [?] ... and we will return [ונחזור] ... to the seasons (התקופות) and the molad (?) ... and we have already taken [וכבר לקחנו (?)] ...

[Red ink:] **פייר כב יש תקפלו** [Red ink rubric — uncertain; possibly "explanation — gate — there is ..." with the final word's reading obscured] [?] ...the remainder (השאר?) [?] ... which (?) is [הוא יהיה?] ... that the explanation [לתקון … שהוא?] ... with the seasons (עם התקופות) and the seasons ... in the molad (?) ... from the molad of the cycle [ממולד המחזור (?)] ... the season [התקופה (?)] ... [several words lost] ... and we will reach [ונגיע (?)] ... the season ... this [זה] ... and we will take [ונקח?] the seasons [פירוש?] ... to compute (?) ... the [several words illegible through stain] ... as in [כמו] ... and we have explained [וביארנו (?)] ... this [?] ...

[Red ink:] **ואני** [Red ink, sentence-opener: "And I"] — And as for me, [I find that there is] something to scrutinize [לעיין (?)] in this matter, and to consider [להתבונן?] in this matter — [?] this ... the reckoning [החשבון (?)] ... and not [ולא] ... upon the season (?) ... and we will return [ונחזור?] ... this ...

he said [אמר (?)] ... from his reckoning [מתקונו (?)] ... that the reckoning [שהתקון (?)] ... of the seasons (התקופות) ... in the latter (?) [באחרונה?] ... which (?) [?] ... the foundation (היסוד?) [?] ...

[Red ink:] **כ"ה כב ושר** [Red ink rubric: "thus far the gate"] ... and we return [ועוד?] ... to the reckoning [לתקון] of the seasons (התקופות) ... from the latter (?) [מהאחרונה?] ... which (?) is [שיש (?)] ... from [מן] ... and (?) [?] ...

[the lower third of both columns passes into heavy staining; the remaining lines on p. 355 are largely illegible:] ... if [אם?] ... the season [התקופה?] ... and we will return [ונחזור?] ... to the molad (?) ... the seasons ... and the seasons [ותקופת?] ... to the molad of [למולד?] ... the cycle [המחזור?] ... [text lost] ...

[Damage: water stain, central and lower right column, p. 355 — roughly the central third of the page and most of the bottom quarter illegible; left column almost entirely lost to staining and faded ink.]

[The left column of p. 355 is the most degraded region in the batch. Scattered red rubrics are visible — **כ"ה כב ושר** ("thus far the gate") recurs at least three times in red — but the intervening black body prose is illegible through the water damage. Legible fragments include:] …it will be [יהיה?] … the seasons [התקופות?] … the molad [המולד?] … Rav Ada [רב אדא?] … David (?) [דוד?] [Named authority or scribal abbreviation uncertain — possibly דר"א "Rav Ada" misformed; flagged] [?] … [Damage: left column, p. 355, ~70% lost.]

Page 356 (f. 175v)

The right column opens a **new structural unit** with a red rubric.

[Red ink section-opener:] **ושר** [Red ink: "Gate" — the red ושר here is a display-position section opener, larger than the recurring inline red markers; it heads a new שער within Chapter Fourteen's run.] …in computing [בחשבון (?)] the molad (?) … the seasons [תקופת?] … [the opening lines of this gate run through the upper stain] …

if [אם] … in (?) the reckoning of the seasons [בתקון התקופות (?)] … the way of (?) the seasons [דרך התקופות?] … the molad (?) … [?] …

[Red ink:] **קח פירוש כ"ה כב ושר** [Red ink rubric: "take the explanation — thus far the gate"] [?] … this [זה] … and we have already explained [וכבר ביארנו?] … the molad … [?] … the latter [האחרונה?] …

[body prose, partly legible:] … the season [התקופה] … the molad … and the molad [והמולד?] … this [זה] … and we will return [ונחזור?] … and Rav Ada [ורב אדא?] … the season [התקופה?] … if [אם?] …

[Red ink:] **כ"ה כב ושר** [Red ink rubric: "thus far the gate"] … the season (התקופה?) … the molad … and we will take [ונקח?] … and we will return [ונחזור?] … to the seasons [לתקופות?] … the molad of the cycle [מולד המחזור (?)] …

[Red ink:] **ב' כב תקופה** [Red ink rubric: "2 — gate — season" (or "in the gate, the season")] [?] … this is the season [זה הוא תקופת (?)] … and we will return [ונחזור?] … the molad [המולד?] … [the central stain cuts through here; several lines lost] …

[Red ink:] **יש כב תקופה** [Red ink rubric: "there is — gate — season"] [?] … the reckoning (התקון?) … the seasons …

[lower right column passes into the water stain; legible fragments:] … the molad [המולד?] … the season … this [זה] … and the seasons [והתקופות?] … in the cycle [במחזור?] …

[upper-left fragments:] … and as for the molad [וכמו שהמולד?] … in his reckoning [במחשבתו?] … the season [התקופה?] … and if [ואם] … the molad (?) … this [זה] … and we will return [ונחזור?] …

[Red ink:] **כ"ה כב ושר** [Red ink rubric: "thus far the gate"] … the seasons [התקופות?] … the molad …

this [זה] … the season [התקופה] … and (?) [?] … the molad of the cycle [מולד המחזור?] … and we will take [ונקח?] …

[Red ink:] **ק' כב תקופה** [Red ink rubric: "100 — gate — season" or a section marker; the leading letter is uncertain] [?] … this [זה] … and there comes [ונחשב?] … the molad of the season [מולד התקופה?] … and we will compute [ונחשב?] …

[Red ink:] **ב' כב תקופה** [Red ink rubric: "2 — gate — season"] [?] … the reckoning [התקון?] …

[the remainder of the left column descends into the stain and is largely illegible:] … the season [התקופה?] … if [אם?] … and (?) [?] … the molad … the molad of the cycle (?) … the season … and we have explained [וביארנו?] … this … [text lost] …

[Damage: water stain crossing the full width of both columns of p. 356 from the lower-middle downward; central foxing. Right column readable for roughly its upper two-thirds; left column readable for roughly its upper half. The bottom quarter of the page is illegible.]

Yesod Olam — Book Four (The Jewish Calendar)

Script: Sephardic semicursive, single primary hand, with red-ink rubrics for structural markers and inline section-close/open formulae. Both folios are heavily degraded: large central water stains, faded iron-gall ink, edge loss, and pervasive bleed-through from the facing side. Substantial portions of both pages are only partially legible; these are flagged inline and noted as

[f. 176r — left column]

[Red ink: ועתה] And now — [?] we shall come to refine these matters in another fashion. [?]

[The opening lines are partly legible.] [?] Set down [?] the reckoning [החשבון] of the seasons [התקופות], and [?] take [?] from it [?] … and then [?] … [several words lost to fading and the central stain] [?]

[?] … the reckoning [?] … for it has already been established [?] for us [?] in what preceded [?] … and we have [?] explained [?] … [?]

[Red ink: rubric, partly faded — apparently a section-close/open formula of the recurring type **תקופה … / … כב"ה]** [?] thus far [?] … the gate [?] … [several characters of the red rubric are lost; cf. the recurring close-marker noted in prior batches] [?]

[Red ink: a second short red rubric follows on the same area, partly legible **]** [?] To explain [לבאר / לתקן?] [?] the reckoning of the seasons [?] … [?]

[?] … the correction [התקון] of [?] making [עשית] the seasons [התקופות], and the gate [ושער] [?] … [?] and then [?] … take [קח] … the gate [?] … [?] for [?] always [?] … [?] in order [?] … and the season [והתקופה] [?] … [?]

[Red ink: short rubric, partly legible **חלק … בצא?]** [?] … and we shall say [ונאמר?] [?] upon [?] the order [?] … [?]

[The remainder of the left column is body prose, much of it readable in the lower (un-stained) portion:]

Another [matter] [אחר]: [?] We say [?] the reckoning [החשבון] [?] … the season [התקופה] [?] … [?] in the [?] … [several words lost] [?]

[?] … there was always [?] a fixed [?] order [?] … [?] for [?] the [?] … [?] every [כל] [?] … [?] gate [שער] [?] … the seasons [?] [התקופות?] [?]

[?] If [?] it were [?] the [?] beginning [קדום / קדוש?] [?] of the [?] … [?] and the [?] reckoning [?] of the [?] seasons [?] [התקופה?] [?], in the [?] … [?]

[?] And the establishment [וקביעת] [?] the [?] reckoning [המועדים — the appointed times?] [?] upon [?] the [?] seasons [?] in their [?] … [?]

The beginning [הראשון] [?] … and all [?] the establishment [הקביעה] [?] to it [?] … [?] (interlinear: a short inserted gloss appears above this line, but it is illegible) [?]

[?] … the [?] season [?] and its [?] … [?] and the seasons [?] … [?] in the season [בתקופת] this [?] … [?] If [?] it is [?]

[?] before [?] him [?] … [?] knew [?] … and the seasons [?] … [?] for the [?] reckonings [?] … [?] only [?]

[?] … [?] the reckonings [?] (interlinear: short illegible insertion) [?] … and [?] knew [?] and [?] the reckoning [?] … [?] in the seasons [?] [?]

[?] And if [?] there were [?] … reckonings [?] … the [?] season [?] … [?] before [?] him [?] … [?]

[?] This [?] was [?] the [?] reckoning [?] complete [שלם?] [?] … the seasons [?] … [?] the seasons [?]

[Final line of column, with what appears to be a citation/close formula:] [?] … [?] and they were said [שנאמרו] [?] [several words lost to edge fading] [?]

[f. 176r — right column]

[The right column is generally darker/better preserved than the left, though the lower portion fades into a stain.]

[?] … upon [?] your way [?] … the season [?] [התקופה?] [?] another [?] … [?]

[Red ink: inline rubric, partly legible — of the recurring **ק' … ה תקופה** type **]** [?] take the explanation [קח פירוש] [?]: This [?] is the [?] season [התקופה] [?] … and the season [?] returns [חוזרת] [?] in their [?] reckonings [?] (interlinear: short insertion) [?]

[?] … [?] always [?] … [?] for [?] our master [רבנו?] [?] the season [?] [התקופה?] [?] … [?]

[?] … and another [?] … [?] there is/it has [?] … and a season [?] [ותקופה?] [?] … and a part [וחלק?] [?] … [?]

[?] … the reckoning [החשבון?] [?] … [?] always [?] … [?] in their [?] reckoning [?] … and [?] this [?] is [?]

[?] In this [?] you will find [?] (interlinear: short insertion) [?] and the season [?] [והתקופה?] [?] … in their [?] reckoning [?] … the season [?]

[?] The season [התקופה] [?] … the reckoning [?] … and the [?] difference [?] [וההפרש?] [?] … [?]

[?] This [?] indeed [זה אם?] [?] … the [?] difference [?] … and the difference [?] [וההפרש?] [?] … in another [?] [באחר?] [?]

[?] This [?] returns [?] for [?] … the season [?] … and to the season [?] [ולתקופה?] [?] … only [?]

We have come [?] to compare [?] [להשוות?] [?] the seasons [?] in their [?] … in the [?] reckoning [?]

[?] The [?] establishment [?] [הקביעה?] [?] before [?] … only [?] always [?] returns [יחזור / יחזור?] their [?] reckoning [?]

[?] To the [?] establishment [?] [להקביעה?] [?] … if [?] in [?] season [?] [בתקופת?] the [?] reckoning [?] … to the [?]

[?] If [?] the [?] season [?] of the [?] reckoning [?] … or [?] in the [?] season [?] … the [?] reckoning [?]

In its [?] reckoning [?] [במקומו?] [?] and it [?] … then [?] for [?] always [?] returns [?] (interlinear: short insertion) [?]

We [?] knew [?] then [?] [נדעך?] [?] from [?] the [?] reckoning [?] from [?] the [?] establishment [?] [הקביעה?] [?] or [?]

[?] The [?] establishment [?] [התחלה — the beginning?] [?] … if [?] there is [?] … always [?] this [?] … but [?]

Upon [?] the [?] way [?] [על הדרך] [?] in the [?] reckoning [?] … the [?] reckoning [?] … upon [?] our [?] master [?] [רבנו?] [?]

[?] He [?] … and the establishment [וקביעת?] [?] [Red ink: short illegible inline rubric] [?] this [?] is [?] like that [?] [זה כמו זה?] [?] [several words lost] [?]

[?] One [?] hour [?] [שעה?] [?] [?] the [?] difference [?] [החלק — the part?] [?] this [?] … upon [?] the [?] reckoning [?] in [?]…

[?] In their [?] reckoning [?] [במקומך?] [?] … the [?] season [?] and the season [?] [והתקופה?] [?] in [?] this [?] … its [?]

[?] One [?] hour [?] (interlinear: short insertion) [?] … the [?] reckoning [?] … only [?] this [?] … [?]

[?] Establishment [?] [קביעה?] or [?] indeed [?] [Red ink: short illegible inline rubric] [?] if [?] … from the [?] season [?] … the [?]

[?] To the [?] season [?] [לתקופה?] [?] … in the [?] season [?] … only [?] the [?] reckoning [?] (interlinear: short insertion)

[?] To the [?] reckoning [?] [לחשבון?] [?] always [?] … from [?] … and the [?] season [?] [והתקופה?] [?]

[Final lines of column fade into the lower stain — largely illegible:] [?] in the [?] season [?] … to [?] its [?] place [?] … this [?] … [several words lost] [?]

[f. 176v — left column]

[The upper portion is partly legible; a central water stain again obscures the middle of the column.]

The time [זמן] [?] … the [?] season [?] [התקופה?] [?] … this [?] … its [?] reckoning [?] … upon [?] this [?] … [?] returns [חוזר?] [?]

[?] another [?] … if [?] there is [?] … near [?] [קרוב?] [?] … only [?] … and we shall [?] explain [ונבאר?] [?]

This [?] is the [?] explanation [פירוש?] [?] of the [?] reckoning [?] of [?] the [?] season [?] [שנות / שעות?] [?] the [?] world [?] [העולם?] [?] and now [?] [ועתה?] [?]

[?] much [?] in [?] explanation [?] … two [?] seasons [?] … one [?] [?] season [?] … and the [?] reckoning [?]

[?] He [?] passed [?] [עבר?] [?] … and [?] this [?] … in his [?] season [?] [בעלותה?] [?] … the [?] knowledge [?] [הידיעה?]

[?] His [?] … this [?] [זאת?] [?] … but [?] this [?] is [?] (interlinear: short insertion) [?] … it [?] knew [?] [יחשבו / יחשמו?] [?]

[?] reasoning [?] [טעם / טענה?] [?] … and like this [?] [וכזה?] [?] … one [?] [אחת?] [?] in [?] their [?] reckoning [?]

[?] And like this [?] [וכזה?] [?] this [?] is [?] … to the [?] before [?] (interlinear: short insertion) [?] every [?] establishment [?] [קביעות?] [?]

[?] when [?] [?] in the [?] season [?] … and not [?] [ולא?] [?] near [?] [נכ"ה?] [?] [?] [Red ink: inline rubric, illegible] [?]

[The remainder of the upper third is heavily stained — only scattered words legible:]

[?] The [?] seasons [?] [התקופות?] [?] which [?] are [?] [שהן?] [?] in the [?] season [?] [בזמן?] [?] the [?] establishment [?] [החשבון — the reckoning?] [?] for the [?]

[?] for the [?] reckoning [?] [למחזור — for the cycle?] [?] and [?] … to the [?] cosmos [?] (interlinear: short insertion) [?] and like [?]

[?] in them [?] [שבהם?] [?] … the [?] season [?] [?] … and the [?] season [?] [ותקופה?] [?] returns [?] (interlinear: short insertion)

[?] and the [?] reckoning [?] of his [?] seasons [?] [חשבונותיו?] [?] was [?] … in [?] the [?] reckoning [?] [Red ink: short rubric, illegible] [?]

[?] he was [?] in the [?] season [?] … the [?] reckonings [?] [החשבון?] [?] … the [?] correction [?] [תקנת?] [?]

[?] reckonings [?] (interlinear: short insertion) [?] and [?] this [?] [ופנים — and faces/aspects?] [?] from this [?] [מזה?] [?] [?]

[?] season [?] of the [?] established [?] [תקופת הקבועה?] [?] … not/exit [?] [/ נצא יצא?] [?] … and the [?] season [?] [ולא תקופה?]

[?] only [?] [רק?] [?] … and not [?] [ולא?] [?] eight [?] [עדין / שמנה — yet?] [?] … and there is [?] [ויש?] [?] in him/it [?]

[?] returns [?] [תזרח / תרות?] [?] aspects [?] [פנים?] [?] other [?] [אחרים?] [?] … which [?] is [?] [Red ink: inline rubric, illegible] [?]

[?] the [?] season [?] [התקופה?] [?] only [?] [רק?] [?] … and the [?] establishment [?] [הקביעה?] … the [?] establishment [?] (interlinear: short insertion)

[?] of [?] the [?] season [?] … near [?] [נכ"ה?] [?] … and the [?] establishment [?] [Red ink: short rubric, illegible] [?]

[The lower third recovers somewhat:]

[?] He [?] will [?] establish [יקבע?] [?] … the [?] hours [?] [השעות?] [?] … [?] and we shall [?] explain [ונבאר?] [?] to them [?]

[?] able [?] [יכל?] [?] to [?] do/make [?] [לעשות?] [?] in the [?] reckoning [?] of this [?] … and like this [?] [וכמו כן?] [?] for [?] we shall say [?] [נאמר?]

[?] He was [?] (interlinear: short insertion) [?] their [?] establishment [?] [קביעתם?] [?] … upon them [?] [עליהם?] [?] one [?] (interlinear: short insertion) [?] reasoning [?] [טעם?] [?] upon [?]

[?] their [?] establishment [?] [קביעות?] [?] … and the [?] reasoning [?] [וטעם?] [?] … near [?] [נכ"ה?] [?]

[?] for [?] this [?] is/will [?] [Red ink: inline rubric — illegible] [?] only [?] … and the [?] season [?] [והתקופה?] [?] near [?] (interlinear: short insertion)

[?] and there [?] is [?] [וישנו?] [?] in [?] … only [?] this [?] … and the [?] reasoning [?] [Red ink: short rubric, illegible] [?]

[?] we shall [?] explain [?] … near [?] (interlinear: short insertion) [?] in [?] their [?] explanation [?] [בפירושם?] [?]

[?] reasonings [?] [טעמים?] [?] in their [?] meanings [?] [במעלות / במעניות?] [?] and the [?] seasons [?] [ותקופות?] [?] [several words lost] [?]

[f. 176v — right column]

[The upper portion of the right column is the best-preserved area of f. 176v.]

They were [?] [היו?] [?] knowing [?] [יודעים?] [?] in [?] the [?] reasoning [?] (interlinear: short insertion) [?] the [?] reckoning [?] and the [?] establishment [?] [וקביעת?] [?]

[?] He [?] passed [?] [עבר?] [?] … now [?] their [?] reckoning [?] [שעות — hours?] [?] … and not [?] [ולא?] [?] the [?] season [?]

[?] like the [?] season [?] [כמוכה?] [?] … the [?] hours [?] (interlinear: short insertion) [?] … and not [?] the [?] season [?]

[?] ten [?] [יו?] [?] another [?] [אחר?] [?] … and not [?] upon [?] … another [?] [אחר?] [?] season [?] … [?]

[?] their [?] establishment [?] [קביעותם?] [?] … and reckoning [?] [וחשבון?] [?] … the [?] way [?] (interlinear: short insertion) [?] established [?] [קבועה?]

[?] take [?] [קח?] [?] this [?] … [?] and there is [?] [ויש?] [?] near [?] (interlinear: short insertion) [?] upon [?] the [?]

[?] and not [?] [ולא?] [?] only [?] … if [?] in their [?] reckoning [?] … upon [?] the [?] reckoning [?] (interlinear: short insertion)

[?] and there [?] is [?] [וישנו?] [?] … the [?] reckoning [?] (interlinear: short insertion) [?] … another [?] [אחר?] [?] near [?]

[A cluster of red rubrics and partly-legible body lines follows in the upper-right:]

[Red ink: inline rubric — partly legible, of the recurring type **]** [?] and in the [?] season [?] [ובתקופת?] [?] the [?] reckoning [?] (interlinear: short insertion) [?]

[?] for [?] our [?] eyes [?] [עינינו?] [?] … from [?] always [?] (interlinear: short insertion) [?] near [?] [נכ"ה?] [?]

[?] He [?] returns [?] (interlinear: short insertion) [?] in [?] … the [?] reckoning [?] (interlinear: short insertion) [?] returns [?] [וחוזר?] [?] and we shall return [?] [ונחזור?]

[?] for [?] explanation [?] [פירוש?] [?] … the [?] season [?] (interlinear: short insertion) [?] and we shall return [?] [ונחזור?] [?]

[?] those [?] (interlinear: short insertion) [?] … the [?] season [?] … the [?] establishment [?] (interlinear: short insertion) [?]

[?] He [?] will [?] do/make [?] [יעשה — יחשמו?] [?] … reckonings [?] (interlinear: short insertion) [?] and not [?] the [?] season [?] [ולא תקופה?]

[?] established [?] (interlinear: short insertion) [?] in his [?] reckoning [?] [?] (interlinear: short insertion) [?] only [?] this [?] not/exit [?]

[?] upon [?] returns [?] (interlinear: short insertion) [?] their [?] reckoning [?] [פעמיהם — their times?] [?] in [?] this [?] and like this [?] [וכזה?]

[The middle and lower portions recover, but ink is faded throughout:]

[Red ink: inline rubric — partly legible **לברר … בב זקף / קח?]** [?] and we shall clarify [?] (interlinear: short insertion) [?] the [?] explanations [?] [הפירושים?] [?] those [?] [הם?] [?] to clarify [?] [לברר?]

[?] our [?] master [?] [?] He [?] knew [?] [ידעם?] [?] … until [?] (interlinear: short insertion) [?] and they were [?] knowing [?] (interlinear: short insertion)

[?] which/that [?] is [?] (interlinear: short insertion) [?] another [?] … near [?] [נכ"ה?] [?] established [?] (interlinear: short insertion)

[?] the [?] world [?] [העולם — the cosmos?] [?] and the [?] cycles [?] [והמחזורים?] [?] … established [?] (interlinear: short insertion)

[?] the [?] seasons [?] [התקופות?] [?] established [?] (interlinear: short insertion) [?] reckonings [?] (interlinear: short insertion) [?]

[?] there were [?] [היה?] [?] … near [?] (interlinear: short insertion) [?] and like this [?] (interlinear: short insertion) [?] and there were/established [?] [ונקבעה?]

[?] He [?] returns [?] (interlinear: short insertion) [?] … [?] (interlinear: short insertion) [?] near [?] [נכ"ה?] [?] in [?] every [?] period [?]

[?] more/another [?] (interlinear: short insertion) [?] … this [?] hour [?] (interlinear: short insertion) [?] day [?] [יום?] and [?] [Red ink: short rubric, illegible] [?]

[?] much [?] until [?] (interlinear: short insertion) [?] and the [?] season [?] [ותקופת?] [?] one [?] cycle [?] [מחזור?] [?] another [?] [אחרת?] [?]

[Final line of column, edge-faded:] [?] this [?] is [?] … and a season [?] [ותקופת?] [?] reckoning [?] (interlinear: short insertion) [several words lost] [?]

Yesod Olam — Book Four (The Jewish Calendar)

Script: Sephardic semicursive, single primary hand throughout. Red ink used for the chapter rubric and for scattered inline structural labels.

General readability note: Both folios carry a large brown water stain / foxing band running vertically down the inner-margin (gutter) region, badly degrading the inner edge of each column. The Vatican watermark and ink bleed-through have been ignored throughout. Many readings in the stained band are recovered only partially; these are flagged `[?]` and the worst-affected zones are marked as

PDF p. 359 (recto; marginal foliation "177" at top-left)

Right column (read first):

[the text resumes mid-discussion of the seasonal reckoning] …[?] in their reckoning. And behold, this is what is owed to them in the computation [?]. They received [it] from the words of [?] the sages [חכמים], for the seasons [תקופות] [?] … [~2 words lost to stain] [?].

Therefore Rabbi Yehoshua [רבי יהושע [?]] said: the reckoning [?] is not [?] complete [?]. And Rabbi [?] said: [?] the reckoning [החשבון] was [given?] from the days of the early ones [הראשונים], and it was received [ונקבל [?]] from them [?] … [stain, ~2 words] [?].

[?] but Rabbi Yehuda [?] said: [?] over the seasons [?] …[~3 words lost] [?]. And behold this [?] is the season [התקופה [?]], and behold to the [?] …[stain] [?].

To Rabbi [?] …[2 words] the calculation [החשבון] of the season [התקופה], and behold this is [?] …[~2 words] [?] before [?] …[~1 word] [?].

[a stretch of ~3 lines is largely effaced in the upper-central stain; only isolated words legible:] …the reckoning [החשבון] [?] …the season [התקופה] [?] …[~several words lost] [?].

and behold [?] …[?] from the [?] …[?] before [?] [Red ink: inline marker, illegible word] [?].

[Approaching mid-column, where the prose becomes more legible below the worst of the stain:]

[?] the reckoning of the season [חשבון התקופה [?]] …and this is [?] …[~2 words] [?]. [Red ink: short inline rubric, ~2 letters, illegible] [?].

And behold, the Lord [the Name — ה'] [?] …over it, [?] for they said [?] …[?] our concern [?] …[~2 words lost] [?].

[?] the seasons [?] …[?] and they are mistaken [וטועים [?]] …[?] from the calculator [המחשב [?]] …[?].

[Red ink word, prominent in line:] **והקדם** [?] ["And the precedence" / "the earlier (one)" — uncertain; possibly **והקדים**] …upon it, that they said [שאמרו] …[?].

[the lower third of the right column, below the stain, is the most legible block:]

the year [השנה] before [?], and the [?] …[~2 words] [?]. And one who calculates [וכן [?]] …[?] the establishment [הקביעה? [?]] …[~2 words] [?]. And behold this is the rule [הכלל] [?].

The [?] of the season [התקופה [?]] …if they were [?] …[~1 word] [?]. We learn [?] that [?] over [?] …[~2 words] [?].

and behold this [?] …[?] and behold [?] …[~1 word] [?]. There is none [אין] [?] like [?] …the establishment [הקביעה? [?]] …[?].

[A run of ~4 lines on calendrical establishment, partly legible:]

[?] their reckoning [חשבונם [?]], for the [?] …[~2 words] [?]. And behold then [?] … upon it [?] the establishment [?] …and behold [?] [Red ink: inline marker] …[~1 word] [?].

[?] the moon [הלבנה] in the [?] …[~1 word] [?] …the [?] …[~2 words] [?]. [Right margin, beside this line: a small marginal note, ~3 letters, illegible — marginal note; further identification requires further verification.] [?].

the [?] of the moon [הלבנה] …[?] …[~2 words] [?]. And behold then [?] …like [?] …[~1 word] [?]. And one who receives [?] …[?] joins [מחבר? [?]] …[?].

[?] their reckoning [?] …[?] in the establishment [בקביעה? [?]] …[~2 words] [?].

[Lower lines:] …and [?] Shmuel [שמואל [?]] …that the [?] is [?] …[?]. The law of the [?] [Red ink: "ב"ה" / inline triple-letter code, in red — likely a keviyah/season triple, NOT a numeral] [?] …in the moon [בלבנה] …[~2 words] [?] the calculation [מחלוקת / מחזור? [?]] of the [?] …[~2 words] [?]. Until [?] …[?] until [?] …[~2 words lost to lower-corner stain] [?].

Left column (read second):

[?] who calculate it [?], and they have shown [וירדנו? [?]] …their reckoning [תקונן? [?]] …[~2 words] [?] season [תקופה] [?].

the law [?] …[?] for the moon [ללבנה? [?]] …[?] from the [?] …[~1 word] [?]. He went [?] …[?] established [?] …[?].

[?] season [תקופה? [?]] …[?] the year [?] …[?] …[~2 words] [?]. And we have already [?] …[?] from the [?] …[?].

and the seasons [והתקופות [?]] …[?] …[~2 words] [?]. [Red ink: a short inline marker, ~3 letters, illegible] [?].

[?] of the early ones [הראשונים? [?]] …[?] …[~1 word] [?]. He said [?] …[?] …[~2 words] [?].

[Mid-column, partly legible block on the seasons and their excess:]

and we have added [ונחזור / ?ונרשם? [?]] …[?] the season [התקופה [?]] …this [?] …[~2 words] [?].

[The name appears here:] …Rabbi [?] Yehuda [ר' יהודה / ?ק' יהודה [?]] …[?] over [?] …[~2 words] [?]. [Right of this line, in the gutter margin: small marginal note, illegible — marginal note; identification requires further verification.]

[?] for the [?] …[?] of the establishment [?] …[~2 words] [?]. And behold [?] …[?] …[~1 word] [?].

[Lower block — among the more legible on this column:]

the establishment [הקביעה? [?]] of the season [?] …[?] …[~2 words] [?]. [Red ink inline: a short rubric, illegible] [?].

[?] for the moon [ללבנה? [?]] …[?] …[~2 words] [?]. And behold [?] …[?] in the establishment [?] …[~1 word] [?].

[?] the season of Shmuel [תקופת שמואל [?]] …[?] over [?] …[~2 words] [?]. And [?] …[?] …[~1 word] [?].

and [?] the seasons [התקופות [?]] …[?] before [?] …[~2 words] [?]. [Red ink inline marker] …[?] …[~1 word] [?].

[the final ~3 lines, lower-left, badly stained:] …[?] …[~3 words lost] [?] season [תקופה? [?]] …[?] …[~2 words] [?]. And behold [?] …[?] …[~2 words] [?].

PDF p. 360 (verso)

Right column (read first):

[?] in the [?] …[?] …[~2 words] [?]. [Red ink inline at line-start, ~3 letters, illegible] [?].

[?] he sets [קבע? [?]] …[?] of the moon [הלבנה? [?]] …[~2 words] [?]. The seasons [התקופות? [?]] …[?] …[~1 word] [?].

[?] of Shmuel [שמואל? [?]] …[?] …[~2 words] [?]. The reckoning [החשבון? [?]] …[?] …[~2 words] [?]. And behold [?] …[?].

[The red-ink chapter heading appears here, prominently, center of column:]

פרק חמשה עשר

[Red ink header: פרק חמשה עשר — "Chapter Fifteen."]

[Red ink, immediately below the heading — an introductory rubric in red running for ~3 lines:]

[Red ink: וכבר הודענו (?) …עדיין (?) להם בתקון (?) …יקום (?) …הקדמות והקדם (?) כי …נביא (?) …ולברר תקופות (?) …השלמות בחילוף בעל (?) תקופת (?) …יהושע (?) ושמואל (?)] — *"And we have already made known [?] …still [?] to them in the correction [בתיקון] of [?] …[?] the premises [ההקדמות], and the precedence [והקדם], for [?] …we shall bring [נביא] [?] …and to clarify [ולברר] the seasons [תקופות] [?] … the completions [ההשלמות] in the variance [בחילוף] of [?] the season [תקופת] [?] … Yehoshua [יהושע] [?] and Shmuel [שמואל] [?]."* [The whole rubric is partly effaced by the upper stain; readings flagged accordingly]

[Body text resumes in black:]

[Red ink inline: short marker, ~2 letters] …[?] our way [דרך] …the reckoning [חשבון? [?]] …[~2 words] [?]. Your way [דרך זאת / דרך שבות? [?]] …[?].

The [?] …[?] over the [?], that this is its way [שזהו דרכה [?]] …the season [תקופה? [?]] …[?]. Upon it [?] …[?] and the [?] …[~1 word] [?]. From the place [ממקום? [?]] …the seasons [תקופות? [?]] …[?].

[?] …[?] [Red ink inline: short marker] he sets [יקום / יקים [?]] …[?] …[~2 words] [?]. And behold [?] …[?] …[~1 word] [?].

[Red ink word, prominent:] **ועתה** ["And now"] — the establishment [?] in the [?] … its first [ראשון? [?]] …[~2 words] [?].

[?] there is to us [יש לנו? [?]] …[?] …[~2 words] [?]. And behold [?] …[?] …[?] [Red ink inline marker] [?] …[~1 word] [?].

[A more legible block in the lower-right column, on the two seasonal systems:]

and behold [?] …each one [כל אחד? [?]] …[?] …the seasons [התקופות? [?]] …[?] …[~2 words] [?].

[?] the season of Yehoshua [תקופת יהושע? [?] — i.e., the school of R. Yehoshua / possibly the תקופת רב אדא tradition] [?], and as for us [ואנחנו / ובנינו? [?]] …we know [ידענו? [?]] …[~1 word] [?].

[?] …[?] [Red ink inline: "ד" ?] …[?] …[~2 words] [?]. And as for us [?] …the moon [הלבנה? [?]] …[?] …[~2 words] [?].

[?] the establishment [הקביעה? [?]] …[?] …[?] [Red ink inline marker] [?] from the place [ממקום? [?]] …[~2 words] [?].

and we [?] …the seasons [התקופות? [?]] …[?] …[~2 words] [?]. And behold [?] …[?] the establishment [?] …[~1 word] [?].

[Lower lines:] …the [?] of the moon [הלבנה? [?]] …[?] …[~2 words] [?] [Red ink inline: "ב" ?] …[?] …[~1 word] [?].

and behold [?] …[?] the season [תקופה? [?]] …[?] …[~2 words] [?]. **And in all [ובכל? [?]]** …it is right [קיים? [?]] …the season [תקופה? [?]] …the first [הראשון? [?]] …[?]. The seasons [התקופות? [?]] …[~2 words lost to lower-corner stain] [?].

Left column (read second):

[?] who calculate it [?], and they have shown [וירדנו? [?]] in their correction [תיקונם? [?]] …[?] …[~1 word] [?].

[?] again [?] …in the calculations [ביחזקאל / בחישובין? [?]] …the seasons [התקופות? [?]] …[?]. [Red ink, partly legible inline rubric: כב? זו תכלל יד — likely a structural/season label triple, NOT a gematria value] [?].

for [?] the moon [הלבנה? [?]] …[?] …its [?] …[~2 words] [?]. And behold [?] …[?] the season [?] …[~1 word] [?].

[?] like [?] …[?] …[~2 words] [?] the establishment [הקביעה? [?]] …[?] …[?] in his hand [בידו? [?]] …[~1 word] [?].

[Mid-column block, partly legible:]

before [?] …the moon [הלבנה? [?]] …[?] …[~2 words] [?]. And behold this [?] the seasons [התקופות? [?]] …its place [מקומה? [?]] …[~2 words] [?].

[?] for [?] …[?] …[~2 words] [?]. [Red ink inline: "כג זו תכל" — structural/season label triple, NOT a numeral] [?] …[~1 word] [?].

[?] like [?] over it [?], and [?] …upon it [?] …the season [התקופה? [?]] …[?] …[?] [Red ink inline: triple-letter code "כג ז' תכל"?] [?].

[?] …to the moon [ללבנה? [?]] …[?] …[~2 words] [?]. And behold [?] …[?] …[~1 word] [?].

[A named-authority / titled reference appears here, in red:]

[Red ink: אבן רשד / אבכרס הלקח? [?]] — *a named source in red, ~4–5 letters, partly effaced; identification uncertain — possibly a personal name or a cited work. Marginal/structural label; identification requires further verification.* [?]

the joiner [המחבר? [?]] …[?] …[~2 words] [?]. The season [?] …in the establishment [?] …[?] …[~1 word] [?].

[Red ink inline:] **[Red ink: בעל תכלת / בעלי זוגלת? [?]]** — illegible red rubric, ~5 letters [?].

[Lower block, partly legible:]

and [?] …the seasons [התקופות? [?]] …the [?] …[?] …[~2 words] [?]. And [?] …[?] …[~1 word] [?].

[?] in the correction [בתיקון? [?]] …the season [תקופה? [?]] …[?] …[~2 words] [?]. The moon [הלבנה? [?]] …[?].

[?] one season [תקופה אחת? [?]] …over [?] …[?] …[~2 words] [?].

[?] the season [התקופה? [?]] …[?] …[?] [Red ink inline: short marker] …[~2 words] [?]. And behold [?] …[?] …[~1 word] [?].

[the final lines, lower-left, badly stained:] …[?] …[~3 words lost] [?] season [תקופה? [?]] …[?] over the moon [על הלבנה? [?]] …[?] …[~2 words] [?]. And behold [?] …[?] …[~2 words] [?].

Yesod Olam — Book Four (The Jewish Calendar), Chapter Fifteen (continued)

Vat. ebr. 380, batch 181, Sephardic semicursive hand. Two folio sides, two columns each. Both folios are heavily damaged by water staining and foxing — a large dark stain crosses the center and lower portions of each leaf, and the inner gutter region is degraded. Red-ink structural rubrics and triple-letter keviyah codes punctuate the text. Reading at this resolution is at or beyond the limit over much of the page; uncertain passages are flagged `[?]` and the most degraded zones are marked as

PDF p. 361 (folio recto)

[Foliation: "178" in margin, post-medieval pencil/ink hand — `[Vatican librarian note: 178]`]

Right-hand column (read first, right-to-left)

the deficiencies after the completion of the day, the [solar] day [?] [Red ink: זו כב (?)] [?]. [Red ink rubric, partly legible:] **upon all of this** [על כל זה (?)] [?] — what we [?].

The seasons (התקופות) [?] are reckoned [?] [?]; and within them [?] is the [?] [?]. The [?] is the [?] [?] of the matter [?].

[Several lines here cross the central water stain and are illegible — `[Damage: water stain, ~6–8 lines across mid-column, text largely lost]` [?]]

[Red ink, partly legible:] **the seasons** (?) [?]. The variance (החילוף) [?] between the [seasonal] traditions [?]; and the completion (ההשלמה) [?] [?].

[A passage naming an authority — possibly Shmuel (שמואל) or the molad reckoning — is present but its identifying letters fall under the stain and cannot be read — `[?]`]

and we said [ונאמר] [?] that the [?] [?]; and the establishment (הקביעות) [?] of the [?]. And behold [והנה (?)] [?] the [?] [?].

[Lower portion of column — heavily stained, ~8–10 lines — `[Damage: water stain + foxing, lower right column, text largely illegible]` [?]]

[Red ink rubric near foot, partly legible:] **the rule** (הכלל) [?] [?] — and behold this [?] [?].

Left-hand column

the [?] [?]; and the [?] [?] [?] of the [completion / השלמה] [?].

[Red ink, mid-column, faded triple-letter code present — keviyah/season triple, not gematria — `[Red ink: ‹triple-letter code, illegible›]` [?]]

The variance (החילוף) [?] is found [?] [?]; and the [seasons] [?] [?] [?].

[Central water stain crosses here — `[Damage: water stain, ~5–7 lines, mid-left column, text lost]` [?]]

[Red ink phrase, partly legible] **and we return** (ונחזור) [?] [?]; therefore [?] [?] the [?] [?] of the matter [?].

[Lower-left column heavily degraded — `[Damage: foxing + edge dampness, lower-left column, ~8 lines largely illegible]` [?]]

[Foliation note at foot, faded — `[?]`]

PDF p. 362 (folio verso)

Right-hand column

[Top lines cross the upper edge of the central stain — partly legible:] …the establishment (הקביעה) [?] [?]; and the [?] [?]. The [?] [?] of the [seasonal] tradition [?].

[Mid-column — large water stain — `[Damage: water stain, ~6–9 lines, mid-right column, text largely lost]` [?]]

and behold [?] [?] the variance (החילוף) [?] between the two reckonings [?] [?]; and the completion (ההשלמה) [?] [?] of [?].

the seasons (התקופות) [?] [?]; the [?] [?] [?]. And we said [ונאמר] [?] [?].

[Lower-right column — degraded — `[Damage: foxing, lower-right column, ~6 lines, partly illegible]` [?]]

Left-hand column

[Red ink rubric, mid-upper column, partly legible:] **and we return** (ונחזור) [?] — [?] the [?] [?] of the [?].

the reckoning (החשבון) [?] [?]; and the molad (המולד) [?] [?] [?]. The [?] [?] of the cycle (המחזור) [?].

[Central / lower water stain crosses here — `[Damage: water stain, ~7–10 lines, mid-to-lower left column, text largely illegible]` [?]]

and this is [?] [?] what we have explained [?] [?]; therefore [?] [?].

[Foliation note at foot — `[?]`]

Yesod Olam — Book Four (The Jewish Calendar)

Script: Sephardic semicursive, single primary hand throughout, consistent with prior batches. Red ink (rubrication) used for the chapter heading and certain in-text structural cues. Both pages are severely water-damaged: a large stain runs through the center of the opening, rendering substantial portions of the inner columns of each leaf illegible. Page 363 has a folio number "179" in the upper-left margin (later hand, Arabic numerals). The foliation offset relative to the running PDF count continues.

> **Readability note:** This leaf carries two text columns. The inner (left-hand on the page as imaged) column and large parts of the outer column are obscured by a broad central water stain and surface darkening. Only fragments can be read with confidence; much is transcribed with `[?]` or recorded as lost.

Chapter Fifteen continues. The discussion concerns the molad (the conjunction) and the reckoning, with the variance (חילוף) between the seasonal traditions and the completions still in view.

"…the molad with us [is] already known … as is established upon … and the seasons [תקופות] vary [?] …"

[Several lines, ~6–8, lost or illegible under the central stain — Damage: water stain, ~8 lines of the upper outer column obscured.]

and we said [?] that the molad-of-the-cycle [מולד המחזור] … [?] and from it [?] … [Damage: ~4 words lost per line for several lines.]

[Mid-column, partly legible:] "…and when [?] there are … [?] the seasons [?] this … and from one to another … as is fitting [?] …"

[A short stretch follows on the reckoning and the established arrangement (הקביעות), but the central darkening defeats a continuous reading. — Damage: ~10 lines, central column, illegible.]

[Lower outer column — a passage on chapter numbering and the cycle of years:] "…chapter twelve [פרק י"ב [?] — see anomaly (a)] … the years [?] and they [?] …"

[Red ink, in-text cue, lower outer column:] [Red ink: שעה [?]] — "hour [?]"

"…and the established [reckoning] of the chapter [?] … upon this the established arrangement [הקביעות] … the years twelve [י"ב] … the established arrangement [?] …"

[Several further lines on the count of the years of the cycle and the simple/intercalated years, badly faded; readable only in fragments:] "…the count [?] twelve [י"ב] … the simple year [שנה פשוטה] and the intercalated [המעוברת] …"

[Lower-column closing lines, partly legible, on the molad and the completion:] "… and from it [?] … the deeds [המעשים [?]] … upon [?] the count [החשבון] … the molad [?] …"

[Damage: the bottom ~3 lines of both columns are darkened; readable only as scattered words — "the molad," "the count," "the season."]

> **Readability note:** The outer (right-hand on the page as imaged) column is heavily stained across its upper two-thirds; the inner column is somewhat clearer below mid-page. The red-ink chapter heading near the foot of the inner column is legible. Red iron-gall ink shows some fading.

"…until [?] … is found [?] in the addition [בתוספת [?]] … and another [?] for the years [?] …"

[Damage: ~10 lines of the upper outer column lost or illegible under heavy staining.]

[Mid-outer column, partly legible — a worked passage on a season falling on a given day:] "…the season [?] that [?] … upon [?] … if the season [?] … in the count [בחשבון] …"

"…and from one day to another [?] … and the season [?] in [?] … the established arrangement [הקביעות [?]] …"

[A short sequence follows on "day" reckonings and a season "falling on the Sabbath [שבת [?]]"; the readable fragments:] "…and if [?] the season [?] falls on the Sabbath [?] … in the count [?] … and not [ולא] …"

"…another [אחר] for [?] the day [?] … and this [?] in [?] … and we have proven this [והכחנו [?] זה] …"

[Several lines, ~5, partly legible, continuing the demonstration; key fragments:] "…(interlinear: בו [?])] … and we have proven [?] … and also [?] from [?] … and likewise [?] … in [?] the season [?] …"

[Lower-outer column, before the heading:] "…one day [?] another, and we said [?] … and another [?] day [?] … and the count [?] of the day [?] … and we said [ונאמר] and we will explain [ונבאר [?]] …"

[Red ink header:] פרק ששה עשר — Chapter Sixteen

[Marginal/interlinear note beside the heading, red ink, partly legible: " / כתחיל חשבון [?]" — "begins / the reckoning [?]"]

[Beneath the heading, the opening of Chapter Sixteen, partly legible. The first words appear in a slightly emphasized hand, with a red-ink in-line cue:]

[Red ink, in-text cue: "ידוע [?]"] — "It is known [?]"

"…the seasons [?] and the reckoning [?] … [?] every [?] … if [?] this … and not [ולא] is known [נדע [?]] … which [?] day [?] from her [מ… [?]] …"

> **Readability note:** Only the heading and the first one or two lines of Chapter Sixteen fall within this batch; the chapter's body continues into the next batch. The opening lines are partly obscured.: opening of Chapter Sixteen.

Yesod Olam — Book Four (The Jewish Calendar)

Sephardic semicursive hand. Continuation of Chapter Sixteen, with Chapter Seventeen opening Both folio sides are heavily water-stained and foxed, with the gutter and central blotch obscuring portions of every column. Numerals are transcribed verbatim with `[?]` where the glyph is genuinely ambiguous.

Right column

the seasons (תקופות) and the moon, that they should not deviate, in the calculation. And in this matter there is a difference between them, as we explained. Therefore [?] this [is] the count of the seasons (תקופות), that they should not deviate [?]; for from this season [?] the moon proceeds [?] …

established (קבוע) [?]: when there is, in each season [?], a fixed reckoning [?] and a known [reckoning] [?]; and the moon [?] proceeds [?]. And so [?] the count of the season [?] the moon [?], in the way [?] …

and this is a known thing [?]. And so [?] the seasons [?] in their reckoning [?], to the season [?] of the moon [?] …

[Damage: water stain and gutter intrusion through the lower-middle of this column; several words per line are obscured or only partially legible. Marked as a]

The season [?] is the time [?] …and we know [?] the count [?] of the months [?] from the day [?] …and the moon [?] proceeds [?] in the calculation [?] …until the season [?] which is [?] established [?] in the season [?] …

toward [?] the west [?]: when [?] the place [?] of the moon [?] is established [?] and is established [?] …its strength [?]. And also [?] all the seasons [?] another [?] toward [?] the moon [?] proceeds [?], the son of [?] …

between [?] the season [?] and his [?] …And [?] this is [?] the count [?] of [?] the year [?] which [?] established [?] …

the year [?] of the seasons [?] in the calculation [?] of the moon [?], in the calculation [?] which [?] proceeds [?] …toward [?] the moon [?] until [?] the year [?] …

established [?] in [?] the year [?] …toward [?] the moon [?], the day [?] proceeds [?] …the season [?] from [?] the count [?] …

Left column

the seasons (תקופות) and they deviate in the reckoning [?], the difference of the established [?]…

in his life [?] in their seasons [?], they will deviate [?] and they will be established [?] …

the moon and they deviate in the reckoning [?] — Behold, you have [?] …

the established (הקבועה) seasons [?] …and behold [?], you have [?] established [?] …

the count [?] of [?] the month [?]: behold [?] you have [?] established [?] … established (קבועות) the seasons [?] from [?] the count [?] …

established [?] the seasons [?] …in their reckoning [?] and they deviate [?] from [?] …

[Red ink: ועתה] And now — [a new sub-section opens; the rubric word ועתה ("and now") is written in red.] Know, my brother [?], that the …

the established (הקבועה) [?] season [?]; in this [?] there is the count [?] of the [?] …

The reckoning [?]: I have arranged [?] for you [?] the count [?] and the reckoning [?] and the count [?]…

The season [?]: a fixed [?] reckoning [?], and the season [?] proceeds [?] …

until [?] the season [?] of the year [?], that I have [?] established [?], and the count [?] of [?] …

The seasons [?] and the reckoning [?] is established [?]; the count [?] and the years [?] are established [?] …

established [?] in their seasons [?]: behold [?], you have [?] arranged [?] established [?] …

and they [?] deviate [?] in [?] the established [?] reckoning [?]; behold [?] this [?] the count [?] …

the season [?] which is established [?] …and the count [?] …

The reckoning [?] is established [?]; the season [?] proceeds [?], and the count [?] …

and the established [?] season [?]; and the count [?] of [?] the year [?] …established [?] …

[Damage: this column is more severely abraded than the right column; the lower third is reduced to recoverable keywords only (מולד, קבוע, חשבון, תקופה and their inflections — lexicon-locked from the surrounding procedure). Marked as a]

[Red ink header: פרק שבעה עשר] Chapter Seventeen

Right column

[Red ink, opening rubric block (three lines):] [Red ink: …that the calculators [?] reckon for them [?] the reckonings [?]; and the order [?] of the reckoning [?] of the seasons [?] and the deferments [?] (הדחיות) [?] and the reckonings [?] for the seasons [?] and the cycles [?] (ותקופות) — and so [?] forth [?]. Know [?] …]

The reckoning [?] of the season [?]: for [?] the moon [?] …the count [?]. And [?] from [?] the season [?], every [?] …

and behold [?], you have [?] the count [?] of [?] the year [?] …established [?]; behold [?] from [?] here [?] …

as [?] the calculators [?] reckon [?], one [?] and twenty [?] [= 21?] …to [?] the season [?] …

the established [?] [thing] [?] is [?] for [?] the moon [?], for [?] the season [?] …

in their reckoning [?], the seasons [?] proceed [?]: behold [?], from [?] this [?] …

of the year [?] …the count [?] of [?] the seasons [?]; behold [?] from [?] the count [?] …established [?] for the seasons (לתקופות) [?] …

and behold [?] this [?] is the way [?] of [?] the seasons [?] …in the calculation [?] …

The seasons [?] and the cycle [?] (והמחזור) [?]; the count [?] of [?] the year [?] … established [?] …

in their seasons [?] and the count [?] …deviates [?] from [?] …

and so [?] the season [?] proceeds [?]; behold [?], you have [?] the count [?] of [?] …

in the seasons [?] of [?] the established [?] year [?] …the established [?] moon [?] …

toward [?] the moon [?] proceeds [?]: and behold [?], from [?] this [?] …

established [?] for [?] the seasons [?]: the day [?] of [?] the season [?] …and the moon [?] …

in [?] the calculation [?]: behold [?] you [?] reckon [?] …

[Red ink: ועתה] And now — [the same red rubric word opens another sub-section] know, my brother [?], that the …

the season [?] in the Sabbath [?] [?], the year [?] proceeds [?]: behold [?], for [?] the head [?] of [?] …

the year [?] of the season [?]; behold [?] you have [?] reckoned [?] and the cycle [?] (והמחזור) [?] and the count [?] …

of [?] the season [?] of the year [?]: for [?] there is [?] in the season [?], whether [?] established [?] …

and the season [?] proceeds [?]; and the count [?] of [?] the moon [?] (interlinear: …) established [?] …

another [?] season [?]: for [?] in [?] the count [?] of the moon [?] [Red ink correction: יב"ר [?]] proceeds [?] …

[Damage: torn upper-right corner of this folio with loss along the head of the column; the red rubric block at the top is partly carried away. Red iron-gall ink has faded more than the adjacent black, leaving the rubric only partly recoverable. Marked as a]

Left column

in the calculation [?] …and the chapter [?] …of the moon [?], head [?] of [?] the count [?] …established [?]…

upon [?] the season [?] …in their reckoning [?] …established [?]…

and behold [?] from [?] them [?] every [?] season [?] …established [?] [?] …

[Damage: gutter intrusion and a large water blotch obscure the upper-left of this column. Several lines reduced to keyword recovery.]

the seasons [?] in [?] the reckoning [?]; and behold [?], you have [?] established [?] …Behold [?], R. David [?] [name uncertain — see note] established [?] …the year [?] proceeds [?] …

in their seasons [?]: the count [?] of [?] the moon [?] …established [?] …another [?] …

the moon [?] proceeds [?]: behold [?] you have [?] established [?] the count [?] … established [?] the season [?] …

and behold [?] this [?] …the seasons [?] in [?] their reckoning [?] …established [?] …

the season [?] and the count [?] of [?] the year [?] …established [?] …the moon [?] proceeds [?] …

in [?] the count [?] …established [?] for [?] the seasons [?] …

and so [?] the season [?] of [?] the year [?] …the count [?] …established [?] … toward [?] the moon [?] …

established [?] the season [?]; behold [?], you have [?] the reckoning [?] … established [?] …

the count [?] of [?] the moon [?]: for [?] the season [?] proceeds [?] …in [?] the calculation [?] …

[Damage: lower-left quadrant abraded; recoverable only as lexicon-locked keywords (תקופה, חשבון, מולד, קבוע, שנה, מחזור). Marked as a]

Yesod Olam — Book Four (the Jewish Calendar)

Script: Sephardic semicursive, single primary hand throughout, with red-ink rubrication for structural markers and emphasized calendar terms. Both pages are two-column. Severe water staining occupies the center and right portions of both folios, with extensive ink loss; bleed-through from the facing folio is present. Many readings below are provisional, and a substantial portion of each page is illegible at this resolution. Both folios are strong

Right column

and the moon (?), the season that comes (?) [Red ink: …] (?) it remains/stands [?]. …two days and three hours … the season was already (?) before it [?] … days and a half [?] day [Red ink: …] (?). …intercalation [?] the reckoning upon the [?] …

the foundation of (?) [Red ink: …] (?) … of the season … day … (?) [Red ink: ונדע] "and we know" [?] …

and they are equal [Red ink: עברו] "they passed/elapsed" [?]. …the season (?) day, day, and they are equal (?), day, and one [?] [Red ink: המחזור] "the cycle" [?]. …and they are equal three days, day, and one [?], and two [?].

for from this the season [?] the deferment (?) there is no [?] in/through the deferment [?] … to the season they elapsed [?] (?).

[Red ink: התבונן] "Consider": and they are equal three days, day [?], and two, and they are equal [?] … the fourth [?] he takes [Red ink: …] (?) [?]. …and they are equal three days, and one [?] [Red ink: עולה] "amounts to" [?] day, and they are equal [?] day. …three days … and they are equal [?] from this the season … [Red ink: …] the season three days, day, and three [?] [Red ink: …] (?) the season [?].

he takes [Red ink: עולה] "amounts to" (?) [?]. …and they are equal three days, and one (?), and they are equal [?] day [?] … and they are equal [?] day [Red ink: …] (?) and one [?] day, and three [?].

he takes [Red ink: …] (?) [?]. …and the season [?] [Red ink: …] (?) [?] day, and they are equal three days, and three [?].

[Red ink: התבונן] "Consider": and they are equal three days [?] … the season [?] the seasons (?) [?] from the deferment [?] … in the season [?]. [Red ink: …] (?) … the time of the seasons [?].

[Red ink: …] (?): and they are equal three days, and three [?] day, and one [?] day [?] …

and they are equal three days [Red ink: ונחזור] "and we return" [?], and he takes [?] [Red ink: …] (?) … and they are equal [?] [Red ink: …] "and we return" (?) [?] and they are equal three days [?] from this the season … the reckoning of the season [?] the cycle [?] of the equalizing of the season [?] … in the reckoning [?] day, day, and they are equal [?] day, and three [?] [?] (?). …and the days [?] … (?) the seasons it/he is established [?] of the deferments and the codes/orders (?) [?] … the deferments [?] there is in them [?] … upon the deferments (?) the seasons [?] … seasons [?] the cycles a little [?] [Damage: water stain, ~3–4 lines effaced at column foot].

Left column

[Damage: water stain heavily obscures the upper-right of this column; ~5–6 lines largely illegible.]

the season (?) [?] … the deferment [?] … the reckoning [?] day [?] … and the time [?] day [?] for the season [?] … of the season [?].

and in the reckoning [?] there is/exists [?] … the season [?] of the deferments [?] of the cycle [?] (?) in the reckoning [?].

and the deferments [?] … and they ordered [?] [?] … little [?] (?) [?] …

and the order of (?) the cycles [?] the deferments [?] he does/makes [?] … [?] of the cycle (?). …the cycle [?] in the [?] of the deferments [?] the cycle (?) [?] …

for there is a separation/difference (?) [?] one day [?] in (?) the reckoning [?] the dwelling/foundation [?] [?] (?) the foundation [?] … and they will be [?] … day [?].

upon the perfecting/completion (?) … [Red ink: …] (?) [?] …the proof (?) by means of [?] [?] … upon [?] … the necessary thing [?] from [?] … the wise [?] … (?) …

to act [?] … from the reckoning (?) [?] … in the deferment (?) [?] … and the [?] of the deferment [?] in (?) [?] … [Red ink: ונאמר] "and we say" (?) [?] …

to inform you [?] this (?) … say [?] … the establishment [?] this (?) … (?) [?] [Red ink: עולה] "amounts to" (?) [?] day [?] … the establishment its reckoning (?) … the season [?] day [?] … and they are equal (?) … day [?] …

this … your hand (?) [?] … in the corner/aspect [?] … your foundation [?] … this (?) the corner [?] [?] (?) other (?) day [?] of the days [?] … and another [?] another (?) … [?] day [?].

established (?) upon [?] … and the season [?] and (?) … day [?] of the days [?] … their (?) … (?) [?] … (?) [Damage: lower lines lost to staining and edge wear].

the establishment another [?] [?] another (?) [?] another (?) [Damage: column foot effaced].

Right column

in the season of [?] [?] … in the calculation [?] of the deferment [?] … from the establishment [?] [Red ink: …] (?) … one [?] established [?] …

another [?] upon (?) … one day [?] … another [?] all [?] from their establishment [?] … (?) [?].

remained/passed [?] established [?] … (?) [?] … (?) for it/them [?] … and from [?] established (?) [?].

to them [?] [?] (?) [?] … (?) [?] [?].

to them (?) the establishment [?] … and they [?] [?] living [?] … (?) [?] their [?].

[Red ink: התבונן] "Consider" (?) [?]: …established [?] to them [?] all [?] … day, day [Red ink: …] (?). …the deferments [?] [Red ink: …] "and we return" (?) [?] … the seasons [?].

the deferment (?) [Red ink: …] (?) … day, day [?] [?] (?) day [?] …

the [?] day, day [?] [?] … day [?] season [?] day [?].

the cycle [?] he was [?] … (?) the season [?] [?] the cycle (?). …the [?] the season [?] for from [?] of the molad [?] of the establishment [?] [?] … the deferment [?] [?] … the praiseworthy [?] of the establishment [?] … from time/season [?] and they ordered [?] … the order of the establishment [?] the praiseworthy [?] the establishment [?] … from [?] [?] [?] upon the perfecting/completion [?] of the molad (?) [?] … and the order (?) [?] [?] of the molad [?] of Jerusalem [?] [?] …(?) [?]. …and so they reckon [Red ink: עולה] "amounts to" (?) day [?].

[Red ink: עברו] "they elapsed" (?) [?]: …and they reckoned [?] for it/them [?] … because [?] [?] …the establishment [?] day, day [Red ink: …] (?) [?] …

to them [?] day [?] and they order [?] [?] established (?) [?] … day, day [?] day [?] another [?] [?] (?) season [?] …

the season [?] from the establishment [?] day [?] … because this [?] was [?] … (?) of the necessary [?] …

the reckoning [?] [Red ink: …] (?) and another [?] (?). …established [?] from [?] [Red ink: קלם] (?) [?] … day [?] [?].

because this established [?] perfect/complete [?] (?) … and all [?] day [?] their establishment [?].

established (?) [Red ink: …] (?) day, day [?] [?] … day [?] another [?] (?). …another [?] day [?] [Red ink: …] (?) [?] … day [?] (?) … the cycle [?] another (?) day [?] … [?] day [Red ink: …] (?) day [?].

(?) [?] day [Red ink: …] (?) day [?] [Red ink: …] (?) day [?] day [?] … day [?] [?] (?) [Red ink: …] (?) day [?] [?] [Red ink: …] (?) day [?] day [?] [Damage: column foot effaced].

Left column

[Heavy water staining obscures the upper portion of this column; several lines largely illegible.]

for upon my work [?] [Red ink: שלמה] "complete/Shlomoh" (?) the establishment [?] thus [?] [?] …

day [?] [?] established [?] [Red ink: קביעתן] "their establishment" [?] : and a day [?].

another [?] established [?] [Red ink: מינואל] (?) [?] : and a day [?] another (?).

to inform you [?] established [?] [Red ink: שכבד] (?) : and a day [?] this/first [?].

[Red ink: …] (?) established [?] [Red ink: …] (?) : and a day [?] for it/them [?].

it/he [?] established [?] [Red ink: לדבריו] "according to his words" (?) [?] : and they are equal [?] [?] …

they took/he took [?] foremost (?) [?] [?] … the seasons [?] of the cycles [?] … the foundation/dwelling [?] … and they reckoned [?] … from the deferments [?] … the reckoning [?] [?] (?) day [?] for the calculation [?].

upon (?) the time [?] … (?) [?] … the establishment [?] day [?] established [?] … (?) [?] day [?] [?] …

(?) [?] … the molad [?] of the season [?] … (?) [?] another (?) … the cycle [?] [?] … (?) the establishment [?] [?].

[Red ink: …] (?) day [?] … (?) [?] … this/first [?] season [?] … one day [?] another (?) [?].

upon the deferment [?] [?] (?) day [?] … the establishment another [?] … (?) [?] day [?] [Red ink: …] (?).

[Damage: ~6 lines obscured by central water stain.]

and the [?] … to act [?] … this (?) … and the season [?] day [?] … established [?] this (?) [?] …

upon (?) the reckoning [?] [?] (?) … [Red ink: …] (?) day, day [?] day [?].

[Red ink, displayed heading, mid-left column:] הראשון — "The First"

[?] they established/decreed [?] for it/them [?] for/of the city [?] (?) [Damage] … in the establishment [?] [?] (?) season [?] … and a measure/order [?] in the establishment [?] the cycle [?] (?) [?] … to act [?] … and they took/reckoned this [?] of the establishment [?] which [?] … for the establishment its corner/aspect [?] this (?) the cycle [?] … another [?] its reckoning [?] (?) day [Red ink: …] (?).

[Red ink, displayed heading:] הקדמה — "Premise" [?]

[?] [?] [?] …

[Red ink, displayed heading:] ונחזור ונאמר — "And we return and we say" [?]

[Red ink: השני] "The Second" [?] he/it [?] established [?] … [?] day [?] of the days [?] … the establishment [?] this [?] day [?] [Damage].

Script: Sephardic semicursive, single hand throughout, brown ink with red rubrication for structural headings and labels. Two-column layout, reading right column then left column on each page. Both folios are heavily degraded — extensive water-staining across the center and a large foxed/stained zone on the right column and the lower-right Much of the right column of p. 369 is illegible. The text is the continuation of Book Four (the Jewish calendar), in the order-of-reckoning chapter (פרק יז/יח), and a red-ink sub-rubric opens a new numbered division

[The following continues the left-column text of the order-of-reckoning chapter. The right column of this folio is largely obscured by water-staining and foxing; only fragments are recoverable, marked below.]

Right column — severely degraded

[Damage: water stain and foxing across most of the right column; reading is fragmentary throughout.] The opening lines speak of a day and of the reckoning, relating the established day to its computation, with the recurring formula concerning what is "fixed" (קבוע) for them. [Several lines illegible]

[Red ink header, right column: **וְהַתְּכֵן הַשְּׁלִישִׁי** — "And the Third Reckoning" [?] (the rubric letters are faded; reading of the ordinal as "third" is by context with the preceding "First / Second" divisions of the prior batch — flag [?])]

After this rubric the text resumes: This is the matter [?] regarding the festivals [?]. We have already explained [?] that the day [?] which is fixed [?] for them — [?] — and likewise the reckoning [?] for the cycle (מולד המחזור [?]). [Several words illegible.] The day [?] which falls [?] — its reckoning [?] is fixed [?] for them [?].

[A line giving a numeral with a stroke, reading uncertain: "ז" [?] — possibly an enumerator.] We say [?]: when the conjunction (מולד [?]) falls [?] on such-and-such a day, then [?] its day [?] is fixed [?] for them. [Several lines lost to the stain]

[A bracketed marginal numeral "ז" appears at the right edge twice [?].]

The remaining ~15 lines of the right column descend into the densest part of the water-stain and cannot be read with confidence. They continue the same theme: relating the day of the conjunction to the fixed reckoning for the festivals, with the recurring verbs "falls" (יחול), "we say" (נאמר), "is fixed" (קבוע), and "the cycle" (המחזור).

Left column

[The left column is darker-inked and better preserved, though stained along its outer edge.]

relating the matter to the day [?], and one should [?] return to the reckoning [?]. [Damage: outer-edge stain, ~1–2 words per line affected at the left margin.]

There is need [?] to set the day [?] for them, [?] in accordance with the cycle [?]. [?] We have already returned [?] to the reckoning [?], [?] and we have explained [?] this. The conjunction [?] [?] falls [?] [several words illegible].

[Red ink, left column (display rubric, set off): **בֹּא וּרְאֵה** — "Come and see"] And in it [?]: I shall reckon [?] the conjunction (חמדה [?] — reading uncertain) and the reckoning [?], and we shall reckon [?] [several words illegible].

The reckoning, when it [?] [?] — when the conjunction [?] [?] falls [?] [several words illegible at the stain]. So know now [?] its reckoning [?], and how [?] [?]. We have already explained [?] it [?] — what its reckoning is [?].

For the day [?] [?] [?] one knows [?] the conjunction [?] — and you should know [?] how [?]; and likewise [?] [?]. The matter [?] [?] is established [?] [?], [several words illegible].

when [?] we follow [?] them [?] in [?] the reckoning [?], and they do not know [?], or [?] they cause to err [?] — [several words illegible] — until [?] they err [?]; [?] so that [?] they go astray [?]. [Damage along the left edge obscures the line-ends here.]

and afterward [?] we return [?]. And likewise [?] the reckoning [?] for the festivals [?] and the conjunctions [?]: relating [?] [?] them [?] to the order of the festivals [?]; and it is good [?] [?] [several words illegible] [?] in its reckoning [?] and its computation [?]; that [?] [?] the day [?] falls [?] [?].

in [?] [?] the day [?] [?] [several words illegible]. And here [?] [?] in [?] the reckoning of this [?], [?] the conjunction [?] falls [?] on such-and-such a day [?]. We have already known [?] [?] in [?] our reckoning [?] this matter [?] [several words illegible].

for [?] [?] [?] the matter [?] [?]; you should know [?] that [?] it [?] [?] [several words illegible]. How [?] it [?] is [?] [?] when [?] [?] the conjunction [?] arose [?] [?] [?]; and afterward [?] we return [?] to follow [?] [?] [?]. [Last line of column lost to edge stain.]

Right column

[Damage: a large water/foxing stain covers the lower-right and the inner-right portion of this column; the upper third is more legible.]

they did [?] on the day [?] [?] [several words illegible] their conjunction [?] [?], for [?] [?] the day [?] [?] is established [?] [?] upon [?] the established day [?], and they were astonished [?] [?] [?] the established day [?] is the day of the conjunction [?]. We follow [?]: [several words illegible].

Reckon [?] this [?] from [?] [?] the conjunction (קבוע [?]) [?]; and the day [?] [?] [several words illegible] [?] in its computation [?] [?]; if [?] [?] not [?] [?] the day [?] [?] [several words illegible]. We say [?] [?]: [?] the matter [?] [?] [?]. The day [?] [?] [several words illegible] [?] for [?] [?] them [?] [?].

[Mid-column the stain deepens.] …after [?] [?] the conjunction [?] [?]; [?] established [?] [?] upon [?] [?] [several words illegible]; [?] and to [?] [?] the conjunction [?] [several words illegible].

For [?] the day [?] [several words illegible]. When [?] the conjunction [?] [?] falls [?] on day [?] [?] [a numeral with stroke, reading uncertain]; or [?] on the day [?] [?] of [?] [?] their [?] conjunction [?]; and afterward [?] [?] them [?] [several words illegible].

when [?] [?] [?] [several words illegible]; [?] it [?] is established [?] [?] [several words illegible]. We follow [?] [?]; and upon [?] the matter [?] this [?] [?] they were astonished [?] [several words illegible].

The reckoning [?] [?] [?] [several words illegible]; reckon [?] this [?] [?] [several words illegible]. [Lower-right of column lost to the stain]

[?] reckon [?] [?] [several words illegible] [?] in the cycle (המחזור [?]) [?] [several words illegible]. And the cycle [?] [?] [several words illegible]; [?] [?] [?]; the conjunction [?] [?] [several words illegible].

[The final ~8 lines of the right column descend into the heaviest part of the stain and cannot be read with confidence They continue the recurring theme: the day of the conjunction, the established day, the cycle, and "we follow / reckon" formulae.]

Left column

[Better preserved than the right column, but with edge-staining at the outer margin.]

[Red ink, top of left column (display rubric): **בֹּא וּרְאֵה** — "Come and see"] [?] in the cycle [?] [?] [several words illegible] for the festivals [?]; [?] and [?] this [?] [?] one knows [?] [several words illegible at the inner edge].

It comes about [?] that this [?] [?] the reckoning [?] is in good order [?] [?] [several words illegible], [?] until [?] the matter [?] is settled [?] for us [?] [?]. And it follows [?] [?] [?] [several words illegible].

When [?] the conjunction [?] arose [?], [?] the day [?] is fixed [?] for them [?] [?] [several words illegible] in the cycle (במחזור [?]). [?] And the [?] [?] reckoning [?] [several words illegible].

relating [?] [?] them [?] to [?] [?] the order of the festivals [?] [?]; [?] the day [?] which [?] [several words illegible] [?] in the cycle [?] [?]; [a numeral with stroke, reading uncertain].

[Mid-column.] The reckoning [?] [?] [?]; [?] we reckon [?] [?] [several words illegible]; [?] for [?] them [?] [?] [several words illegible]. And [?] the conjunction [?] [?] [several words illegible] [?] in [?] [?] the cycle [?] [?].

when [?] the conjunction [?] [?] falls [?] on [?] [?] day [?] [?] [a numeral with stroke "ז" [?]] [?]; [?] and the day [?] [?] [?] [several words illegible]. [?] We have already explained [?] [?] this [?] [?].

For [?] [?] the matter [?] [?]; [?] you should know [?] [?] that [?] [several words illegible]; [?] when [?] [?] [?] [several words illegible] [?] in [?] [?] their [?] reckoning [?] [?]. And afterward [?] [?] [several words illegible].

and [?] this [?] [?] [several words illegible]; [?] the reckoning [?] of [?] the festivals [?] and [?] the conjunctions [?]; [?] relating [?] [?] [?] [several words illegible]. [?] So know [?] [?].

[The lower ~6 lines of the left column trail off into stain at the foot; partial readings only. They continue the order-of-reckoning theme with the recurring verbs "falls," "we reckon," "is fixed," and the noun "the cycle."]

Book Four (the Jewish calendar), order-of-reckoning chapter (Ch. 17/18 — שער / פרק).

Script: Sephardic semicursive, single primary hand, with red-ink (rubricated) structural labels, a red-ink direction-wheel diagram, and red-ink verse-rubrics. Both folios are severely degraded by water-staining, foxing, and ink bleed-through; many readings below are partial. Folio "183" is marked in the upper-left margin of the first page (the foliation offset noted in prior batches continues — this is the manuscript's own numeral, not the PDF page).

PDF p. 371 (fol. 183)

Right column (main text, continuing the order-of-reckoning discussion)

[Damage: water-staining and bleed-through across the upper and central portion of this column; many readings partial.]

the calculation, and that which remains [?] after it [?], and [you shall] reckon [?] them [?] … and so too [?]. Take this [reckoning] for the molad [?] day [?], and reckon [?] them … This [reckoning], should it [?] fall [?], yields for you the result you seek [?]. Reckon [?] for them [?], for in this way [?] the molad [?] … to them [?], for it [?] is the fixed [festival] day [?]. And if [?] it should not [?] come out [?] … take [?] from [?] the molad [?], for the molad of the cycle [?] is what [?] returns [?]; so [?] reckon [?] for them [?] the cycle [?]. [Take] this [reckoning] for the molad day, and reckon them [?]; and should it [?] fall [?] upon [?] the fixed [festival] day [?], that is [?] well [?]. And [you shall] go on [?] reckoning [?] for [?] the cycle [?], and reckon them [?]; and [it shall come out for you?] …

[Red ink:] **בא וראה** [recte: בא וראה — "Come and see"] [?] …

Come and see [?]: this [example] [?] in [?] the reckoning [?] which [comes out] for you [?] thus [?]. Were the [molad of the] cycle [?] … of [?] this [?] … and the [tekufah / reckoning?] [?] for [?] … the first [?] … if [?] on day [?] such-and-such [?], so [?] reckon [?] for [?] … And come [?] and reckon [?] for [?] them [?] day [?] such-and-such [?], so [?] … to it [?]. And [if?] it [?] should be [?] the second [?] … the first [?], and [you shall] reckon [?] … its [?] … and reckon them [?] day [?] such-and-such [?], and reckon them [?] … if [?] the second [?] … to this [?] … the first [?]. And [you shall] reckon [?] … to it [?]. And [if?] it [?] should be [?] the second [?] of [?] them [?] … For [?] you [?] are now [?] reckoning [?] … the reckoning [?] which [comes out for you?] thus [?] … the fixed [festival] [?] … the molad [?] of [?] the cycle [?] … so [?] reckon [?] for [?] them [?] … such-and-such [?] … reckon [?] them [?] … if [?] … to this [?] … to the molad [?] of [?] the cycle [?] … reckon [?] for [?] them [?] day [?] such-and-such [?] … and they shall come out [?] for [?] you [?].

[The lower right column is too degraded by water-staining and bleed-through to recover with confidence; what survives continues the same "Come and see" worked-example pattern — relating a candidate molad day to the fixed festival day by adding/subtracting the cycle-reckoning. Flagged as a]

[Last black line at foot of right column:] …in this [?] … the order-of-reckoning [?] for the molad [?] day [?], and reckon them [?] [Red ink:] **י"ד** [?] [or a red ordinal/structural mark; degraded].

Left column (lower half; the upper-left quadrant is occupied by the diagram, below)

[Damage: bleed-through heavy; the column is dense semicursive.]

in [?] the great [?] … the order-of-reckoning [?] for the molad [?] day [?]. This [?] … the reckoning [?] and the molad [?], and [upon] the order-of-reckoning [?] this [?] … you are able [?] to know [?]; and reckon [?] … for the molad [?] day [?], this [?] the cycle [?], this [?] the [?] … and [reckon for] the cycle [?] the reckoning [?], and reckon them [?]; and reckon [?] for [?] them [?] … you [shall] do [?] for [?] … and reckon them [?] day [?] such-and-such [?]. And should the day [?] come [?] … not [?] … to [?] this [?] … And if [?] you [?] should [?] not [?] … the reckoning [?] this [?] … from them [?] … this [?] … And in [?] the reckoning [?] which [comes out] [?] you [?] reckon [?] day [?] such-and-such [?], and [there is] nothing more [?] … And after [?] you [?] … the order-of-reckoning [?] this [?] … reckon [?] … beware [?] … and reckon them [?]. The first [?] [reckoning?] this [?] … the great [?] … the order-of-reckoning [?] for the molad [?] day [?] in [?] them [?].

[The left column too is a degraded worked-example sequence]

Diagram. A red-ink radial wind-rose / direction-wheel occupying the upper-left quadrant of the folio. A small central red rosette emits straight radial spokes outward to an outer ring; the spokes divide the disk into a large number of sectors (a fine angular subdivision, on the order of the points of a compass / divisions of the horizon). Sector and ring labels alternate red and black around the wheel. The four principal directions are emphasized in red at the rim. A small red ornamental boss/flourish projects upward-right from the hub. The reading is hampered throughout by water-staining over the disk and by the radial labels being cramped and faded; most rim labels are only partially legible.

Hub (red, stacked, four lines, top-center): **שבור / חרוד / מצות / יחזק** [?] — apparently the wheel's title/caption written in four short stacked red words at the hub; reading uncertain (water-damaged). The first word reads **שבור** [?] ("broken" / or a place/instrument label) — note the scribal feature that this hand's ש frequently loses its left stroke and can read as ע.

Rim / sector labels (red, reading around the wheel; bracketed Hebrew is what survives):

- Top sector (red): **שמש** [?] ("sun") [or שבור, repeated; degraded]
- Upper-right (red): **ד** [?]
- Right (red): **ז** [?]
- Right-lower (red): **ה** [?]
- (red, mid-right): **לעבור** / [?] **משוך** [?]
- Lower-right (red): **ח** [?]
- Bottom (red): **ט** [?]
- Lower-left (red): **משוך** / [?] **לעבור** [?]
- Left (red): **א** [?]
- Upper-left (red): **ג** ,[?] **ב** [?]
- Black inner labels between the red spokes: a sequence of single Hebrew letters and short words (**מצות** ,[?] **יחזק** [?], and direction/ordinal markers) that could not be read individually with confidence.

[More than 2 labels flagged [?]. — the wheel's labels need higher-resolution recovery and prose-pinning against the (currently illegible) adjacent left-column text.]

Table at foot of PDF p. 371

A two-row numerical table ruled across the lower margin (Hebrew, reading right-to-left; logical order preserved left→right below). The top row appears to be column headers / arguments and the bottom row the corresponding values. Many cells are faded; uncertain cells marked [?].

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
א	ב	ג	ד	ה	ו	ז	ח	ט	י	י"א	י"ב	י"ג	י"ד	ט"ו	ט"ז	י"ז	י"ח [?]
ל [?]	כ"ג [?]	ט"ז [?]	ט [?]	ב [?]	כ"ה [?]	י"ח [?]	י"א [?]	ד [?]	כ"ז [?]	כ [?]	י"ג [?]	ו [?]	כ"ט [?]	כ"ב [?]	ט"ו [?]	ח [?]	א [?]

[The header row 1–18 is the argument (a count of years, days, or cycle-positions — consistent with the dual-counter שער/פרק up to 17/18). The value row appears to descend by a fixed interval with sexagesimal-style wrap (e.g. 30, 23, 16, 9, 2,

then wrapping up to 25, 18, 11, 4, …) — i.e. a subtractive arithmetic-progression table, decrement ≈ 7, wrapping at ~30/31. Values transcribed as written; the apparent pattern is offered only as an aid to further verification, not as a correction. Several cells uncertain due to fading.]

PDF p. 372 (fol. 183v)

Right column (upper; black main text — conclusion of the preceding worked-example discussion)

[Damage: bleed-through and water-staining at upper right.]

We have explained [?] to them [?] the second [?] reckoning [?], and the first [?] … for [?] them [?] … all [?] in [?] the order-of-reckoning [?] … and [?] the molad [?] … And it is fitting [?] in [?] the … reckonings [?] … the cycles [?] … … the … of the moon [?], for [?] … reckoning [?]. And we [shall] understand [?] … the matter [?] the reckoning [?] … the molad [?] … And the [?] … to them [?] … the fixed [festival] [?] this [?] … And after [?] … the reckonings [?] … should it [?] fall [?] upon [?] the fixed [festival] day [?] … the molad [?] of [?] the cycle [?] … reckon [?] for [?] them [?] … And [if?] it [?] … the day [?], the molad [?] of [?] the cycle [?] returns [?]; and reckon them [?] … the molad [?] of [?] the cycle [?] returns [?] … reckon [?] for [?] them [?] … the cycles [?] … And we have completed [?] … the order-of-reckoning [?] for the molad [?] day [?].

[This paragraph reads as the closing of the order-of-reckoning exposition that has run through the last several batches, immediately preceding the red verse-rubric below. Flagged for further confirmation that this is the chapter's concluding paragraph.]

Red-ink verse rubric (right column, mid-page) — apparent CLOSING POEM / CHAPTER-SEAM

[Red ink: a block of six short rhymed lines in larger rubricated script, set off as a unit — a versified colophon/seam. Each line ends in a rhyme; the right-hand (final) word of each line is the load-bearing rhyme-word. Heavily faded; readings partial. This block functions as a structural seam — likely the close of the order-of-reckoning chapter (and possibly of Book Four). Transcribed verbatim line by line, with a tentative rendering.]

[Red ink, line 1:] **יחתם לחיר [?] גם כנבולס [?]** [Red ink, line 2:] **על תבונותיקס [?] בחכמתך [?]** [Red ink, line 3:] **יום הקטן [?] בהם זכר [?]** [Red ink, line 4:] **בעמל**

[?] יחיש [?] נשקה [?] כוס [?] ידי כוחס [Red ink, line 5:] **[?] כבוד [?] ירח למולדתך**
[Red ink, line 6:] **[?] קל לנא [?] עבט [?] חבלתך**

Tentative rendering (uncertain throughout — `[?]`): "…shall be sealed [?] … // upon your understanding [?], in your wisdom [?] // the small day [?], remember [?] them [?] // with the labor of honor [?], the moon [?] to your birth/origin [?] // he shall hasten [?] … the cup [?] … the work of your hand [?] // …for us [?] … your pledge [?]." — A six-line rhymed seal/colophon closing the section; the precise sense awaits further recovery. The acrostic/rhyme structure suggests an authorial signature-verse.

[— the red verse is structurally important (likely a section/book seam) and its red iron-gall ink has faded more than the surrounding black text; the wording cannot be fixed at this resolution.]

ועתה — new prose section opening (right column, below the verse)

[Black ink, opening with a rubricated initial **ועתה**:]

And now [ועתה] [?] … I shall make known [?] to you [?] how [?] the order of [?] … is [?] good [?], a year [?] and forty [?] … the fixed [reckoning?] [?], a day [?] of foundation [?] (יסוד [?]) … The fixed [festival] [?], take this [?] for the molad [?], for [?] the cycle [?] … And in [?] the leap-year [?] … reckon [?] a year [?], and complete [?] for [?] … the calculation [?] … And come [?] … to [?] the molad [?]; take this [?] for [?] … and reckon them [?]. And after [?] … in [?] this [?] … to the molad [?] of [?] the cycle [?] … And reckon [?] for [?] the four [?] [reckonings?] [?] in [?] the leap-year [?] … reckon [?] … The fixed [festival] [?], take [?] the molad [?] … from [?] the calculation [?].

[This "And now" passage opens the next exposition — apparently the order-of-reckoning specialized for leap-years / the four-reckonings, continuing into the next batch. The mention of יסוד ("foundation") here is a common noun in context, not the book-title rubric. Flagged for further review.]

Left column

[Damage: bleed-through; semicursive dense.]

that [?] we have reckoned [?] … the order [?] thus [?] … you [shall] understand [?]; this [?] reckoning [?] … or [?] we shall add [?] in [?] … a year [?] such-and-such [?]. And [you shall] reckon [?] … day [?] such-and-such [?], a [?] foundation [?] (יסוד) [?] … to the cycles [?] … such-and-such [?]. And the [?] … should this [?] fall [?] upon [?] the fixed [festival] day [?], and we [shall] know [?] … the molad [?] this

[?]. And it [?] yields [?] for you [?] the molad [?], and the day [?] such-and-such [?], and [you shall] reckon them [?]; and reckon [?] for [?] them [?] the molad [?] of [?] the cycle [?]. [Red ink:] **חילוף** [?] ("difference / interchange") … And so [?] you [shall] do [?] for [?] the molad [?] of [?] the cycle [?], the molad [?] of [?] the moon [?] … reckon [?] for [?] them [?] … And [if?] it [?] should [?] not [?] … the molad [?], the moon [?] … reckon [?] … And after [?] … the reckonings [?] … [Red ink:] / **חשבון חילוף** [?] … the reckoning [?] which [comes out for you?] thus [?] … its [?] … and reckon them [?] … to [?] them [?]. The first [?] [reckoning?] this [?] … the molad [?] of [?] the cycle [?] returns [?], and reckon [?] … And after [?] the molad [?] of [?] the cycle [?] returns [?] … the order-of-reckoning [?] this [?].

And now [?] you [shall] know [?] the … months [?], their reckonings [?], and the … And [?] … the reckonings [?] … and so [?] … reckon [?] … day [?] such-and-such [?], the months [?] … their reckonings [?] and their … And they [?] … the months [?], their reckonings [?] … in [?] them [?] … the months [?] their reckonings [?]. And the [?] … this [?] one [?] … each [?] one [?] of [?] them [?].

[Foot-of-column scribal mark, lower left (red/black): **אאלעוס** [?] — appears to be a catchword or quire-related marking; reading uncertain.]

[The left column is a degraded continuation of the order-of-reckoning / months-reckoning material]

Table at foot of PDF p. 372

A two-row numerical table ruled across the lower margin, faded and water-damaged, of the same form as the table on the previous folio (argument row + value row), but only partially legible. Structure preserved; most cells `[?]`.

1	2	3	4	5	6	7	8	9	…
[?]	[?]	[?]	[?]	[?]	[?]	[?]	[?]	[?]	…
[?]	[?]	[?]	[?]	[?]	[?]	[?]	[?]	[?]	…

[Table too faded to transcribe cell values reliably. Structure noted]

Book Four (the Jewish calendar), continued. Folio numeration in the upper margin reads "184" on the first page; running header "פרק / שער" over "מאמר ד" (faded). The batch closes Chapter Seventeen and opens a new red-rubricated chapter, "Chapter Eighteen," on the second page.

Primary script: Sephardic semicursive, single hand, in two columns. Red ink is used for inline structural labels and for short rubricated terms embedded in the running

text. The page is heavily water-stained across the upper and central portions of both columns, with foxing along the right edge; the large diagonal Vatican watermark crosses the whole leaf and is ignored. Bleed-through from the verso is visible and is ignored.

[The opening lines are obscured by water-staining and the gutter shadow.] …and after you have completed [?] the reckoning of the day [?] of the [first] month [?] you shall do likewise [?] for each [following] month [?]. Reckon up to seven [days], and the remainder is the day of the week on which the month falls.

[Red ink: אחר] — *And afterward* [?] you take [the surplus and] you reduce [it] [?].

And you take **[Red ink: צב]** [= 90?] [?], and reckon [?].

[The next several short clauses are punctuated by red-ink inline markers, each apparently a small computed quantity or a step-label introducing the next operation. The black text between them gives the operation:]

- [Red ink: רבע ראשון] [= "first quarter"?] [?] — and you reckon [?] …
- [Red ink: רביע [?]] — and you take [?] …
- [Red ink: צב [?]] — and the remainder [?] [is the result].

So shall you do for every month, [working] from this [computed value] step by step [?] until you have the [full] reckoning. [Text degraded; ~1 line lost to staining.]

And he said [?]: Take [?] from it [?], and you shall find [?] the molad **[Red ink: שמחל]** [?] [an uncertain red-ink term — possibly a code or an abbreviation; transcribed verbatim, requires further verification]. And [as for] the molad [?], the result [?] is the day [on which] it [falls] [?].

The reckoning [?] [Red ink: עד אלקשיד] — *"di alqashid"* [?] [an unrecognized red-ink term written like a foreign (Romance/Arabic) calendrical label; transcribed verbatim — di / de + a garbled noun. Requires further verification].

And he said [?]: the [other] sixteen [?] [Red ink: ושמונה עשר] [= "and eighteen"] — and [Red ink: די אלקנה] *"di alqanah"* [?] [a second unrecognized red-ink foreign-looking label, parallel in form to the first; transcribed verbatim, further candidate]. And he said [?]: take [?] …

[Several heavily-stained lines follow.] …and you shall find [?] for it the [computed] day. And when the reckoning [?] is established [?] [Red ink: היה] [?] —

the result [?] is the [correct] day. And from this [?] the [whole] reckoning [follows] [?].

[Remainder of the right column, ~6–8 lines, is severely degraded by a broad water-stain reaching the foot of the column; only isolated calendrical words are legible:] …seven [?] … the months [?] … and so [?] … the molad [?] … [text lost]. He fixes [קובעים] [?] the day [?] … and one establishes [?] the day [?] … the reckoning [?] [text lost].

[and so] every month [?] [Red ink: יום] — [the result is] its day [?]. And in this manner [?] reckon [?] every month [?]. And the molad [?] [text lost to the foot of the column].

[The left column is in somewhat better condition at the top but stained badly through the middle.]

[The day [?]] and one reckons [?] its molad [?], and so [too] for the rest [of the months] [?].

[Several lines describing the iterative reckoning, each largely lost to staining:] … He began [?] [Red ink: התחיל] to reckon [?] for the body [of the work] [?] [or: "for the matter," לדבר] the cycle [?] [מחברת / המחזור], the [matter] [?] [degraded]. … and he completed [?] [Red ink: השלים] …the cycle [?] …established [?].

The [first] [Red ink: החדש] [= "the month"] [?] — and you reckon [?] for the body [of the reckoning] the cycle [?] [המחזור] over the [established] day [?]. And the new-[moon] day [?] [is] thus [?], and one fixes [?] it [קובע] [?].

[Heavily stained.] …each [?] one of its computations [?] [Red ink: חשבונו [?]] [text lost] …the day [?]. And you reckon [?] the months [?].

[Middle of column lost to a broad stain — ~5 lines. Isolated legible words:] …the order [?] … the second [?] … the third [?] … the [day of the week] [?] [degraded].

I [?] shall make for you [?] [Red ink: אעשה לך] [?] a sign [?] / a [mnemonic] [סימן] [?] [degraded] …in [its] reckoning [?]. And so [?] …the order of [?] …the months [?].

And here [?] [Red ink: ובכאן] — you [now] know [?] / you have [?] the months [?] and their reckonings [?]. [Heavily stained close to the foot.] …the reckoning [?] … the day [?] …the molad [?] … [text lost to the foot of the column].

Same hand. The verso carries a major structural seam: in the right column, after the running text of the chapter concludes, a large red-ink chapter heading opens

"Chapter Eighteen," followed by a red four-line rhymed prologue-verse and a red "He said" rubric introducing the new chapter's matter. The folio is water-stained along the right and lower edges; the upper-margin running header reads "מאמר ד" with a small red mark (faded). Watermark and bleed-through ignored.

[The left column here continues the prose of the preceding chapter — the iterative monthly-reckoning instruction.]

the body [of the reckoning] [?]; and you [shall] reckon [?] [text degraded] …he [?] shall be [?] [Red ink: יהיה] [?]. …[so it is] [Red ink: וכן] for each month [?]: the day [?] of the month [?], [reckoned] thus [?]. [text degraded]

He said [?]: and when [?] [Red ink: ובכאן] [?] you take [?] [the surplus] [?], and you find [?] [the day]. [degraded]

[The middle of the column is legible in patches:] …and you reckon [?] the months [?] over [?] the [established] day [?]. …He [?] established [?] [Red ink: קבעו] / fixed it [?]. And so [?] [Red ink: וכן] for the body of the reckoning [?]: the day [of the] month [?].

[Several lines lost to a vertical stain through the column.] …the surplus [?] [Red ink: שיריך] [= "your remainder"] [?] — you reduce [?] [it] [Red ink: תשליך] [?], and what remains [?] is the day [of the week] [?]. So shall you do [?] for every month [?].

and one fixes [?] the day [?]; [Red ink: ובכאן] and so [too] [for] the [other] months [?]. [degraded] …the molad [?] …the day [?] [text lost toward the foot].

[Top of the right column — the close of the chapter.]

for the [whole] body [of the reckoning] [?] [text degraded] …seven [?] [Red ink: שבעה] [?], and you fix [?] / and one fixes [קובעין] [?] the day [of the new-moon] [?]. [degraded — ~1 line]

[Red ink: ועתה תדע] — *And now you shall know* [?] [the matter of …] [degraded]. … He completed [?] [Red ink: השלים] the order [?] of the [present] reckoning [?]. … and after [?] [Red ink: ואחר] [degraded].

[A degraded line, then a short closing clause apparently rounding off the chapter:] …Thus [?] you [now] have [?] the months [?] and the order of [?] their reckonings [?]. [Red ink: והנה השלים] [?] — *And behold, he has completed* [?] [the matter of the months]. [degraded — ~1 line lost to the stain]

[Major structural seam — new chapter]

[Red ink header: פרק שמנה עשר] — **Chapter Eighteen**. [Red ink, immediately below the chapter number, a sub-line:] **[Red ink: בן [?] …]** [a short red sub-rubric, partly stained; possibly "the eighteenth," בן … / numbering continuation — illegible, further candidate].

[Red ink — a rhymed prologue-verse of four short rubricated lines opening the new chapter; the iron-gall red is faded and the lines are stained, so the reading is partial. Transcribed as legible:]

> [Red ink, verse line 1:] The days [?] [or: the festivals?] arise [?] / are reckoned [יעלו] [?] over [?] the cycles [התקופות?] [?] and the seasons [?] [degraded] [Red ink, verse line 2:] and the [reckoners] / the [intercalators] [?] draw near [נקרב?] to [?] the appointed [?] [seasons] [?] and [?] [degraded] [Red ink, verse line 3:] …let the [chosen / beloved] [?] [דוד?] of …[?] come [?] / draw [?] …to this [?] [degraded] [Red ink, verse line 4:] …[a thing?] none [?] / nothing [?] …and now [?] [degraded — the rhyme-words at the line-ends are lost to staining]

[Red ink rubric: אמרו] — **He said** [/ "They said," אמרו]:

[The new chapter's prose opens in black ink:]

[?] ז"ל [?]] [an opening abbreviation, possibly ז"ל or a similar honorific] [?] — [degraded] …nine [?] [Red ink: ט] [= 9] [?] seven [?] [Red ink: שבעה] [?] [degraded].

The [matter] [?] [Red ink: קטר / קטל [?] [?]] [an uncertain red term] — [degraded] …the cause [?] / the reason [?] [?] [Red ink: נקה / נקס [?]] [?] — and [Red ink: אחרת] [= "another"] [?]. [degraded]

[Several short black clauses, each tagged by a small red-ink marker; the page is much abraded here and the readings are partial:]

- …and the reckoning [?] [Red ink: נתחשבן / [?] ומתחשבן [?]] [= "and one reckons" / "let it be reckoned"] [?] …
- …[some?] of them [?] [Red ink: בן ט [?] נסם [?]] [= "… son of nine"?] [?] [a stained red marker] — and one reckons [?] [וישכב? / וישכ"ב?] [?] …
- …[Red ink: נחתיך / [?] קטיכו [?]] [unreadable red marker] — [Red ink: קמיולט / [?] קמיולס [?]] [unreadable red marker] — and [?] he made [?] / and the one who makes [?] [ועושה?] [?] …

[The remainder of the right column, ~8–10 lines, is the body of the new chapter, badly abraded and water-stained; only fragments of the calendrical argument survive:]

he reckons [?] [ועשרין? — "and twenty"?] [?] the day [?] [Red ink: הנן / הנך [?]] [?]. …and one [?] [Red ink: ונתחבר [?]] [= "and there is joined"] [?] …and one reckons [?] over [?] the [established] day [?] [degraded].

the body [of the reckoning] [?]; he established [?] / fixed [?] [Red ink: קבעו [?]] it [?]. …And so [?] [Red ink: וכן] for the body of the reckoning [?]: the day [?]. [degraded]

So shall you do [?] for the [whole] reckoning [?] [Red ink: במשור / בחשבון? [?]] [?]; [degraded] …the surplus [?] …the day [of the week] [?] [degraded].

and [?] [Red ink: וקרמיהם / וקטמיהם [?]] [an uncertain red term] [?] his [?] sign [?] / [its] sign [?] [Red ink: סימן [?]] [?] over [?] [degraded] …the [day] [?] [text continues; degraded].

and so [?] [Red ink: וכן] [for the] reckoning [?] / [the] computation [?] [Red ink: כל שנה [?] [?]] [= "every year"?] [?] …the day [?] [text degraded].

and so [?] [Red ink: וכן] for [?] the [reckoning] [?] [text continues into the foot of the column; the final ~2 lines are lost to the lower water-stain]. …the day [?] in the reckoning [?] [Red ink: במזור / [?] במשור [?]] [?]. [foot of column — text lost]

Yesod Olam — Book Four, Chapter Eighteen (chronological list of generations and rulers)

Vat.ebr.380, Sephardic semicursive hand. Batch 188, (folio marked 185 in the upper-left margin of the first side).

Right column (begins mid-narrative, upper portion)

[the opening lines are a continuous black-ink narrative, heavily faded across the top]… and it was, and they reckoned [?] … and they wrote [?] … and behold [?] … in the years [?] … years … [?]. [Several lines are too washed-out to recover with confidence — [?].]

and after them, thus [?] … the calculation [?]. He pursued [?] … the captivity [?] … and they returned [?] … in their hand [?]. They stood [?] … and lived [?] … upon him [?] … year by year [?] … in the captivity [?].

[Red ink header:] **יהושע** [Yehoshua / Joshua] — he led [?] … years, then [?] … years.

[Red ink header:] **זקנים** [the Elders] — who outlived Yehoshua [?] … days, [?] years. After them [?] …

[Red ink header:] **עתניאל בן קנז** [Othniel son of Kenaz] — he judged [?] … years.

[Red ink header:] **אהוד** [Ehud] — afterward [?] … years.

[Red ink header:] **שמגר בן ענת** [Shamgar son of Anath] — afterward [?] years. **ודבורה** [and Deborah] [?].

[Red ink header:] **גדעון** [Gid'on / Gideon] — afterward [?] … years. **ובדן** [and Bedan] [?] [Damage: ~1 word lost].

[Red ink header:] **אבימלך** [Avimelech] — afterward [?] … years. [?] afterward [?] years.

[Red ink header:] **תולע** [Tola] — afterward [?] … years. [?] afterward [?] … years.

[Red ink header:] **יאיר** [Yair] — afterward [?] … years.

[Red ink header:] **אבצן** [Ivtzan] — afterward [?] … years. [?] afterward [?] … years.

[Red ink header:] **עבדון** [Avdon] — [?] years. **אילון** [Eylon] — [?] years.

[Red ink header:] **שמשון** [Shimshon / Samson] — **על הכהן** [?] [over / in the days of the priest [?]] [?] years.

[Red ink header:] **שמואל** [Shmuel / Samuel] — afterward [?] … years.

[Red ink header:] **נחמיה בן [?]** [Nechemiah son of [?]] [?] — afterward [?] years.

[Red ink header:] **שאול מלך** [Sha'ul reigned / King Saul] — afterward [?] … years.

[Red ink header:] **דוד מלך** [David reigned / King David] — [?] years. [Several further entries continue across the column foot but are washed out.]

Left column (recto) — also genealogical/list material, very faded

[Several red-ink name-headers run down this column, each followed by black-ink reign/life data. The red iron-gall ink has faded badly here and most names are not securely legible.]

[Red ink:] **שלמה** [Shlomo / Solomon] [?] — [he] reigned [?] … years. And it was built [?] … in his days the House was built, and it stood [?] … years.

[Red ink header:] **רחבעם בן שלמה** [Rechav'am son of Shlomo / Rehoboam] — [?] years. **אבת** [Aviyah?] [?] [Damage].

[Red ink:] **אסא** [Asa] [?] — [?] years.

[Red ink:] **יהושפט** [Yehoshafat / Jehoshaphat] [?] — [?] years.

[Red ink:] **יורם** [Yoram / Jehoram] [?] — [?] years.

[Red ink:] **אחזיה** [Achazyah / Ahaziah] [?] — [?] years. **עתליה** [Athaliah] [?] [?] years.

[Red ink:] **יואש** [Yoash / Joash] [?] — [?] years.

[Red ink:] **אמציה** [Amatzyah / Amaziah] [?] — [?] years.

[Red ink:] **עוזיה** [Uzziah] [?] — [?] years.

[Red ink:] **יותם** [Yotam / Jotham] [?] — [?] years.

[Red ink:] **אחז** [Achaz / Ahaz] [?] — [?] years.

[Red ink:] **חזקיה** [Chizkiyah / Hezekiah] [?] — [?] years. [Damage: lower-left margin water-stained, ~several lines lost.]

then [a closing narrative resumes:] he judged [?] the people [?], and built [?] … the Temple [?] / the House [?] … and the kingdom [?] passed [?] … and they exiled [?] … the captives [?] … in the days of [?] … [the column foot is too faded — `[?]`.]

Right column (verso)

[continuous black-ink narrative, faded across the top]… [?] years … and after [?] … the calculation [?] … and they fled [?] … upon him [?] … and the heavens [?] … and the Temple [?] [Damage: a struck-through/cancelled word in the upper region — illegible]. They went up [?] … to Jerusalem [?] … [?] until [?] … year [?] … and they did [?] … the captivity [?].

and they wept [?] … and after [?] … and they gathered [?] … to Jerusalem [?] … [?] … in the year [?] … year [?].

[The column continues with the chronological reckoning. A recurring formula appears — מלך … לבנות … שנה אחת, "in the [Nth] year … to build … reigned" — but the specific year-numbers are washed out across the central band.

Representative legible fragments:] … in the year [?] … to build [?] … the king [?] … [?] years. … year [?] … to the building [?] … [?] [Damage]. …in the [Nth] year [?] he stood [?], and behold [?] … year [?].

[?] … years [?]. They reckoned [?] … the calculation [?] … and he established [?]. … to the building [?] … another [?] year [?] … years. He pursued [?] … to the building [?] … the captivity [?]. [?].

[A series of computed totals follows, of the form כ"א שנה … כ"א שנה, "X years … X years," but the gematria numerals are not securely legible — most flagged [?].] … so-and-so [?] years … total [?] years … from [?] to [?] … years. … another after [?] … the year [?] of the Greeks [?] [i.e. the Seleucid era — [?]] … and they [?] … to the building [?].

[?] this [?] … the year [?] … and the seventy [?] … and the years [?] … [?] years.

[Red-ink token in this region:] **[?]** — [a structural/computational label; too faded to read — [?]].

and behold [?] … the seventy [?] of the years [?] … and they reckoned [?] … from [?] … year [?] … and from there [?] … years. … another after [?] … year [?] … the calculation [?]. [?].

and so [?] … another [?] … year [?] … and the building [?]. … to the building [?] … years … to the [?] … and in their captivity [?] … in the year [?].

Left column (verso)

[the column resumes the chronicle and totals — central band washed out]

the House [?] … upon them [?] … on the day [?] … and behold [?] … to build [?] … and they returned [?] … the calculation [?].

[Red ink header:] **בנהו[?]** [or **נהו… — a name, possibly **בניהו / כנניהו** — [?]] — son of [?] … he reckoned [?] … [?] years … and behold [?] [Damage: ~1–2 words].

[Red ink:] **חוני** [Choni — i.e. Choni HaMe'agel? [?]] [?] — and the captivity [?] … and our forefathers [?] … strength [?].

[Red ink header:] **יהודה** [Yehudah / Judah] — afterward [?]. **ויונתן** [and Yonatan] [?].

[Red ink header:] **יוחנן** [Yochanan] [?] — afterward [?]. **שמעון** [Shimon] [?] [and] **[?]**.

[Red ink header:] **אלעזר** [El'azar] [?] — [Damage] [?].

[continuous narrative:] … the matters [?] … and behold [?] … and after [?]. The kings [?] of … and after them [?] … the calculation [?]. And so [?] … the matter [?] … the year [?] … and they reckoned [?] … the building [?]. The king [?] who was [?] … in the days of [?] … all the days [?] … to the building [?].

the king [?] … who set [?] … upon him [?]. And they [?] … upon him [?] … the captives [?] … and our forefathers [?] … [?] [Damage].

[?] another [?] … and behold [?] … the captivity [?]. And after [?] … the calculation [?] … another [?] … son of [?] … son of [?].

and ten [?] years … to the building [?] … [?] years [?] until [?] years [?]. The reckoning [?] of … years [?] … [?] [interlinear or marginal correction here — illegible].

and the chronicles [?] … of the kingdoms [?] … and they reigned [?] over them [?] …

[Red ink header, column foot:] **ובדקיסר** [or **ובדקיסרו** — "and in [the days of] the Caesar [?]," reading the Roman-emperor era — [?]] [Damage].

End of translatable matter for this batch

The remainder of both columns is too faded and water-damaged to recover at this resolution. The batch is dominated by a chronological list of forefathers and rulers (Joshua through the Judges, the Davidic kings, the Second-Temple priestly/Hasmonean line, and into the Greek/Roman era) with their reign- and life-lengths — the generational backbone of the calendar's era-count. **Flagged as a for numeral recovery; see report.

Book Four (מאמר ד), Chapter Eighteen (פרק יח / שער) — continued.
Chronological / genealogical survey: the close of the king-list and the chain of received tradition (shalshelet ha-kabbalah) running through the era of the Men of the Great Assembly, the Pairs (Zugot), and the Tannaim down to R. Yehudah HaNasi.

PDF p. 377 (folio marginal "186") — right column

[Red ink: יהודה] then comes the kingdom (פקה? [?]), the house of David, the house of David… [Damage: line partly washed out; ~several words lost] [?] and David [?] [Damage].

and they renewed [the Temple? the kingdom?] there at Babylon (בבל), and all… [?] in… [Damage, ~1 line lost] [?].

And after them other men arose who… [?] [Damage] in the days of [?].

[Red ink: אלתלאל [?]] son of [?] in the days of [?] the king [?] Judah [?].

[Red ink: ידה בר ?] — [Red ink: ירוחבעל [?]] son of [?] — [Red ink: פתח בן ?].

[Red ink: יהודה] — [Red ink: משולם] son of [?] — [Red ink: בן חנניה? ?].

[Red ink: ברכיה] son of [?] — [Red ink: בר חקקיה? ?] — [Red ink: ישעיה] son of [?].

[Red ink: בן עוכריה? ?] — [Red ink: בן שכניה? ?] — [Red ink: בו שמעיהו? ?].

[Red ink: בן עניהו?] — [Red ink: חזקיהו [?]] son of [?] — and after him [?].

[The following are black-ink running lines, the chain of tradition; the right margin carries red-ink list-labels:]

This one [?] was [?] the [Red ink: השמיני? "the eighth"? [?]] — [Red ink: הראשון "the first"].

His son [?] then [?] received [קבל] the [?] son of [?] — [?].

[?] he was [?] to receive [לקבל] the [?] a great [?] [Damage].

[Red ink: יונתן [?]] son of [?] — and [?] received [?] [Damage].

[?] son of [?] — and [?] received [?] Isaac [יצחק] son of [?].

[?] — wrote [כתב? [?]] — and after him [?] received [נחל? נמסר?] the [?].

that he should [?] receive [Damage] [?] son of [?] — and after him [?].

He received [נחל? [?]] [Damage] — and after him [?] — Simeon [שמעון] son of [?] [Damage].

[Red ink: הקדוש "the Holy one"? [?]] — and after him [Damage].

This one [?] received [?] [Damage] — these are the [?] — [Damage].

After [?] David [דוד] [?] — after David [?] [Damage].

[?] — and he said [ואומר] the [?] received [קבל] [Damage].

[Damage, ~1 line water-washed] — son of [בן] [?] received [Damage].

Just as [?] received [?] from [Damage] — and [?] in [?].

But [?] received [קבל] [?] days [ימים] [?] and after [?].

[Damage, ~2 lines heavily washed — illegible] [?].

[?] — and now [ועתה] [?] — and after [?] [Damage].

[Damage] — and from [?] [?] [Damage].

son [בן] [?] — and just as [?] [Damage].

left column

[Red ink: לאקנס / ? לבן [?]] [Damage] — [Greek/Latin transliterated era-label? — uncertain] [?].

[Damage to opening lines, ~heavily washed; red-ink name-labels in margin:] [Red ink: ליהושע / ליה? [?]] [Damage] — and he [?] [Damage].

[Red ink: לאקנס [?]] that they [?] [Damage] — and they [?] [Damage].

[?] and after [?] [Damage] — every [?] [?].

[Red ink: לבדוק / לבדק? [?]] then [?] David [דוד] [?] [Damage].

that [?] and [?] [Red ink: יולסי? [?]] [?] [Damage].

[?] long [?] — and these [ואלה] [?] [Damage].

that [?] received [קבל] [?] from… [Damage] — [Red ink: ?].

[Red ink: בן אלהטל / כן? [?]] — [Red ink: וימות "and he died"? [?]] son of [?] Jehoshaphat? [יהושפט? [?]] [Damage].

[Red ink: בן קהלה? [?]] — [Red ink: סריה / שריה? [?]] son of [?] — [Red ink: מרדכי? [?]] [?].

[Red ink: האוחב / החובר? [?]] — [Red ink: שמעון העדי? "Simeon the …"? [?]] [Damage] — [?].

[Black-ink running narrative, heavily abraded:] son of [?] — Zadok [צדוק? [?]] received [קבל] [?] from [?] the great [Damage].

and they [?] [Damage] — and they were [?] [?].

upon the [?] — the [?] [Damage] — wise [חכמים] [?].

of Israel [ישראל] — in the time [בעת] of [?] [Damage] — the great [?].

and the [?] — and they made [?] [Damage] [?].

righteous [צדיק] — [Damage] — for the [?] priesthood [כהונה? [?]] [?].

the king [המלך] stood [עמד] [?] [?] and [?] [?] and they [?].

the [?] — [?] he sent [שלח? [?]] [?] to [?] [?].

and the [?] [Damage] — and [?] [Damage] — and these [ואלה] [?].

and they [?] [Damage] — until [עד] [?] [?] [?].

and he served [ועבד? [?]] [Damage] — and the [?] [?].

and he [?] for the [?] [Damage] [?] [?].

and there was [?] [Damage] — and the [?] [?] [Damage].

to him [לו] that [?] — and they sent [וישלחו? [?]] to [?] [Damage].

they said [אמרו] to them [להם] that [?] [Damage] — [?] [?].

he was [?] guilty [חייב? [?]] toward [?] [Damage] — and behold [והנה] the [?].

with [עם] [?] [?] — [Damage] — for [?] [?].

and a [?] [Damage] — [?] [?] [Damage].

to their [?] [Damage] — and after [?] [?].

[Red ink: הירה / היה? [?]] [Damage] — [Red ink: לאנשי / אנשי? "the men of …"? [?]] [Red ink: ?].

men [אנשים] [?] — wrote [?] received [קבל] [Damage] the [?] the righteous [הצדיק] and they [?].

PDF p. 378 (folio, marginal foliation faded) — right column

[Heavily washed opening lines:] He is righteous [צדיק] and [?] [Damage] — [?] in [?] [?].

in [?] [Damage] — that he [?] [Damage] — in the [?].

to say [לומר] [?] his service [עבודתו? [?]] [?] and [?] [Damage] [?] from this.

and the [?] received [קבל] [?] [?] the [?] [Damage] the righteous ones [הצדיקים? [?]].

[Red ink: יוסי בן יועזר? [?]] [?] — [Red ink: ?].

[Red ink: ויוסי בן יוחנן] (interlinear: ?) [?] received [קבל] [Damage].

[Red ink: יהושע בן פרחיה] — and [Red ink: נתאי הארבלי? [Nittai the Arbelite] [?]] received [קבל].

and [?] Joshua [יהושע? [?]] son of [?] in his days [בימיו] was [?] [?] [?].

[Red ink: יהודה בן עבטי? / טבאי? [Yehudah ben Tabbai] [?]] — and [Red ink: שמעון בן שטח [Simeon ben Shetach]].

received [קבל] from them [מהם] — and [Red ink: שמעיה ואבטליון [Shemaya and Avtalyon] [?]].

received [קבל] [?] in their days [בימיהם] were [?] — [Red ink: הלל ושמאי [Hillel and Shammai]].

and after them [?] received [קבל] — and Shammai [ושמאי? [?]] [?] in their days [Damage].

[Red ink: רבן יוחנן בן זכאי [Rabban Yochanan ben Zakkai]] — and [Red ink: רבן שמעון]

son of [בן] [?] all [?] received [קבל] [?] — [Red ink: נחמא / נחמיה? [?]].

the disciples [התלמידים] they were [?] of [?] [Red ink: רבן יוחנן בן זכאי] — and [?] them [?].

[Red ink: ה' [five] R. Eliezer the Great? [ר' אליעזר הגדול] [?] — and R. Yehoshua ben Chananiah? [ר' יהושע בן חנניה] [?]]

and [Red ink: ר' יוסי הכהן [R. Yose the Priest] [?]] — and [Red ink: ר' שמעון בן נתנאל [R. Simeon ben Netanel] [?]].

and [Red ink: ר' אלעזר בן ערך [R. Elazar ben Arach] [?]] [?].

the great [הגדול] was [?] son of [?] Joseph [יוסף? [?]] — [Red ink: רבן גמליאל [Rabban Gamliel]]

[Red ink: הזקן "the Elder"] received [קבל] from Rabban [מרבן] Simeon [שמעון] his father [אביו? [?]] and [?].

Yochanan [יוחנן] son of [בן] [?] — and Rabban [ורבן] Simeon [שמעון] son of [בן] [?] received [קבל].

that they should [?] [Damage] after him [אחריו? [?]] [?] Simeon [שמעון? [?]] [?] [?].

these [?] were [היו] in their generations [בדורות] these [?] and these [?] the great ones [?].

in them [בהם] [?] [Damage] [?] [?].

[Red ink: ר' יהודה "R. Yehudah"] [?].

[Display rubric / new sub-heading, red ink, enlarged:] [Red ink header: רבנו הקדוש "Rabbenu HaKadosh" (Our Holy Rabbi = R. Yehudah HaNasi)]

This one [?] [?] received [קבל] from Rabban [מרבן] Simeon [שמעון].

his father [אביו] and he was [?] [?] a great sage [חכם גדול] and [?] [?].

and in his days [ובימיו? [?]] [?] [?] — and he composed [וחבר? "and he compiled"? — the Mishnah? [?]] [?] [?].

[?] all [כל] [?] until [עד] [?] [?] [Damage] and after him [ואחריו? [?]].

the [?] — and they [?] [Damage] and after [?] [?].

[?] [Damage] — and [?] [?] [Red ink: ר' אליעזר? [?]] son of [בן].

[?] R. Yose [ר' יוסי? [?]] — and R. [ור'] [?] R. Simeon [ר' שמעון] [?].

left column

[Red ink list-labels in right margin of this column, continuing the Tannaitic chain:]

[Red ink: בן שמעון? ור' יוסי? ? [?]] — and R. Yitzchak [ור' יצחק] son of [בן] [?].

and R. Elazar [ור' אלעזר] son of [בן] [Red ink: שמעון בן ? יוחאי? [?]] — and R. Elazar [ור' אלעזר].

and R. Simeon [ור' שמעון] son of [בן] R. Yehudah [ר' יהודה].

[Red ink: קנחה? [?]] and they received [וקבלת? [?]] [?] — and Rabbi [ור'] [?] son of [בן].

Chanan [חנן? [?]] son of [?] [?] — and R. Yishmael [ור' ישמעאל? [?]] son of [בן] R. Yose [ר' יוסי].

and R. [ור'] [?] son of [בן] [?] — and R. Pinchas [ור' פנחס] son of [בן] [?].

and her husband [ובעלה? [?]] [?] — and R. Pinchas [ור' פנחס] son of [בן] Yair [יאיר? [?]].

and [?] in [?] [Damage] — until [עד] David [דוד? [?]] [?] received [קבל] [?].

[Black-ink running narrative, heavily abraded mid-column:]

not [לא] in [?] [Damage] — [?] this [?] [?].

other [?] he [?] [Damage] — that he [?] for [?] [Damage].

the [?] and after [?] — wrote [כתב? [?]] [?] [?] [Damage].

wise [חכם] [?] [Damage] — son of [בן] [?] [?] [Damage].

and the disciples [והתלמידים] [?] — and these [ואלה] are the [?] of the [?].

wise [?] [Damage] — and they were [Damage] [?] [?].

to [?] [Damage] — and they [?] [Damage] [?].

until [עד] [?] [Damage] — and just as [?] [?] [Damage].

the [?] received [קבל] [?] [Damage] [?] [?].

and that [?] received [קבל] [?] [Damage] — and [?] [?].

they heard [שמעו? [?]] [?] [Damage] — and the disciples [ולתלמידי? [?]] [?].

[?] David [דוד? [?]] [?] received [קבל] [?] and he [?] [?].

[Display rubric, red ink — possible structural marker / conclusion formula:] [Red ink header: המשנה "the Mishnah"] — and [?] [?] like [?] [Damage].

This one [?] [?] to [?] [?] [Damage] [?].

that there was [שהיה] [?] [?] — the [?] [?] [?] [?].

and [?] received [?] — and [?] [?] [?] [Damage].

upon the [?] — and they composed [?] [?] [Damage] [?].

the [?] — and they received [Damage] [?] [?].

son of [בן] [?] [?] — when [כש? [?]] [?] received [Damage] the [?].

wise [?] [Damage] — and the wise ones [והחכמים? [?]] [?].

all [כל] son of [בן] [?] knew [ידעו? [?]] that [?] the holy [הקדוש? [?]] [?].

and now [ועתה] [?] [?] — and in [?] [?] [Damage] all [כל].

[?] [Damage] to teach [ללמוד? [?]] [?] [?] in them [בהם] — and to [?].

End of batch 189 translated content.

Yesod Olam — Book Four, Chapter Eighteen (continued)

The Chain of Tradition (shalshelet ha-kabbalah): the generations of the Amoraim

Primary script: Sephardic semicursive, two columns per page, reading right column then left. Heavy red-ink rubrication for generation-headers and personal-name list-labels. Severe water damage and ink bleed-through, especially the left column of p. 379 and the gutter of both folios.

PDF page 379 (folio 187)

Right column (read first):

distinguished among them [these] were Rav and Shmuel.

[Red ink: שמואל ועולא] [Shmuel and Ulla], of the school of Rav.

And Rav Chama bar Chanina, and Rav Chiya, and Rav Zeira [?]. And his son, R. [?]. And Rav Acha [?], and R. Yochanan, and R. Hoshaya [?].

And their disciples [?] were great [?] and many [?] beyond number [?]; and these are some of them: [?] …

Rav Chama bar [?], and Nachman bar [?] Chisda [?], with the disciples of Rav Kahana [?]; and Rav [?] [Red ink: ורב נחמן] [and Rav Nachman]; and his colleague [?]. And Rav Sheshes [Sheishet] [?]; he raised an objection [?].

[Red ink: ורב המנונא ורב [?] ולא] [… and Rav Hamnuna, and Rav]

[Red ink: קמא] [the first?] — Rav [?], a colleague…

The Talmud was sealed [נחתם] [?] by them; and after them came [?] generations [?], and many [?] sages [?] thereafter [?].

And the name of this generation [?]:

[Red ink header: והדור הראשון] **And the First Generation**

These are they who lived in it [?]: Rav,

And [Red ink: שמואל] [Shmuel], and Rav Yehudah [?]; and after him [?] another [?]; and Rav [?].

The academy [?] [ישיבה] of [?] [Sura?]; and Rav [?]; and Rav [?].

In the days of [?] their wisdom [?] in Babylonia was great [?] indeed [?]. And these were [?] [the words [?]]. And [Red ink: והדור] [the Generation]…

The disciples [?] who were [?] there [?] were R. Yehudah [?], and Rav Huna.

Rav Yehudah [?] was [?] of [Pumbedita? — בפומבדיתא] [?], after Shmuel [?]; and Rav Huna [?] was [?] of [Sura? — בסורא] [?]; and after them [?].

In the days of [?] their wisdom [?] [Red ink: ונתבטל] [and was ended [?]] …

[Red ink header: והדור הראשון] **And the First Generation** [?] — [scribal repetition of the rubric, or a sub-label;]:

[?] their academy [?] was [?] of [Galut? — הגלות] [?]; and [Red ink: ורב יוסף] [Rav Yosef].

Rabbah bar Nachmani [?]; and Rav Yosef [?]; …

[?]; and Rav Yitzchak [?]…

[?]; and Rav [?] of [Sura?]; and Rabbah bar Yitzchak [?] …

[Red ink: של אמוראיהם] [of their Amoraim]. And these [?] sages [?] of their generation [?]; and after them [?], colleagues [?] …

The academy [?] [Red ink: וקיב"ץ [?] להחזיר [?] העולם] [and he gathered (?) to restore (?) the world (?)] — [reading uncertain throughout this line].

After them [?] of their Amoraim [?], [Red ink: רב נחמן בר יצחק] [Rav Nachman bar Yitzchak].

And Rav Huna [?]; and after them [?]; and Rav Yehoshua [?].

And Rav [?] who was [?] [a great man? — חכם גדול] of his generation [?], with the seal [?] …

Left column (read second; severely water-damaged — many lines only partly legible):

[Damage: water stain across the upper and inner left column, ~several words per line illegible]

[?] and after them [?] sages [?]; bar Rav [?] [?].

And after them [?] [?]; the school [?] [of the Geonim? — הגאונים] [?].

[?] they were [?] [in the academies? — בישיבות] [?]; Rav David [?]; and after them [?]; Rav Chisda [?]; and after them [?].

[?] and after them [?] bar Rav Acha [?] [?].

Rav [?] bar Yitzchak [?]; and after them Rav [?].

R. [?] [?]; and Pashtei [?] of [?] [Kalei? — קלעי] [?] [?] bar [?]; and Rav [?].

Rav Yitzchak [?]; and after them Rav Midach [?] [?].

The Kohen [?] [?] bar Rav Yehudah [?]; and after them [?]; and Rav…

Yosef bar [?] Mecha [?]; and after them [?] Rav Yitzchak bar Rav Chiya [?].

And after him [?] Rav [Salmoni? — סלמוני] [?]; and after them [?].

Rav Mattanah [?]; bar bar [?]; and after them [?] bar Acha [?].

And after them [?] R. [?] bar [Salmoni? — סלמוני] [?].

And after them [?] Rav [?] bar Dalad [?] [?] of [?] the [?]…

[Red ink header: הדור הראשון] **The First Generation** [?] — here in the body, a generation-marker []:

[?] of [?]; and [Red ink: הדור] [the Generation]…

After them [?] of their Amoraim [?]; Rav…

[Damage continues — the lowest ~10 lines of this column are heavily stained]

and after them [?]; and Rav [?].

the Kohen [?] bar Rav [?]; Nachman bar Rav [?].

and after them [?] Rav [?]; and after them [?].

Rav [Kipuchai? — קיפוחאי] [?]; and after them [?] [?] of [?].

Rav [?] bar [?] Yossi [?]; and after them [?] Rav Hillel [?].

Bar Rav Chisda [?]; and after them [?].

and Nachman bar Rav…

Hillel [?] bar Rav [?]; and after them Rav Shmuel [?].

And [?] bar Rav…; Nachman bar Rav…

And after them [?] Rav [Shrira? — שרירא] [?].

[?]; and Rav…

And after them [?] Rav [Tzemach? — צמח] bar Chiya [?]; and after them Rav…

PDF page 380

Right column (read first):

[Red ink: ובחכמותם] [and in their wisdom [?]] their [academies?] were [?]. And after them [?] [?] of Rav…

and Rav Salla [?]; and Rav Chiya [?] was [?]…

[?] [Red ink: נטע [?]] [?] [Naveh? — בנוה] [?]; and after them [?] …

After them [?] Rav [?]; and after them [?] of Rav…

and after them [?] Rav [?]; and after them [?].

The holy academy [?] [קהלה הקדושה?] [?] …

[?] [?]; and Rav [?] of [?]; and Rav [?].

In their [?] the council [?] [תקנה?] [?] of the academy [?]…

[?] of the academy [?]; and Rav…[?]

Rabban [?] of [?]; and Rav [?].

[Red ink header: הנחושת [?]ויקח [?]] **[?] the [bronze? — נחושת]** — [reading of this red header very uncertain; possibly a corruption / decorative line; flagged,]:

[Red ink: הדור הראשון] **The First Generation**

[?] before [?] this [?] was [?] Rav Chasna [?] Nachman [?] [?].

Nachman [?] of [?]; and after them [?] of his school [?] [Red ink: של שמואל] [of Shmuel].

But [?] [?] this [?] of [?] bar Rav [?]…

And in it [?] were [?] sages [?] and disciples [?] thinking [?] [?]…

Rav Huna bar Yosef [?]; and Adda [?] of [?] [?].

And after them [?] [?] and [?] bar bar [?] [?].

After [?] R. Yehudai [?]; Nachman [?] was [?].

Rav Yossef [?] [Red ink: לחיים [?] בסומכא] [?] [?]…

And after them [?] was [?]; bar Mari [?]; and [?] was [?].

[?] the king [?] he raised [?]…

[?]; and Naveh [?]; …

and that [?] of [?] bar Mari [?] was [?].

Nachman [?] Rav [?] in [?] [?] [?] was [?] and he [?] was [?] a man of great [?] [?]…

And after them [?] Rav Salla [?] [?]; and the Generation [?] the Third [?].

[?] was [?]…in it [?]; and these [?] [?] of [?]; and the Kohen [?].

[?] [?] before [?]; and after them [?] Rav…

[?] of the academy [?] [?]; and Rav Naveh [?] of the academy [?] [?]…

[?] the king [?] and he [?] sealed [?] the household [?] of [?]…

[?] [?]; and after them [?] [?].

Left column (read second; upper portion heavily stained at the gutter):

[Damage: gutter and upper-inner stain]

[?] of [?] bar Rav [?]…

and after them [?] of [?]; and after them [?] [of] Numinos [?] [non-Hebrew name? — נומינוס; identification uncertain].

[?] were [?]; the house [?] in their [?]…

Rav David [?]; and after them Rav Chisna [?]; and after them…

[?] Rav [?]; and after them Rav [?]; and after them [?].

[?] bar Chisna [?]; bar Rav Chiya [?]; and after them Rav…

R. Huna bar Yehudah [?]; and after them Rav…

Yosef bar Yehudah [?]; bar Rav Chisda [?] [?] [?].

And after them [?] Rav Karahas [?] bar Rav Yitzchak bar…

Rav Chiya [?]; from him [?] Rav Yitzchak bar Rav Chiya [?].

And after them [?] Rav Salmoni [?].

and after them [?] Rav David [?] and [?].

After them [?] of [?] the council [?] [Red ink: הקבץ [?]] [?] [?]…

In [?] after them [?] Rav Yaakov [?]; and after them [?].

The Kohen [?] bar Rav Kifuchai [?]; and after them [?].

Rav Kipuchai [?] bar Rav Adda [?]; and after them [?].

Rav Yitzchak bar [?]; and after them Rav Hillel [?].

Bar Rav Chisda [?]; and after them Rav…

And after them [?] [?] of [?] bar Rav…

and Nachman bar Rav Shrira [?]; bar Rav Kahana [?].

[?] [?]; and after them Rav Tzemach bar Chiya [?]; and after them Rav…

Yesod Olam — Book Four, Chapter Eighteen (continued)

Chain of Tradition (Shalshelet ha-Kabbalah): the Amoraim toward the Geonim

[Script: Sephardic semicursive, single primary hand. Heavy water-staining across both folios, concentrated in the inner (gutter) margins, with substantial ink fading and bleed-through. Red ink is used for personal-name and generation list-labels. Foliation offset continues; the running header reads "שער / פרק יח" ("Chapter 18 / Gate") with "מאמר ד" ("Book Four") — faded. Large portions of both folios are illegible after careful examination; this batch]

[Right-hand column]

and after him Rav [?] Hillel [?], down to Rav [?] … [Damage: water-stained gutter, ~1 line obscured] … and after him Rabbah bar [?] Yaakov [?]; and after him … [?]

[?] from him … Rav Gidul [?] bar [?] … the words [?] … [Damage: ~1 line lost to staining] …

[?] and after him Rabbenu [?] … and his sons [?] … [Red ink: a name, illegible after fading] … [?]

[?] and he was … [Damage: gutter loss, several words] … and after him … [?]

R. [?] Yehudah [?] … [Damage] … ben Chanan [?] and against [?] him stood [?] … [Damage: ~2 lines heavily stained] … with [?] David [?] … the times [?] of … [?]

[?] and they wrote [?] … and after him … [?] … upon the words [?] … [Damage]

[?] R. [?] Yaakov bar [?] … [Damage]

[Red ink: name-label, illegible] … Rabbah [?] … [Damage: ~1 line] …

and after him [?] Rav [?] … bar Rav Acha [?] … [?]

and after him Rav Rav [?] … bar Rav [?] … [Damage]

[?] and after him [?] Rav [?] … [Damage: gutter] … and after him Rav [?] …

[?] Rav Nachman [?] … was [?] Rav [?] … the [?] Kohen [?] …

[?] Rav [?] Tzadok [?] bar Rav Yitzchak [?]; and after him Rav [?] … [Damage] …

[?] and after him Rav [?] … [Damage] … and after him Rav … [?]

and after him Rav Nachman [?] … and after him Rav [?] … [Red ink: name] Nachman [?] …

[?] Yehuda [?] … [Damage: ~1 line heavily stained] …

[?] Rabbenu [?] … and he … [Damage: gutter loss, ~2 lines] …

[?] in the days [?] … [Damage] … and they were [?] … in the academy [?] … [Damage: ~3 lines lost to severe staining at the foot of the column] …

[Left-hand column]

[Damage: the left column of p. 381 is severely water-stained and ink-faded across its full height; only fragmentary words are legible.]

[?] and after him … the books [?] … [Damage] …

[?] R. [?] Yehudah [?] … in Babylonia [?] … [Damage] …

[?] for [?] the generation [?] … [Damage: ~2 lines] …

[?] Aharon ha-Levi [?] … [Damage]

[?] and there [?] … [Damage] … of the wisdom [?] …

[?] and after him … and the academy [?] … [Damage]

[?] and he [?] … [Damage: ~2 lines lost] …

the wise men [?] … in the days [?] of … [Damage] …

[?] and he [?] … the academy [?] … [Damage]

and after him R. [?] … [Damage] … and he was [?] …

[?] he wrote [?] … [Damage: ~2 lines] …

[?] of the wisdom [?] of … [Damage] …

[?] the wise men [?] … [Damage: foot of column, ~3 lines lost] …

[Right-hand column]

[?] R. [?] Sherira [?] bar [?] Chalfon [?]; and after him [?] … [Damage] …

[?] and he [?] … [Damage] … and after him … [?]

[?] in the academy [?] … [Damage] … and after him … [?] in the days [?] …

[?] and he was [?] … and after him R. [?] … [Damage] …

[?] and after him [?] … [Red ink: name-label, illegible] … [?]

[?] and he was [?] in the days [?] of … [Damage: ~1 line] …

[?] and he [?] … and was buried [?] … and after him … [?]

[?] Rav [?] Sherira [?] … and Rav [?] Hai [?] … [Damage] …

[?] R. [?] Yehudah [?] … [Damage: ~2 lines water-stained] …

[?] and the disciples [?] … the [?] words [?] … [Damage] …

[?] and they wrote [?] … to them [?] … the academies [?] … [Damage] …

[?] and so [?] … [Damage: ~2 lines] …

[?] and there was [?] … Rav [?] … great [?] … [Damage] …

[?] of the [?] disputes [?] … and the halachot [?] … that … [Damage] …

[?] and after him [?] … to them [?] the Kohen [?] … [?]

[?] and after him … and after him [?] … [Damage] … upon [?] …

[?] there were [?] men [?] of strife [?] … [Damage] …

[?] in the days [?] of [?] … there was [?] strife [?] … and they fled [?] … [Damage] …

[?] Rav [?] … from [?] … and they were [?] … [Damage] …

[?] before the [?] community [?] … and was glad [?] R. [?] Yitzchak [?] bar [?] …

[?] the towns [?] … [Damage] … and the days [?] … [Damage] …

[?] in the wisdom [?] … [Damage] … and the wise men [?] … [Damage] …

[?] the disciples [?] … great [?] … and ascended [?] … to the academy [?] …

[?] there was [?] … R. [?] … Rav [?] … [Damage] …

[?] and they were [?] … the disciples [?] of … the rabbis [?] … and his disciple [?] was **[Red ink: רב יצחק] ("Rav Yitzchak")** bar [?] Yitzchak [?] bar [?] …

[?] Yishmael [?] … [Damage] … bar [?] … and he … [Damage: foot of column] …

[Left-hand column]

[Damage: the upper-left of p. 382 is heavily stained; readings are fragmentary.]

[?] Yishmael [?] … and after him R. [?] … this [?] … [Damage] …

[?] R. [?] … the dispute [?] … [?] and the son [?] of … [?]

[?] Yaakov [?] ben [?] … and explained [?] … and went up [?] R. [?] Yaakov [?] …

[?] of [?] … upon the words [?] of the living [?] … and after you [?] … [Damage] …

[?] and the disciples [?] of the Master [?] … and after him [?] … [Damage] …

[Red ink: name-label] … R. [?] Shmuel ha-Levi [?] bar Yosef [?]; this … [Damage] …

[?] R. [?] … in the dispute [?] … [Damage] … and the son [?] of …

[?] Yaakov ben [?] … [Damage] … and Rav [?] Chisda [?] bar [?] …

[?] in the academy [?] … and there [?] … [Damage] …

[?] he saw [?] … [Damage] … Yaakov [?] … [Damage] …

the words [?] … upon them [?] … [Damage: ~1 line] …

and the wise [?] … the deed [?] … [Damage] …

[?] and the strength [?] … [Damage: ~2 lines stained] …

[?] upon … and they … [?] … [Damage] …

[?] in the deeds [?] … and the [?] of … the wise [?] …

[?] in the academies [?] of … [Damage] …

[?] and the wisdom [?] … [Damage] …

[?] and was glad [?] … R. [?] Yitzchak [?] … [Damage: foot of column] …

Yesod Olam — Book Four, Chapter Eighteen (continued)

Chain-of-tradition survey (shalshelet ha-kabbalah), continuing from the Geonim into the Spanish and North-African scholars. Sephardic hand. Heavy water-stain damage runs down the center of both folios; many lines are partially or wholly obscured. Red ink is used for the generation/name labels.

[*The water stain runs vertically through the middle of both text columns on this page; the central portions of most lines on the inner column, and a broad diagonal band across the left (outer) column, are degraded. The diagonal Vatican watermark is ignored throughout.*]

Right column (inner):

after him [followed] So-and-so [?], and the disputes [?] … and they explained [?] the halachot. And after him Rav [?] [name lost to staining] …took [?] … and copied [?] … and after him So-and-so [?] [a chain of "and after him" entries, the personal names lost in the stained central band] … Rav [?] Yaakov bar [?] … [Hebrew torn/stained] … [?]

And after this [?] … the early authorities [?] … brought down [?] the chains of tradition and the disputes [?] … and they entered into [?] … [several lines lost to the central stain] …

And after them, the early scholars who were in [?] their generation [?] … each one [?] … Rav [?] … [name in stained band] …

[Red ink: רב יצחק בר מך [?] (Rav Yitzchak bar M-kh [?])] son of [?] … of the [city/place name lost] [?] … and after him [?] in the chains of tradition [?] … of his [their] generation [?] … and he [they] brought down [?] … like five [?] … and they [?] … and he said [?] … [Interlinear or stained marginal traces, illegible]

in the chains of tradition [?] of his generation [?]. And after him [?]:

[Red ink: ר׳ יצחק בן באנה [?] בן הרב ר׳ יהודה בן [?] (Rav Yitzchak ben Bana[?], son of the master Rav Yehudah ben …) ז״ל] … a man [?] … the chains of tradition [?] and his son [?] … Rav [?] … and Rav [?] [Hebrew uncertain] …

And after him [?] So-and-so [?], Rav Yaakov [?] bar [?] [name uncertain] … [several names in a "bar X" patronymic chain, central letters stained] …

and his disciples [?] … [Red ink: ר׳ יוסף הריני בר׳ יצחק [?] (Rav Yosef … bar Rav Yitzchak)] … son of the community [קהל] [?] … and Rav [?] … [stained] …

and his disciples [?] … [Red ink: ר׳ יצחק בר מך [?] (Rav Yitzchak bar M-kh[?])] … son of [?] … of [?] … [Red ink: ר׳ יוסף הריני [?] (Rav Yosef …)] … in the chains of tradition [?] of his generation [?] … [stained] …

in the chains of tradition [?]. And after him [?] in the chains of tradition [?]:

[Red ink: ר׳ יצחק בר תמך [?] [name uncertain] (Rav Yitzchak bar …) … [?]] …

Left column (outer):

in the chains [?] … the halachot [?]; and this [?] … each [?] of the years [?], and he [?] brought down [?] … [the central diagonal stain band cuts through most of this column] …

with the chains of tradition [?] of his generation [?]. And after him [?] … [name lost] …

the early authorities [?] … [stained] … and after [?] … and the explanations [?] … [several lines lost to staining] …

Rav [?] Yitzchak ḤiYa [?] … each [?] … like five [?] hundred [?] [numeral uncertain — [?]] … [stained] …

the chains of tradition [?] of his generation [?]. And after him [?]:

Rav [?] Yitzchak bar [?] … bar [?] [a "bar X bar Y" patronymic chain, central letters stained] … and he [?] brought down [?] … and after him [?] … and the explanations [?] … [stained] …

Rav [?] Yitzchak ḤiYa [?] … [name uncertain] … and they [?] … and after him [?] … and they brought down [?] the explanations [?] … and after him [?] … [stained] …

Rav [?] Yitzchak Alfasi [?] [possibly אלפאסי — the Rif?] [?] … [Hebrew uncertain] … [stained] …

and they [?] … of the years [?], and after him [?] … and after him [?] … [stained] …

[Hebrew torn at edge] … and after him [?] So-and-so [?] [final line of column, partly torn].

[*This folio is in better condition than p. 383, though a vertical water stain runs through the gutter side and a faint diagonal band crosses both columns. Several red-ink generation-labels are clearly legible here — this side carries the transition into the named Spanish/North-African scholars.*]

Right column (inner):

between [?] them [?] … and they [?] … the chains [?] … and they wrote [?] … [stained] … So [?] … [Hebrew uncertain] … and after him [?] Rav David [?] and Rav David [?] [a pair of names] … and he [?] knew [?] … [stained] … and after him [?] … [Hebrew uncertain] … each one [?] … and after him [?] … [stained] …

and the halachot [?] … and after him [?] … on Yitzchak [?] … [stained] … and after him [?]:

[Red ink: name label — partly legible, "…ראש [?]…" (head [of the academy]?)] … and after him [?] So-and-so [?]; and the words [?] … [Hebrew uncertain] … and they [?] brought down [?] … and after him [?] … [stained] … and Rav [?] … [Hebrew uncertain] … and the explanations [?] … and after him [?] … [stained] …

And after him [וְאַחֲרָיו] [?] So-and-so [?] in [?] their generation [?] the early scholars [?]; and he [?] brought down [?] [Hebrew uncertain] … and he [?] said [?]:

[Red ink: ר׳ אברהם הלוי בן דאוד [?] (Rav Avraham HaLevi ben Da'ud [?] — i.e., R. Avraham ibn Daud / Ravad I [?])] [?] …

each [?] … brought down [?] the chains of tradition [?]; and thus [?] … of his generation [?] … and after him [?] in the chains of tradition [?] …

Rav [?] … the wise men [?] … and they [?] … and after him [?] … the explanations [?] … and after him [?] … of the community [קהל] [?] … [stained] … and they [?] brought down [?] … and after him [?] … Rav [?] … [stained] …

and after [?] Rav [?] … [Red ink trace] … bar [?] … [Hebrew uncertain] … each [?] … of [?] … and Rav [?] … [stained] …

Rav David [?] son [?] of the community [?] … and after him [?] … Rav David [?] … [stained] …

the early authorities [?] … and the explanations [?] … and after him [?] … the wise men [?] … and the heavens [?] [Hebrew uncertain — possibly השמים "the heavens" or a place-name [?]] …

and they [?] knew [?] … each [?] … the chains of tradition [?] … of [?] David [?] … and after him [?] … and after him [?] … [stained] …

each [?] … the explanations [?] … the early scholars [?] … and the explanation [?] … of the calculation [?] [Hebrew uncertain] …

the chains of tradition [?]. And another [?] … and after him [?] … each [?] … on its own [?] … and after him [?] Rav [?] … ז״ל …

each [?] … the chains of tradition [?] … and they [?] … on its own [?] … and after him [?] … [stained] …

And after him [וְאַחֲרָיו] [?] … [Red ink label — partly stained] … each [?] … the chains [?] … the heads of academies [?] [רבותינו [?]] …

the wise men [?] and the years [?] … and after him [?] … and after [?] … [Red ink: רבנו [?] … (Rabbenu …)] … the chains of tradition [?] … of his generation [?] … [stained] …

the holy scholars [?] of the years [?] in the chains of tradition [?] … of [?] this [?] … and after him [?] … [stained] …

[Red ink: רבנו שלמה בר׳ יצחק [?] (Rabbenu Shlomo bar Rav Yitzchak [?] — possibly Rashi [?], or a Spanish R. Shlomo [?])] …

Left column (outer):

after [?] … [Hebrew torn at top edge] … took [?] … and they [?] … the halachot [?] [several lines partly stained] …

Rav Yehosef [?] … and the explanations [?] … and thus [?] So-and-so [?] … [stained] …

[Red ink: …] and the chains of tradition [?] … and the chains of tradition [?] of his generation [?] … [stained] …

the chains of tradition [?] … each [?] … the wise men [?] … of his generation [?] … and the explanations [?] … the chains of tradition [?] …

the chains of tradition [?] of his generation [?]:

[Red ink: רבנו יעקב [?] (Rabbenu Yaakov)] … and after him [?] … [Red ink: רבנו תם [?] (Rabbenu Tam [?])] [?] and [Red ink: רבנו נשים [?] [name uncertain] (Rabbenu …)] … [the early authorities [?] of [?] … each [?] their [?] … the early [?] …] [stained]

each [?] the years [?] … [stained] … of his generation [?] in the chains of tradition [?] …

the wise men [?] … and after him [?]:

[Red ink: רבנו משה [?] (Rabbenu Moshe [?] — possibly Maimonides [?], or another R. Moshe [?])] son [?] of [?]

the way [?] of [?] … all the chain-of-tradition [?] … and they [?] … in the chains of tradition [?] … [Hebrew uncertain] … each [?] … of [?] one [?] … and they [?] knew [?] … [stained] …

the chains [?] … each [?] … and they [?] … the early authorities [?] in the chains of tradition [?] of his generation [?] … each [?] …

the wise men [?] … and Rav [?] … and after him [?]:

each [?] … and they [?] … the early authorities [?] … and they brought down [?] this [?] … and after him [?] … of the years [?] … each [?] one [?] … [stained] …

each [?] … and they [?] knew [?] … all [?] … in the chains [?] … and after him [?] … and after him [?] in the chains of tradition [?] … each [?] … and they [?] … [stained] …

the early authorities [?] … and they [?] … and they [?] knew [?] … and Rav [?] … in [?] their generation [?] in the chains of tradition [?] …

of [?] … the early authorities [?] … and after him [?] … in the chains of tradition [?] … and the explanations [?] … the early scholars [?] … and after him [?] …

and after him [?] … and they [?] … in the chains of tradition [?] … and the explanations [?] … [stained] …

and after him [?] … each [?] … and the explanation [?] … each [?] … each [?] one [?] … each [?] … and after him [?] … each [?] …

and after him [?] … in the chains of tradition [?] … each [?] … and after him [?] … each [?] … [stained] …

Vat.ebr.380, Sephardic semicursive hand. Book Four, Chapter Eighteen (chain-of-tradition roster) concluding; transition into Book Five (המאמר החמישי — astronomical tables), opening with its red-ink chapter list. Folio number "190" (=ק"צ) in the upper-left margin of p. 385. Running header on p. 385 top: faded "פרק שער / ח". Heavy water-staining and a central wet-blur band run vertically down both pages; the red name-labels and red rubrics are the most degraded elements. The Vatican watermark and ink bleed-through are ignored.

Book Four, Chapter Eighteen, chain-of-tradition roster

- Two columns of names, each headed by a red-ink personal-name label (the honorific list-tag) followed by black-ink biographical prose. The layout reads right-to-left; I give the right column first, then the left column. Many of the red labels are badly faded and the surrounding prose is interrupted by the central stain.*

Right column

[Red ink: רב סעדיה[?]] — and after him came a wise man, exalted in his generation [?]; among the great sages of his time he composed [several] works and excelled. [Of] them all I shall set down here [Red ink: רב שלמה בן גבירול [R. Shlomo ibn Gabirol]], the one who [?]… **[Red ink: ורב יהודה הלוי [R. Yehudah HaLevi]]** … [?].

And after them [Red ink: ר' אברהם[?]] — who came [in?] his generation [?]… [several words lost to the central stain] …in his book *[?]* he set [it] down, and so on.

In his time [also] **[Red ink: ר' משה [R. Moshe (ben…) [?]]]** — son of [So-and-so?], and the brother of his father [was] R. Yitzchak [?].

[Red ink: ור' יהודה [R. Yehudah]] — and R. Yosef [?]; with them [were?] wise men [?], R. Yitzchak [?], great [in Torah], and a master of many disciplines and deeds [?], and so on.

[Red ink: רבנו זרחיה [Rabbenu Zerachyah (ha-Levi) [?]]] — author [of?] the book *[ha-Maor?]* [?] … [?].

And after him R. Abraham [?]. **[Red ink: בן דוד / ר' אברהם בן דוד [Ben David — R. Avraham ben David (Ravad / ibn Daud) [?]]]**.

[Red ink: חייא בן[?] (R.)… bar Chiyya [?]]] — the [?]. And… [?] [A run of biographical prose follows, much of it obscured by the central stain:] …another [matter?] … [?] for them [?] …upon them [?]… and they composed in it [?] works [?], and they set down therein [?] from the [?] [several words lost].

[Red ink: ר' מאיר הגדול[?] … [the Great … R. Meir [?]]] … [?] — [whom?] they [?]… [?] their [?] and their students [?] taught [?], and they [?]… they spread in [?] the [?]… set down [?] their works [?], and so on… and one [?] of them [?]. And this is **[Red ink: ר' אהרן הלוי [R. Aharon HaLevi [?]]]** — [several words lost to staining] … for them [?] in [?]… and they responded to him [?]… and so on [?]. And R. Shlomo [?] son of [?] R. Yosef ben Shmuel [?], and R. David HaKohen [?] — [whom?] they [?] in their [?]… and so on [?]. [?] for them [?] for [?] the [?] [several words lost]… [?].

R. [?] … **[Red ink: ר' אשר [R. Asher [?]]]** son of [?] R. [?], **[Red ink: ר' יחיאל [R. Yechiel [?]]]** of blessed memory — [whom?] [several words lost to staining] … there is none [?] … [?] in [?]… and so on [?]. And they [?] came [?] to [bring?] down [?] … to clarify [?] the [?]… [the rest of the column is lost to staining].

Left column

[The left column likewise alternates red name-labels with black prose; the top is partly legible, the lower half collapses into the stain and ruled-but-faded blank lines.]

[?] another [matter?] and the [?]… for the [?] [several words lost] … and the [?] … [?] upon them [?]… and there is [?] [several words lost].

[Red ink: ר' יוסף הלוי [R. Yosef HaLevi [?]]] … [Red ink: [?] קותי [?] [illegible red label]] And after him [So-and-so], for he [?]… [?] and he wrote [?] in [?]… and his [?] [several words lost]. [?] my generation [?] … [?] like ben [?] … and so on.

[?] **[Red ink: ר' [?] [illegible red name-label]]** …

[Red ink: ר' ישראל[?] בן [?] ז"ל [R. Yisrael ben [?], of blessed memory [?]]] … [Red ink: [?]] [?] of blessed memory [?]… [several words lost to staining].

[A block of black prose, much obscured:] upon the Talmud [?] … [?]… [?] in the language of the holy tongue [?] … [?] [several words lost] and in the [?]… [?] he set [it] down [?]. The [?] ten [?] … [?] ten [?] [several words lost]. And the [?] chapters [?] … [?].

[Red ink: עשר[?] החתימה / חתימת המאמר הרביעי [the conclusion of the Fourth Book [?]]] [Red ink: [?] [several illegible red words]] — *[here the conclusion / colophon of Book Four appears to begin; the red rubric is too degraded to read fully.]* And this [?] [Red ink: על [?] [?]] [?]… [the remainder of the left column collapses into faded ruled lines and the central stain — text lost.]

[Readability: the lower two-thirds of the left column of p. 385 is largely effaced by water-staining over faded ink; only scattered words survive.]

Conclusion of Book Four / opening of Book Five (chapter list)

[The right column opens with a large red-ink display rubric. The bulk of this page is the chapter index (table of contents) of Book Five: a column of red-ink "פרק " tags, each followed by a one-line black-ink description of that chapter's subject. The list runs down the right column (פרק א – פרק י) and continues down the left column (פרק יא – פרק יח and following), reading right column first, then left.]

Right column

[Red ink header: המאמר החמישי [THE FIFTH BOOK]]

In the [?] [explanation/derivation?] of the astronomical tables [?] [a few words lost] — the tables [?] for [computing?] the place of the sun and the moon and [the rest?] [?]; and we have set down [explained?] the foundations [?] and the [?] upon which they [the tables] [are built?] [?]. We begin, with God's help [?], with [?] the [chapters?].

[Red ink: פרק א [Chapter 1]] — On the [?] [explanation?] of the [?]… how it was [?]; [?] when [?] was [?] in it [?], and so on.

[Red ink: פרק ב [Chapter 2]] — On the [?] [computation?] [?] of the tables [?] [several words lost] … upon it [?], and so on.

[Red ink: פרק ג [Chapter 3]] — On the [?] [reckoning?] of [?]… [?] the place [?] [several words lost]… the tables [?]; to find [?] [?]… [?] and so on, and the [?]… [?] and we have [?]… and so on.

[Red ink: פרק ד [Chapter 4]] — On [?] the order [?] [arrangement?] of [?] the [?] tables [?]… the [?]… the months [?] reckoned [?] from year [to year?] … [?] for the [?] [computation?] of the [?] tables [?]… [?] [solar?] [?]… the tables [?] of the [?] [moon?] of the [?]… [?] [several words lost], and so on.

[Red ink: פרק ה [Chapter 5]] — On the [?] [computation?] [?] of [?]… [?] upon it [?], the tables [?] [of?] the [?] [several words lost], and so on.

[Red ink: פרק ו [Chapter 6]] — On the [?] [computation?] [?] of the [?] [several words lost]… [?] from [?] the [?] [several words lost]… upon it [?] in the [?] place [?]… [?] [several words lost], and so on.

[Red ink: פרק ז [Chapter 7]] — To clarify [?] the [?]… [?] and [?]… upon the tables [?] [several words lost]… [?] the [?] [several words lost], and so on.

[Red ink: פרק ח [Chapter 8]] — To clarify [?] [explain?] the [?] [several words lost]… [?] upon it [?] the tables [?]… [?] [several words lost], and so on.

[Red ink: פרק ט [Chapter 9]] — On the [?] [computation?] of [?] the [?] [several words lost]… [?] the [?] [several words lost]… upon the tables [?]… [?], and so on.

[Red ink: פרק י [Chapter 10]] — On the [?] [computation?] of the [?] [several words lost]… [?] from [?] the [?] [several words lost]… [?] upon it [?] the [?] tables [?]… [?], and so on.

Left column

[The chapter list continues. The left column's red tags run פרק יא … and continue to higher numbers; the central stain crosses several of the descriptions.]

[Red ink: פרק יא [Chapter 11]] — Within [?] the [?] computations of [?] [several words lost]… for the [?]… so that [?] [the place of?] [?] [several words lost], and so on.

[Red ink: פרק יב [Chapter 12]] — As [in?] the [?]… how it is reckoned [?]… [?] in it [?], and so on. And the rest [?] of the [?] [computations?].

[Red ink: פרק יג [Chapter 13]] — To clarify [?] [explain?] how [?] [several words lost]… and one finds [?] [another?] [reckoning?]… [?] there [?]… upon the [?] [several words lost]… how [?] he sets down [?] [calculates?]; and how many [?] days [?] [?]… until the [?]… the sun [?] upon it [?]… and how many [?] days [?]… [?] [several words lost]… upon it [?], [the?] sun [?] the [?] [several words lost]… until the [?] [great?] [several words lost]… [?] and how many hours [?]… [?] [several words lost]… [?] until the [?] [several words lost]… and so on. And on the [?] of the [?]… upon them [?]… [?], and so on.

[Red ink: פרק יד [Chapter 14]] — On [?] [the explanation?] of [?]… [?] and to know [?] how [?] [several words lost]… and the [?] of the [?] [computation?]… [?] in the [?]… and [?] [another?] [reckoning?]… [?]… and so on, [each?] another [?] [matter?]… [?] [several words lost], and so on.

[Red ink: פרק טו [Chapter 15]] — Within [?] the [?] [computation?] [?] [several words lost]… [?] the tables [?]… [?] [several words lost]… [?], and so on.

[Red ink: פרק טז [Chapter 16]] — Within [?] the [?]… to clarify [?]… how it is [?] [several words lost]… [?] [the?] sun [?] upon it [?], the tables [?]… [?] [several words lost]… until it [?] in the [?]… [?] [several words lost]… and so on.

[Red ink: פרק יז [Chapter 17]] — On [?] [the explanation?] of the [?] [several words lost]… [?] [the?] place [?]… [?] the [?] [computation?]… [?] [several words lost]… and so on.

[Red ink: פרק יח [Chapter 18]] — On [?] [the?] [derivation/clarification?] of the [?] [several words lost]… [?] the [?] [several words lost]… and there is [?] [several words lost]…

**

[Foliation mark at lower-left margin: [?].]

[Readability: the right-column descriptions of the Book-Five chapter list are heavily abraded — only the red פרק tags (Chapters 1–10, sequential and legible as numerals) and scattered subject words survive; the left column (Chapters 11–18) is crossed by the central vertical stain. for the full chapter-description text.]

Yesod Olam — Book Five (Astronomical Tables)

Sephardic semicursive hand, single scribe, with red-ink rubrics for chapter headings and structural labels. Two columns per page, reading right-to-left. Both pages are affected by water staining and foxing; the lower-right quadrant of p. 387 and the central gutter of p. 388 are substantially degraded. The Vatican watermark overlay and faint bleed-through from the facing folio are ignored throughout.

[End of the Book Five chapter index]

(Right column of p. 387, top — the tail of the eighteen-chapter index opened in the previous batch. The final index entries are written with red-ink chapter numerals and black-ink descriptive text.)

and likewise the [computation?] of the time and the [duration?] of the days, according to its method [?], in this table. [?]

[Red ink: **Chapter 16 (פרק ט"ז)**] — On how one extracts [computes] the [position of the planet?] from the equation tables; and what the procedure of the equation [tables?] is, [as set out?] in this [?].

[Red ink: **Chapter 17 (פרק י"ז)**] — As we shall write [explain], on the matter of the [computation of?] the equations and their [arguments?].

The chapters [of this Book] are eighteen [?]. [End of index.]

[Red ink: Chapter One (פרק ראשון)]

[Red ink header: **Chapter One — on the opening of the computation [?]**]

[Red ink subheading: …the chapter [?] … of the [?]]

[Red ink: From here begins the computation [?] in it [?]] — And after [?] we have set down for you in the introduction the foundations and the principles by which one [proceeds?], it is now [fitting?] that we set down for you the methods and the [?], according to what we have promised you [?].

We have already explained the matter [?] and made it clear, and [?] the [tables?] [?] you, [so that?] you may [understand?] it [?]. And after you have come to know [?] [its?] foundations and the matter of the tables [?] in full, [?].

The first matter [?]: it [behooves you?] to know that the [degrees?] are [?] and [?]. And after [you have understood?] all this, [you should?] take [?] the [root / radix?] [?], and you [shall?] place [?] [?].

And [?] [behold / when?] there are degrees [?] [?], and [?] them [?], [?]. And [?], when [?] there are [?] [?] [?] [?].

(The remainder of the right column and the lower portion of p. 387 are heavily water-stained and read only intermittently; the passage continues to set out the preliminary instructions for working the mean-motion and equation tables. The specific verbs and the named quantities cannot be recovered with confidence at this resolution.)

[?] … [?] take the [?] and add [?] to the [?] … [?] and the [?] … then [?] … [?] the [?] [argument?] … [?].

(The left column opens with several lines under a faded red rubric, partly lost to the stain at the top-left corner, and closes with a red ***שער (gate)*** *marker low in the column. The black body prose between them continues the introductory exposition*

of how the tables are to be read and combined; it is too degraded for a continuous, confident rendering.)

[Red ink header (faded, top of column): **…** [?]] — [?] … [?]

[Damage: water stain and foxing, upper-left and lower-left of the column, several words per line lost across the middle of the column.]

and it is fitting [?] that you [know / take?] [?] … the [?] [tables?] [?] … [?] the [?] of the [?] [?]. [?] …

and [the procedure / the rule?] is [?] … the [?] [?] … and so [?]. [?] …

[Red ink: **שער (Gate)**] — [?] … [the procedure of?] [?] … and we shall [now?] explain [?] … [?] the [tables?] [?] … the [?] [?], and another [?] [?].

(p. 388 continues the body exposition of Book Five. The right column is the better-preserved of the two; the left column and the central gutter are badly stained. The prose here lays out, in iterative procedural language, how one moves between the tables — taking a value from one table, carrying it into another, and combining the entries — the standard "take… and add… and the result is…" template of a tables-reckoning manual.)

the [?] of the [?] [?] in it [?]. [?] … For the [?] [is?] [?], [?] [?] always [?]. [?] one [?] [?], and every [?] [?] [?] [?].

And likewise [?] [?] [?] [?]. And if [?] [it is?] [?] [?] … and so [?] [if?] not [?] [?], [it is?] [?] [?].

[?] … and we have [explained?] [?] [?] … the [?] [is?] [?] [?]. [?] … and [?] [behold?] [?] [?] [?] [?].

[?] … and now [ועתה] [?] [?] [?] [?] [?] … and [?] [?] [?].

It is fitting [?] [for you?] [?] [?] [?] [?]. [?] … and the [?] [?] [?] of the [?] [?] [?].

And we shall [now?] [explain?] the matter of [?] [the tables?] [?] [?]. And [?] [?] [?] [?] [?] [?].

And [?] there are [?] [?] [?] [?] one [?] [?]; and [?] [?] [?] [?] [?] [?].

[?] … [the procedure of?] [?] [?] … and [?] [?] [?] [?] [?] [?] [?].

And [?] [?] one [?] [?], [?] [?] [?] [?] [?] [?]. [?] … and so [?] [?] [?] [?].

And we have [now?] [completed / explained?] the matter of [?] [the tables?] [?]. And [?] [?] [?] [?] [?] [?].

(The right column continues in the same procedural register to the foot of the page. The recurring sentence-frame is recoverable, but the named tables and the specific numerical operations cannot be transcribed with confidence at this resolution.)

(The left column opens with a faded red ***שער (gate)*** *rubric a few lines down, preceded and followed by black body prose. The whole column is paler and more stained than the right column; the central gutter eats the first one or two words of several lines. The exposition continues to describe the construction and use of the tables.)*

[Red ink header (faded, top of column): **...** [?]] — [?] … [?] [?] [?].

and [it is fitting?] [?] [?] … the [?] [?] [?] [?] … [?] [?] [?].

[Red ink: **שער (Gate)**] — [?] … [the procedure?] [?] … and we [shall?] [explain?] [?] … [?] [the tables?] [?] [?] … and [?] [?] [?].

and [?] [?] [?] [?] … the [?] [of the?] [?] [?] [?] … [?] [?] [?] [?].

and [?] [?] [?] [?] … and so [?] [?] [?] [?] … the [?] [?] [?] [?].

*Translator's note: This batch falls at the seam between the Book Five chapter index (concluding on p. 387) and the opening body chapter of Book Five ("**Chapter One**", red display rubric, p. 387). The body prose is introductory and methodological — it sets out, in the standard iterative "take… add… the result is…" register of a Hebrew astronomical-tables manual, how the reader is to work the mean-motion and equation tables that follow. No actual numeric tables appear in this batch; the pages are continuous prose in two columns. Both pages are heavily water-stained and the cursive is at the limit of legibility at this resolution, so the rendering above is necessarily skeletal and the structural rubrics (Chapter One; the שער / "gate" markers) are the load-bearing recoverable content. The body text is flagged extensively and submitted as a further review candidate for higher-resolution recovery.*

Yesod Olam — Book Five (Astronomical Tables)

Script: Sephardic semicursive, primary hand throughout. Black carbon ink for body text; red iron-gall ink for chapter rubrics, structural sub-rubrics, and the embedded running-total figures of the worked computation. This hand's ש

frequently loses its left stroke and can be confused with ע (see the per-work note); numerals read with care and flagged where genuinely ambiguous. Both pages carry the standard diagonal Vatican Library watermark and a brown water-stain that crosses both text columns — ignored as artifacts except where it obscures a reading (noted under Readability).

PDF p. 389 (folio numbered "192" in the upper-left margin)

Right column

[Red ink header, top of column:] **פרק שני** (Chapter Two)

[Red ink rubric, continuing:] On the manner of the computation, and how to work with the four [?] tables of the rows [הלוחות השורות / השרשים, "the radix tables" (?)]. [The red rubric is faded; the final word is uncertain — [?]]

When you wish to know the mean course [המהלך האמצעי, the mean motion] of any planet [?] you desire — [Interlinear / red: a worked figure here, illegible] — the [conjunction / molad?] of that planet, take its radix [שורש, its epoch value] and add to it [the increment], and the result is its course [מהלכו] [?].

After this you take the [number] you have found and write it down; and reckon [וחשוב] for it the days that have passed [?] for its course, year by year, and similarly for the months. And place [the result] over against [the column] [?] until [you reach] the [present] year [?].

[The next several lines run the iterative "add and the sum is" template, with red-ink running totals embedded between the clauses. The figures are in faded red and several are obscured by the water-stain:]

the moon [הלבנה] …in [each] year …and [for] the day of the month [?] …

[Red ink figure:] **כ"ה י"ד** [= 25 (and) 14] [?]

and the planet [וכוכב] …in its course [?] …the year of the cycle [השנה] and the month [?] …this matter [דבר זה] …

[Red ink:] **נ' ק"מ** [?] [the row label / running total — partly obscured; [?]]

[the result] you have found, write it down; and the sum [וחשבון] of the planet, the course [?] of the day, this year [?] … [Red ink:] **שנות התחזור** [the years of the cycle / the recurrence-years] — and place [it] over against …

The planet's course up to your year [עד שנתך], so that it [the figure] is in hand [ביד]. And take from it [the table] [?] the **years of the cycle** [שנות התחזור] [Red ink rubric].

Left column

[Red ink:] **ה' כ"ג** [?] — and write down its course, year by year [שנה לשנה], that you may [know] [?] …

its position [?] in the [table] [?] …add [it] over against [the column] [?] …

[The left column repeats the same procedural template a second time for a different argument. Red-ink running totals appear at the ends of several lines; most are washed out by the stain that crosses this column. Legible fragments:]

[Red ink:] **כ"ה ל"ד** [?]

you take [תקח] its course, and you have found … the cycle [המחזור] … its place [?] … the sum [?] year by year …

[Red ink:] **ג' י"נ נ"כ** [?] — the course [?]

[continue] year by year up to your year [עד שנתך], and the result [the sum] in hand [?] …

[Red ink:] **נ"ח ק"מ** [?] — the head of the [reckoning] [?]

[Red ink rubric:] **שנות התחזור** [the years of the cycle] — and take [the figure] over against [the column] [?] …

The [course] [?] of the planet, the moon [?], year by year up to your year [עד שנתך], so that it [the figure] is in hand. The cycle [?] is [the recurrence-period] [?] …

[Red ink:] **נ"מ ס"ב** [?] — and from it [the table] …

[Red ink rubric:] **ועתה** [And now] — in the chapter [?] of the moon, year by year [?] …

[The remaining lines of the left column run the same "take… add… write down" template a third time and are largely illegible under the water-stain. Transcription deferred — see Readability for this page.]

PDF p. 390 (verso)

[Vatican librarian note: red-ink notation in the upper-right corner of the page — shelf/catalog jotting, not part of the text; illegible at this resolution.]

Right column

[The right column opens mid-procedure, continuing the worked computation from the recto:]

the cycle [המחזור] [?] …take from your table [מלוחך] [?] …up to [your] year …and from it [?] …

and the sum [?] of the [table] [?], the planet [?], its course in [each] year. And take the [figure] over against [the column], year by year [?], up to [your] year …

[Red ink rubric:] **ה' ס"ד כ"ב** [?]

in the table [?] …the cycle [?] …its place [?] …the [years] of the recurrence [שנות התחזור] [?] …

[Red ink rubric:] **מספר ראשון** [the first number / the first count] — and take [it] over against …

And take [the figure] over against [the column] [?], its course [?] year by year, up to your year …

[Red ink rubric:] **מספר ראשון** [the first number] — and take [the figure] over against [the column] [?] …

after [this] take [קח] from the table [?] the [figure] that you found, and write it down [?]; and reckon [?] the [days] [?] over against the table, year by year [?] …

[Red ink rubric:] **מספר שארית התחזור** [the number of the remainder of the cycle / the recurrence-remainder] [?]

If [ואם] it [?] comes out [?] [in] your table over against the [column] [?] — [Red ink:] **יל'** [?] — place [it] over against …

and the side [צד] [?]; if [the result] is [more] [?] than [?] …its course [?] in the year, the month [?] …

by the side [?] [Red ink:] **ו**? …the planet [?], the [figure] over against, up to your year [עד שנתך] …

The reckoning [החשבון] [?] year by year, the years of the recurrence [שנות התחזור], the [side?] …

And take [the figure] over against [the column], year by year [?], and write down [וכתוב] [?] its course [?] …

[Red ink rubric:] **ועתה** [And now] — if [כן] [?] it is [?] in your table [בלוחך] from the [column] [?] over against [?] …the planet [?] …

[The lower right column continues the same iterative template. Several line-end red-ink running totals are present but washed out by the stain.]

Left column

[The left column runs the parallel procedure once more. Red-ink running totals and sub-rubrics punctuate the worked example; the lower half is obscured by the water-stain that crosses this column:]

[Red ink:] **ה' ס' כ"ד** [?] [running total]

take its course [?] over against the [column] [?] …the days [?] …

[Red ink rubric:] **ל' אלה תשובע** [?] — [the rubric is faded and the reading is uncertain; possibly "ל' אלה תשובו" or a column label — [?]]

[Red ink:] **יל'** …take [תקח] over against …a single [אחד] [?] …its course [?] year by year …

[Red ink:] **ה' כ"ד** [?] …its place [?] …the cycle [המחזור] [?] …

[Red ink:] **ג' י' כ"ב** [?] …take its course over against [the column] [?] …

take from the table [?] the [figure] you found, write it down; reckon [the days] [?] over against [the table] …its course [?] …

[Red ink:] **ג' י' כ"ב** [?] [running total, repeated]

[Red ink rubric:] **ונאמר** [And we say / And we shall now state] — in the chapter [?] of the planet [?] …year by year [?] …up to your year [עד שנתך] [?] …

[The remaining lines run the closing of the worked template and the start of the next argument; they are largely illegible under the stain.]

Yesod Olam — Book Five (Astronomical Tables), Chapter Two (continued)

Sephardic semicursive hand, single scribe. Two ink colors: black for body text, red for embedded worked-example numerals and sub-rubrics. Both pages carry a large central water-stain (heaviest in the inner column of p. 391 and the central band of p. 392) that washes out much of the faded red ink and softens the black. The text continues the iterative operating procedure for reading the mean-motion / radix tables; the prose is studded with red running-total numerals that the scribe inserts mid-sentence. Bleed-through and the diagonal Vatican watermark are ignored throughout.

[Vatican librarian note: "193" — penciled folio number, upper outer corner]

Inner (right) column

the controversies (?) [?] … as it was written [?] … so too here it is correct (?). Therefore take the [number/figure] [?], and [?]. So it is established (?), and this is what we said.

When you wish, then, to take [?] from the … [Red ink: figure] of the planet, look at the [?] … its [?]. So it shall be in your hand [?].

[The next several lines are an iterative lookup instruction:] Then take the first … [Red ink: total] … as it is written, and so it shall be established (?). And the reckoning (החשבון) — its [?] together with the [?] of the planet for the [?] day [?]. Look how the cyclical-motion [?] of the planet [?] …

you shall do likewise [?], that you may know the [?] of the planet [?] … and within it [?] the seconds [?] …

and you shall always (?) take [Red ink: numeral] … then add [?] the [?] of the planet against the column (טור) [?] … so it shall be in your hand [?].

[A further line:] And the reckoning (החשבון), being [Red ink: figure] … look how (?) the cyclical-motion [?] of the planet [?] …

then take the first reckoning [?] … so that you may know the [?] … and so it is established (?) in your hand. And the cyclical-motion (?) of the planet [?] …

And the reckoning (?) being [Red ink: figure] … look [?] how the cyclical-motion [?] …

[Red ink: ונח (?)] [?] … so it is established [?] over against the [?].

And now (ועתה) [?] … [several heavily washed lines] …

[Toward the foot of the inner column, a worked example continues:] …[Red ink: figures] … of the planet … the [?] … its [?] … so it shall be in your hand. [?]

Outer (left) column

[Top of column carries a small red-framed numeral grid in the upper-outer corner — see table below.]

[Red ink: numeral cluster] … so the [?] [?] in this place [?]. So it is correct (?), and this is what we said.

[Red ink: רכן (?)] — its [?] [?] …

then take the [?] [Red ink: totalּתכּבּ ענּ (?)] [?] together with [?] … [Red ink: figures] … the cyclical-motion (?) [?] … so it shall be in your hand. And we said (ונאמר).

[Red ink: רכן (?)] — it stands [?]: take in your hand the [?] of the planet [?], the [?] [?] …

and you shall do likewise (?). And take the [?] [Red ink: figure] [?] … so it shall be established (?). And the reckoning (החשבון) being [?] … look how the cyclical-motion (?) of the planet [?] …

[Red ink: numeral] … then it shall be [?] in your hand [?] …

and the cyclical-motion (?) of the planet [?] … its [?] [?] … and within it [?] … so it shall be in your hand. [?]

[Red ink: ונח (?)] — [?] … so it is established [?] against the [?].

[heavily washed band — several lines lost to the water-stain] …

[Red ink: numeral] … so it shall be in your hand [?] … and this [?] [?] … so it is correct (?). [?]

[Red ink: figure] [?] — look how (?) the cyclical-motion [?] of the planet [?] …

then take [Red ink: total] … so that you may know [?] … so it is established in your hand [?].

[Foot of column, red sub-rubric:] [Red ink: רכן (?)] [?] … then take [?] of the planet [?] … and add this, and take the first reckoning [Red ink: numeral] [?].

Diagram. A small red-ruled numeral grid in the upper-outer (left) corner of the page, roughly four rows by three columns of red-framed cells, each holding a two- or three-letter Hebrew numeral. It functions as a side-computation / radix table for the worked example in the adjacent column. The red iron-gall ink is badly faded and the water-stain crosses the lower cells, so most values are only partly legible. Transcribed as a table below; unreadable cells marked [?].

[Red ink: label col]	col A	col B	col C	col D
[Red ink: כ״ב]	ל״ז	ט״ז	מ״ז	[?]
[Red ink: ל״ה]	ל״ב	ט״ו	מ״א	י״ד
[Red ink: מ״א]	ל״ד	י״ז	[?]	[?]
[Red ink: נ״א]	כ״ה	מ״ב	י״ב	[?]

Red-ruled outer frame and label column; interior numerals in black ink, head row partly red. Read right-to-left (red label column shown first/right-most). The four residual [?] cells are all in the torn/water-stained upper-left corner — accepted at the scan floor; no values fabricated. at scan floor.]

Inner (right) column

and you shall write (?) [?] … and so [?] together with [?] [Red ink: numeral וֹלְ ז (?)].

[Red ink sub-rubric: תקופה (?)] — [?] … then take in your hand the [?] [Red ink: figure] … [?].

[Red ink: יענד (?) — "and now" / sub-rubric (?)] — [?] … then take [?] together with [?] [?].

[?] … so the [?] [?] … then take [?] of the planet [?] … as the [?] [?] … so it shall be established (?). And the cyclical-motion [?] …

and you shall do likewise [?] … so that you may know the [?] of the planet [?]. And take (ורטה?) [?] … so it shall be in your hand. And the reckoning (החשבון), this being [?] … look how the [?] [?].

[A band of worked-example lines:] …[?] one [?] … another [?] … or it [?] … so it is established (?), being [Red ink: figures קכֹה וֹלְ (?)] one … and within it [?] …

the cyclical-motion [?] … and the seconds (?) [?] [Red ink: numeral] … its [?] [?] … so it shall be in your hand. [Red ink: numeral בה לד (?)] … then it shall be (?) [?] of the planet [?] …

[Red ink: ונח (?)] — so it is established [?]: take in your hand the [?] [?] over against [?].

[?] … so it shall be in your hand [?]. [Red ink: רכן (?)] [?] for it [?] … so [?] there [?] is no [?] [?] … so it shall be [?].

[Red ink: numeral תכלד (?)] — [?] take in your hand the cyclical-motion [?] of the planet against the column (טור) [?].

and you take (?) [Red ink: כלב ל (?)] … as it is written, that you may know (?) [?].

[Red ink: ז ל פ (?)] — as it is written, that you may know (?) [?] … so it is established over the [?].

as it was written [?] … and take the first reckoning [?] [Red ink: numeral גיח לב (?)] …

as it was written [?] … and from the column (?) for the [?] … with [?] the cyclical-motion (?) of the planet [?] … the [?] [?] [Red ink: קמב (?)] [?].

[Red ink: figures לב לד (?)] — the cyclical-motion [?] … look how (?) the cyclical-motion [?] of the planet against [?] [Red ink: רכן (?)] … as it was written, that you may know (?) [?].

[?] … the cyclical-motion [?] of the planet [?] … and take the first reckoning [?] … and add (?) [?] [?] for it [?] for [?] from [?] [?].

[A closing computational line:] …one year [?] … and take [?] [?] … [Red ink: numeral ז ל (?) and וכפב (?)] [?].

Outer (left) column

[Top:] …to your hand (?) the [?] [?] … the cyclical-motion (?) of the planet for the [?] … [Red ink: numeral כלש (?)].

[Red ink: ונח (?)] — [?] then [?] … so the [?] [?], being [?] [?].

[?] … and so [?] [?] together with the [?] [?] … so it shall be [?].

[Red ink: figure בה לל (?)] — [?] then it shall be (?) [?] … and you shall write (?) [?]. So it is established (?).

it had been (?) the cyclical-motion [?] for the [?] … [?] … and the [?] of the [?] [?] [Red ink: numeral].

[Red ink sub-rubric: הכלל הכולל (?) — "the general rule" / "the comprehensive sum" (?)] — [?] all the [?] … in [?] the reckonings of the cyclical-motions [?] … [?] … and within the [?] from the [?] [?].

the cyclical-motion (?) and the [?] [?] … the [?] of the planet for [?] … [?] [Red ink: numeral] … and it [?] [?].

[Red ink: figure לוֹ (?)] — [?] … this [?] … and you take [?] over (?) … so that you may know the [?] [?] [?].

[?] then [?] … take in your hand [?] … so it shall be established [?]. And the cyclical-motion [?] of the planet [?] …

[?] … as the [?] … and within it [?] the seconds (?) [?] … so it shall be in your hand. [Red ink: numeral]

[?] … then [?] [?] … so [?] together [?] … so it shall be in your hand [?].

[heavily washed band — several lines lost to the central water-stain] …

[Red ink: ונאמר / (?) ועד (?)] — over (?) … then take [?] … its [?] [?] … so it [?] [?].

then take in your hand the cyclical-motion [?] of the planet against [?] … as it [?] [?] … and from [?] [?] … and it [?] [?].

[?] … and you shall do likewise (?) … on the path (?) [?] … and so the [?] [?] … so it shall be established.

you have determined (?) [?] … and you take [?] … and this [?] … so it is [?]. [Red ink: numeral]

[Foot, red sub-rubric:] [Red ink: רכן (?)] — [?] … so it shall be in your hand for [Red ink: numeral גתל (?)].

Yesod Olam — Book Five (Astronomical Tables)

Script: Sephardic semicursive, one principal hand. Bicolumnar layout (two text columns per page). Red ink used for structural rubrics (chapter heading) and for worked-example numerals/sub-labels embedded in the procedural prose. The page is heavily degraded by water-staining and foxing across the central and lower portions of both columns, and the red iron-gall numerals are badly washed

out — many running totals and gematria values are only partially legible. Foliation offset continues: the upper-margin Hebrew folio numeral reads **) קצד (194**, and a faint running header appears at the top center.

PDF p. 393 (folio "194")

This page continues the operating procedure of **Chapter Two** in the right-hand column, then opens **Chapter Three** (red rubric) lower in the right column. The left column continues Chapter Three.

Right column — conclusion of Chapter Two

and the position of the planet [?] which you found [?]. Take the mean motion together with the years [?] that have accumulated for you [?] in the cycle. **[Red: לח [?]]** [?]. And subtract from it [?] the figure [?] **[Red: נ"ם [?]]** — these [?] are the **[Red: רכ"ם [?]]** [the worked-example running total, washed out]. Then take what you [?] obtained, **[Red: ב' ט"ו ל"ב [?]]** [degrees / minutes / seconds — heavily faded].

The figure remains **[Red: רכ"ם [?]]**. And if you wish [?] to know [?] the position [?], place [?] **[Red: רכ"ם [?]]**.

[Red: לב [?]] Now [ועתה] [?] take [?] that which is opposite [?] **[Red: ר"כ נ"ם [?]]**. You shall reckon for it [?] **[Red: ש"ל ההלוך / [?] ב' [?]]** — the figure [?]. **[?]** in this manner [?] you compute [?] for the position [לתחזור — "for the return / the cycle"] **[Red: דש [?] לח [?]]**.

[~3–4 lines here are obscured by a large water-stain through the center of the column; partial red sub-labels visible: **[Red: רכ"ם [?]]**, **[Red: ר"ם [?]]** — degraded]

the figure **[Red: לב? [?]]** for the position [?]; and that which you computed [?] **[Red: נ"ז / [?] ב' (or ט"ז) [?]]** [degrees] — and the figure [?] **[Red: ה"ה? [?]]** [?].

The figure for the planet's position [?] **[Red: צה [?]]** [the running total, washed out] — for [the position] there is [?] **[Red: לחלק [?]]**, and so for every [degree?]; and know [ודע] that the position **[Red: ל'? [?]]** [the cycle / return] does not advance / does not lengthen [להאריך].

It rises [?] within the position [?] **[Red: רכ"ם [?]]**, and the figure [?] of [?] **[Red: נ"ם ל"ב? נ"ם? [?]]** [degrees] — like [?] that which you said before **[Red: ב' [?] / ע"ז ה"ב? [?]]** [?].

[Red: פרק שלישי] — *Chapter Three*

[Red rubric, centered:] פרק שלישי — "Chapter Three"

[Red: בעבור לך החשוב לדעת [?]] — "In order that you may know how to compute…" [opening formula, in red]

[Red: the position of the planet, its [proper] motion [?], its course / its returning, or its remainder [שארית?]. The position of the head of the cycle [ראש המחזור] in the [reckoning] there is for it [?] for the fourth-part [?] **]** [the red rubric-prose continues but is partly washed out].

For thus [?] you established / set [קבעת] [?] the figure [?] another / a different [?] position [?] **[?]**. And now [ועתה] [?] the tables [?] and the cycles [?], and you shall draw near / approach [?] to find [?] the position [?] of [?] **[?]** — this is concerning [?] the position [?] of the planet [?]. May the Lord [the Holy One, blessed be He] grant [?] [על הכל [?]].

[Red: ז] [Red: דם ס [?] לתקן זה [?] / שערבת [?]']] — "Section [?]: to set / correct this…" [worked sub-heading].

Place [?] **[Red: ל"ה [?]]**, half [?] **[Red: ל"ש? [?]]**, six [?] **[Red: שרשות? [?]]** in the position [?]; for in the cycles [?] [there are] six [?] **[Red: שרשות [?]]**, six [?] [that] enter [?] another [?].

For there is for the position [?] the tables [?] and the cycles [?], and the position [?] **[?]** [degrees]. For there is for the position [?] the position [?] the tables and the cycles [?], and from [?] every [?] **[?]** [degrees]. There is in it / for it [?] like / according to [?] the figure for the planets [?]; and for [?] every [?] them [?]; in [the] position [?] the tables [?] **[?]**. The fourth [?], like [?] the position [?] **[?]**; the figure for two positions [?] **[?]**. The reckoning [החשבון] [?] of [?] which [?], two [?] new [?] every [?]; the figure [?] **[?]**.

[The lower third of both columns is obscured by water-staining; readings here are partial]

PDF p. 394 (verso)

This page continues **Chapter Three** of Book Five. Both columns are procedural prose for setting up the radices and cycle-counts of the mean-motion tables, with red worked-example numerals interspersed. The central gutter-side and lower portions are water-stained.

Right column

Your figure [?]: take the [?] cycle [?]; or by the figure [?] for the months [?] **[?]**. The figure [?] there is [?] for the [reckoning] of the [computation] [?]. We [?] [began?] [?] the cycle of the [?]. The cycles [?] **[?]** [degrees], and these are the figures [?] **[?]**.

These [?] [are] the [?] of the [reckoning] [?]; and there is [?] for [?] the cycle [?] another [?]. We rejected / removed [נבטל?] [?] the [?]; for [?] from [?] **[?]** the cycle [?] another [?] **[?]**; [?] [degrees]. the [?]; for [?] [degrees] [?] — like [?] the position [?] **[?]**. then [?] the cycle / the position [?] **[?]** [?] [degrees] **[?]**.

And there [is] [?] the [reckonings] [?] and the [?]; for there is [?] for the section [?]. **[Red: ל"ק? קב"ב [?]]** [?] another [?]. Therefore [?], in order [?] this [?] to [?] the figures [?]; for there is [?] the position [?] [degrees]. And the [?] is established [?] in the position [?] of the [?]; for [?] [degrees] in [?] the position [?].

[Red: נ"א ל"חד [?]] *— sub-rubric*

[Red: Concerning the mean motion of the planets [?] for the position [?] of the cycle … **]** [red worked-example heading, washed out].

The figure / this [?] **[?]** in [?] **[?]** [degrees]; for there [is] [?] the [?] for the [?] [degrees].

In the [reckoning] [?] [we] establish [?] [degrees]; and the figure [?] **[Red: ל"ק? [?]]** in the [?]. **[Red: נ"ם / ב'? [?]]** the cycle [?] another [?]; and the figure [?] **[?]** [degrees]; for [?] [degrees]. **[Red: ל"ק? [?]]** for the section [?]; if [?] **[?]** [degrees]; for [?] [degrees]. There [is] [?] the cycle [?] **[Red: גב"ך? [?]]** [zayin / kaf — washed out].

[Several lines obscured by foxing.]

This [is] the position [?] from [?] [degrees] [?] for the planet [?] [degrees] [?] for the position [?]; the [reckonings] [?] and the worked-out figures [?] [degrees]; and so [?] **[?]**. This sets up [?] the [?]; if [?] **[?]** [degrees]; **[?]**. For the wise [scholars] [החכמים?] [?]; like [?] **[?]** [degrees], the seventh [?] **[?]**. the figures [?] from / the position [?]; **[?]** [degrees].

Left column

the position [?] [the planet/figure?] for the position [?] the cycle [המחזור] [?]; thus / so [?] [degrees] [?], like [?] the position **[?]**. the [?]; the mean motion [?] of [?] the cycle [המחזור] [?]. We [?] [began?] [?]; and the figure [?] [degrees]; **[?]**. [~2 lines obscured by water-stain.]

When [?] the position [?] **[?]** [degrees], and the figure [?] in the position [?] the table [?] [degrees]; this [is] the position [?] **[?]**. For thus [?] you computed / you found [?] **[?]** [degrees]; **[?]**.

[Red: ש"ל נב"ל ?ח? [?]] *— sub-rubric*

The position [?]: take [?] the position [?] **[?]** [degrees]; the figure [?] **[?]**; for [?] [degrees]. for [?] [the planet] [?], and the figure [?] **[?]** [degrees]; **[?]**. The figure [?] of the [reckonings] [?]; if [?] **[?]** [degrees]; for the position [?]. And so [?] the cycle / the table [?]; **[?]** [degrees].

In the cycle [המחזור] [?] every [?] another [?] **[?]**; the figure [?] [degrees].

For there is [?] for the cycle / position [?] the [?]; and so / thus [?] **[?]** [degrees]; **[?]**.

And the figures [?] of the cycle [?] **[?]** [degrees]; and so [?] **[?]**, the planet's position [?].

[~3 lines obscured by water-staining in the lower left column.]

The figure [?] **[?]** [degrees]; and we [?] [began?] the [?] for the position [?]; and so [?]. For the mean motion [?] and the cycles / their cycle [?]; we shall complete [נשלים?] [?] the table [?]; the [?] of the position [?]. **[Red: ז]**

**

Yesod Olam — Book Five (Astronomical Tables)

Script: Sephardic semicursive, single primary hand. Heavy water-staining and foxing throughout; iron-gall red ink (rubrics and worked-example numerals) is markedly more faded than the black body ink in the damaged zones. Embedded red-ink letters are running totals / partial values in the worked computational examples. Foliation offset continues; folio "195" is penciled at the top-left margin of the first page (a modern librarian's pagination).

[Vatican librarian note: "195" penciled, upper left margin — modern foliation]

Right column (continuing the operating-manual prose of Chapter Three):

the cycle [המחזור]; and you take what corresponds to it and add it to the figures you have reckoned, until [?] [Damage: line partly washed out].

And now [ועתה] I shall set before you the rule [הכלל] for computing this [?]: when [?] you wish [?] to know [?] the position, do [?] this [?] [Damage: ~2 words faded]

… the radix [?] for the years [?] (interlinear: small correction above the line, illegible).

[Red ink: ו ז ח שט] [worked-example partial values — bet/dalet and zayin/vav discrimination uncertain; transcribed as written, candidate numerals 6 7 8 9 (?)]. The figures [?] [Damage] … take [?] what corresponds [?] to them and place it [?] in [?] your reckoning [?] [Damage: water stain across the line].

the radices [התחזורים?] [?] and add to them what [?] they [?] [Damage]. So too [וכמו כן] this [?] [Damage] …

[Red ink: ז ר נקבץ ועד ז יום התקופה ובזה] [transcribed verbatim; "…until [the] 7th [?] day of the tekufah [the seasonal point / equinox–solstice], and with this…" — numeral readings uncertain, zayin/vav ambiguous].

with this [ובזה] you may [?] determine [?] the equation [?] of one [?] [Damage: ~1 word] … of the position [המצב?] [?]. The [?] reckoning [החשבון] [?] for [?] them [?] [Damage] is [?] [Damage] … the [?] computation [?] … the worked figure [?] [Damage].

the time [העת] [?] of [?] the radix [?] [?] [Damage]. And so [וכן?] this [?] [Damage] … and [?] one [?] of [?] [Damage].

the reckoning [?] of [?] the cycle [התקופה / המחזור — ambiguous here] [?] [Damage], and [?] … and place [?] them [?] in [?] their place [?] [Damage] …

and you [?] place [?] them [?] in [?] [Damage: ~1 word] of [?] the others [האחרים?] [?] [Damage].

[Red ink rubric, display line, large script — chapter heading:]

פרק רביעי — Chapter Four [Red ink header]

[Heading continuation, red ink:] "…concerning [?] [Damage] … how [?] you may [?] order [?] / set out [?] the [?] reckoning [?] of the [?] motion [?] / position [?]…" [Damage: the red rubric ink is badly faded across the heading lines; ~3 lines of the chapter-incipit are red and largely washed out].

[Body, resuming in black ink:]

upon [?] the [?] hour [?] [שעה] [?] and the part [?] [החלק] [?] [Damage] … and [?] near [?] / approximately [?] … until [?] the [?] reckoning [?] [Damage] … from the first [הראשון] [?] … them [?] … and [?] place [?] [Damage].

[Red ink: ר] [single red-ink letter, partial value — likely 200 or the point-label resh; column context unclear, flagged].

the [?] cycle [?] / completion [?] [Damage] … and [?] place [?] them [?] [Damage] … this [?] [Damage].

[Red ink: ר ז] [partial values — resh/zayin (?)].

and [?] one [?] of [?] them [?] [Damage] … hour [?] … the [?] reckoning [?] [Damage].

this [?] [Damage] … the position of the planet [?] [Damage: heavy water stain across the lower-right quadrant; ~4 lines reduced to scattered legible words] … and [?] now [ועתה?] … the [?] motion [?] / [Damage].

[Damage: lower ~3 lines of the right column lost to water staining and foxing — only isolated words (ככב "planet," חשבון "reckoning," ועתה "and now") legible.]

Left column:

[Damage: the upper-left region carries the diagonal watermark and a water stain; first ~5 lines are faint.]

until [?] [Damage] … and [?] they [?] are not [אינם / אינו] [?] … the [?] reckonings [?] [Damage: ~1 word] for [?] them [?] [Damage].

the [?] months [?] [Damage], and [?] in [?] them [?] [Damage] … some [?] of [?] [Damage] … and [?] the [?] hour [?] [Damage].

the part [החלק] [?] and [?] the [?] second [?] [Damage] … and [?] take [?] [Damage] … [?] the [?] position [?].

the cycle [המחזור] [?] [Damage], and [?] when [?] this [?] [Damage] … the [?] reckoning [החשבון] [?].

and [?] this [?] [Damage] … the [?] equation [?] of [?] one [?] [Damage] … take [?] them [?].

[?] the [?] computation [?] [Damage] … place [?] them [?] [Damage] in [?] the [?] reckoning [?] [Damage].

[Red ink: ג ו] [partial values, gimel/vav (?) — worked total].

and now [ועתה?] [?] [Damage] … the [?] motion [?] [Damage] … in [?] the [?] cycle [?] [Damage].

the [?] hour [?] [Damage] … the [?] reckoning [?] … for [?] them [?] [Damage].

and so [?] [Damage] … this [?] is [?] the [?] rule [הכלל] [?] [Damage] … of [?] the [?] computation [?].

[Damage: middle of the left column carries a horizontal water band — ~3 lines reduced to scattered words: חלק "part," שעה "hour," החשבון "the reckoning."]

and [?] place [?] [Damage] … the [?] reckonings [?] … and [?] take [?] them [?] [Damage].

until [עד] [?] [Damage] … the [?] cycle [?] / position [?] [Damage] … and [?] the [?] hour [?].

[?] the [?] reckoning [?] [Damage] … the [?] motion [מהלך אמצעי / המהלך, "mean motion"] [?] … and [?] this [?].

[Lower-left lines: the script continues but the ink has flaked / faded; ~4 lines reduced to isolated legible tokens (החשבון "the reckoning," השעות "the hours," הלוח "the table").]

Right column:

and this [?] [Damage] … this [?] is [?] the [?] rule [?] [Damage] … [?] of [?] them [?] … from [?] [Damage].

[Red ink: בב לב ש] [partial values — bet/bet, lamed/bet, shin (?); the shin in this hand frequently loses its left stroke and may instead be ayin, per the scribal note — transcribed as ש with the candidate ע noted]. [The trailing ש may be an abbreviation — שניות ("seconds") — rather than the gematria value 300; column context insufficient to decide, flagged.]

one [?] [Damage] … and [?] this [?] is [?] [Damage] … the [?] reckoning [?] … and [?] take [?] from [?] [Damage] … [?] this [?].

the cycle [המחזור] [?] [Damage] … the [?] motion [?] [Damage: ~1 word] … to [?] them [?] [Damage].

[?] for [?] them [?] [Damage] … and [?] you [?] place [?] [Damage] … this [?].

the [?] equation [?] [Damage] … of [?] the [?] position [?] [Damage] … and [?] now [ועתה?] … the [?] hour [?].

and so [?] [Damage] … this [?] is [?] [Damage] … the [?] table [הלוח] [?] [Damage] … the [?] reckoning [?].

the [?] computation [?] [Damage] … and [?] take [?] them [?] [Damage] … and [?] place [?] [Damage].

[Damage: a water stain crosses the mid-right column — ~3 lines reduced to scattered words.]

[Red ink: ז ון תתה] [partial value — zayin/vav, with תתה possibly 805 = ה"תת or a fragment; reading uncertain, transcribed verbatim, flagged].

the [?] hour [?] [Damage] … and [?] the [?] part [?] [Damage] … the [?] second [?] [Damage].

[Red ink: ג ין הלך] [partial value / motion-term — gimel, then ין, then "הלך" (motion / "it moved"); transcribed verbatim].

and [?] this [?] [Damage] … the [?] motion [?המהלך] [?] … [Damage] … of [?] the [?] cycle [?].

[Red ink: ג ז דב] [partial values — gimel, zayin/vav, dalet/bet (?); bet/dalet discrimination uncertain].

and [?] one [?] [Damage] … and [?] this [?] is [?] [Damage] … the [?] reckoning [?] … for [?] them [?].

[Red ink: ה יב הלך] ["…12 [?] 5 [?] [it] moved [?הלך]…" — heh/dalet and yod/vav uncertain; transcribed verbatim].

[Red ink: כ יב תתל] [partial values — kaf, yod-bet (=12?), then תתל possibly = ל"תת 830; transcribed verbatim, flagged].

and so [?] [Damage] … the [?] motions [?] [?המהלכים / החזורים] [?] and [?] [Damage] … the [?] seven [?שבעה] [?] … [?] take [?] them [?].

[Red ink: ל אחר] / **ונאמר — "and we shall say"** [Red ink rubric, mid-column — opening a new sub-section / explanatory turn].

the [?] tables [הלוחות] [?] and [?] the [?] motions [?] / cycles [?] [Damage] … upon [?] them [?] [Damage] … [?] this [?].

this [?] [Damage] … to [?] inform [?] you [?להודיעך] [?] … the [?] reckoning [?] [Damage] … of [?] them [?].

and [?] this [?] [Damage] … upon [?] the [?] order [?] [?הסדר] of [?] the [?] reckoning [?] [Damage] … take [?] [Damage].

[?] until [?] / it [?] is [?] [Damage] … the [?] cycle [?] [Damage] … and [?] place [?] [Damage] … this [?].

[Lower-right ~2 lines: ink flaked / water-damaged — scattered legible tokens (הלוחות "the tables," החשבון "the reckoning," ונאמר "and we shall say").]

Left column:

[Damage: upper-left carries the watermark and a faint stain; first ~3 lines faint.]

the [?] reckonings [?] [Damage] … and [?] in [?] their [?] parts [?] [בחלקיהן?] [?] [Damage].

until [?] the [?] completion [?] / position [?] [Damage] … and [?] the [?] hour [?] was [?] [Damage] … [?] until [?].

so [כן] [?] [Damage] … they [?] worked [?] / served [?] [עבדו?] … the [?] others [?] [האחרים?] [?] above [?] [למעלה?].

[?] [Damage: ~1 word] … and [?] before [?] / when [?] [Damage] … the [?] reckoning [החשבון] [?].

[?] for [?] the [?] correspondences [הרבעים / ?הרבועים? — "the quarters" / "the squarings"] [?] [Damage] … for [?] the [?] hours [?] [לשעות?] [?] [Damage].

both [?] [Damage] … the [?] part [החלק?] [?] [Damage] … and [?] this [?] is [?] [Damage] … the [?] reckoning [?].

some [?] of [?] [Damage] … the [?] part [?] [Damage: ~1 word] … some [?] of [?] [Damage] … the [?] parts [?] [פתחות / ?פתחי?] [?].

the [?] motion [?] [Damage] … and [?] the [?] remainder [?] [והנשאר?] [?] [Damage] … its [?] letter [?] / sign [?] [Damage].

[?] said [?] [Damage] … some [?] of [?] [Damage] … the [?] correspondences [?] / quarters [?] [Damage] … and [?] some [?].

some [?] of [?] [Damage] … the [?] motion [?] [Damage] … the [?] sign [הסימן] [?] … the [?] seven [שבעה?] [?].

one [אחד] [?] [Damage] … and [?] the [?] reckoning [?] … some [?] of [?] [Damage] … the [?] remainder [?] [Damage] … so [כן] [?].

the [?] [Damage] … and [?] the [?] hour [?] [Damage] … upon [?] [Damage] … the [?] sign [הסימן] [?] [Damage].

[Red ink: ל] [single red-ink letter — partial value or point-label lamed].

some [?] of [?] [Damage] … the [?] motion [?] [Damage] … the [?] sign [הסימן] [?] and [?] the [?] hour [?] / the [?] sign [?] [Damage].

both [?] [Damage] … the [?] sign [?] [Damage] … the [?] hour [?] [Damage] … some [?] of [?] [Damage].

[Red ink: ג ז] [partial values — zayin, gimel (?)].

and [?] before [?] / when [?] the [?] sign [?] [Damage] … the [?] hour [?] [Damage] … the [?] cycle [?] [Damage].

[Red ink: ל] [and immediately:] **ונאמר — "and we shall say"** [Red ink rubric, mid-column — sub-section turn] / [or **ונשלם** "and is completed" — lamed/mem ambiguous; transcribed with both candidates].

the [?] motion [?] [Damage] … and [?] the [?] reckoning [?] … of [?] the [?] hour [?] [Damage] … the [?] sign [?].

and so [?] [Damage] … this [?] is [?] [Damage] … and [?] before [?] [Damage] … the [?] sign [?] [Damage] … upon [?] them [?].

and so [?] [Damage] … the [?] reckoning [?] [Damage] … the [?] hour [?] [Damage] … the [?] sign [?].

[Red ink: ל] [point-label / partial value lamed.] [And:] **ונשאר — "and there remains"**.

some [?] of [?] [Damage] … the [?] correspondences [?] / quarters [?] [Damage] … the [?] reckoning [?] [Damage] … and [?] take [?].

both [?] [Damage] … the [?] hour [?] [Damage] … the [?] cycle [?] [Damage] … this [?].

[Damage: the bottom ~3 lines of the left column are washed out by the water stain that sweeps up from the lower margin; only isolated tokens (השעה "the hour," הסימן "the sign," החזורים "the cycles" [?]) legible.]

Yesod Olam — Book Five (Astronomical Tables)

> Script: Sephardic semicursive, primary hand throughout. Body text in carbon-black ink; section headings, structural labels, and embedded worked-values in red iron-gall ink (much of it faded). Two-column layout,

reading right-to-left within each page. Both pages carry heavy water-staining (a large central stain on each leaf and a dark stain at the lower-left of folio 196r) that obscures portions of several lines. The large diagonal Vatican Library watermark and the copyright footer bar are scan overlays and are ignored.

Right column

(Heavily abbreviated operating-manual prose for the mean-motion / tekufah reckoning, with red-ink worked numerals interspersed. The large central water stain and edge wear obscure the heads and tails of several lines.)

and we shall set it down, and afterward you add to it [Red ink: (3) ג], and what remains after [Red ink: ם?תק?ק נ?ב ג?] [?]. We take, moreover, [the value] from the [table of] motions; the line [טור, column] reads [?] thus, by the part [החלק] [?]. In the [reckoning of] motion we take it [Red ink: (4) ד?] until you complete the [count of the] motions for the years of the cycle [שנות התחזור?] [?], and there remains [Red ink: ?] [?].

So put it down [Red ink: (?9) ט?] [Hebrew letter-numeral, value uncertain — ע/ש confusion in this hand]; this is what was sought [זה מה שהיה מבוקש] [?]. You had [Red ink: ?] … and the difference is added [?] … and there remains for the part [לחלק] [?] [Red ink: ?].

[Red ink: ?] … the days, and you put it down [ותסדר אותו] [?] [Red ink: ?ז יום תקתקס ן] [?] — and what was sought for the day [Red ink: ?] [?].

And after [Red ink: ?], add to the sum [Red ink: תקס ה? נ? ב?] [?], and you put down [Red ink: ?] [?]. By the part [Red ink: ?], multiply [Red ink: ת?קס ב? ד?] [?] — and afterward [Red ink: תקס ה? כ? ד?] this [?].

The product was [Red ink: ?] [?], and you add to it [Red ink: ?] from the [count], and afterward you put down [Red ink: ?] [?]. This is the … [Red ink: ?] [?]. There remains, moreover, for him [Red ink: ?] from the … [Red ink: ?] [?].

He shall add, then, [Red ink: ?], and this is the [?] [Red ink: ?] [?], so put down [Red ink: ?] [Red ink: ב ד?] [?]. There remains a [part?] [Red ink: ?] [?], and you complete [ותשלם] in the count [?].

It [becomes] the days, and the nineteen [Red ink: ?] [years?] [Red ink: (4) ד?], the cycle [המחזור], … [Red ink: ם?ל?ד?] [?]. He multiplied [?] the count … [?] [Red ink: ?] [?].

The days [היומים ?היום?] and the difference [?] [?], and they multiply [Red ink: ?] [?] until [Red ink: ?] [Red ink: (2) ?ב], and what remains [ומה שנשאר].

In the [reckoning] of the motion, [it is] put down [Red ink: ?] [?] [Red ink: ?ד ?ב תקס?] [?], until [ועד] you complete [?] … and there remains, moreover, after [Red ink: ?] [?].

He shall add nine days [?תשעה ימים] [?], the head of the … [?] [Red ink: ?] [?], and there remains, after [the count of] the motions, the difference [?], and afterward [Red ink: ?].

And another sum [?וסך אחר] [?] for what you reckon [Red ink: ?] [?]; this is the [?] [Red ink: ?] [?].

This is the way [?זה שטרכ זה הדרך] [?] you set down [תסדר] for it the difference [?], and there is, moreover, until it comes round to the part [?שיהיה הקצף הקרוב לחלק] [?].

He will reckon the days [יחשוב הימים] [?], moreover, … in the count of [?בלבד בכלל] the cycle [?כנגד] [?]; the rule for it [?על דרך] — the motion [מהלך] … and the difference [?וההפרש] in the count [?בלבד] [?]. [End of right column.]

Left column

(Upper portion: end of the preceding chapter. Lower portion: a red-ink heading opening Chapter Five.)

[Red ink: ?ד? נ? תקס] he set down [?] … the cycle [?כנגד] [Red ink: ?] [?]. (interlinear: ?) — and you put down [Red ink: ?ה? יום? תקס] [?]. You reckon the days [?תקתב אותם תחשב] [?] … until [Red ink: (4) ?ד].

And the count [Red ink: ?] until you complete [?] … and afterward [Red ink: ?] [?]. The work [?המלאכה המעשה] … and the cycle is correct [?והמחזור נכון] [?]. … the difference [וההפרש] … you put down [?ותסדר] [?].

You add [תוסיף], moreover, until [?] he completes [Red ink: ?] [?] — and what was sought [ומה שהיה מבוקש] [?]. … so you put down [Red ink: ?] [?], and you complete [ותשלם] [?].

You take it up, moreover [?ותעלה] [?] … and the part [והחלק] … and the remainder [?והשארית] … the count [Red ink: ?] [?]. … and what remains [?ומה שנשאר] [?].

And to this [?ולזה] you put down [Red ink: ?] [?], in the count of the years of the cycle [?בחשבון שנות התחזור] [?], and the head of the cycle [וראש המחזור] [?] … [Red ink: ?] [?].

[Red ink header:]

פרק חמישי — Chapter Five [Red ink: בתקון ערב התקופות לכל חדש] — "On the determination of the eve [reckoning] of the tekufot for each month." [Red ink: שמחל… עלפן? קלמות? — second red sub-line, partly faded and uncertain] [?]

(The body of Chapter Five follows in black ink.)

In the previous chapter [בפרק שעבר] we explained how you determine [תקן?] [Red ink: ?] [?] the seasons of the year [תקופות השנה] [?] in the count of the months [בחשבון? החדשים] [?]. Now, in this [chapter], we wish to explain the reckoning [התקופה] [?] of the four seasons [?] each one according to its position [?].

For the tekufah [התקופה] of … [Red ink: ?] [?] takes [it] from … [?], and the difference of [Red ink: ?] [?]. We took [לקחנו?] the [count] of [?] [?] … and there is, moreover, in [the reckoning] [?] [Red ink: ?] [?].

And so [וכן] you set down [תקן?] the way [the count is] arranged [?] — the count [Red ink: ?] [?] in the days [?] … And [the reckoning continues:] you put down [ועתה תקן?] for it the count [?] [Red ink: ?] [?] until [?].

The difference [Red ink: ?] [?] and you take it up [ותעלה?] … and you put down [ותסדר?] [?] for it [Red ink: ?]. So the count [?] [Red ink: ?] [?] until the head of the cycle [עד ראש המחזור?] [?].

He shall add to it [Red ink: ?] [?] … and there remains [ונשאר] [?] in the count [Red ink: ?] [?], and this is, moreover, the [way?] [Red ink: ?] [?]. … and the count [Red ink: ?] [?] until [?].

The order of the count [סדר החשבון] [?] is [Red ink: ?] [?] … in the work [במלאכה?] [?], and you take it up [ותעלה?] … He shall set down [Red ink: ?] [?], moreover, the [count] [Red ink: ?] [?].

[Red ink: ?] [?]. He shall add [יוסיף?] [?] the days, and reckon [ותחשב?] [?] them, and there is, moreover, [Red ink: ?] [?] until [the reckoning is] complete [Red ink: ?].

He shall set down [Red ink: ?] [?] the count [?], moreover, and you complete [ותשלם?] … the days, the part of the day [חלק היום?] [?], and the … [Red ink: ?] [?]. And the head [והראש?] [?], the count [Red ink: ?] [?].

[Lower-left of the column is obscured by a dark water stain.] …and you reckon [ותחשב?] [?] in the count [Red ink: ?] [?] until [?]. The cycle [המחזור?] [?], and the days [Red ink: ?] [?] of [the count] … [the count of?] the year [?].

[Damage: water stain, lower-left of left column, ~4–5 lines partly to wholly illegible.]

Right column

(Continuation of Chapter Five — operating-manual prose for the tekufah reckoning, with red-ink worked-values. Heavy central water stain.)

and he gathers [וקובץ?] [?], and afterward [Red ink: ?] [?] … the position [מצב?] of the season [מולד?] [?]. And the hour [ושעה?] [?] when … [Red ink: ?] [?] the head [Red ink: ?] [?], and the count [Red ink: ?] [?].

He multiplies [Red ink: ?] [?] from … the work [המלאכה?] in the count [Red ink: ?] [?]. … so they put down [Red ink: ?] [?]. By the part [Red ink: ?] [?] … one [count], the count [Red ink: ?] [?].

And there is the [Red ink: ?] [?] … and there is [ויש?] the difference [Red ink: ?] [?], and they put down [Red ink: ?] [?]. … and they complete [Red ink: ?] [?]; for him the count [Red ink: ?] [?].

[Several lines obscured by the central water stain.] …[Red ink: ?] [?] the count [Red ink: ?] [?], and the difference [וההפרש?] [?] … the position [המצב?] [?] of the … [Red ink: ?] [?].

The arrangement [התקון?] [?] … the difference [Red ink: ?] [?] is upon this way [על הדרך הזאת] [?]. And [in?] the count of [בחשבון?] [Red ink: ?] [?], … [Red ink: ?] [?] until [Red ink: ?].

He shall take [Red ink: ?] [?] in the count [Red ink: ?] [?], moreover, the [reckoning] of the [Red ink: ?] [?] … and they put down [Red ink: ?] [?] for the … the … [Red ink: ?] [?].

In the count [Red ink: ?] [?], the season [התקופה?] [?] … and you take it up [ותעלה?] … the position [המצב?] [?] of … [Red ink: ?] [?].

He shall set down [Red ink: ?] [?] … the head [Red ink: ?] [?] … and put down for it the count [ותסדר לו? חשבון] [?]. [Red ink: ?] [?] in the count of the years [בחשבון שנות?] [?].

He shall set down [Red ink: ?] [?], moreover, the count [Red ink: ?] [?] … the count [Red ink: ?] [?] … the days [Red ink: ?] [?].

The years [Red ink: ?] [?] … the position [המצב?] [?] … and after the count [Red ink: ?] [?]. … and there is, moreover, [Red ink: ?] [?] until [?].

[Lower lines obscured.] …[Red ink: ?] [?] the difference [Red ink: ?] [?] … and the head [Red ink: ?] [?] of the cycle [המחזור?] [?] is near [קרוב?] [?] to the position [למצב? לתקופה?] [?]. [End of right column.]

Left column

(Continuation. Upper portion partly legible; a red-ink label mid-column; lower portion stained.)

[Red ink: ?] [?] he completes [ישלם?] [?] until [Red ink: ?] [?], and you take it up [ותעלה?] … And [Red ink: ?] [?] the difference [וההפרש?] [?] … and there is [ויש?] [Red ink: ?] [?].

[Red ink: ?] [?] … you put down [Red ink: ?] [?] the count, and reckon them [ותחשב? אותם] [?] … until [Red ink: (4) ד?] [?]. And there remains [ונשאר] [?] for him [Red ink: ?] [?].

The work [המלאכה?] … the difference [וההפרש?] … in the count [Red ink: ?] [?], moreover [Red ink: ?] [?]. … He shall set down [Red ink: ?] [?] the [reckoning] [Red ink: ?] [?].

And until [ועד?] [?] he completes [ישלם?] [?] … and afterward [Red ink: ?] [?]. … the [count] [Red ink: ?] [?] of the cycle [המחזור?] [?]. He shall take [Red ink: ?] [?].

He shall set down [Red ink: ?] [?], moreover, the count [Red ink: ?] [?] until [?] … And the head [Red ink: ?] [?], the part [Red ink: ?] [?].

[Red ink label, mid-column:] [Red ink: קנה ? יד? טור? תקן? עתה?] [?] — partly faded; apparently a structural label ("now set down [the] column…") [?].

And you reckon [ותחשב?] [?] until [Red ink: ?] [?], moreover, the count [Red ink: ?] [?] … the position [המצב?] of the … [Red ink: ?] [?]. So you put down [Red ink: ?] [?].

He shall add [יוסיף?] [?], moreover [Red ink: ?] [?], in the count [Red ink: ?] [?] … and you complete [ותשלם?] [?] … the difference [וההפרש?] [?].

[Several lines obscured by water stain.] …[Red ink: ?] [?] the count [Red ink: ?] [?] … the part [החלק?] [?] … and the head [Red ink: ?] [?] of the cycle [המחזור?] [?] … the count [Red ink: ?] [?].

[Damage: water stain, lower portion of left column, ~3–4 lines partly illegible.]

Yesod Olam — Book Five (Astronomical Tables)

Script: Sephardic semicursive, single primary hand throughout, consistent with the preceding batches. Red ink (rubrication) is used for the chapter headings (פרק ששי, פרק שביעי) and for several structural label-words embedded in the body prose (ועתה, ונאמר, נחזור, וכלל, נמשל). Both pages are laid out in two columns; within each page the columns read right-to-left. The text continues the operating-manual prose of the tekufot reckoning — no numeric table proper appears in this opening.

Readability: Heavy damage. A large water/foxing stain runs down the center gutter and across the lower-center of both folios, with a darker concentration at the right margin of p. 399 and the lower-right of p. 400. Bleed-through from the facing side is pronounced. Several lines at the foot of each column and along the stained band are only partially legible; uncertain readings are flagged `[?]` and the worst stretches are marked as

[end of the preceding chapter (Chapter Five), right column]

the table [לוח] which we set down [?], reckoned [?] within the seasons [תקופות]. And [?] you take it up to the cycle [למחזור], and you set it down [?] for it [לפניו]…

the table [לוח], the count [החשבון] of the seasons [?] which is in the cycle [במחזור]…

and you take it up [ותקח] the year [שנת] [?], and you set it down [ותכתב] [?]…

So [?] this is the count [החשבון] [?] of the eve-reckoning of the seasons [ערב התקופות] [?].

And when [?] you wish [שתרצה] [?] to know the season [התקופה] [?] of any month [?] you will: for [כי] if the season [?] falls [?]…

at the head of the cycle [ראש המחזור] [?] before the season [?], you reckon [?] from [?] the cycle [למחזור]…

[Damage: ~3–4 lines along the stained band largely illegible; partial words only — "…the cycle [המחזור]… and the season [וחשבון] [?]… and afterward [ואחרי] this…"]

you take it up [?], the season [?] of the year [שנה] [?], and you set it down [?] in its place [?]… and afterward [ואחרי] you reckon [?] the years [השנים] [?]…

the days [הימים] [?], for from [?] the season [?] up to the [?] season [?] of the year [שנה] [?] there are [?]…

and you set down [ותכתב] [?] with them [בם] [?] the count [?]… in the count [בחשבון] [?]…

[Damage: lower-right of column, ~4 lines lost to water stain — only scattered tokens legible: "…the count [החשבון] [?]… the season [התקופה] [?]…"]

Nine [ט'] [?] [Red ink: ט'] … and the season [התקופה] of the year [?]…

and the season [?]… up to [עד] the head [ראש] [?] which you reckon [?]… [?]

Now [ועתה] we shall set down [נכתוב] [?] [Red ink: ועתה] for you the reckoning [?] of the [?] cycle [המחזור] [?]:

and the season [?] which falls [?] at the head [ראש] [?] of the year [?]… [?] you set it down [?] upon [על] the [?] count [החשבון] [?]…

the days [הימים] of [?] the season [התקופה] [?]… how [איך] [?] you reckon [?]… [?]

[Damage: ~2 lines illegible]

and the season [התקופה] [?]… and you set it down [ותכתב] [?]… upon [על] the [?]…

and the years [והשנים] [?]… and you set it down [ותכתב] [?]…

the eve [ערב] [?] of the seasons [התקופות] [?]… so this is the count [החשבון] [?]…

And a rule [וכלל] [Red ink: וכלל] [?]: …the eve-reckoning [?] of the seasons [התקופות] [?]… is what [?] your eye [עיניך] [?]… [?] you set down [תכתוב] [?] the eve-reckoning [?] of the seasons [התקופות] [?]…

[Damage: foot of column, ~3 lines; only "…the season [התקופה] [?]… up to [עד] the head [ראש] of the cycle [המחזור] [?]… for the eve [לערב] [?] of the seasons [התקופות]…" legible]

[left column]

[Damage: top ~6 lines of this column run through the water stain and are only partially legible.]

and you set it down [?]… in its place [?]… the season [התקופה] [?]…

and the count [?]… and the season [?]…

you take it up [ותקח] [?]… the season [?] of the year [שנה] [?], and you set it down [ותכתב] [?] for it [?]…

the cycle [המחזור] [?]… and the season [?]… you reckon [?]…

[Damage: stained band, ~2 lines]

for [כי] [?]… the season [התקופה] [?]… and afterward [ואחרי] [?]… you set it down [?]…

…the count [?]. And when [ואם] [?] the season [התקופה] [?] falls [?]… then [?] you reckon [?]…

in its place [?]… and you take it up [?] the season [?] of the year [שנה] [?], and you set it down [ותכתב] [?]…

the cycle [המחזור] [?]… and afterward [ואחרי] [?] you reckon [?] the years [השנים] [?] which [?]…

[Damage: ~2 lines]

and you set it down [ותכתב] [?]… upon [על] [?] the count [החשבון] [?]…

So [כן] [?] you do [תעשה] [?] in the count [בחשבון] [?] of the eve-reckoning of the seasons [ערב התקופות] [?].

the cycle [למחזור] [?]… for [כי] [?] thus [כן] [?] is the count [?]…

[Damage: lower portion of column degraded; partial words only.]

this is [זה הוא] [?] the count [החשבון] [?] of the eve-reckoning of the seasons [ערב התקופות] [?].

פרק ששי

[Red ink header: פרק ששי] — **Chapter Six** [Running gloss in red, partly faded: בתקן [?] שעות התקופות] [Red ink: …the determination [?] of the hours of the seasons]]

[Body of Chapter Six begins on p. 400.]

[right column (continuation / Chapter Six body)]

[Red ink, partly faded:] **…the Holy One, blessed be He [הקב"ה]** [?]… the [?] season [התקופה] [?]…

the count [?]… one [אחד] [?]… and the rest [והשארית] [?]… up to [עד] [?]…

the season [התקופה] [?]… and you set it down [ותכתב] [?]… in [?] the count [בחשבון] [?]…

and you take it up [ותקח] [?]… the season [?]… and the [?] count [החשבון] [?]…

and the years [והשנים] [?]… the [?] cycle [המחזור] [?]…

the season [התקופה] [?]… [?] and afterward [ואחרי] [?]…

And upon [ועל] [?] [Red ink: ועל [?]] … the season [התקופה] [?]… the hours [השעות] [?] of the season [?]… so [?]…

and afterward [ואחרי] [?]… you reckon [?]… the [?] count [החשבון] [?]…

[Damage: stained band across the middle of the column, ~4 lines; only scattered tokens — "…the season [התקופה] [?]… the hours [השעות] [?]… the count [?]…" — legible.]

the [?] season [?] up to [עד] [?]… [?]

and you set it down [ותכתב] [?] with them [בם] [?]… in the count [בחשבון] [?]…

The four [?] … the season [?] [?] which [?]…

and you take it up [ותקח] [?]… the season [?] of the year [שנה] [?], and you set it down [ותכתב] [?]…

[Damage: lower-right corner of column heavily stained, ~5 lines; partial words only — "…the cycle [המחזור] [?]… the season [התקופה] [?]… the count [החשבון] [?]…" — legible.]

the [?] season [?]… and afterward [ואחרי] [?]…

and you set it down [ותכתב] [?]… upon [על] [?] the count [?]…

פרק שביעי

[Red ink header: פרק שביעי] — **Chapter Seven** [Running gloss in red: בברורי דרך החשוב [?] על פי הלוחות ד' [Red ink: on the clarification of the manner of reckoning [?] according to the tables — 4 [?]]] [The trailing ד' may be a numeral ("four"/"the fourth") or an abbreviation; [?].]

That we have mentioned [שזכרנו] [?] [Red ink: שזכרנו] the count [?] in [?]… the [?] tables [הלוחות] [?]…

the cycle [המחזור] [?]… [?] this [זה] [?]… and the [?]… the season [התקופה] [?]…

And in this we have mentioned [ובזה הזכרנו] [?] [Red ink: ובזה הזכרנו [?]]: that we have explained [?]… this [זה] [?]…

and we shall set down [?]… the [?] count [?]… [Red ink, partly faded label-word — illegible [?]]

it shall be [יהיה] [?]… in the count [בחשבון] [?]… [?]… and you take it up [ותקח] [?]…

the year [שנה] [?]… up to [עד] [?]… that it shall be [שתהיה] [?]…

[Damage: ~3 lines along the stain]

and afterward [ואחרי] [?]… you reckon [?]… upon [על] [?] the count [החשבון] [?]…

the [?] season [התקופה] [?]… and the [?] cycle [המחזור] [?]…

And so [וכן] [?] you do [תעשה] [?] in the count [?]…

[Damage: middle of column, ~3 lines, water stain]

and you set it down [ותכתב] [?]… upon [על] [?] the count [?]… so [כן] [?]…

the season [?]… and afterward [ואחרי] [?]…

the cycle [המחזור] [?]… [?]…

[Damage: lower portion of column degraded.]

So this is [כן זה הוא] [?] the count [החשבון] [?]…

[left column]

[Damage: top ~4 lines run through bleed-through and staining.]

the season [התקופה] [?]… and you set it down [ותכתב] [?]… in the count [בחשבון] [?]…

And we said [ונאמר] [Red ink: ונאמר [?]]: …the [?]… the count [?]…

and you take it up [ותקח] [?]… the season [?] of the year [שנה] [?]…

the cycle [המחזור] [?]… and afterward [ואחרי] [?]…

[Damage: stained band, ~2 lines]

and you reckon [?]… the years [השנים] [?]… upon [על] [?] the count [?]…

the season [התקופה] [?]… and you set it down [ותכתב] [?]… for it [לו] [?]…

…that is mentioned [?]. And when [ואם] [?] the season [?] falls [?]… at the head [ראש] [?] of the cycle [המחזור] [?]…

you reckon [?]… in its place [?]… and you take it up [?]…

[Damage: ~2 lines]

the season [התקופה] [?]… and afterward [ואחרי] [?]… you set it down [ותכתב] [?]…

upon [על] [?] the count [החשבון] [?]… so [כן] [?] you do [תעשה] [?]…

[Damage: lower-left of column degraded; only scattered tokens legible.]

So this is the count [כן זה הוא החשבון] [?] of the eve-reckoning of the seasons [ערב התקופות] [?].

Yesod Olam — Book Five (Astronomical Tables)

Script: Sephardic semicursive, single primary hand, with red-ink (rubricated) structural markers, numeral-tokens, and a chapter heading. This hand's *ש* frequently loses its left stroke and resembles *ע* — all numerals read with that caveat and transcribed verbatim with `[?]` where the glyph is genuinely ambiguous.

General state: Both folios are severely degraded — heavy water staining across the gutter and lower regions, foxing, ink abrasion, and bleed-through. Large stretches are worked computational examples densely packed with red gershayim-marked numerals. Where the procedural prose is legible I translate it; where the running thread of numbers is abraded past confident reading I transcribe the legible tokens and flag the rest. This is a strong throughout.

Left column (continues the reckoning-by-the-tables procedure of Chapter Seven):

[Red ink: marginal/inline rubric, opening of column — partly legible: "…צא לך…" ("derive for yourself …")] [?]

and the remainder you have set aside, take it and [?] … the seasons (התקופות) [?] … [several lines abraded by the water stain at the column head — text loss, ~4 lines partly illegible].

[Red ink: rubric numeral] … [?]

If the remainder is [?] … so too [?] … derive for yourself [Red ink: numeral, " "ל"ב 32 =] [?] … and this is what remains [?] for it.

this being in the hour-reckoning of the seasons (שעות התקופות) of [?] … and the remainder is [Red ink: "25 = "כ"ה] [?]. Now take [Red ink: numeral] [?] for the remainder of the hours (שארית השעות) [?] and add (והוסף) [?] …

[Red ink: rubric] … Write down the season (התקופה) … [Red ink: "32 = "ל"ב] [?] … and this [?] is the remainder.

If the remainder is [?] … so too you compute (תחשוב) [?] … and write down [Red ink: numeral] [?] … the planet (הכוכב) [?] … and write down its course (מהלכו) [?].

and set down (וכתוב) the established figure (הכוון / החשבון) [?] which is the planets (הכוכבים), they being [?] … as you have written it down [?] … and add to it [?] … for the [?] of the planet (הכוכב) … and the remainder is [Red ink: numeral] [?] …

as for the manner (הדרך) by which [?] … is computed [?] …

[Red ink: rubric — "צא לך…" ("derive for yourself …")] [?]

the reckoning of the seasons (חשבון התקופות) [?] … and you take (וקח) the hours (השעות) [?] …

[Red ink: numeral "ל" "ז" / "ז"ל"] [?] — write down the season (התקופה) … [?]

The other figure (החשבון האחר) [?] … if the remainder is [?] … so too [?] … and the planet (הכוכב) … [?]

if it be (אם תהיה) [?] … and write down (וכתוב) its course (מהלכו) [?] and set it down [?] … which are the planets (הכוכבים), they being [?] … as you have written it (כתבת) [?] and add it (והוסף) to the [?] …

then in the manner (כדרך / כדי שתערוך) [?] … you have arranged [?] … which is [?] … the season (התקופה) [?] … and remember (ושמור) [?] … and afterward (ואחר) [?] …

[Lower ~4 lines of the left column abraded by the stain — text loss; legible fragments: "…אחר זה…" ("after this"), "…המעלה…" ("the degree"), "…הזה…" ("this") — remainder illegible.]

Right column:

[Top lines abraded by water stain — text loss, ~3 lines partly illegible: legible fragments "…החמה…" ("the sun"), "…תקון…" ("the correction / setting-right"), "…ויהיה…" ("and it will be").]

and the season (התקופה) [?] … and [?] … and it will be (ויהיה) [?] in the hours of the seasons (שעות התקופות) [?].

[Red ink: rubric] … And this [?] is the figure (החשבון) [?] for the sun (החמה) [?] …

and write down (וכתוב) [?] … the planet (הכוכב) [?] … its course (מהלכו) [?].

[Red ink: numeral] … this is the figure that you obtained [?] … the planet [?] …

If the remainder is [?] … then take (קח) [?] for the remainder (השארית) [?] … the [?] of the planet [?] and add (והוסף) [?] …

and this is the figure (החשבון) [?] … which is the [?] of the planet [?] … and the remainder is [?] …

[Several lines of dense worked numbers, abraded — legible red-ink tokens scattered: "…[32=] "…ל"ב…" ,[?] [25=] "…כ"ה [?], the recurring procedural verbs "take / write down / add / and the remainder is."]

[Red ink: rubric] … and now (ועתה) [?] … so too (וכן) [?] …

the season (התקופה) … you compute (תחשוב) [?] … and set it down (וכתוב) … the hours (השעות) [?] … and the remainder is [?] …

and this is the manner (וזה הדרך) by which the planets (הכוכבים) are computed [?] … with this figure (בחשבון הזה) [?] … and afterward (ואחרי) [?] …

[Lower ~5 lines abraded — text loss; legible fragments: "…המחזור…" ("the cycle"), "…השארית…" ("the remainder"), "…ושמור…" ("and keep / remember"), "…וזה…" ("and this").]

Left column — continues the worked reckoning before the chapter break:

and the figure (החשבון) [?] … so too you write down (תכתוב) [?] … this [?] … and the remainder is [Red ink: numerals, abraded] [?].

the season (התקופה) [?] … and from it (וממנה) [?] … and the correction (התקון) [?] … the hours (השעות) [?] … and write down [?].

[Red ink: rubric "צא…" ("derive …")] … take (קח) the figure (החשבון) [?] … for the planet (לכוכב) [?] … and add (והוסף) [?].

and the [?] … take it (קח אותו) [?] … and now (ועתה) [?] you write down (תכתוב) [?] … its course (מהלכו) [?] … this [?] … and afterward (ואחר) [?].

[Red ink: numeral, abraded] [?] … the figure for the planet (חשבון הכוכב) [?] … and the remainder (והשארית) is [?] …

then you arrange (תערוך) [?] … in the manner (כדרך) [?] … which is the figure (החשבון) [?] … and write down [Red ink: "32 = "ל"ב] [?] … and afterward (ואחר) [?].

[Red ink: rubric "ונאמר" ("And we say …")] [?] — the [?] … the planet (הכוכב) [?] … you compute (תחשוב) [?] … the cycle (המחזור) [?] …

and now (ועתה) [?] … the figure (החשבון) [?] … on the course (על דרך) [?] of the [?] … the [?] of the planet … and write down (וכתוב) [?] its course (מהלכו) [?].

[Lower ~5 lines abraded — text loss; legible fragments: "…מזל…" ("zodiacal sign / constellation"), "…מעלות…" ("degrees"), "…וזה…" ("and this"), "…המהלך…" ("the course"), "…המחזור…" ("the cycle"), "…תקון…" ("correction").]

Right column — opens with degraded prose, then a new chapter heading:

[Top ~5 lines abraded by water stain at the column head — text loss; legible fragments: "…תהיה…" ("it will be"), "…ויהיה החשבון…" ("and the figure will be"), "…ראש המחזור…" ("the head of the cycle"), "…על הלוח…" ("upon the table"), "…השארית…" ("the remainder").]

and write down (וכתוב) the figure (החשבון) [?] … so too [?] … and the remainder is [?] … the [?] … upon the table (על הלוח) [?].

[Red ink header:] **פרק שביעי — Chapter Seven**

[Red ink subtitle:] **On the manner of reckoning according to the tables (החשוב על פי הלוחות).**

> **Editor's note on numbering:** The body heading is rubricated **"פרק שביעי" ("Chapter Seven")**. The prior batch (200) already identified "Chapter Seven" (פרק שביעי) as the chapter on "the manner of reckoning according to the tables (דרך החשוב על פי הלוחות)." Either this is the *true* display heading of that same chapter — the preceding folios being its already-running body — or this hand repeats/re-displays the rubric. Reported verbatim; resolution at reconciliation. The פרק/שער shared counter continues.

There is yet (ועוד יש) a method (דרך) [?] for the reckoning [?]. [The opening procedural sentence is degraded; legible fragments: "…כמו שנתבאר…" ("as has been explained"), "…היה לך…" ("you have"), "…להבין…" ("to understand").]

the figure (החשבון) [?] … you reckon (תחשוב) [?] … the planet (הכוכב) [?] … and add to it (והוסף עליו) [?] … and afterward (ואחר) [?] … so too (וכן) [?] you compute (תחשוב) [?].

and from it (וממנה) you take (תקח) [?] … the [?] … which is [?] … and now (ועתה) [?] take it (קח אותו) [?] …

[Red ink: numeral] [?] — if the figure (אם החשבון) [?] … so too [?] … from before it (מפניו) [?] … and now (ועתה) [?] … this is the way to know it (לדעת אותו) [?].

Take (קח) the [?] … the figure (החשבון) [?] … upon the table (על הלוח) [?] … and write down (וכתוב) [?].

if (אם) it [?] … this season (התקופה הזאת) [?] … so too you take (תקח) [?] for the figure (לחשבון) [?] which is the [?] of the planet (הכוכב) [?] … and add it (והוסף אותו) [?] …

[Several lines of dense worked numbers, abraded — legible red-ink tokens scattered, the recurring "take / write down / add / and the remainder is" template.]

then you arrange (תערוך) [?] … this figure (החשבון הזה) [?] … upon the table (על הלוח) [?] … and write down (וכתוב) [?] its course (מהלכו) [?].

[Red ink: numeral "25 = "כ"ה] [?] … so too (וכן) [?] … the figure (החשבון) [?] … and the remainder is (והשארית) [?].

and write it down (וכתוב אותו) [?] … and afterward (ואחר) [?] … so too (וכן) [?] from it (ממנו) [?] … the figure (החשבון) [?] … the planet (הכוכב) [?] … and add (והוסף) [?] … and now (ועתה) [?].

this [?] for the planet (הכוכב) [?] … and the remainder (והשארית) [?] … and write down (וכתוב) [?] this figure (החשבון הזה) [?].

[Lower ~4 lines abraded — text loss; legible fragments: "…מהלך…" ("course"), "…התקופה…" ("the season"), "…ונאמר הדרך הזה…" ("and we state this method"), "…בזכרון החשבון…" ("in recording the figure"), "…המחזור…" ("the cycle").]

Yesod Olam — Book Five (Astronomical Tables)

Vatican Library, Vat.ebr.380. Sephardic semicursive hand. Black body ink with red rubrication for chapter headings and structural labels. Both pages are in two-column layout and are heavily affected by water-staining, foxing, and ink bleed-through; the central portion of each page (where the diagonal Vatican watermark and the worst staining coincide) is the most degraded. Several letter-numerals are recoverable only by prose-pinning against the surrounding computational template, which recurs across this stretch of Book Five.

[foliation "199" in upper-left margin]

Left column (conclusion of the preceding chapter — a worked example of reckoning a planet's mean position from the tables):

[?] the figure (החשבון), and you take what is set down beside it [in the column], and you arrange (תסדר) it upon the table (על הלוח), and the remainder (השארית) is [?] as we [explained].

[Red ink: ראש החכמה] [= "The Head/Beginning of the Reckoning," rubricated marginal-style label] [?]

[Red ink: כ"ב] [= 22]

He [the author] continues: when you wish to know the figure for any [given moment], take what stands [in the column] and set it down, and join (וחבר) it to the figure (החשבון) [?]. The remainder (השארית) you arrange upon the table, and that is [the answer] [?].

When [the figure of] the radix (השורש) is [?], and you have set down beside it what corresponds to it [?], then you take what is written and join it to it, and arrange it upon the table.

[Red ink: קל"א] [= 131] [Interlinear/marginal red numeral; the body line just above names a value, which pins this as 131; the gershayim sits between the last two letters — note the alternative ק"ל = 130 if the gershayim is read one position earlier.] [?]

He continues: [?] the [hour-]fractions (החלקים), [?] the seconds (השניות), and what remains [over] is [?], and you arrange it upon the table, [taking] what is written [there].

[Red ink: קל"ב] [= 132] [?] — [Red ink: כ"ב] [= 22] — [the body line again pins a value beside the red numeral.]

And in this way (וכן הדרך) you [proceed] for any planet (כוכב), to know its mean motion (מהלכו האמצעי) [?].

[Red ink: קל"ב] [= 132] [Red ink: כ"ב] [= 22] [?]

[Red ink: ל"ב] [= 32] He continues: and take the figure (החשבון), [and what is] beside it [?], and arrange it [?]. The radix (השורש) [?] which [stands] upon the table [?].

When this [?] is the figure (החשבון) [?], you arrange (תסדר) it upon the table [?], and that is [the answer] [?].

Right column (continues, then opens a new chapter):

[?] and that is [the figure]. [?] the figure (החשבון) [?] arrange it [?].

[Red ink: ב] [= 2] He continues: the [?] [?].

[Damage: water stain across upper right column; ~4 lines partially legible.] …and write down (וכתוב) what stands [in the column], and join it to [?], and the remainder (השארית) is [?]. [?] hour[s] (שעות) and [?] [hour-]fractions (חלקים) [?].

He continues: the figure (החשבון), [?] arrange it upon the table, [taking] what stands [there]. [Red ink: כ"ה] [= 25] (interlinear: ויש) [?]

[Red ink: א] [= 1] [Red ink: ל"ו] [= 36] [?] — He continues: arrange (תסדר) it upon the table, and what is written [there], the seconds (השניות) [?] [taking] what stands [in the column].

He continues: take the figure (החשבון), [?] and join (חבר) it [?], and the remainder (השארית) [you arrange] upon the table. The hour-fractions (החלקים) [?].

[Red ink: ל"א] [= 31] He continues: [?] which [is] beside it [?] arrange it [?], and that is [the answer] [?]. [?]

[?] the three [?] [?]. And when [?] arrange it [?].

[Red ink: ב] [= 2] [Red ink: ל"ב] [= 32] [?] He continues: this is the figure (החשבון) [?] which [is] upon the table [?] the seasons (התקופות) [?] you set down [?]. [?]

And after this [proceed] for any planet (כוכב). [Red ink: ב] [= 2] [?] [Damage: ~2 lines faded.] …the mean [motion] (האמצעי) [?] of the moon (הירח) [?] in [?] the season (התקופה), [?] and you set down (ותכתוב) the figure (החשבון). [?]

[?] [Latin/Romance numeral or marginal mark, illegible] [?]

[Red ink:] פרק תשיעי

Chapter Nine — [Red ink, continued, as running rubric in the heading line:] בדרור דכך [?] [the rubric line beside the chapter title is faded; the legible words read "in the [?]"] — **on the correction (תקון) [of the planetary positions]** [the next red line:] [Red ink: תקון חמה] [= "the correction of the Sun"] [?]

[Red-ink lemma / chapter incipit:] והירח כדי לדעת ולהכיר מקומם האמיתי במעלות לפי עת וזמן שתהיה [= "and the Moon — in order to know and recognize their true position (מקומם האמיתי) in degrees according to whatever moment and time it may be"].

He now begins (ועתה נאמר): take the figure (החשבון) [?] of the season (התקופה) [?] [Red? interlinear: יחמה] [?], and place the figure (החשבון) [?] in degrees (במעלות) [?] for whatever moment it may be (לשום עת) [?].

Left column (continues Chapter Nine, then opens Chapter Ten):

[?] the figure (החשבון). And when it is set down [?], to know [?] the position (המקום) [?] and the seasons (התקופות) [?]. [?] the table (הלוח) [?] [Red ink: כ"ג] [= 23] [?].

The position (המקום) [?] [?]. He continues: when [?] degrees (מעלות) [?], how many [?] [?] [Red ink: כ"ב] [= 22] [?] arrange it upon the table [?].

[Red? ל"ב] [= 32] [?] the seconds (השניות) [?] take [?], and join (וחבר) it [?], and the remainder (השארית) [?] [you arrange] upon the table [?]. The hour-fractions (החלקים) [?].

[?] when [?] [?] the figure (החשבון) [?] [?], and that is the position (המקום) [?]. [?]

When the radix (השורש) [?] is [?] beside it [?], take what is written and join it [?], and arrange (תסדר) it upon the table.

He continues: and [proceed] thus (וכן) for [?] [?]. [Damage: ~3 lines, lower-left, water-stained and faded — same template, numerals [?].]

[Red ink:] פרק עשירי

Chapter Ten — [Red ink, heading rubric line:] בלמוד דכך [?] [faded subordinate rubric beside the title] — **on the [reckoning of] the seasons (התקופות) [as] set down (לתקן)** [?].

[Red-ink lemma / chapter incipit, two lines:] עתה הקבוצות האמתיים והקומס [?] / התמורות והקומס מהמועדות מאמת [?] [the second red line is badly faded; the legible terms are "the true conjunctions (הקבוצות האמתיים)," "the [?]," "the turnings/transformations (התמורות)," and "the appointed times (המועדות)"]. [?]

[the red incipit continues, faded; "…[?] before יורה קדם פנייהם ירדם [?] ונגד לחשוב [?], to reckon (לחשוב)…"] [?]

[= "and to know and establish (ויכון) what the ולדעת ויכון השעה מתה מה היא [?] תקן hour is [?], set it down (תקן)"] [?].

He now begins (ועתה נאמר): the figure (החשבון) — take [?] beside it — by [?], to know [?]. [?]

[Red? ל"ד] [= 34] [?] He continues: when [?], the time (העת) [?] of the conjunction (הקבוץ) [?], how many (כמה) hours (שעות) [?] and how many [hour-]fractions (חלקים) [?]. [?]

[Damage: mid-left column, ~3 lines, water stain.] …the conjunctions (הקבוצות) [?] the appointed times (המועדות) [?] arrange them upon the table [?].

He continues: take the figure (החשבון), [?] beside it [?], and join (חבר) it [?], and the remainder (השארית) is [?]. [?] [Red? כ"ב] [= 22] [?] and how many [?].

Right column (continues — a worked example of reckoning the true conjunction / appointed times):

[Header-style red rubric line at column top, faded:] [Red ink: ?] · וכוון [= "…and direct/establish (וכוון)"] [?].

He continues: take the figure (החשבון). [?] [Red ink: ה] [= 5] [?] [Red ink: כ"ב] [= 22] to know [?] its position (מקומו) [?]. [Red? נ"ב] [= 52] [?] take the figure [?] for whatever moment it may be (לשום עת) [?].

When [?] [?] the figure (החשבון) [?] beside it [?] the season (התקופה) [?] [you arrange] upon the table [?].

He continues: take [?] the radix (השורש) [?] [Red? ל"ב] [= 32] and join it [?] [Red? ל"ב] [= 32] [?], and the remainder (השארית) [you arrange] upon the table [?] the hour-fractions (החלקים) [?] the seconds (השניות) [?].

When [?] [?] the figure (החשבון), [?] take [?] beside it, and join (וחבר) it [?], and the remainder (השארית) [?] arrange it upon the table [?]. [?]

He continues: [?] the season (התקופה) [?] [?] arrange it [?], and that is [the answer] [?]. [Red? ל"ב] [= 32] [?]

[Damage: ~2 lines, mid-right, faded.] …the appointed times (המועדות) [?] beside it [?] [?].

He continues: when [?] [?] arrange (תסדר) it upon the table [?], and that is the position (המקום) [?] of the conjunction (הקבוץ) [?]. [?]

[?] and [proceed] thus (וכן) for any [?]. [?] take the figure (החשבון) [?] arrange it upon the table [?], and how many [?] [?].

[?] [Damage: lower right column, ~4 lines water-stained and faded; the closing lines of the worked example. The phrasing follows the same "take the figure / arrange upon the table / the remainder is" template; numerals not securely legible. ~4 lines [?].]

Yesod Olam — Book Five (Astronomical Tables), Chapter Ten (continued)

*Vatican Library, Vat.ebr.380. Sephardic semicursive hand. *

Editorial note on this batch. Both folios are severely degraded — extensive fading of the iron-gall ink, water staining and foxing across the leaf, the standard Vatican watermark overlay, and heavy bleed-through from the facing side. Many lines are legible only in part. The matter remains continuous discursive prose on the reckoning of true conjunctions (הקבוצות), turnings (התמורות), and the appointed times (המועדות) by means of the tables; **no numeric table (לוח) has yet begun in this batch.** Readings are transcribed conservatively, with `[?]` reserved for genuinely doubtful glyphs after prose-pinning. Several stretches are flagged as

Right column

and there are other [parameters] that differ. For when the true conjunction (הקבוצה) [?] precedes [?]… the appointed time [?]…

Therefore, in this case, if [?]… then this [?] is the conjunction (הקבוצה) [?]… when [?] the position [?] in its [proper] place… and the matter [?] is established [?].

[Several lines here are too faded to recover with confidence — `[?]`.] …the position of the conjunction in [?]… and you shall reckon (תחשב) [?]…

[?] for every [?] true position [?], you place [?] the other [?] [against] the position [?]. Examine [?] it [?] against the position of the [mean?] conjunction [?]…

and from this [?] there will follow [?] from [?] the place [?]… and there is no [?]…

and you shall reckon (תחשב) the true position (מקומם האמיתי) [?]… until [?] the conjunction (הקבוצה) [?]…

The position [?] of the conjunction (הקבוצה) [?] — examine [?] it… and likewise [?] the [?] conjunction [?].

[?] in this manner [?] the reckoning (החשבון) [?]…

[A run of ~6–8 lines in this column is effectively illegible from fading and bleed-through — `[?]`.]

Left column

and now (וְעַתָּה) [paragraph marker] [?]… the reckoning [?] in the table [?]…

that which [?] you have [already] reckoned [?]… and in this [?] the position [?]…

for [?] [the table] which [?] is [?] for you [?] yields [?]… the position [?] in [?] its place [?]…

and there [?]… the position [?] [?]…

[Mid-column lines faded — [?].]

in the table (בלוח) [?]… you shall enter [?]… you shall take [?] the position [?] [?]…

and there [?] the position [?] is [?]… that which [?]…

[Lower portion of column: ~5–6 lines illegible — [?].]

Right column

[Red ink: <incipit / structural lead-in, ~3 lines at the top of this column — heavily faded red iron-gall, far more degraded than the adjacent black text; not recoverable letter-by-letter>] [?]

[?] gate (שער) [?]… and now (וְעַתָּה) [?]…

[?] the position [?]… therefore [?]… the position of the [?] [conjunction?] [?]…

and [?] [?]… the reckoning [?]…

And now (וְעַתָּה) [paragraph marker] you already know that [?] the true position [?] in this [?]… [?].

The reckoning [?] and the procedure (המשפט) [?] for the reckoning (/ [?] לתקן לחשב [?]) [?].

and the [?] table [?] there is no [?]… for [?]… [?]…

the procedure [?], that the [?] true [?] [?]… you shall take [?]… in [?] [?]…

the position [?] of the conjunction (הקבוצה) [?]… examine [?] it [?]…

[?] the position [?] in the [?] reckoning [?]… and [?]…

[Several lines faded — [?].]

the table [?] is established (קיים [?]) [?]… and [?]…

the table [?] [?]… and these [?] [are the parameters / are for]… [?]…

and there [?] the position [?] is established [?]…

[?] upon [?] the position [?] of the conjunction (הקבוצה) [?]… and [?]…

[?] the position [?]… and you shall reckon [?]…

[Lower lines faded — [?].]

Left column

The procedure [?] of this [?]… and you shall reckon [?]… in this chapter (בפרק [?]) [?]… [?].

[?] now [?]… the position [?]… and the procedure (המשפט [?]) [?]… [?].

And now (וְעַתָּה) [paragraph marker] [?] — better [?] [for you?]…

[?] you shall do [?] [?]… and [?]…

So [?] the reckoning [?], the [?] reckoning [?]… [?] until [?]… the position [?]…

upon [?] the conjunction [?]… and you need [?]… [?] for [?] establishing the position [?]…

[?] the [?] of the table [?]… in this [?] reckoning [?]…

[?] the position [?]… the conjunction (הקבוצה) [?]… and you shall know [?] the position [?]…

[Mid-column lines faded — [?].]

and upon [?] this [?] the reckoning [?]…

[?] [?]… and you shall take [?]…

[?] in this [?] way [?]… the position [?]…

[?] established [?]… [?] until [?] the position [?]…

the conjunction [?]… and likewise [?]…

[Lower portion: ~6 lines illegible — [?].]

`` [?]

`` [?]

Yesod Olam — Book Five (Astronomical Tables)

Manuscript witness: Vatican Library, Vat.ebr.380, Sephardic semicursive hand. Both folios in this batch are heavily damaged by a large water stain that covers the central third of each page, plus edge wear at the outer margins. Faded iron-gall ink throughout. The red-ink rubrics survive better in some places than the black body text they head. Numerals are transcribed verbatim with `[?]` wherever the glyph is genuinely ambiguous after applying prose-pinning.

[Book Five, continuation of Chapter Ten]

[Right-hand column]

[Damage: water stain across upper-center, ~4–5 lines partly lost] …the position which you have reckoned for the conjunction (מולד), and the equation (תקון) of the planet from the table; place the [planet's] true position (מקומו האמיתי) [?] in its place… [Damage: ~2 lines lost to stain]

And when you have done this, you will know the true position of the moon (הירח) at the conjunction by means of the table (הלוח), as I have explained to you. For the same procedure (המשפט) [?] applies to the sun (חמה) and to the moon alike at the appointed time (המועד)… [Damage: stain]

Know that you have already learned [?] the matter of the equation (התקון) which is added to or subtracted from [?] the mean motion (מהלך אמצעי), so as to bring out the true [position]… The equation (התקון) [?] which is for the moon [?] you take and add it [?] … [Damage: ~2 lines lost]

I have already explained to you that the equation (התקון) of the moon (הירח) at the conjunctions [?]… and that you should add [?] or subtract [?]… so as to set straight (להוציא) [?] the true position (האמיתי)… [Damage: stain across mid-column, ~3 lines partly lost]

And the procedure (המשפט) [?] for it is according to that which I have set down for you [?]. Now I shall explain [?] the matter of [?] … and the appointed time (המועד) [?]… [Damage]

Therefore [?] take the position [?] which comes out for you upon the table (על הלוח), and you shall do with it as I have explained to you [?]; and this is sufficient [?] for this chapter (לזה הפרק) [?]. And [Damage: ~1 line, transition to chapter heading]…

[Lower right — red-ink chapter heading:]

[Red ink: פרק אחד עשר — Chapter Eleven]

[Below the heading, a small two-line note, partly in lighter/secondary ink:] [Interlinear / sub-rubric: תקון מולד / [?]בלחוד דק — "…the equation of the conjunction (מולד)" [?]]

[Left-hand column — continuation of the chapter / its opening matter]

[Damage: stain across upper-center of column, ~3 lines lost] …in this manner [?]… upon [?] … the position [?]… [Damage]

[?] the first [?] …And take with it [?] … just as [?] you have placed [?] the [planet's] position [?]… [Damage: ~2 lines]

and you reckon [?] for the [first] equation (התקון) [?] … and the second [?] … so [?] that there comes out [?] … the [true] position (מקומם) [?]… [Damage]

the moon (הירח) [?] … and you take [?] … the position [?] of it … [Damage: stain, ~3 lines lost]

that [?] from [?] this [?] … and you reckon [?] this [?] … so [?] [Damage]

[Damage: ~2 lines lost to stain] …and you shall know [?] this [?] … And take the equation (התקון) [?] … so that there comes out [?] the true [position] (האמיתי) [?]… [Damage]

This [?] is what I [?] … And [?] you place [?] … the position [?] … [Damage to lower margin]

[Most of this left-hand column is obscured by the water stain and faded ink; the legible fragments confirm it continues the procedural instruction (המשפט) for reckoning equations and true positions via the tables, but the connected sense cannot be recovered at this resolution. Flagged as a]

[Book Five, continuation]

[Right-hand column]

[Damage: water stain across upper-center, ~4 lines partly lost] …and [?] …the position [?] … and there is no [?] … in this [?] … [Damage]

the moon (הירח) [?] … and you reckon [?] … and you place [?] … so that there comes out [?] … the position [?]… [Damage: ~2 lines]

and you take [?] the equation (התקון) [?] … and you place it [?] upon [?] … the position [?] … so [?]… [Damage: stain]

[Red ink rubric, mid-column:] [Red ink: ונאמר — "And we say"]

[Heading line, red ink:] [Red ink: הרחב — "the breadth/expanse" [?]]

[Damage: stain across the rubric region, ~2 lines partly lost] …the equation (התקון) [?] … from [?] this [?] … or six [?] [Hebrew numeral, ש ד ע [?] — reading uncertain; see report] … [Damage]

[?] take the position [?] which is [?] … upon [?] the [?] … and you reckon [?] … with [?] it [?]… [Damage]

the [?] … and you place [?] … and there comes out [?] … [Numeral [?]] … [Damage: stain]

the moon (הירח) [?] … upon [?] the position [?] … and you reckon [?] … with [?] it [?] … [Damage: ~2 lines]

and you place [?] … the position [?] … so that there comes out [?] for you [?] … [Damage: stain across mid-column]

[Red ink word, lower mid-column:] [Red ink: עוד — "further / again"]

and the moon (הירח) [?] … the equation (התקון) [?] … and you place [?] … upon [?] … [Damage]

take [?] … [Numeral [?]] … and you place [?] … so that there comes out [?] the position [?] … and if [?] … the moon [?]… [Damage: stain, ~2 lines lost]

the [?] … the equation (התקון) [?] … from [?] this [?] … and [?] [Damage]

[?] there comes out [?] … the position [?] … [Numeral [?]] … and you place [?]… [Damage to lower margin]

[Left-hand column]

[Red ink rubric at head of column:] [Red ink: ועתה אבא — "And now I shall come (to)…" [?]]

[?] to that which [?] … the equation (התקון) [?] of the position [?] upon the table (על הלוח) [?]… [Damage: stain across upper-center, ~3 lines partly lost]

and you reckon [?] … with [?] it [?] … the position [?] … so [?]… [Damage]

take [?] the equation (התקון) [?] … and you place it [?] … upon [?] … the position [?] … [Damage: ~2 lines lost to stain]

the moon (הירח) [?] … and you reckon [?] … and you place [?] … so that there comes out [?] … [Damage]

[Damage: stain, ~3 lines lost] …the position [?] … and the equation (התקון) [?] … so that there comes out [?] the true [position] (האמיתי) [?]…

and you place [?] … upon [?] the table (הלוח) [?] … and you reckon [?] … [Numeral [?]] … [Damage]

And take [?] the position [?] … the moon (הירח) [?] … and you place [?] … so [?]…

]

[The bulk of both columns on this folio is illegible owing to the central water stain combined with faded ink; the surviving fragments confirm continuation of the same procedural matter (the equations התקון, the moon's position, reckoning via the tables) but no connected passage can be recovered. Flagged as a]

Yesod Olam — Book Five (Astronomical Tables)

Manuscript: Vatican Library, Vat.ebr.380, Sephardic semicursive hand. Both folios in this batch are heavily affected by water staining and a dark gutter shadow that crosses the central text block; contrast is poor and many letters are uncertain. The diagonal Vatican Library watermark and bleed-through from the facing folio are ignored throughout.

This folio carries the manuscript's two-column layout (logical right column, then left column). The right column is the more heavily stained; the left column opens with a red-ink chapter rubric.

Right column (read first):

[?] the matter upon the molad, and we shall show how to bring out the true position [?]. And he was [?] [Red ink: ועתה — "And now"] [?] one [?] here [?] [the matter] of the reckoning.

When you wish [?] [?] he shall set the moon's [?] from the table, and you shall take what is opposite it [?] the days of the [?]. You should multiply [?] [?] the chalakim of the hour [?] and what [?] [?] the [?] this is [?].

[The following several lines run through the darkest part of the gutter stain and are largely illegible. Individual confident words: מולד ("molad"), חלקים

("chalakim/parts"), הלוח ("the table"), האמצעי ("the mean"), שעות ("hours") — but no continuous sense can be recovered.]

the position [?] when [?] the remainder [?] the moon [?] [?]. And if the [?] is [?] from the table, take [?] [?] [?] and [?] the [?].

the [?] when the latter [?] [?] [?] the hours [?] [?]. And we have already explained the [?] of the position [?] [?] the days [?] [?].

[Several further degraded lines. Recoverable tokens: התקופה ("the tekufah"), מקומם האמיתי ("their true position"), המשפט ("the rule/judgment"), חלקים, שעות.]

[Red ink: שער — "Gate"] [?] [?] [is the number].

[?] the position [?] [?] [?] [?] for the days of the [?].

Left column:

[Red ink, opening rubric — display line, partly faded:] **נאמר עתה עשר [?]** — *"We shall now state [the …]"* [the numeral following the rubric is degraded; this appears to be a new chapter/gate division within Book Five, continuing the שער/פרק shared counter. See QA report — body heading recorded verbatim and flagged.]

[Red ink: פרק — "Chapter"] [?]

[Red ink: continuing rubric, ~3 lines, much faded:] You must [?] in the reckoning [?] the molad [?] before [?] [?] this position, [?] [?] [?] which [?] of the matter [?] and [?] you shall return [?] the reckoning [?] [?]. [End red ink.]

We have said in the [?] of the reckoning that [?] in [?] [?] the [?] [?] [?], and [?] therefore [?] you should [?] the position [?] [?].

And [?] [?] [?] [?] the reckoning [?] [?] [?] for them [?]. And he set [?] [?] [?] in [?] [?].

And this [?] you [?] the [?] to them, the position [?] which [?] [?] them [?] [?]. And [?] [?] [?] [?].

When [?] the position [?] [?] [?]. And in [?] [?] [?] [?] [?] [?]. But [?] [?] the [?] [?] [?].

[?] when [?] [?] [?] [?] the days of [?] [?]. And the position [?] [?] [?] is [?] [?] [?].

[?] [?] [?] [?] [?]. And [?] [?] [?] [?] the [?]. And he [?] [?] [?] the position [?] [?] [?].

Two columns again; the dark gutter shadow now falls on the left side of the right column and the right side of the left column, obscuring the central join. Foxing at the lower-left corner.

Right column (read first):

[?] and also [?] the days of the months [?] and [?] the days [?]. And these [?] [?] [?] of the days [?] [?].

The [?] [?] before [?] [?], and [?] [?] [?]. And he [?] [?] the [?] [?].

[?] [?] the position [?] in [?] [?] [?] and [?]. And after [?] [?] [?] [?] [?] them [?] [?].

[Several lines through the stain — illegible run. Confident tokens: מקום ("position"), חמה / השמש ("the sun"), הירח ("the moon"), מעלות ("degrees"), חלקים ("chalakim/minutes").]

[?] the moon [?] [?] [?] the position [?] [?] [?]. And [?] [?] [?] of the degrees [?] [?] the position [?] [?].

and so [?] [?] [?] [?] [?] [?]. And [?] [?] [?] [?] [?] [?] [?] [?] degrees [?] [?] [?] [?].

[?] [?] [?] [?] and [?] [?] [?] [?] [?] [?] [?] this [?].

[Red ink: ועתה — "And now"] [?] [?] [?] the days [?] [?] [?].

[?] [?] [?] [?] [?]. And in [?] [?] [?] [?] [?] [?] [?].

Left column:

[Several opening lines run through the gutter stain.] And [?] [?] in [?] [?] [?] degrees and [?] chalakim [?] [?] [?]. And [?] [?] [?] [?] [?].

[?] hours [?] [?] [?] [?] [?] [?] [?]. And [?] [?] [?] [?] [?] [?] [?] [?].

[?] [?] [?] [?] [?] he [?] [?] the table [?] [?]. And [?] [?] [?] [?].

[Several degraded lines. Recoverable tokens: לוח ("table"), חלקים, שעות ("hours"), מהלך אמצעי ("mean motion"), הקבוצות.]

[?] [?] [?] [?] [?] [?] [?]. And he [?] [?] [?] [?] [?] [?] [?].

[?] [?] [?] the reckoning [?] [?] [?]. And [?] [?] [?] [?] [?] [?] [?] [?].

[?] [?] [?] [?] [?] [?]. And [?] [?] [?] [?] [?] of the position [?] [?] [?] [?].

[Lower lines lost to foxing and stain.]

Book Five (מאמר ה), astronomical-tables section. Sephardic semicursive hand. Heavy water damage, foxing, and bleed-through throughout; the right-hand columns of both leaves are severely stained and only partially legible.

[Vatican librarian note: "203" pencilled at the upper-left margin (foliation).]

Left column (continues the procedure from the prior batch)

and likewise [you shall do] when you wish to know the position at a given moment, after [you have done] thus-and-so. [?] And the principle of the matter [?]: when the [computed] figure comes out [?], hold it [?]; for it is the true position [?]. [Several lines here are abraded by the water stain at the column's upper region — only isolated words ("the position," "the reckoning," "the moon," "the sun") are recoverable; `[?]` for the connective sense.]

and if [the value] you sought [?] exceeds [?] the [tabulated] entry, subtract from it [?]; and what remains [?] is the corrected figure [?]. [?]

And so [וכן] do for the [mean] motion [מהלך אמצעי]: take the radix [שורש] for your [chosen] moment [?], and add to it the motion accumulated [?] from the radix up to that moment, and the sum is the mean position [מקום אמצעי] [?].

[A run of lines treats the working-out of the planets in turn — the partial words "the degrees" (המעלות), "the minutes" (החלקים), "and you shall add" (ותוסיף), and the planet-letter abbreviations are visible, but the full sense of each clause is lost to the stain — `[?]`.]

the corrected position [המקום המתוקן] [?]; and if it falls [?] short [?], then [?] add [?] the [?] … and that is the rule [וזהו הכלל] [?]. [?]

[Lower-left column, several lines on apportioning the figure across "the columns" (הטורים), with "and the remainder" (והנשאר) and "you shall keep" (תשמור) recoverable; intervening clauses `[?]`.]

whether [?] it be [?] the [solar?] tables [הלוחות] or the lunar tables [?]; the corrected [figure] [?] is the corrected figure [?]. [Roughly one line lost at the column foot to abrasion — `[Damage: water stain, ~1 line effaced]`.]

[Red ink header — display rubric, lower-left column:]

פרק שלשה עשר — Chapter Thirteen

[Red ink: "**פרק שלשה עשר**" — the chapter number is written out in full and is legible; "פרק" ("chapter") at the head. Beside / above it a small red marginal word, possibly a foliation or "פרק" repeated — [?].]

[Red ink, the rubric's opening sentence (two lines, red):]

[Red ink:] A reckoning [חשבון] [?] concerning [על דרך?] the [solar?] tables [הלוחות] [?], for the conjunction [למולד?] [?] and the [true] position [?] of the day [?] you stand in [?]; [?] the radix [השורש] [?] thus [?] … [?]

[The red rubric ink has faded more than the adjacent black (red iron-gall fades faster); several words within these two red lines are recoverable only in part — [?]. The chapter evidently opens the procedure for deriving conjunctions and true positions directly from the tables for the date on which one stands.]

Right column (red rubric block at top, then black body)

[Red ink, opening block — roughly the first six lines of the right column are in red and constitute a display rubric. The red has badly faded against the brown water stain that covers the upper-right quadrant; the transcription below is partial.]

[Red ink:] Afterward [אחר כך?] [?] … a complete [שלמה?] year [שנה] … the years of the world [שנות העולם] [?]. And if [ואם] [?] … remains [נשאר?] … [?] a year [שנה] … the conjunction [מולד?] [?]. [?] And how [וכמה?] the years [השנים] complete [נשלמים?] … [?] take [קח?] [?]. [?] … the days [הימים] [?] … you shall add [תוסיף?] … to it [?] [?]; [?] and the day [?] of the [first?] conjunction [?] [?]. [?] And if [ואם] there be [יהיה?] [?] over [?] … to the conjunction [למולד?] [?] of [?] … years [?] [?]; [?] and so [וכן] the [accumulated?] motions [?] complete [נשלמים?] in the reckoning [בחשבון?] of the new-moon[s] [?] [קדמות?] [?]. [?]

[Damage: water stain, upper-right quadrant, ~6 red lines reduced to isolated words. This red block is structurally important (it appears to open or sub-head the conjunction-reckoning procedure) and is a]

[Black body, right column, resuming below the red block:]

In its construction [בבנינו?] [?]: take [קח?] the figure [?] [?] for the conjunction [למולד?] [?] of the year [?] [?]. [?] … one [?] … and [?] … [?]. [?]

[The black text here is somewhat clearer than the red above, but the central portion of the column sits under the densest part of the stain; clauses about "take" (קח), "and add" (and the result), "the days" (הימים), and "the moon" (הלבנה?) recur, but full sense is lost — [?].]

and you shall keep [ותשמור?] [?] what comes out [?]; [?] and that [?] is the [corrected?] conjunction [?] for that year [?]. [?]

[Mid-column, several lines treating the carrying-forward of the figure: "and the remainder" (והנשאר?), "the columns" (הטורים?), and a repeated "and so" (וכן) are recoverable; the connective sense between them is [?].]

and the position [והמקום?] [?] true [האמיתי?] [?]; [?] the corrected conjunction [המולד המתוקן?] [?]. [?]

[Lower-right column, partly clear of the stain:]

And if [ואם] [?] there remain [ישאר?] [?] to you a fraction [?] [?], add [הוסף?] it [?] to the figure [?], and that is the rule [וזהו הכלל?] [?] — [?]. [Roughly the final two lines of the right column are recoverable only as scattered words — [?].]

Left column (p. 412) — black body throughout

[The left column is the least damaged region of the batch, though foxing along the outer margin clips line-ends. The text continues the conjunction-and-position procedure.]

The [tabulated] figure [?] for its place [מקומה?] [?] is [?] … [?]; and the [accumulated] motion of the table [?] — whether it be [?] more [?] or less [?] — [?]. [?]

and the table [הלוח] [?]: take from it [קח ממנו?] [?] the figure [?] for the day you stand in [?], and add to it [?] [?] the [accumulated] motion [?] from the radix [?] up to [?] [that day]; and the sum [?] is its mean position [?]. [?]

or [או] it may be [?] … [?]; [?] and you shall keep [ותשמור?] [?] [?] in your hand [בידך?] [?]. [?]

And likewise [וכן] [?] do [תעשה?] for the rest of the planets [?]: [?] take [קח?] for each one [?] [?] the figure [?] of its table [?], and proceed by this [?] reckoning [החשבון?] [?]. [?]

[A run of lines names the planets in turn — the planet abbreviations (and the recoverable words "the sun," "the moon," "Saturn," "Jupiter," "Mars" as letter-abbreviations) appear, but each clause's full content is [?].]

and that [?] which [?] comes out [?] for you [?] is the corrected position [המקום המתוקן?] of that planet [?] [?]; and that is the rule [וזהו הכלל] [?].

[Mid-left column:] And he said [?] [ואמר?]: when [?] you wish [?] to know [?] [?] the position [?] [?] at the moment [?] [?], do [?] thus [?] … [?]. [Several lines [?].]

[Lower-left column, somewhat clearer:]

[?] and if [ואם] [?] you found [מצאת?] [?] the figure [?] [?] greater [?] than [?] the [tabulated] entry [?], subtract [גרע?] [?]; and what remains [?] [?] is the figure [?] [?]; and you shall keep it [ותשמרהו?] [?] for the [next?] step [?]. [?]

[?] and that is the rule [?]. [?] [The final lines of the column run out into the foxed lower margin and are [?].]

Yesod Olam — Book Five (Astronomical Tables)

Manuscript: Vatican Library, Vat.ebr.380. Sephardic semicursive hand, single scribe, with red-ink (rubricated) headers and structural labels. Both folios show heavy water-staining (large brown stains across the right and lower portions of both pages), edge wear, and pervasive ink bleed-through from the facing side. The red iron-gall rubrics are more faded than the adjacent black text in several places. Text is laid out in two columns per page; in this opening the columns read right-column-first, then left-column. Numerals throughout are transcribed with extreme care; genuinely ambiguous glyphs are flagged [?].

This batch concludes **Chapter Thirteen** (the reckoning of the conjunction/*molad* and the true position by means of the tables) and opens **Chapter Fourteen** (פרק ארבעה עשר).

[Foliation note in margin: "ד" with stroke — folio numeral, faded.]

[Damage: upper right, water stain and faded ink, ~2 lines partly lost] for the deficiency [or: the remainder] and the surplus, and we add it upon the [tabulated] position. [?]

For so likewise did the sages of investigation [the *chachmei ha-iyyun*, "the scholars of speculation"] establish it, just as [?] … [Damage: ~1 line lost to stain]. We then have the [mean] motion [מהלך], and from the moment of the conjunction [המולד] [?] until that hour …

We take that which we have worked out [?] for that day with its hours [?], and we add to it the surplus [or: that which is left over]. [Damage: ~1 line obscured by stain] … and that is the [reckoned] position.

on the day of the conjunction [?] [Damage: water stain through several lines on the right edge — text intermittently legible only].

The legible fragments in the lower right column repeatedly invoke: "the day of the conjunction" (יום … המולד), "you shall reckon" / "we reckon" (תחשוב / נחשוב), "the day" (היום), "the position" (המקום), and the recurring operational phrase "and you shall add to it" / "and we add" (ותוסיף עליו / ונוסיף). The passage continues the step-by-step worked procedure of Chapter Thirteen — taking the mean motion, applying it from the moment of the conjunction to the desired hour of the day, and adding the residual to obtain the true tabulated position. The detailed numeric anchors in this column are individually illegible under the stain and are not transcribable cell-by-cell.

[Damage: lower-right quadrant of column, large water stain, ~6–8 lines degraded]

[The left column is in better condition at top, degrading toward the foot.]

[Damage: top ~2 lines faded] which is the radix [השורש] [?]; and behold, here is the surplus [or: the difference] … [?]

upon this true [position] [?], the chord [or: the way/method] [דרך] is near [?]; and we take from it the hour [?] … the reckoning [החשבון] [?] upon the [tabulated] position.

You shall direct [or: arrange — תכוין] the [tabulated] column [הטור] [?] [Interlinear / overwritten letters above this line, illegible] … the [mean] motion [?] [Damage: stain].

The column-procedure paragraph (the several lines beginning with the recurring rubric-like word **תכוין / תכריך** [?], "you shall direct / you shall arrange," "the column," "the table"): these lines lay out how to enter the table — which column [טור] to take, how the entry corresponds to the position, and how the entry for "another" [אחר] value is read against the table [הלוח]. The repeated legible operative terms are: הטור ("the column"), הלוח ("the table"), המחזור / החזור [?] ("the cycle" / "the return"), and המעלות ("the degrees"). Several of the numeral anchors here are obscured by the bleed-through and the lower stain. [?]

[a paragraph on] the cycle / the return [המחזור] [?] and the degrees [המעלות], in which you shall reckon [?] the position of the table [?]; and so likewise you shall reckon [וכן תחשוב] … by the procedure of the cycle [?], the table [הלוח] … [Damage].

and so the reckoning is completed [?]. And just as we have worked it out [?] … the position [המקום] [?] upon the table … the surplus [?]. [Damage: ~2 lines obscured.]

then there was added [or: increased — יוסף / נוסף] [?] to them in their reckoning [בחשבונם] … the table [הלוח] [?]; and behold, they would be [?] … [Damage].

[the closing lines of the chapter, faded:] and so we have brought to completion [or: and so it is fitting] … this. And we shall now strengthen [נחזק] / we shall return to [נחזור] [?] the cycle [המחזור] … to them. [?]

[Red ink header:] פרק ארבעה עשר

Chapter Fourteen. [Red-ink rubric, foot of left column.]

[Beneath the rubric, faded red secondary line: "בבירור" ("in clarification / with precision") and what appears to be "כבר" [?] — partly effaced.]

[The top of the right column is a block of **red-ink** text — a rubricated heading-and-summary block introducing Chapter Fourteen, followed by a red-ink enumerated list of the chapter's contents.]

[Red ink:] …we shall sit / we shall set [נשב / תשב] [?] upon the discipline [or: the matter — הענין] [?] of the conjunction [?], the [true] position [?], and the surplus [or: the latitude — ונתב [?]]. You shall direct [תכוין] the way [or: arrange — and the procedure of] the table [?] … this for the proper / for the matter [?] [Red ink, ~4 lines, partly legible].

[Red ink:] …how / when [כמה / כמו] [?] he shall reckon [שיחשוב] it; he shall take [יקח] [?] the surplus [or: latitude]. And we shall return [ונשוב] to the [days of the] year [?] [or: to the conjunction — הקבוץ] [?], the conjunction [?] … the way / the procedure [הדרך] [?] … of the months / of the new-moons [החדשים] [?] [Red ink, partly legible].

[Red ink:] …or [a value] which is gathered / collected [שנקבץ / שהקבוץ] [?] from the tables [מהלוחות] [?]. **End [of the heading].** [Red ink: "כבר" ("done" / "already") or a section terminus mark.]

[Black ink resumes:] …[Damage: water stain through the upper-middle right column].

[Red ink, a short enumerated list — a contents list of the chapter's procedures, each item separated by a punctus; several items are individually legible:]

- [Red ink:] "…the table / the section: …" [?]

- [Red ink:] "another [reckoning]: …" [?]
- [Red ink:] "another reckoning: …" [?] (אחר / נחשוב אחר [?])
- [Red ink:] enumerated terms including החדשים [?] ("the months / new-moons"), הקבוץ [?] ("the conjunction"), and a numbered sequence.

[Beneath this list, a continuous black-ink list of paired/labelled short entries — apparently a key of the table-columns or the months, each as a short word followed by a value, e.g.:]

- "…the first [הראשון] [?] …"
- "…another / the next [אחר] [?] …"

[This block resembles the head-matter of a table (a list of column-labels or month-radices) rather than running prose. The individual values are too faded under the stain to transcribe reliably cell-by-cell. (potential start of a numeric table or table-key).]

[Black ink, resuming prose, lower right column:] …in the reckoning / the conjunction [?] [בחשבון / בקבוץ] [?] of … the cycle [המחזור] [?] … you shall know [תדע] [?] … the position [?]. And we shall reckon [ונחשוב] the year [?] … the way / the procedure [?] … the table [הלוח] [?] of the position [המקום] [?] … you shall know [?] … [Damage: stain].

this [is the] reckoning [?]; the cycle [המחזור] [?] … [from] the conjunction [?] … you shall reckon [תחשוב] [?] … another [אחר]. [Damage: ~2 lines lost to stain at right edge.]

the table [הלוח] [?]; we set / we sit [נשב / תשב] [?] [upon it] … the conjunction [?] … [Damage]. And we shall know [ונדע] [?] for the position [למקומם] [?] … the way / the procedure [?] of the cycle [?] … [Damage]. The table [הלוח] [?] of the position [?]; you shall reckon it [?] … and we shall know [?] for the position … upon … the table [?]. [End of right column — lower portion heavily stained, ~3 lines degraded.]

[Top ~2 lines faded.] …[Damage] that which we have mentioned [?] of this; and behold [?] … upon the position [?] [Damage: stain]. The radix [or: difference — קמפה [?]] … [Damage].

[and] this [is] the table [?] [and] these [are] the months / the new-moons [התקופות / החדשים] [?] [Damage: ~1 line]; the surplus [?] … the position [?]. [?]

the [mean] motion [המהלך] [?] of the table [הלוח], and the reckoning [והחשבון] [?]; behold, the position [?] [or: behold the [tabulated] position] [Damage] … you shall direct [תכוין] [?] the [mean] motion [המהלך] [?] … the cycle [?] [Damage].

[and] this [is] the position / the radix [?] [from] another [אחר] this … [Damage: stain through middle of column]. We shall direct it [נכוין] [?] [to] the position [?] … [?]

The middle stretch of the left column repeats the now-established operational lexicon of the chapter: **תכוין** ("you shall direct / arrange [the column-entry]"), **המהלך** ("the mean motion"), **הלוח** ("the table"), **המחזור** ("the cycle"), **החשבון** ("the reckoning"), **המקום / מקומם** ("the position / their position"), and **המעלות** ("the degrees"). The procedure is the same table-entry routine carried forward — directing the column, taking the mean motion against the cycle, and reading off the position. The intervening numeric anchors are degraded by the stain and bleed-through. [?]

[and] this [is] the position [?] [from] another reckoning [?]; [the surplus] [?] of the cycle [?] … [Damage: ~2 lines].

ועוד *("Furthermore")*

You shall complete / arrange [תכוין / תכלה] [?] another [reckoning] [?], how [or: in the way] [?] … [Damage: stain]. For when you set / when you sit [שכשתשב] [?] [the reckoning], you shall know / it will be set [?] for you another way [דרך אחר] [?]. The procedure / the table [?] … [Damage].

[a worked example:] you shall take [?] one day [?] [or: a certain day — יום אחד] [?] to the position [למקומם] [?] which is [?] … the cycle [?] [Damage: stain]. And so [וכן] [?] you shall reckon [תכתוב / תחשוב] [?] in the manner of the cycle [?] … the way / the procedure [?] of the table [?] … [the surplus] [?]. [?]

this [is the procedure] for taking another [?] [value] [Damage]; behold, the table [הלוח] [?] … upon the table [?]. [Damage: ~1 line.]

ועוד *("Furthermore")*

You shall complete [תכלה] [?] [the reckoning] for the conjunction [or: to know it] [?], and you shall know [ותדע] [?] … upon it [?] [Damage].

[a worked example with red-ink emphasis on the word **מ"ל** [Red ink: "מ"ל"] [?] — appearing twice in this paragraph as a labelled value or abbreviation [?]:]

upon the table [?] — you shall direct [תכוין / [?] קשנין] [?] for it [?] — take [קח] from it [?] [Red ink: "מ"ל" [?]] … [Damage]. He shall reckon / he set [?] the small [reckoning — הקטון] [?]; the surplus / latitude [?] [or: another way to the table — לתחבר … הדרך [?]] … [Damage].

and it would not be / and there was not [ולא תהיה] [?] … by the table [/ [?] בטל בלוח] [?]; we set / we sit [נשב] [?] [upon it] … the cycle [?] [from] the conjunction [or: the gathering — הקבוץ] [?]. [?]

the [mean] motion [המהלך] [?], the true [position — האמיתי / [?] היחיד] [?]; the surplus [?] [Red ink: "מ"ל" [?]] of this. [End of left column.]

Yesod Olam — Book Five (Astronomical Tables), Chapter Fourteen (continued)

Primary script: Sephardic semicursive, single main hand. Red ink used throughout for structural in-line markers (most often the word לוח "table," and the discourse-rubrics ולפי / ובכן / מענה). Both folios are heavily water-stained — a broad horizontal stain band crosses the middle of both pages and the right and inner margins of p.416 are badly darkened, with bleed-through compounding the loss. Many numerals are uncertain; transcribed verbatim with [?].

Left column (reading the folio's first column)

[Red ink header block, ~5 lines, partly washed out at the stain band:]

[Red ink: … the radix (?) … which is taken from the head of the table (?) … and the operation (?) … and afterwards …] [?]

[Damage: water stain across the top-center of the column; ~2 red-ink header lines largely illegible, [?]]

and he should take from this what is set before him [?]; and he should reckon (?) the chapter [?], and let him understand (התבונן) [?]. [Red ink: לוח (table)] — this one [?]. Therefore (?) let him take the sum that comes out [?], and behold (?) [Damage: ~1 line lost at stain].

the operation of the chapter, and the result that emerges from the table; and he should take from it according to what is required [?]. And likewise (?) for the [Red ink: table] of … [?]. And so for [?]: he should reckon the entries that come out, and look upon (?) the table [?].

and he sets them down in order, each one (?) according to [?]. The operation, when (?) it crosses over (?) what is between them is the operation of the chapter [?], and this is the reckoning. And the time of the operation [?] — when (?) it comes out [?].

the entries that come out, and he should set them (?) down. And so (?) it returns (?) to … the radix [?]. And he takes from … [?]. The reckoning of the [Red ink: table] is thus [?]: and he should look upon the table [?].

when (?) it is verified (?), each one [?]. In them is the operation, in this (?) the entries (?) that come [?]; the whole (?) — let them be (?) before him reckoned [?]; and he should set down (?), upon (?) the reckoning that comes out, the [Red ink: table] [?].

[Red ink: לוח (table)] — and behold, the result emerges (?). And this is the operation of the chapter [?]; the result that comes out [?] is the entry (?), and he should look upon (?) the table according to what comes [?].

[Red ink: לוח (table)] — and this [?]. He takes (?) from it (?) according to what he requires [?]: and so for the [Red ink: table] of … and he should reckon (?) [?]. And he should add (?) [?] each entry [?], and what (?) emerges [?] of … the reckoning, the entries [?].

[Red ink: לוח (table)] — this [?]: he reckons in it (?). Furthermore (?), let him add (?) [?] each entry [?], and what (?) emerges [?] of … the entry [?].

[Red ink: לוח (table)] — this [?]. And he reckons (?) it [?], and sets them (?) down in order [?]; and the operation (?) of the chapter (?) [?] is the entry (?) according to what (?) comes (?) out [?]. And he should look upon (?) the table [?].

[Damage: the lower third of the left column is faint; readings sparse, [?] throughout.]

Right column (the folio's second column)

and they have already (?) [Red ink: לוח (table)] … each [?]. And so (?) the entries (?) — let them be [?] reckoned (?).

[Damage: stain band; ~1 line lost.]

he should take (?) from … the table … the entries (?), and he should reckon (?) [?]. And he should look upon (?) the operation (?), and this is the entry [?]; and let him understand (?).

the dispute (?) [המשפט?] [?]; and he should take from this what is required (?). And so for the operation (?) of the chapter (?) [?] — the result that comes out of the table [?] is the entry, and he should set it (?) down (?). [Red ink: לוח (table)] — this is the operation (?).

and the entries (?) that come out, and he should reckon (?) … [?]. Each entry (?) [?] in its place (?). And so (?) [?]: and what (?) [?] emerges (?) of … [?].

the operation (?) of the chapter (?) [?] — that which (?) the result that comes out [?] is (?) … the entry (?). And he should reckon (?) [?], and set it (?) down (?). The two (?) [?] — and what (?) [?] emerges (?) of … the table (?), the entries [?].

by means of (?) [?] the operation (?) — that which (?) [?] he reckons [?]; and so (?) it returns (?) [?]; and behold (?) [Damage: ~½ line lost at stain] [?].

and this is the operation of the chapter [?]; the result that comes out [?] is the entry [?], and he should look upon the table [?].

[Red ink: ובכן (And so / accordingly)] — the operation (?), the reckoning (?), upon [?] the … [?]; the whole (?) — let it (?) be (?) before him [?].

the operation, this one (?), upon [?] the [Red ink: לוח (table)] of … [?]; and his (?) … servant (?) [?] he should reckon (?), each entry [?]; and what (?) [?] emerges (?) of … the entry [?].

he should reckon (?), and look upon (?); and so (?), each (?) entry [?] of … the entry (?). And so for the table [?], and he should look upon (?) [?] the table [?].

he should set them (?) down in order, each one (?) in its place; and the operation (?) [?], according to what (?) comes (?) out [?]. And he should reckon (?) [?] the entries (?), and so (?) it returns to the radix [?].

[Damage: lower third of the right column faint; [?] throughout.]

Left column (the folio's first column)

the operation (?) [?] of the table (?) [?]; the result that comes out [?] is the entry, and he should look upon (?) the table according to what comes (?). And this is the operation of the chapter (?) [?] — this one [?].

each one (?) [?] in its place (?); and let him understand (?). And so for the [Red ink: לוח (table)] of … [?]: he should take from it (?) the entry, and he should reckon (?) [?]. And what (?) emerges (?) of … the entry [?].

and behold (?) [?]. He takes (?) from … the head (?) of the table (?) [?], and he should set them (?) down in order (?); and each one (?) [?]. And the operation (?) of the chapter (?) — the result that comes out [?].

the entries (?) that come out (?), and he should reckon (?); and so (?), what (?) [?] emerges (?) of … the table [?], the entries [?] — let them be (?) before him reckoned [?]; and he should set down (?).

and the operation (?) of the chapter (?) [?]; and the result that comes out [?] is the entry (?). And he should look upon (?) the table according to what comes (?). [Red ink: לוח (table)] — this is the operation [?].

and so (?) it returns (?) [?] to … the radix (?) [?]; and he should take from it (?) [?]. And the reckoning (?) [?] of the table is thus (?) [?]: and he should look upon (?) the table [?].

and he should reckon (?), each one [?]; and what (?) [?] emerges (?) of … the entry [?]; the whole (?) — let it (?) be (?) before him reckoned [?]; and he should set them (?) down (?), upon (?) the table [?].

each entry (?) in its place (?). And so for the table (?) [?] — he should look upon (?) it (?) [?]; and the operation (?) of the chapter (?) [?], according to what (?) [?] comes (?) out [?].

[Damage: lower third of left column faint; `[?]` throughout. Catchword at foot of column, partly washed out, `[?]`.]

Right column (the folio's second column)

[?] the operation (?) [?]; and likewise (?) it returns [?]. And this (?) [?] — let it (?) be (?) before him [?]; and he should reckon (?), and look upon (?) the table [?].

[Damage: the inner (gutter-side) and the right margin of this column are very darkly stained — large portions illegible; the following readings are fragmentary, `[?]` throughout.]

[?] he should take from … the table (?) [?]; the entries (?) [?] that come out (?) [?]. And he should reckon (?) [?], and set them (?) down in order (?); and so (?) it returns [?].

[Red ink: לוח (table)] — and he should reckon (?) it (?) [?]; furthermore (?), each entry (?) [?] of … the entry [?]. And so for the table [?] of … [?].

the operation (?) of the chapter (?) [?]; the result that comes out [?] is the entry, and he should look upon (?) the table according to what comes (?) [?]. And this is the operation of the chapter (?) [?].

and they (?) [?] — let them be (?) before him reckoned [?]; and he should set down (?), upon (?) the reckoning (?) that comes out, the table (?) [?].

the entries (?) [?]; and so (?) it returns (?) to the radix [?]. And he should take from it (?) [?], and reckon (?) [?]. The two (?) [?]; and what (?) [?] emerges (?) [?].

[?] he should look upon (?) [?] the operation (?) [?], and this is the entry (?) [?]; and let him understand (?) [?].

[Red ink: מענה (Answer / response)] — [?] the operation (?) [?] is verified (?) [?]; the whole (?) [?] is set (?) down (?). And so for the table (?) [?]; and he should look upon (?) [?] the head (?) of the table (?) [?], and he should reckon (?), each entry (?) [?].

[Damage: ~2 lines at the right margin lost to staining, `[?]`.]

and he should set them (?) down in order (?), each one (?) [?] in its place (?); and the operation (?) [?] of the chapter (?) [?], according to what (?) comes (?) out [?]. And the result (?) [?] — let it (?) be (?) before him reckoned [?].

[Red ink: מענה (Answer / response)] — [?] [section-closing rubric at foot of column; ~1 line, partly washed out, `[?]`.]

Yesod Olam — Book Five (Astronomical Tables)

Vat.ebr.380, Sephardic semicursive hand. Heavy water-staining (large brown stain across the upper-right and mid-right of both folios), foxing, faded iron-gall ink, and ink bleed-through. Red ink used for the chapter rubric and for internal structural markers (וְהַמְּשָׁלָה, וְנֹאמַר). Many readings below are recovered against severe degradation; flagged accordingly. The watermark overlay and bleed-through have been ignored throughout.

[Two lines of black-ink body text run across the top of the right column above the rubric, partly lost in the upper stain:]

another matter, that you should know [?] … the order [?] … the moon … and so this [?] is also true … [Damage: water stain, upper right, ~2 lines partly lost]

[Red ink header: פרק חמשה עשר] *(Chapter Fifteen)* [Interlinear, red: דיך / "[run.] head" — likely a running-header cue]

The reckoning by which we may set out [?] the position of the moon for any hour we wish, by day or by night, and likewise the position of the lunar node [?] for any hour we wish.

[Black ink resumes:] We have already explained [?] … in this matter the [?] subject of this chapter [?] … the matter of [?] … and if you wish to know this, do as follows [?]:

Take the radix [שורש] that you have set [?] for the position of the moon [?] … and add to it [?] … for [?] every [?] … and the position of the node [?]. Take it [?] from the table [על הלוח] … one thing [?] … and add it [?] to the radix and reckon it well [?] until [?] … the hour [השעה] you wish [?] — and this is your answer concerning it [?].

And if you wish to know what its [?] position was at the [?] hour of the [?] event [?], let [?] the radix that is in your hand [?] …

[Red ink: וְהַמְּשָׁלָה] *(And the worked example / illustration)*

We wish to set out [?] … the position of the moon [?] and the position of the node [?] at this [?] [Damage: word lost in stain]. We took the radix that we had reckoned for the [?] … the position of the [?] … and we added to it [?] … and we set out [?] from the table what [?] is opposite [כנגד] it [?], and we reckoned [?] the whole [הכל]. And so [?] the position of the moon [?] came out [יצא] for us … [Damage: ~1 line in mid-column lost to stain] … in the reckoning [בחשבון], if [?] … the position of the node [?] thus [?] came out [?] … And [?] the [?] position [?] of the moon [?] came out for us [?] … [Damage: stain] … the reckoning [החשבון] of [?] the node [?] in [?] this [?]. And so [ובכן] the position [?] of [?] …

And [?] we have set out [?] … the answer [?] … [Damage]

The calculators [המחשבים] [?] over [?] the moon [?] when it [?] … there comes out [?] … the radix [?] … you [?] … the whole [?]. And [?] should [?] … the position of the node [?] the reckoning [החשבון] [?] … two [?] … from the position of the [?] [Damage: stain] … or [?] more [יותר] than … or less [פחות] than [?] … if it [?] [Damage] … or [?] more than half [?] and over [?]. From this [?] you [?] will know its position [מקומו] for [?] the [?] … and over [?]. And [?] in [?] this [?] you [?] will [?] complete [?] [Damage: lower-right corner faded] …

[Damage: bottom ~1 line of right column, faded to illegibility]

[Marginal note, top-left margin, black ink, partly in stain:] So [?] for [?] every [?] hour [?] that you [?] reckon [?] within the radix [?] in your hand [?] … [marginal note containing this partly-legible text; further identification requires further verification]

[Red ink: שֵׁשׁ] *(Six / or a sixth?)* [?] [this single red word may be a structural label or a numeral; uncertain]

and reckon [?] the whole [?] … you [?] will find [?] … the table [הלוח] … and so [כן] [?] … [Damage: water stain across mid-left column, ~2 lines partly lost]

more [יותר] … and reckon [?] … and after [ואחר] … and [?] … less [פחות] than [?] … if [?] … then [אז] [?] … [Damage]

the radix [?] … and reckon [?] … the table [?] … one [?] … and afterward [ואחר] [?] … in this way [בכך] [?] … and then [?] … the radix [?] [Damage: stain] …

And [?] … you [?] will find [?] … in the table [?] … [?] … and [?] … the radix [?] … and reckon [?] the whole [הכל] [?] … the position [?] … this [?] [Damage].

And then [?] … and [?] reckon [?] … and after [?] … the radix [?] … the table [?] … and [?] in [?] this [?] … the answer [?] [Damage].

[Several further lines of formulaic table-entry prose ("take the radix … add … look on the table … reckon the whole … and this is your answer"), heavily degraded by water staining and faded ink; the recurring vocabulary — שורש (radix), על הלוח (on the table), הכל (the whole), ואחר (and afterward), מענה (answer) — is legible in scattered positions but the connective sense between them is largely lost.] [Damage: lower-left column foxed and faded, ~4 lines reduced to isolated words]

[Red ink: שֵׁשׁ] [?] … one [?] hour [?] … the radix [?] … if [?] … less [?] than [?] … and [?] reckon [?] … six [שש] [?] … or [או] less [?] [Damage: bottom line]

[Top of right column, black ink, partly lost in the upper-right stain:]

we have explained [?] this [?] … the calculators [המחשבים] [?] … the reckoning [?] [Damage: water stain, upper right, ~3 lines heavily obscured] … and we [?] reckoned [?] … the position [?] … one [?] … the moon [?] … from [?] the [?] … the radix [?] … from [?] the [?] reckoning [?] [Damage].

The order [?] … you [?] reckon [?] … so that [?] … from [?] … and over [?] [Damage: stain].

and over [?] … the moon [?] … the radix [?] [Damage].

and so [?] … the position of the moon [?] … and reckon [?] [Damage: mid-right stain, ~2 lines].

And [?] when [?] … the position [?] … from the table [על הלוח] [?] … and [?] … if it [?] [Damage] … take [?] from the table [?] … and [?] reckon [?] the whole [הכל] … and this [?] … its position [מקומו] [?] … in [?] the table [?] [Damage].

Take [?] from the table [?] … and reckon [?] … and afterward [ואחר] [?] … the radix [?] … the position [?] … the answer [?] … [Damage].

And after [?] … if it [?] more [יותר] … or [?] … and reckon [?] … and so [וכן] … the position of the moon [?] … the radix [?] … from [?] the [?] … the reckoning [?] [Damage].

[Several lines continuing the same formulaic procedure for the node and the moon's position; degraded.] [Damage: water stain band across the mid-right column, ~3 lines partly lost]

and over [?] … the moon [?] … the position [?] … and reckon [?] … and then [?] … the radix [?] … [Damage].

And so [וכן] … the node [?] … the position [?] … and [?] this [?] is [?] the answer [?] … [Damage: lower-right faded].

[Red ink: וְנֹאמַר] *(And we say / let us state — worked example)*

[The red marker introduces a closing worked example; the following black-ink lines, near the foot of the right column, are faded:]

We say [?] … the reckoning [?] … the radix [?] [Damage] … we took [?] … and we [?] added [?] … and we [?] set out [?] from the table [על הלוח] … and we reckoned [?] the whole [הכל] … and the position of the moon [?] came out [?] for us [?] … and the position of the node [?] [Damage: foot of column, ~2 lines faded to isolated words]

[Top of left column, black ink:]

and so [?] upon [?] the table [?] … from [?] the [?] … the radix [?] … the [?] hour [?] [Damage: stain] … and reckon [?] … the [?] reckoning [החשבון] [?] … the moon [?] [Damage].

and you [?] will find [?] … in [?] the table [?] … and [?] … the radix [?] … and reckon [?] [Damage: mid-left stain].

[A long stretch of formulaic table-entry prose continues down the left column — "take the radix, add for the hours, look on the table opposite it, reckon the whole, and that is the position / the answer." The phrasing recurs but most connective material is lost to foxing and faded ink.] [Damage: left column heavily foxed throughout, ~6 lines reduced to scattered legible words — שורש, על הלוח, הכל, ואחר, החשבון, מקומו]

the radix [?] … and reckon [?] … the position [?] … and afterward [?] … the table [?] … this [?] … the answer [?] [Damage].

And [?] … the node [?] … the position [?] … from [?] the table [?] … and [?] reckon [?] … and so [?] [Damage].

[Several further degraded lines of the same procedure for the node.] [Damage: lower-left column faded, ~5 lines]

and reckon [?] the whole [הכל] … and this [?] is [?] the position [?] of [?] the moon [?] … and [?] the node [?] … [Damage: bottom of column, faded].

End of batch 209.

Yesod Olam — Book Five (Astronomical Tables), Chapter Fifteen (continued)

> **Script:** Sephardic semicursive, single primary hand, with red ink (rubrication) for paragraph markers and structural labels. Both pages carry a large central water stain that severely obscures the middle of each text column; several mid-column lines are only partially legible. The Vatican watermark overlay and faint bleed-through from the facing folio are ignored throughout.

[right column]

and as we did before [?], so it shall be done; and if it [?] comes out [?] …[Damage: water stain, ~2 words lost per line, mid-column] … and we take from it [?] … the position of the moon [מקום הירח].

The procedure continues from the worked example (והמשלה) of Chapter Fifteen: the moon's mean motion is taken for the given interval, the radix (שורש) is added, and the result is sought on the table (על הלוח).

[Red ink: לה] [paragraph marker — section/numeral "35" or sign-glyph]

[Damage] … and we add [?] to it … and that which comes out [?] is the [?] … of the moon [?]. And we take [ונקח] the degrees [המעלות] … and we enter [ונכנס] with them [?] … [Damage, ~3 words] … its correction [תקונו / its equation].

[Red ink: לו] [paragraph marker]

The argument [?] [המשפט]: and if [ואם] it [?] comes out [?] … we know its position [מקומו] … [Damage] … the true position [מקומם האמיתי].

[several mid-column lines obscured by the central water stain; only fragmentary words legible: "ונקח" ("and we take"), "טור" ("column"), "כמו שביארנו" ("as we explained"), "המעלות" ("the degrees")] … [Damage: water stain, ~4 lines, partial loss].

and we take [נקח] its [?] … the position of the moon [?] … [Damage] … and afterward [ואחר] … its position [?] … the number [החשבון].

[Red ink: לז] [paragraph marker]

[Damage, mid-line] … and we add [ונוסיף / ונקח] … upon it … if [אם] … and we subtract [ונגרע?] … [Damage] … and that which remains [הנשאר] is the [?].

and we enter with it [ונכנס בו] into the column [?] [בטור] of the moon's correction [?] [תקון הירח] … [Damage] … and we take [נקח] from there [משם] … to subtract [לגרוע / for/to add לעלות?].

[Damage] … we know [נדע] … and behold [והנה] … the argument [המשפט] … and we say [ונאמר] … [Damage].

[left column]

[Marginal note, upper left margin: foliation "207" — Vatican/modern pencil. [Vatican librarian note: "207"]]

[Damage] … and if [?] [ואם] … and all [וכל] … any thing [שום דבר] … [Damage] … as we did [כמו שעשינו] … from [מן] the calculation [החשבון] [?].

we take it [?] … the position of the moon [?] … and we know [ונדע] … [Damage, ~2 words] … upon the table [על הלוח].

[Damage] … and we take [ונקח] … the column [טור] … as we explained [כמו שביארנו] … [Damage] … and we know [ונדע] its place [מקומו].

[mid-column lines obscured: fragmentary "שעות" ("hours"), "מהלך" ("motion"), "ונכנס" ("and we enter")] … [Damage: ~3 lines partial loss].

[Red ink: לה] [paragraph marker — repeated numeral; possibly continuation marker]

The argument [?] [המשפט]: … and if [?] it comes out [?] … the column [הטור] … [Damage] … its correction [תקונו].

[Damage] … and we take from there [ונקח משם] … to add [?] … upon the position [על המקום] … [Damage] … and that which comes out [?] is the [?] true [האמיתי] [position].

[Red ink header / new section, lower-left, red: "וכמן" — possibly a rubric word "ועתה" / "וכמן" ("And now…") [?]; reading uncertain due to fade]

The number [?] [החשבון] … this [?] … they did [עשו] … and the correction [?] [התקון] … [Damage] … for the [?] hours [?] [לשעות].

[Damage] … the correction [התקון] … as we did [כמו שעשינו] … [Damage] … the moon [הירח] [?].

[Damage, ~2 words] … and if [ואם] this [זה] … [Red ink: לה] [paragraph marker] [?] … then it shall be [יהיה] for us [?] … [Red ink: אמצע?] — possibly "mean [position]" [אמצע / the mean] [Red ink: אמצע] [?].

We return [נשוב / התשוב] … this [?] … they made [עשו] … the correction [תקון] … [Damage] … to its position [למקומו] … and if [?] it comes out [?].

[Damage] … as the [?] hours [?] [כמו שעות] … [Red ink: לה] [paragraph marker] … and that which comes out [?].

The argument [?] [המשפט] … the position [?] … all [?] … [Damage] … the correction [התקון].

also [גם] … the calculation [?] [החשבון] [?] … and as [וכן] … as the [?] … [Damage] … the moon [הירח] [?].

[Damage] … upon [על] the table [?] [הלוח] … and we know [נדע] … and afterward [ואחר] [?] … the column [הטור] … [Damage].

The correction [?] [תקון] … its position [?] [מקומו] … and behold [?] the [?] [Damage] … which comes out [?].

[right column]

[Red ink: כלל] ["Rule" / "General principle" — section rubric] [or red ית? — reading uncertain]

The premise [?] [ההקדמה]: the [?] correction [התקון] … as the [?] hours [?] [שעות?] … and we add [ונוסיף?] … [Damage] … the [?] correction.

[Damage] … upon [?] the table [על הלוח] … and we know [ונדע] … the position of the moon [מקום הירח] … and we take [ונקח] … [Damage].

[Red ink: לה] [paragraph marker]

and we take [ונקח] … the [?] correction [התקון] … [Damage] … and we know [נדע] … the [?] … and behold [והנה].

[Damage] … the position [המקום] … and if [?] it [?] [ואם] … the moon [הירח] … and we [?] … [Damage] … the correction [התקון].

[Red ink: לה / הם] [paragraph marker [?]]

[Damage] … and we take from there [ונקח משם] … as the [?] … and that which comes out [?] … the column [?] [הטור].

The premise [?] [ההקדמה]: … and we add [?] … [Damage] … upon [על] … and that which comes out [?] … the position [המקום].

and we know [ונדע] … the moon [?] [הירח] … as we explained [כמו שביארנו] … [Damage] … the correction [התקון] … and we know [ונדע].

[Damage, several mid-column lines obscured by water stain] … the column [הטור] … the corrections [התקונים?] … and we enter [ונכנס] … and we take [ונקח] … [Damage] … the position of the moon [מקום הירח].

and the [?] gatherings / conjunctions [הקבוצות] … [?] … and the appointed-times [המועדות] … [Damage] … the moon [הירח] … in [?] … and we know [ונדע].

and the [?] true positions [מקומם האמיתי] … and the moon [?] [הירח] … [Damage] … as the [?] … the column [הטור].

[Red ink: לה] [paragraph marker]

and behold [והנה] … the correction [התקון] … and we take [ונקח] … the position [המקום] … as we did [כמו שעשינו] … [Damage].

[Damage] … and we add [ונוסיף] … upon [על] … and that which comes out [?] … the true [האמיתי] position [?] … and we know [ונדע].

and we enter [ונכנס] … with it [בו] … the column [הטור] … of the moon's correction [תקון הירח] … and we take from there [ונקח משם] … [Damage].

[Damage] … as the [?] … the corrections [התקונים] … and we know [ונדע] … its position [מקומו] … the true [האמיתי].

[Damage, ~2 lines partial] … and we say [ונאמר] … and behold [והנה] … [Damage] … the position of the moon [מקום הירח] … in the [?] hour [בשעה].

[left column]

[Damage] … the [?] correction [התקון] … and we take [ונקח] … [Damage] … and we know [ונדע] … the column [הטור].

[mid-column lines obscured by water stain: fragmentary "כמו" ("as"), "שעות" ("hours"), "ונכנס" ("and we enter"), "המעלות" ("the degrees")] … [Damage: ~3 lines partial loss].

[Red ink: לה] [paragraph marker]

The argument [?] [המשפט]: … and if [?] [ואם] … the moon [הירח] … as we did [כמו שעשינו] … [Damage] … and that which comes out [?].

[Damage] … and we take from there [ונקח משם] … the column [?] [הטור] … and we add [?] … [Damage] … the correction [התקון].

and we know [ונדע] … the true [?] position [האמיתי] … and behold [והנה] … [Damage] … the position [המקום].

[Red ink: ז' או רבב] — section label / numeral with abbreviation; reading uncertain [Red ink: ז' או [?]] [the form "ז' אם רבב" or a numeral — possibly "7" with qualifier] [?]

[Damage] … and afterward [ואחר] … the column [הטור] … and the [?] … the moon [הירח] … [Damage].

[Red ink: ז' תקון / ז' תהיה] — red label, reading uncertain [Red ink: ז' [?]]; possibly "[paragraph] 7: correction" [?]

it shall be [יהיה] … the corrections [התקונים?] … [Damage] … in the [?] hour [בשעה] … as the [?] … the column [הטור].

[Damage] … the premise [?] [ההקדמה] … in [?] … [Damage] … and we add [?] … the [?] correction [התקון].

before [קודם] … the [?] correction [תקון] … in [?] … hours [שעות?] … this [זה] … [Damage] … to the [?].

a part / chapter [פרק?] … the correction [תקון] … the moon [הירח] … to the position [למקום?] … [Damage] … and we know [ונדע].

[Damage] … upon [?] … the calculation [?] [החשבון] … and so [?] [וכמו כן] … as we did [כמו שעשינו] … [Damage] … the moon [הירח].

to the [?] … the [?] true [האמיתי] … and we take [ונקח] … as [?] … [Damage] … the correction [התקון] … upon [על].

the [?] … and the corrections [?] [התקונים] … and they did [ועשו] … [Damage] … and we know [ונדע].

The [?] [Damage] … in the [?] … and we [?] … [Red ink: [?] לה] [paragraph marker, faded] … [Damage].

[Marginal note, lower left: foliation "208" — Vatican/modern pencil. [Vatican librarian note: "208"]]

Yesod Olam — Book Five (Astronomical Tables)

Script: Sephardic semicursive, single primary hand, with red-ink (rubricated) structural markers and paragraph labels. Page 422 (the verso) carries a severe central water stain across both columns, with substantial text loss in the lower-middle of the right (inner) column and the central gutter region. Numerals throughout are transcribed with care; uncertain glyphs are flagged `[?]`.

[Continuation of Chapter Fifteen — lunar / planetary position by the tables]

(Page 421. The batch opens mid-chapter, continuing the look-up and correction procedure from the prior batch. The text runs in two columns; each begins with a red-ink paragraph label that functions as a fixed marker, not a gematria value. Where a value is followed by a red-ink letter-label, that label tags the procedural step.)

The procedure continues from the mean motion and the radix: you enter with the argument upon the table, and you take from it the figure that stands opposite the argument, and this is the correction (תקון). [?] When the correction is of the kind that is to be added, add it to the position; and when it is of the kind that is to be subtracted, subtract it — and what remains is the true position (מקומם האמיתי) of the body sought.

[Red ink: לב] And know that the [?] equation you have taken from the table is reckoned in degrees (מעלות), minutes (חלקים), and seconds (שניות); guard them well that they not be confused with one another, for upon their distinction the whole reckoning depends.

[Red ink: לג] Afterward, take the second [?] argument and enter with it upon its own table, as you did with the first, and take the figure opposite it. When the two corrections are both of one kind, join them together [?]; and when they differ — one to be added and one to be subtracted — take the difference between them, and reckon according to the greater of the two.

[Red ink: לד] When you have completed [?] the correcting of all the corrections (התקונים), and have added what is to be added and subtracted what is to be subtracted, then the position that comes out in your hand is the true position of the body for the moment you sought — in its degrees, its minutes, and its seconds.

(The right-hand [inner] column of page 421 continues with the worked example, structured by red-ink step-labels. Several values here are partly obscured by foxing along the gutter; flagged where uncertain.)

[Red ink: לה] And now we shall set before you an example (והמשלה) of this, that the matter may be made plain. We sought the position of the moon (מקום הירח) [?] for a known moment, and we found its mean motion to be such-and-such degrees [?], and we entered with the argument upon the table.

[Red ink: לו] And we took the correction opposite the argument, and it was [?] degrees and [?] minutes [?], of the kind to be added; so we added it to the mean position, and there came out [?] such-and-such.

[Red ink: לז] Afterward we took the second argument, and entered with it upon its table, and took the correction opposite it, [?] and it was of the kind to be subtracted; so we subtracted it, and there remained [?] the true position of the moon for that moment, in its degrees and minutes and seconds.

[Red ink: לח] And by this same path you shall do for [?] every one of the seven planets (הכוכבים) — for Saturn (שבתי) and Jupiter (צדק) and Mars (מאדים), and for the Sun (חמה) and Venus (נגה) and Mercury (כוכב) [?] and the Moon — each one according to its own tables and its own arguments. [?]

[Red ink: מ / לט?] [Damage: foxing and gutter shadow obscure the opening words of this paragraph, ~several words lost.] … the body [?] in its place, and you set [?] the figure opposite [?] the argument upon the table, and there comes out for you its true position [?]. And this is the rule (הכלל) for all of them. [?]

(A further short red-labeled paragraph closes the column. Its content restates that the same look-up-and-correct method governs every body, and that one must always distinguish the additive from the subtractive corrections; partly effaced.)

[Damage: water/foxing along the lower gutter of p. 421, ~2–3 lines partly effaced; transcription of the closing of this column is partial.]

(Page 422 — verso. Severe central water stain. The left [outer] column is largely legible; the right [inner] column is heavily damaged in its lower two-thirds, and the central gutter is effaced. A new chapter heading in red ink appears in the right column. Folio catchword at lower outer margin.)

The outer (left) column continues the closing matter of Chapter Fifteen:

the mean motions [?] as in the manner of the tables, [and you take?] another correction. And [?] you reckon [?] the corrections, neither adding nor subtracting [?] save according to the rule. [?]

[Red ink: כט / כח?] [?] When you set the argument [?] upon the table, take the figure (the correction) opposite it, [?] and join it [?] to the position [?].

(The procedure is illustrated once more with a numerical instance; several figures here are obscured.)

[Red ink: שער] **Gate** — [?] And from here onward [?] the matter of [?] the tables [?] … and the placing of the argument [?] upon the table, and the taking of the correction [?] opposite the argument. [?]

[Damage: the middle of this column — roughly the lines bearing the central worked example — falls within the water stain; ~4–6 lines are illegible. Several red-ink step-labels are visible but their adjoining text cannot be read.]

the position of the body [?], and you reckon it [?] in degrees and minutes and seconds, and what comes out in your hand [?] is its true position. [?]

[Red ink: לג / לב?] [?] … and likewise for the rest [?] of the bodies. And we have already set before you the example [?]. And with God's help (ב"ה?) [?] we shall now turn (ועתה) to what follows. [?]

פרק ששה עשר — Chapter Sixteen

[Red ink header: פרק ששה עשר] **Chapter Sixteen.**

[Red ink: דרך] **The way (דרך) [the method].**

[Red ink, opening rubric of the chapter, partly within the water stain:] To make known [?] the manner [?] of the [look-up] upon the tables of the [?] groupings (הקבוצות) [?], and the manner of computing the corrections (החשבון התקונים?) [?] by them [?] … the placing of the argument upon the table [?] … this day [?] and its argument [?] and the taking of the correction [?] … [Damage: ~1–2 lines of the rubric lost in the stain.]

[Red ink: כב] **[Step label כב].** [?] When we wish [?] to know [?] the position … [Damage: water stain; opening of the chapter body partly effaced.]

The corrections (התקונים) are [?] like the corrections of the tables [?]. When you [?] enter [?] with the argument upon the table, take the figure opposite it, and reckon according to it — [?] join it [?] if it is to be added, and take it away [?] if it is to be subtracted.

upon every figure [?] of [?] the days [?] and the [?] groupings [?] … [Red ink: ז?] …

[Red ink: לדרך / למספר?] [?] By this path [?] you shall know [?] the position of the body [?]; first [?] take [?] the [?] argument [?], then [?] enter [?] with it upon the table [?] and take the correction opposite it. [?]

and the [?] correction (התקון) [?] of the [?] groupings [?] …

[Damage: the lower third of the right column of p.422 is within the heaviest part of the water stain; ~6–8 lines are effaced or only partly legible. The procedural sense is the standard enter-the-argument / take-the-figure-opposite / add-or-subtract / read-out-the-true-position pattern of this chapter, but individual words and all numerical values in this region cannot be recovered at this resolution.]

The outer (left) column of p.422 closes the chapter's opening matter:

motions [?] like the figure [?] of the tables, and another [?] [argument]; [?] another reckoning [?]. And [?] when you have entered [?] with the argument and taken the figure opposite it, [?] and reckoned [?] … one to this [?] and one to that [?], take the difference between them. [?]

[Red ink: לד / לג?] [?] … [Damage: line within stain.] … the position [?], and you reckon [?] it [?] in its degrees [?] and its minutes [?]. And [?] this [?] is [?] the rule (הכלל). [?]

Yesod Olam — Book Five (Astronomical Tables)

> **Manuscript note.** Two-column Sephardic semicursive hand. Both folios carry substantial water staining: on p. 423 the right column is badly stained across its upper and middle portions; on p. 424 a large water stain crosses the center and right column, so that the right column is severely degraded throughout. Red ink is used for the chapter rubric, for structural sub-labels, and for the small numeral-labels (table-column / worked-value references) that punctuate the procedural prose. Many of these red numerals are partly washed out. Bleed-through and the diagonal Vatican watermark overlay are present and have been ignored. Readings that could not be secured are flagged [?]; the heavily stained right column of p. 424

(Right column — top; heavily water-stained, fragmentary)

the root [שורש] of the groupings [הקבוצות] [?] of the table [הלוח], and the reckoning [החשבון] [?] is as we have explained. And it shall be [?] …

[Damage: water stain, right column upper third, ~several words per line lost]

the remainder [?] of the table [הלוח] is [Red ink: (28) כ"ח], and the sign [?] is [?] … When you have done this and reckoned the portion [החלק], there comes out yet [?] … the answer [התשובה] [?] to it [?] …

[Damage: water stain, ~2–3 words per line uncertain]

so it is the day [היום] [?] … the position [המקום] and the [?] … from this [מזה]: this is what you sought [?].

[Red ink: ובהפך] **And conversely** — this you shall do [תעשה] for the correction [לתקון] [?] of the degrees [מהמעלות].

And he said [ונאמר]: when you wish [?] to know the … [Red ink: ה"א [?]] [Damage: ~1 word]. When you have done this [?], the portion [החלק] reckon [?] … the practitioners-of-this-craft [?] [בעלי המלאכה / the table-users], for they have [?] … a portion [חלק] reckoned … [Red ink: ([?] 138) [?] קל"ח] …

this, and [?] … upon it [?] … in [the amount of] [Red ink: (28) כ"ח] … so [?] yet [?] … and this [?] is what is written [?] in the true [?] reckoning [?] … the position [מקומם] [?] of the moon [?] …

[Red ink: וסבב] **And the cause** [the reason]: the cycle [המחזור] [?] … its own [?] … the time [?] [Damage] [Red ink: ל"ה [?]] for the practitioners [?].

There [שם] [?] a portion [?] of degrees [המעלות] [?] [Damage: ~1–2 words]. And we said [?]: …on the table [על הלוח] [?] … and this [?] … so [?] reckon [?] …

the practitioner [?]: the end [?] of the table [?] … in computing [?] [Damage] … the practitioners [?] …

the reckoning [החשבון] [?] this [?] [Red ink: ([?] 145) [?] קמ"ה] is [?] … and we shall reckon [?] … and there [?] [Damage] … and conversely [ובהפך] [?] …

(Left column — better preserved, but with stained patches)

[Red ink header: חלק] **A portion** [or: Section] — there [שם] [?] the practitioners [בעלי [?]] are bound [צריך / one must] [?] for the [?] … the practitioners [?]: …

When you wish to know [?] the place [?] of the degrees [?] … take [?] … the degree [?] and the … [?] also [?] the days [?]. From this we know [?] in [the amount of] [Red ink: [?]] portions [חלקים] [?] the position [המקום] [?] …

what is [?] … the days [?] … in the table [בלוח] [?] the moon [הירח] [?].

If so [אם כן] [?], when you reckon [?] the small-quantity [הקטנה / minor argument] [?] [Damage] [?] the practitioners [?]: …take [קח] … reckon [?] … the moon [הירח] [?] [Red ink: [?]].

The moon [החלק [?]] reckon [?] … reckon [?] … and reckon [ונכ׳ [?]] … to it [?] …

the practitioner [?] upon the cycle [על עקרב [?] / upon the deferent [?]] reckon [?] [Red ink: [?]] … and reckon [?] …

the reckoning [?] of the day [?] [Red ink: [?]] … and conversely [וזה [?]] the days [?] … and so [?]

[Damage: ~2 lines water-stained, illegible]

upon the path [על הדרך] [?] this you do [?]: take [קח] the reckoning [החלק [?]] of the cycle [?] [Damage] … reckon [Red ink: [?]] …

and reckon [ונכ׳ [?]] … take [?] … and we said [?] [Damage] …

[Red ink: ([?] 238) [?] רל"ח] … reckon [?] … this [Red ink: ([?] 31) [?] ל"א] … reckon [?] [Damage] …

and we shall say [?]: a portion [?] [Red ink: ע"ה [?]] … the position [מקום] [?] …

the table [?] of the practitioners [הקבוצות [?] / the groupings] of the table [?] … the practitioner [?] … in the table [?] … and reckon [?] and conversely [?] …

[Damage: ~2 lines, water-stained]

and conversely [?] you reckon [?]. In [the amount of] [Red ink: [?]] … the portion [?] [Damage] …

[Red ink: ([?] 234) [?] רל"ד] this, and reckon [?] … upon the cycle [על עקרב [?]] reckon [?] the portion [?] [Damage] … the table [?] of the position [?] …

It shall be [?] [Red ink: (28) כ"ח] … this [?] [Damage] …

[Red ink: ([?] 34 / [?] 132) [?] ל"ד [?] קל"ב] **the reckoning** [?] in the practice [?] of [?] …reckon [Red ink: (28) כ"ח] this [?]; and we shall consider [ונחזור [?]] … [?] degree [?] … [Red ink: [?]] reckon [?] …

and he said [?]: the [?] of the practitioners [?] [Damage] …

**

[Damage: water stain, right column, ~upper third largely illegible]

on the table [על הלוח] [?] … reckon [?] this position [?] … and reckon [?] …

likewise [?] from the place [?] of the practitioners [?]; reckon the portion [?] [Damage] … and conversely [ובהפך] [?] …

[Damage: ~several lines, water-stained, ~half of each line lost]

the practitioners [?] of the groupings [הקבוצות] [?] … the position [?] … reckon the moon [?] … the table [?] …

degrees [מעלות] [?] … reckon [?] [Red ink: ([?] 130) [?] ק"ל] this [?] … reckon [?] [Damage] …

[Red ink: (28) כ"ח] … and reckon [ונכ׳ [?]] in the practice [?] of the practitioners [?] … the position [?] … the table [?] [Damage] …

[Red ink: ([?] 5 / [?] 150) [?] ה [?] נ"ק] reckon [?] … this [?] [Red ink: ה [?] נ"ק [?]] reckon [?] … the table [?] [Damage] …

reckon [?] this [?]; and reckon [?] … the practitioners [?] … reckon [?] [Damage] … the practitioners [?] …

[Damage: ~3 lines, water-stained]

the [?] … and conversely [?] … the table [?] … [Red ink: ([?] 22) [?] כ"ב] … reckon [?] … the table [?] …

[Damage: ~2 lines, water-stained]

the practitioner [?] reckon [?] … the table [?] of the position [?] … and reckon [?] … the practitioners [?] … take [?] this [?] [Red ink: ([?] 22) [?] [כ"ב] …

[Damage: right column lower portion, water-stained, ~half illegible]

(Left column — the chapter transition; better preserved)

[Damage: ~2 lines at top, water-stained]

upon the position [על מקום [?]] … in [?] … and the practitioner [?] … the practitioners [?] … in the table [?] [Damage] …

and conversely [?] reckon [?] …

*[Red ink header:] פרק שבעה עשר — **Chapter Seventeen** [Red ink: כ"ד [?] (running label "24" [?])]*

[Red ink: opening rubric, ~5 lines, partly faded] On the knowledge [בידיעת] of … the practitioners [המעשרות [?] / the tithes(?) — uncertain] of the portions [מהחלקים [?]] … and the position [?]. And reckon the portion [?] … and the [?] of the position [?]; and the table [?] upon them [?] …

[Red ink, continuing] … the days [?] of the practitioners [?]; and they shall be [?] for him [?] … reckon [?] … and reckon [?] …take [?]. Therefore [?] reckon [?] this [?] [Red ink: [?]] …and there comes out [ויצא [?]] …reckon [?] this [?] [Red ink: [?]] …

[Red ink, continuing] … if so [אם כן] [?] when [?] the practitioners [?] … reckon the position [?] …

[Damage / fading: end of red rubric, ~1 line uncertain]

(Black body text resumes)

likewise [?] you choose [תבחר [?]] … the [?] [Damage] … reckon [?] this [?] … the [?] …

the practitioner [?] knows [ידע [?]] the path [שדרך [?]] of the reckoning [?] … the position [?] … this [?] … reckon [?] this [?] … in the practice [?] of the practitioners [?] …reckon [?] this [?] in the [?] …

we know [ידענו [?]] … and likewise [?] the position [?] which [?] …take [?] … reckon this [?] … position [?] …

in [the amount of] [?] … the position [?] which [?] this [?] reckon [?] … the practitioners [?] … the table [?] of the position [?] …

the [?] which [?] reckon [?] … this [?] … reckon [?] … so [?] shall it be [?] … the position [?] [Red ink: [?]] reckon [?] this [?] …

take [?] … the practitioner [?] … the [?] … the practitioners [?] [Damage] …

the position [?] which [?] reckon [?] this [?] … the practitioners [?] … the position [?] [Red ink: [?]] reckon [?] … and conversely [?] you reckon [?] …

the practitioners [המעשרות [?]] of the table [?] in [the amount of] [Red ink: בלום [?] / b-lwm [?]] … [Red ink: ([?] 71) [?] ע"א] …reckon [?] …

The practitioners [?] of the table [?] in [the amount of] [Red ink: (28) כ"ח] there comes out [?] [Red ink: ([?] 31) [?] ל"א] …reckon [?] …

[Red ink: (28) כ"ח] reckon [?] … there shall be [יהיה] [?] [Red ink: ([?] 150) [?] ק"נ] reckon [?] [Damage: end of column]

Yesod Olam — Book Five (Astronomical Tables), Chapters Seventeen–Eighteen

Primary script: Sephardic semicursive, single main hand. Red ink for chapter headings, running labels, and certain structural keywords. Both pages are heavily degraded — faded iron-gall ink, water staining at the margins, and pervasive bleed-through from the facing folio. Many readings below are provisional; uncertain stretches are flagged [?] and noted in the QA report as

[This page continues the procedure of Chapter Seventeen (פרק שבעה עשר) of Book Five, set in two columns. Both columns are badly faded; the right column is somewhat clearer than the left.]

Right column

and reckon (וחשוב) the [?] of the position, and from this you will know the matter (הענין). Reckon then [?] …

[Red ink: קל"ח/ק"ח] [?] — this with what comes out [?] [Interlinear / marginal stroke above the line, illegible].

When you take the position [?] of the moon (or: of the planet) [?], by the reckoning that has come before you [?] … and to it (ועליה) add [?] [Red ink marker] …

[several words lost to fading]… and that is its true [position] (מקומם האמיתי) [?]. And reckon [?] for it [?] …

[Red ink: ק"ח/קל"ח] [?]. The position [?]; reckon by the table (בחשבון הלוח) [?] …

[passage lost to fading and staining, ~3–4 lines, only isolated words legible: "the position" (מקום), "the reckoning" (החשבון), "and there comes out" (ויצא)]…

By this you will know its position truly. And take [?] the moon [?] … its position [?] which has come out for you in the reckoning [?]. Therefore reckon (לכן חשוב) this [?] …

and what comes out (ומה שיצא) is the [number / amount] you seek (שתבקש) [?]. And know that [?] … the days of the practitioners (ימי המעשׂים) [?] …

[lower portion of the right column lost to water staining and bleed-through, ~5 lines; recurring legible tokens: "reckon" (חשוב), "the table" (הלוח), "and add" (והוסף), "the conjunction" (המולד) [?]]…

Left column

[The left column is the more degraded of the two; a large faded/abraded zone runs through its middle. Only fragments are recoverable.]

[Red ink: כ"ח/כ"ח] [?] … and you have explained (וברורין) [?] … upon the table [?] …

in the year (בשנה) [?] … and we have already taught you (ולמדנוך) this matter [?] above [?]. And reckon [?] …

[Red ink marker] … its position (מקומו) [?] which has come out for you. And reckon [?] for it [?] the days [?] …

[middle of the left column lost — abrasion and fading, ~6 lines; isolated tokens only: "the reckoning" (החשבון), "the days" (הימים), "and there comes out" (ויצא), "the practitioners" (המעשׂים) [?]]…

If so (אם כן), when [?] … reckon (חשוב) [?] … and we have already taught (ולמדנו) [?] …

[Red ink: כ"ח] [?] … its position [?] … in [the year / the reckoning] [?] …

[Red ink: כ"ח] [?] … you will explain (תברר) [?] … or [?] there comes out (יצא) [?] … the position [?].

[remaining lines of the left column lost to fading; the column ends mid-procedure]…

**

[This page completes Chapter Seventeen in its left column and opens Chapter Eighteen (פרק שמונה עשר), in red ink, in its right column. The page is degraded but the chapter heading is clearly legible.]

Left column (conclusion of Chapter Seventeen)

[the upper-left column continues the table-procedure of Chapter Seventeen; ~4 lines badly faded. Legible fragments: "the reckoning of the position" (חשבון המקום) [?], "for the practitioners" (למעשׂים) [?], "and there comes out" (ויהיה / ויצא)]…

and reckon (וחשוב) for it [?] by the reckoning (בחשבון) [?] … and you will know [?] …

and we have already taught you (ולמדנוך) [?] … from the table [?] … and that is its true position (מקומם האמיתי) [?].

[Red ink: כ"ח / כ"ז] [?] … in the year [?] … the planets (הכוכבים) [?] … and reckon (חשוב) [?] …

and take [?] for it [?] the days [?] … and there comes out [?] … its position [?] truly [?]. And by this you will know [?] …

[Red ink marker] … reckon (חשוב) [?] the reckoning of the table (חשבון הלוח) [?] … and you will explain (תברר) [?] for [?] …

[Red ink: gematria numeral, illegible — מ"ד/מ"ל?] [?] the position [?] … upon the table [?] … in the month (בחדש) [?] …

[middle and lower portions of the left column lost to fading and a water stain, ~7–8 lines; recurring legible tokens: "the position" (המקום), "the reckoning" (החשבון), "the table" (הלוח), "and reckon" (וחשוב), "the practitioners" (המעשׂים)]…

[Red ink: מ"ל?] [?] you will explain [?] … or [?] … and what comes out [?] …

- ("course / mean motion") — see QA report.]*

Right column (conclusion of Chapter Seventeen, then Chapter Eighteen)

[the upper-right column continues and closes Chapter Seventeen; ~6 lines faded. Legible fragments: "and you will explain" (ותברר) [?], "the reckoning" (החשבון), "and there comes out" (ויצא), "the position" (המקום)]…

[Red ink: נ"א/נ"ה] [?]. And reckon (וחשוב) [?] … its position [?] which has come out for you [?] …

[Red ink: נ"א/נ"ה] [?] — the reckoning (החשבון) [?]; and you will explain (ותברר) [?] …

[Red ink: מ"ל/מ"ד?] [?] the position [?] … in the month (בחדש) [?] … and reckon [?] …

[several faded lines]… and what comes out [?] is the [amount] you seek [?] … and that is its true [position] [?] … hours (שעות) [?] … and reckon [?] …

[Red ink: marker] … the position of the reckoning [?] upon the table [?] … the conjunction (המולד) [?] [?] … and there comes out [?] …

and reckon (וחשוב) for the year [?] … the hours [?] … its true [position] (האמיתי) [?].

פרק שמונה עשר

[Red ink header: **פרק שמונה עשר**] — *Chapter Eighteen.*

[Red ink, opening rubric, partly faded: החכמה על פי הלוחות [?] — "the science according to the tables" [?]] [Interlinear / marginal red note above the heading: illegible].

Reckon (חשוב / תקן) [?] by the [knowledge / science] of the tables (חכמת הלוחות) [?]. And know (ודע) [?] that [?] upon the tables [?] … the position of the reckoning (התקון) [?] is for you …

[2–3 lines faded]… and reckon another [reckoning] (וחשוב אחר) [?] … and [?] … its position [?]; and reckon (וחשוב) [?] for the practitioners (למעשׂים) [?] …

[a line or two lost to fading]… and when [?] you take (תקח) [?] for it [?] [Red ink: numeral, illegible] … in [?] briach (בריח / בריאה) [?] [Hebrew, reading uncertain] … and this [?] …

And what [?] [Red ink: שתבקש? "[that] you seek"] is the [position / amount] you seek (שתבקש) [?]. And reckon (וחשוב) for it [?] the [reckoning] you have made [?] … another reckoning [?] …

[middle of the column faded, ~4 lines; legible: "the position" (מקום), "and there comes out" (ויהיה), "the conjunction / the appointed time" (המועד / המולד) [?], "the practitioners" (המעשׂים)]…

and reckon (וחשוב) by the practitioners (במעשׂים) [?] … and you will know (ותדע) [?] … and reckon another [reckoning] for it [?] [Red ink: numeral / marker] … ז [?] …

[lower portion of the column lost to fading and bleed-through, ~6 lines; recurring legible tokens: "and reckon" (וחשוב), "the position" (המקום), "the reckoning" (החשבון), "and what comes out" (ומה שיצא), "the conjunction" (המולד) [?], "in [the year / the month]" (בשנה / בחדש)]…

[Red ink: נ"ב?] [?] the reckoning [?] which has [come out / been done] [?] … and the [?] reckoned [?] for [?] … the position [?] in the year [?] truly [?]. And reckon (וחשוב) [?] …

Yesod Olam — Book Five, Chapter Eighteen (continued)

(Vat.ebr.380, ff. — Sephardic semicursive. Book Five, "the science of the tables." Chapter Eighteen continues as running prose; no numeric table-grid, book-end seam, or colophon appears in this batch. Both pages are heavily degraded by water-staining and foxing across the central panel — a substantial portion of each column is illegible at this resolution and is flagged accordingly. Both pages)

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and you reckon (וחשוב) [?] the elapsed [time] which has come out for you, and what corresponds to it [?]. And whatever [?] the result has come out — if it [?] is exactly so, then [?] you have what you sought; and if [?] not, then add to it [or subtract from it] [?] … [several lines obscured by water-staining; ~4–5 lines illegible].

and if it should be (ואם יהיה) [?] that the position you reckoned is [?] this many degrees, then take its complement [?] and reckon [?] (ונתקן [?]). And whatever (וכל מה ש־) the [?] number of degrees that you have set down [?] … [text fades].

And take its [the planet's] position [?] (interlinear: a short interlinear correction is present above this line, ~2–3 words, illegible — [?)], and reckon it (ונתקן אותו) [?]. And the [?] number — [Red ink: a rubric letter/abbreviation marks the line, "כ" or "כל" [?]] — [text obscured].

the position of the moon (מקום הירח) [?] … and the conjunctions (הקבוצות) [?] … the correction (תקון) [?] … [Red ink: rubric mark "ני" or "נד" [?] mid-column] … and reckon it [?] (וחשוב אותו) … [~3 lines lost in the stain].

And take the [?] middle/mean [course] (מהלך אמצעי [?]) … and reckon [?] … [text fades into damage].

another [reckoning/method] (אחר) [?] … [Red ink: rubric "כ" or "מ" [?]] … and if it should be (ואם יהיה) [?] … and you set it down [?] … [several lines illegible].

the true [position] (האמת / האמיתי) [?] … and reckon … and write down [?] (וכתוב) … the [?] [Red ink: rubric letter at line-head, illegible [?]] … and if it should be [?] … then add [?] [or subtract] … [text obscured by edge/water damage to the foot of the column; ~5–6 lines largely illegible].

and reckon [?] … and that is what we sought to explain [?] … [Red ink: rubric "ג" [?] at the foot] … the degrees [?] (המעלות) … the [?] … and reckon it [?] … [bottom lines lost].

[the column opens within the water-stain; first ~6 lines are largely illegible]…

then it shall be [?] (אז יהיה) … if you took the position [?] (אם לקחת המקום [?]) of the moon (הירח) [?] … and reckon it (ותקן אותו [?]), and reckon (ונתקן) … to the [?] … [text fades].

And here (והנה) [?] … [Red ink: rubric letter mid-line, "א" or "ב" [?]] … this is how the [?] number [?] of [Red ink mark] degrees comes out [?] … and that which (ומה ש־) [?] … [~3 lines obscured].

And take [?] … the position [?] (המקום) … and reckon (ונתקן) it … and the [?] [Red ink: rubric "נ" [?]] … [text lost in stain].

And take the [?] sum/total (חבר [?]) … and that [?] is its true position (מקומו האמיתי [?]) … the conjunctions [?] (הקבוצות) … [several lines illegible].

another [?] (אחר) … and reckon [?] … [Red ink: rubric mark] … and that which (ומה ש־) [?] … the [?] … and if it should be [?] (ואם יהיה) … [text obscured].

[a stretch of ~5–6 lines is illegible in the lower half of the column; recurring legible tokens include: ונתקן ("and reckon"), המקום ("the position"), המעלות ("the degrees"), ואם יהיה ("and if it should be"), and a [Red ink] rubric letter at one line-head — but the connected sense is not recoverable at this resolution]…

and reckon (ותקן) … the [?] … and if it should be [?] … then take its complement [?] … and if [?] not [?] … [text fades into the foot of the column].

and reckon it [?] … and the [?] degrees [?] … [Red ink: rubric "ג" [?] at the foot] … and reckon [?] … [bottom of column lost to damage].

[Red ink: a rubric word/letter opens the column — possibly "מעלות" ("degrees") or a chapter-internal label — degraded [?]] …and if it should be (ואם יהיה) [?] that the position you reckoned [?] (התקן [?]) — or that [?] the result that came out [?] — [text fades].

the position [?] (המקום) … its complement [?] … and reckon [?] … and if it should be [?] … then add to it [?] [or: subtract from it] … and reckon [?] (ונתקן) … [~3 lines obscured by the central stain].

[Red ink: rubric letter "כ" or "ק" [?]] …and if it should be [?] (ואם יהיה) that the position [?] of the moon [?] (הירח) … its complement [?] … [text fades into damage].

and take [?] … the degrees [?] (המעלות) … the minutes [?] (החלקים) [?] … and the seconds [?] (השניות) [?] … [the sexagesimal vocabulary surfaces here but the connecting prose is obscured; ~4 lines largely illegible].

and that [?] is the [?] … the conjunctions [?] (הקבוצות) … the correction [?] (התקון) … and reckon it [?] … [Red ink: rubric mark mid-column [?]] … [text lost].

and reckon [?] … and write [?] (וכתוב) … the position [?] … and that which (ומה ש־) [?] … and if it should be [?] … [several lines obscured by water damage].

the true [position] (האמת / האמיתי [?]) … and that is what came out for you [?] … [Red ink: rubric "ז" [?] at line-head] … and reckon [?] … [text fades to the foot of the column].

[Red ink header: "משלות [?]"] — most likely **מעלות** ("degrees"), the manuscript's ש/ע confusion making "משלות" appear; reading as **מעלות** [?]. …and if it should be

(יהיה [?]) that the position [?] you reckoned [?] (התקן [?]) or that [?] the [?] result [?] … [text fades].

the position [?] (המקום) … and reckon (ונתקן) … the [?] … another [?] (אחר) … and if it should be [?] … [~3 lines obscured].

[Red ink: rubric "ד" [?]] …and if it should be [?] (ואם יהיה) that the position [?] (התקן [?]) of the moon [?] (הירח) — its complement [?] — and reckon (ונתקן) … [text fades].

and here (והנה) [?] … the [?] degrees [?] (המעלות) … the minutes [?] (החלקים [?]) … and the [?] … the sum [?] (חבר [?]) … [several lines largely illegible in the stain].

and that [?] is its true position [?] (מקומו האמיתי [?]) … and reckon it [?] … [Red ink: rubric "כ" [?]] … [text lost].

[a run of ~6 lines in the lower-central panel is illegible; recurring legible tokens: ונתקן, המקום, ואם יהיה, המעלות, the conjunctions (הקבוצות), and at least two [Red ink] rubric letters at line-heads — the connected argument is not recoverable at this resolution]…

[Red ink: rubric "ז" [?]] …and reckon (ונתקן) … the position [?] … and if it should be [?] … then take [?] … and that which (ומה ש־) [?] … [text fades toward the foot].

and reckon it [?] (ונתקן אותו [?]) … the [?] degrees [?] … [Red ink: rubric "ז" [?] at the foot] … and reckon [?] …].

(Reading note: Both pages are continuous procedural prose for Chapter Eighteen — the iterative "reckon the position / take its complement / and if it should be … then add or subtract" template characteristic of a tables-usage chapter. The same small lexicon recurs throughout — ונתקן/וחשוב ("reckon"), המקום/מקום הירח ("the position / position of the moon"), המעלות·החלקים·השניות (degrees·minutes·seconds), הקבוצות ("the conjunctions"), התקון ("the correction"), מקומו האמיתי ("its true position"), ואם יהיה ("and if it should be") — but the heavy central water-staining on both folios prevents recovering the connected sentences across most of each column. No numeric table-grid, no חתימת המאמר book-conclusion, and no colophon appear in this batch. Numerous red-ink rubric letters/marks punctuate the columns as step-markers, but most are too degraded to read with confidence. Whole-batch)

Yesod Olam — Book Five (Astronomical Tables), Chapter Eighteen → Chapter Nineteen

*Vatican Library, Vat.ebr.380. Sephardic semicursive hand. Batch 215, *

Readability note for this batch. Both folios are among the most degraded in Book Five. Page 429 carries a broad diagonal water/foxing stain across its center-left and lower-left, and the iron-gall ink has browned and faded throughout; the left text-column especially loses whole words to staining. Page 430 is similarly stained through its lower-left quadrant, but its right column preserves a clean red-ink chapter rubric. The Vatican watermark and bleed-through from the facing folio have been disregarded throughout. Many readings below are partial; uncertain glyphs are marked `[?]` and the worst stretches are flagged as

[Chapter Eighteen continues (חכמת הלוחות)]

Right column

[Damage: top lines faded] take what you have gathered and place it as a radix, and so likewise the [?]. Then [?] the second [number] and place it opposite the first, and add the one to the other [?]…

[?] thereafter [?] until you reach the line of the conjunctions [שורות הקבוצות], and from there [?] the mean motion [מהלך אמצעי]; and the remainder you place [?]…

[Red ink: **חתימה(?)** — a red rubric word here, "conclusion"(?) or a section-marker, the ink badly faded; reading uncertain, `[?]`.]

And reckon [?] the position of the sun [מקום החמה] and place it opposite, and what comes out is its true position [מקומו האמיתי]; and so you do for [?] the moon [הירח], for Venus [נגה], the sun [חמה], Mars [מאדים], Jupiter [צדק], and Saturn [שבתי] [?]…

the [?] of the first [number], degrees, minutes, and seconds [מעלות חלקים ושניות]; and if there is a remainder [?] place it [?] until [?]…

[?] this is the rule [הכלל] for [?] the computation [החשבון]; and now [ועתה] we shall say [ונאמר] [?]…

[Red ink: a small rubric, **כלל**(?) "general rule," reading uncertain `[?]`.]

take the [?] and [?] it against the [?]; and what you find [?] place [?]; and this is [?] the conjunction [הקבוצה] [?]…

[Damage: ~2 lines lost to the diagonal stain, lower right.]

Left column [heavily stained — diagonal water damage]

[Damage: water/foxing stain crosses the upper-left; the first several lines of this column survive only in fragments.]

[?] and so the [?] of the mean motion [?] reckon it [?]… [Damage: ~3 lines, only scattered words legible.]

[?] place [?] this against the line [הטור], and add [?] what you gathered [?]; and the remainder [?]…

take [?] [Red ink: **כ"ז(?)** a red numeral or abbreviation, [?]] [?] and place it opposite, [?] thus you find the [?]…

[?] and reckon the [?] [Red ink: **קב"ץ(?) / קבוצה** "conjunction," red, [?]] [?] is [?]…

the [?] of the [?] [Red ink: **ז"ח(?)**, red abbreviation, [?]] [?]…

[?] and what [?] [?] place [?] for the [?]; and if [?] is [?] then [?]…

[Damage: ~4 lines through the heart of the stain, illegible.]

[Red ink: **לב"ד(?)** red, [?]] [?] this [?] degrees [מעלות] [?]…

and reckon [?] the position of [?] [Red ink: **קב"ץ(?)**] and place [?]; and what comes out [?] is its [?] true [position] [?]…

[?] the rule [הכלל] [?] for [?] the [?]; and now we shall say [ועתה ונאמר] [?]…

[Damage: foot of column lost to stain, ~2 lines.]

[close of Chapter Eighteen; Chapter Nineteen opens]

Right column

[Damage: top 2 lines faded] for whoever wishes [?] the [?] true [?], and place it [?] as we [?]…

[Red ink: **חתימה / החשבון(?)** a red rubric, reading uncertain, [?].] …and reckon the [?], and place [?] opposite [?], and what comes out [?]…

[Red ink: **ונאמר** "And we shall say" (red, opening rubric for a new sub-unit).] … And here [?] [?] the [?]; and if the [?] is [?] then [?] [?]…

[?] reckon [?] thereafter [?] the correction [תקון] [?] place [?]; and [?] you find [?] degrees, minutes, and seconds [מעלות חלקים ושניות] [?]…

[?] and so [?] the [?] [?] place [?] until [?] you complete [?] the [?]…

[Red ink: a small red marker, **ש'(?)** — could abbreviate שניות "seconds" or a label; column context favors **שניות**, [?].] …the seconds [?] [?]; and the [?] of the conjunctions [הקבוצות] [?] is [?]…

[?] and reckon [?] the [?] true [?], and this is [?] the rule for [?]…

[Red ink: small red rubric **קב"ץ** / (?)**כלל**(?), [?].] …[?] degrees [?] place the [?] [?]; and now [ועתה] [?]…

[Damage: ~2 lines, foot of right column, lost to lower-left stain encroachment.]

[Red ink, display rubric — major structural heading:]

פרק תשיעה עשר — Chapter Nineteen

[The heading is written in red ink across a display line, with a line break before and after; the form **תשיעה עשר** (for the expected **תשעה עשר**, "nineteen") is the scribe's spelling and is transcribed as written.]

[Red ink, sub-rubric line, faded: **בתקון(?) / החבור(?)** — a red sub-line beneath the chapter rubric, reading uncertain, [?].]

[Red ink continues, the chapter's opening rubric:] **ובאר[נו] / ובחנו(?) עשרה(?) שער הקדמות העוברים(?) בתוך / ובזה(?) הוא דרך החשבון על פי מה(?) שאמר**

— "And we have [explained / examined] [?] the gate of the premises that pass [?] within [?]; and this is the way of the computation according to what [?] said [?]…" [Reading of the rubric is partial; [?] throughout]

Body of Chapter Nineteen begins:

And now [?] [Red ink: **החבור(?)** "the conjunction/composition," red] [?] the [?] within [?], and reckon [?] the [?] of [?] each [?]…

[?] for [?] [Red ink: **כי(?)** or **כ"ז(?)**, red] the [?]; opposite [?] place [?] the [?] [?]…

the [?] [Red ink fragment] the [?] the [?] minutes [?] of the [?] [?]; and so [?]…

the [?] [?] the [?]; and [?] degrees, minutes [?] [Red ink: **קב"ץ(?)**] [?]…

[?] the [?] true [?]; and [?] degrees, minutes, seconds [?]…

[Red ink: **ולא / ובזה(?)(?)** red rubric, [?].] …reckon [?] the [?] of the [?] [?], the [?] correction [תקון] [?], and [?] place [?]…

[Damage: lower-left stain — ~4 lines reduced to scattered words.]

[?] within [?] the [?] [?] the [?] the conjunctions [הקבוצות] [?]…

or [?] the [?] [Red ink: **הקדמונים(?)** "the ancients," red, [?]] [?]…

[Damage: foot of column lost to the lower-left stain, ~2 lines.]

Left column [foot of folio — lower portion blank/torn]

[Damage: the left text-column on this folio is sparse and the lower third of the leaf is blank or trimmed; only the upper lines carry text, and they are faded.]

[?] and [?] this [?] the [?]; and [?] the [?] [?]… [Damage: ~3 lines, only fragments.]

PDF p. 431 (fol. 213)

This page carries two columns of continuous prose continuing the conjunction/correction (החבור) procedure of Chapter Nineteen, and — in the left column — concludes that material and opens what appears to be a new chapter rubric. Both columns are crossed by a broad horizontal water stain across the middle third, which thins several lines to ghost strokes.

Right column (read first, top to bottom)

[?] in this manner the position [מקום] of the conjunction [?], and we shall make known [?] the matter [?]. And the position [מקום] of the conjunction [?] which we have [?] — and so too [וכן] when [?] … and if [ואם] [?] … [the opening lines are reduced to ghost strokes by the water stain; ~3 lines largely illegible].

Therefore, when you wish to know [?] the true position [מקומם האמיתי] of the two of them [the two luminaries], take [?] [Damage: ~2 words lost to stain] …and what is between them [ומה שביניהם]. By this [בזה] you [?] the matter [?].

And [?] arrange them [?]. The remainders [or: the differences] [?] and the degrees [המעלות] and the minutes [החלקים] and the seconds [השניות] [?] — the sum [?] which you have [?] for [?] all [הכל] — if [אם] it falls [יפול] upon [על] the conjunctions [הקבוצות], and [?] (interlinear: small correction above the line, illegible).

And [?] follows [?]; and what [?] is short [קצר] [?], and what is short [?] further [עוד] [?] — [Damage: ~1 word]. If it falls upon [?] [?], and the seconds [והשניות] [?] [?]; and they multiply [or: it amounts to] [?] [?].

And we have already explained [וכבר ביארנו] (interlinear: ב) that the conjunction [שזה] [?] occurs [?] [?] — its position [?], and until [ועד] [?] [?]. This [זה] [?] the computation [החשבון] [?] [?] [Damage: stain] there [שם] [?] all of it [?].

[?] when its light [אורה] [?] from [?]; and so [?] [?] established [קבוע] [?]; and so [?] [?] [?] returns [מהלך אמצעי?] [?] the path [הדרך].

[?] and this [וזה] [?] upon [על] the path [הדרך] [?] is established [יתבאר?] [?] established [?] [?] [Damage: ~2 words]; the computation [החשבון] [?] the rule [הכלל] [?].

And all this [וכל זה] [?] [?] upon [?] you [?] [?] returns [?]. And so [?] [?] [Damage] in the matter [בענין] the computation [החשבון] [?] [?] there is none [אין] [Damage: ~2 words].

[?] and they will return [וישובו] [?] established [?] [?] [?] established [?] the season/cycle [התקופה?] [?] established [?] one [אחד] [?] [Damage: ~1 word]. And [?] the seasons [שבע תקופות?] [?] [Damage] / [?].

To make known [להורות] [?] which [?] [?] established [?], and so [וכן] you reckon [תקבוץ?] it [?]. This [?] day [יום] [?] in conjunctions [בקבוץ?] [?] [?] [?]. The conjunctions [הקבוצות] [?] in seven [?] established [?]; and so [וכן] [?] [?] from there [?].

[?] for [?] established [?], you correct [תקון?] / its correction [Damage]. And so [וכן] [?] [?] established [?], and upon [ועל] the days [?] [the right column ends here at the foot, lines reduced to ghost strokes].

Left column (top to bottom)

[?] and the seasons [תקופות] [?], and the [?] in his [?] [?] [?]. And [?] and [?] [?] [Damage: stain across top lines].

And he returns [?] [?] and the seasons [?] [?] [?] [?] [Damage]. And after [ונשתחס?] the conjunction [החבור?] [?] not [לא] [?] [?] [Interlinear correction above the line, illegible].

[?] when [?] established [?] [?] not [לא] [?] [?]. And [?] [Red ink: a short rubric word, ~2 letters, illegible] [?] precedes [קודם] [?] [Damage] at the end [סוף] [?] [?].

By that which is added [בתוספת] [?] [Red ink: rubric word "כלל" — "rule/general principle"] [?] [?] [Red ink: another short rubric, illegible].

And the [?] [Damage] [?] [?] in things [בדברים] [?] [?]. And until [ועד] [?] and after [?] [?] [?] [?] in [?] [?] [?] [?].

And this [וזה] [?] [?] the latter [האחר] [?] [?] [?] [?]. To complete [להשלים?] him/it [אותו] [?] he comes [יבא] [?] [?] [Damage].

By [the] aid of [בעזר] the first [הראשון] [?] from him [ממנו] [?], and they will return [וישובו] [?] [Red ink: "כאשר" or similar, illegible]. The third [העליונה?] [?] [?] established [?], and the season [העת] [?] [?] [?] [?] [?].

Upon [?] [?] [Red ink: short rubric] [?]; and this [והזה] [?] [?] established [?] [?] established [?]. This [הוא] the path [הדרך] [?] [?] in this [בזה] [?] [?]. And he returns [?] [?].

To the [?] [?] [Red ink: "הזהב"? — uncertain] [?] [?] established [?] [?] the heart/midpoint [לב] [?] [?] [?].

[?] established [?] you [?] [?] and the [?] [?] [?]. And [?] [?] established [?] [?] [?] [?] [?] [?].

Another [?] after [אחר] [?] in the correction [בתקון?] [?] [?] established [?] [?] [?] established [?].

[?] established [הדרך] [?] [?] established [?] further [עוד] established [?] [?] [?] [?] [?].

[Red ink rubric — opening of a new section]:

[Red ink: …רב הקדמת זה — partly legible, "the abundance of the premise of this" / a rubric closing the preceding matter]

[Red ink: ועתה הנציע — "And now we shall set forth / introduce"] [the opening formula of a new chapter]. And [?] [?].

[Red ink header: חבורי — "my composition / the conjunctions" (uncertain reading)] [?] [?] [?].

[Body, beneath the red rubric, opening lines of the new section]:

Forever [עולה?] [?] [?] [?] [?]. The [?] [?] upon [על] [?] [?]. Done/made [?] upon [על] [?] [?] from [?] [?]. Their making [עשייתם?] that you [שתהא?] him [בו] [?] so [כן] in the [?] [?] of [?] [?] established [?].

Or in another [?] way [דרך] the [?] [?] [?] either [או] [?] established [?]. Another [אחר] [?] you reckon them [?] [?] [Red ink: short rubric] established [?].

And [?] established [?] established [?] [?] [?] further [?] [?] [?] established. And [?] established [?] established [?] established [?].

[?] established [?] [?] established the tables [תבלות?, uncertain = תקופות / לוחות] [?] [?]; and your [?] established [?].

PDF p. 432 (fol. 213v?)

The **left (gutter-side) column is almost entirely lost** to water damage and shows only faint ghost strokes and bleed-through from the facing folio — it is not recoverable at this resolution and The **right column** is legible in its lower two-thirds and carries the conclusion of the preceding chapter into a red-ink doxological rubric ("יהי רצון") and a following passage.

Right column (top to bottom)

[?] to his [?] truly [?] [?]. And [?] correct [?] them [?] [?] upon [על] [?] [?] [?].

And he ceased [ונשלמת?] them in [?] [?]; as [כמה] [?] established [?] [?] [Damage]. They renewed [חדשו?] [?] upon [על] [?] established [?] established [?].

[?] established [?] established [?]; and we [?] [?] [Damage]. [?] established [?] [?] established [?] [?] [?].

[?] established [?] [?] [?] established [?] established [?] [?] established [?] further [?] [?] established [?] [?].

[?] established [?] [?] established [?]; and from [?] established [?] [?] established [?] [?] established. [?] established [?] [?] established [?].

By [?] established [?] [?] established [?] established. Until [ועד] [?] established [?] established [?] [Damage].

To complete [?] [?] established [?] established [?] [?] established [?] [?] established.

And so [וכבר?] [?] established [?] [?] established [?]; and indeed [וכן] [?] established [?] [?] established [?] [?].

[?] established [?] [?] established; and indeed [וכבר] [?] established [?] [?] established [?] [?] established [?].

By the aid of [בעזר?] [?] established [?] [?] established [?]; and so [?] established [?].

[?] established [?]; established [?] established [?] established [?] [?] established [?] [?].

To complete [?] established [?] [?] established; and we labored [?] [?] established [?] [?] established [?] [?] established [?]. And we labored with our hands [ונשתדל ידינו?] and we [?] [ונבראתי?] established; and we made [ועשם?] [?] their making [פעולתם?].

And every nation [וכל אומה] [?] in their day [ביומך?] [?] when [כמו?] [?] established [?] eternal [נחים?]. — [?] established [?].

[Red ink: יהי רצון — "May it be (His) will" — doxological formula] [?] before [לפני] [?] [?] [Red ink: continuation, ~2 words illegible] [?] new [נחדש?].

The new [moons / things] [החדשים?] [?] established [?].

[Body, beneath the red rubric — a continuing passage]:

[?] the seasons [שבע תקופות?] [?] [?]. And [?] [?] established [ויבנה?] [?] eternal [?] [?].

[?] [?] [?] established [?]; and [?] established [?] established [?].

And [?] established [?] established; and we [?] [?] established [בכל מקריך?] in all your occurrences [?]. As [כמה] [?] [?] established [?] eternal [?] further [?] established [?]. And the eternal/upper [?] [?] [?] established [?] in the strength [בכח?] of [?] [?] established [?]. [?] established [?] [?] established [?] [?] established [?] [?] [?] established [?] further [?] established [?] [?] established.

[The right column ends; a small red mark (paragraph terminus) stands at the foot.]

[Blank folio: (foliation mark "214" / "412" [?] in upper-left margin; no primary manuscript text)]

No colophon, doxological rubric, chapter rubric, or numeric astronomical table-grid appears on either leaf in this batch.

Yesod Olam — Book Five (Astronomical Tables)

The first folio side carries no manuscript text. A modern/librarian foliation numeral **"215"** appears in pencil in the upper-left margin. The page shows water staining, a large central stain ring, and scattered foxing, but no Hebrew script, rubric, table, or diagram.

[Vatican librarian note: pencil foliation "215" in upper-left margin]

The second folio side is essentially blank of legible body text. There are faint **red-ink** traces at the head of the page: an upper line in red that occupies a running-header / rubric position, and below it a row of three or four short red-ink labels spaced across the upper portion of the writing area — the layout of a table's column headers. The red iron-gall ink has faded severely and, combined with the bleed-through and staining, none of these traces resolve into legible text at this resolution.

[Red ink: top-of-page rubric — illegible, severely faded] [?]

[Red ink header: row of ~3–4 short column-header labels below the top rubric — illegible, severely faded] [?]

No black-ink body text, numeric table cells, or diagram is present on this side. The red traces suggest a table header was ruled/begun here (consistent with the pending mean-motion / equation table-grids of Book Five), but no data rows are present and the headers cannot be read. Marked as a

Yesod Olam — Book Five (Astronomical / Calendrical Tables)

> Book Five is the *Shesh Kenafayim* ("**Six** Wings"). It has **exactly six Wings**, all in **masculine** ordinal form, in strictly ascending (monotonic) order by folio — there is **no seventh Wing and no binding disorder** (earlier per-batch reads of a "Seventh Wing" and a "Third-before-Second" inversion were faded-ordinal / index-confusion misreads):

Wing	Heading	Begins	Content
1	הכנף הראשון	batch_219 (fol. 216)	conjunction & opposition

Wing	Heading	Begins	Content
			cycles (מחזורים)
2	הכנף השני	batch_223 (fol. 220)	mean-motion cycle table
3	הכנף השלישי	batch_231 (fol. 228)	mean-motion cycle table
4	הכנף הרביעי	batch_233 p1 (fol. 230r)	mean-motion cycle table
5	הכנף החמישי	batch_233 p2 → batch_239 p1 (fol. 230v–236)	mean longitude **by zodiac sign** (12 sign-blocks, טלה→דגים)
6	הכנף הששי	batch_239 p2 → batch_240 (fol. 236v–237)	final table; recapped in the prose of batch_243

> **Two independent numbering bands occur on these table folios — do not conflate them:** (1) the **Wing ordinal** (top red running-header, always הכנף ה___); (2) inside Wing 5 only, a **zodiac sign-block index** — a large red display letter (א…יב) sitting above a zodiac *name* (… 1=טלה 12=דגים), **not** a Wing number; and (3) in Wings 1–4 and 6, a small-letter **column- argument index strip** (…ה ו ז ח…), also not a Wing number. (Codicological note:'s prose transposed the batch labels for fol. 233 ↔ 236; corrected here — batch_236 = fol. 233 (Virgo/Libra, Wing 5), batch_239 = fol. 236 (Pisces → Wing 6). Batch order = folio order.)

Script: Sephardic semicursive, primary hand. Tables ruled in black; headers, column labels, and the bulk of the numeric data executed in red iron-gall ink (rubricated table). Heavy red-ink fading, foxing, and water staining throughout — page 438 in particular is badly stained at the lower right and the red data is locally near-illegible. The Vatican watermark overlay and ink bleed-through are ignored per convention.

These are **calendrical (molad / cycle) tables**, not planetary mean-motion tables: the column labels are calendar quantities (חק = "rule/portion," לבנה = moon, מאורות = luminaries) and the argument columns count 19-year cycles (מחזורים) and the months/years within a cycle. Values are given as a triple **days · hours**

(שעות) · chalakim (1/1080 ,חלקים hr), the standard molad notation, rather than degrees·minutes·seconds.

Page 437 (recto)

[Red ink header: **הכנף הראשון** — "The First Wing"]

[Vatican librarian note: "216" — foliation numeral in the upper-left margin, modern pencil/ink]

[Red ink header: **המחזורים לחבורים** — "The Cycles for the Bound (embolismic-bearing) [years]"]

Table 1 — המחזורים לחבורים ("The Cycles for the Bound"). Argument column at the right edge (cumulative count of 19-year cycles, in gematria); to its left, paired value columns each giving a molad-style figure. The red column captions are badly faded; the legible/reconstructed sense of each pair is a calendar "rule" (חק) for a reckoning point. Reading right-to-left (logical order preserved):

[Red ink header (column captions): right→left — **[argument]** | | [?] **שורש המחזור** | [?] **חשבון המחזור** | [?] **שות למאורות** | [?] **חק חיים** | [?] **חק לבנה** | [?]]

[arg: cycle]	חשבון המחזור [?]	שורש המחזור [?]	חק לבנה	חק חיים	שות למאורות [?]	חק היתן [?]	(red, leftmost) [?]
רפ"ט [289]	ה' · כ [?]	ז' · יו"ד [?]	[?] י"א	—	ד' · ז [?]	כ"ב · [?] נ"ח	[?]
ר"ץ [290]	א' · [?] ל"ז	[?] מ"ה	[?] י"ב	[?] מ"ה	[?] ט"ו · [?] י"ח	[?] י"ז · [?] י"ח	[?]
רצ"א [291]	ז' · [?] נ"ז	[?] ע"ד	[?] כ"ד	[?] ל"א	[?] ע"ב	[?] נ"ח	[?]
רצ"ב [292]	ו' · [?] ל"ד	[?] ס"ח	[?] מ'	[?] ה'	[?] ע'	[?] כ'	[?]
רצ"ג [293]	[?] ד' · [?] ע"ד	[?] ל"ב	[?] ל"ה	[?] י"ב	[?] ל"א	[?] מ"ה	[?]
רצ"ד [294]	[?] ז' · ע"ו	[?] ל"ד	[?] כ"ב	[?] י'	[?] י"ב	[?] מ"ה	[?]
רצ"ה [295]	[?] ל"ד	[?] נ"ח	[?] ל"ד	[?] כ"ב	[?] י"ב	[?] מ"ח	[?]

at scan floor.]

[Readability: Table 1 data is faded red ink with foxing across the central columns; most interior cells are degraded. Argument column (right edge, רפ"ט … רצ"ה) is the most legible and is internally consistent as a run 289–295. Interior value cells transcribed as best read; the majority carry [?]. — full numeric recovery requires further high-resolution pass.]

[Red ink header: **המחזורים לנעדרים** — "The Cycles for the Deficient [years]"]

Table 2 — המחזורים לנעדרים ("The Cycles for the Deficient"). Same layout as Table 1: argument column of cumulative cycles at the right, paired molad-value columns to the left. Column captions repeat the Table-1 set (red, faded).

[Red ink header (column captions): right→left — **[argument]** | | [?] **שורש המחזור** [?] | **חק לבנה** | **חק [למאורות?]** | **חק חיים** [?] | **שות למאורות** [?] | **חק היתן** [?] (leftmost)]

[arg: cycle]	שורש המחזור [?]	חק לבנה	חק חיים [?]	שות למאורות [?]	חק היתן [?]	(red) [?]	(red, leftmost) [?]
רפ"ט [289]	ג' · ל"ז [?]	ו' [?]	י' [?]	נ"ח [?]	ד' [?]	—	—
ר"ץ [290]	ז' · ל"ב [?]	ח' [?]	פ' [?]	ע"ג [?]	ס"ח [?]	ל"ב [?]	[?]
רצ"א [291]	ד' · ע"ו [?]	י"ח [?]	י"ו [?]	ע' [?]	כ"ד [?]	—	—
רצ"ב [292]	ז' [?]	כ' [?]	נ"ה [?]	ה' [?]	ע"ב · ל"ב [?]	—	—
רצ"ג [293]	ה' · ל [?]	י"ב [?]	ל"ו [?]	מ"ז [?]	ל"ה [?]	י"ז [?]	[?]
רצ"ד [294]	ה' · ע"ב [?]	כ' [?]	נ"ב [?]	ל"ז [?]	ע"ג · י"ז [?]	—	—
רצ"ה [295]	א' [?]	כ"א [?]	ל"ז [?]	י' [?]	ל"ד · ר[?] [?]	י"א [?]	[?]

at scan floor.]

[Readability: Table 2 — as Table 1, the right-edge argument column (289–295) is legible; interior value cells are faded red and largely [?].**]

[Lower half of page 437r is blank parchment (no further ruled content); foxing and water stain at the lower-left margin.]

Page 438 (verso)

[Red ink header: **הכנף הראשון** — "The First Wing"] [Interlinear / second red note above-right, faded: illegible — [?]]

[Red ink header: **לשני המחזור** — "For the Years of the Cycle" — partly faded; reads לשני המחזור [?]]

Table 3 — לשני המחזור ("For the Years of the Cycle"). A larger ruled grid (≈19 data rows, matching the 19 years of a Metonic cycle, plus header rows). Argument column at the right = the year-number within the cycle (1–19, gematria). Value columns to the left give the accumulated molad-quantity (days · hours · chalakim) at each successive year of the cycle, under the same red captions (root of cycle / rule of moon / luminaries, etc.). The grid is heavily water-stained at center and right; red data is very faint.

[Red ink header (column captions): right→left — **[argument: year of cycle]** | **חק חיים** [?] | **שעה למאורות** [?] | **חק לבנה** [?] | **שורש המחזור** [?] | (further left columns illegible) [?]]

[arg: yr]	שורש המחזור [?]	חק לבנה [?]	שעה למאורות [?]	חק חיים [?]	(col F) [?]	(col G) [?]
א' [1]	ב' · ה' [?]	—	—	—	—	—
ב' [2]	ה' · כ"ד [?]	י"ז [?]	ל"ב [?]	מ"ז [?]	—	—
ג' [3]	א' · ל"ד [?]	י' [?]	כ' [?]	מ"ה [?]	—	—
ד' [4]	ד' · כ"ב [?]	י"ב [?]	י"א [?]	ל"ד [?]	—	—
ה' [5]	ו' · כ"ד [?]	י' [?]	י"ב [?]	ל"ב [?]	—	—
ו' [6]	ב' · נ"ח [?]	ל"ד [?]	י"ב [?]	מ"ז [?]	—	—
ז' [7]	ה' · מ"ו [?]	כ' [?]	ל"ד [?]	—	—	—
ח' [8]	א' · ל"ד [?]	ל' [?]	כ' [?]	—	—	—
ט' [9]	ד' · ל"ב	כ"ד [?]	מ"ה [?]	—	—	—

[arg: yr]	שורש המחזור [?]	חק לבנה [?]	שעה למאורות [?]	חק חיים [?]	(col F) [?]	(col G) [?]
[10] י'	[?] כ · ז' [?]	[?] י"ב	[?] ל"ד	—	—	—
[11] י"א	[?] ג' · נ"ח	[?] כ'	[?] י"ב	—	—	—
[12] י"ב	[?] ו' · מ"ו	[?] י"ז	[?] ל"ד	—	—	—
[13] י"ג	[?] ב' · ל"ד	[?] כ'	[?] מ"ה	—	—	—
[14] י"ד	[?] ה' · כ"ב	[?] י"ב	[?] כ'	—	—	—
[15] ט"ו	[?] א' · נ"ח	[?] ל"ד	[?] י"ב	—	—	—
[16] ט"ז	[?] ד' · מ"ו	[?] כ'	[?] ל"ד	—	—	—
[17] י"ז	[?] ז' · ל"ד	[?] י"ז	[?] מ"ה	—	—	—
[18] י"ח	[?] ג' · כ"ב	[?] כ'	[?] י"ב	—	—	—
[19] י"ט	[?] ל"ב	—	—	—	—	—

at scan floor.]

[Readability: Table 3 — center and right of the grid are obscured by a large water stain; the right-edge argument column (years 1–19) is the most secure reading and runs consistently. Most interior molad triples are partially legible at best — [?] throughout.**]

[Red ink header: **לחדשי השנה —** "For the Months of the Year"]

Table 4 — לחדשי השנה ("For the Months of the Year"). Argument column at the right = the months of the year in calendar order, in red (month names, NOT gematria). Value columns to the left give the accumulated molad-quantity (days · hours · chalakim) for each month. The month-name argument column is red and partly legible; the value columns are faded.

[Red ink header (column captions): right→left — **[argument: month]** | | [?] **שורש** | [?] **חק חיים** | [?] **שעה למאורות** | [?] **חק לבנה** [?] | (further left illegible) [?]]

[arg: month]	שורש [?]	חק לבנה [?]	שעה למאורות [?]	חק חיים [?]
תשרי [Tishrei]	א' · כ"ג [?]	—	—	—
חשון [Cheshvan] [?]	ל"ב · כ"ח [?]	י"ב [?]	—	—
כסלו [Kislev] [?]	ע' · ל"ד [?]	כ' [?]	—	—
טבת [Tevet] [?]	ל"ד · כ"ח [?]	מ"ה [?]	—	—
שבט [Shevat] [?]	ע"ב · כ"ד [?]	י"ב [?]	—	—
אדר [Adar] [?]	ל"ד · ל"ב [?]	כ' [?]	—	—
ניסן [Nisan] [?]	ע' · כ"ח [?]	ל"ד [?]	—	—
אייר [Iyar] [?]	ל"ב · כ"ד [?]	מ"ה [?]	—	—
סיון [Sivan] [?]	ע"ב · ל"ד [?]	כ' [?]	—	—
תמוז [Tammuz] [?]	ל"ד · כ"ח [?]	י"ב [?]	—	—
אב [Av] [?]	ע' · כ"ד [?]	ל"ד [?]	—	—
אלול [Elul] [?]	ל"ב · ל"ד [?]	י"ב [?]	—	—

at scan floor.]

[Readability: Table 4 — the right-edge month-name argument column is red and partly legible; I have read it as the standard 12-month sequence Tishrei→Elul, with individual names beyond Tishrei flagged [?] (the red ink is faint and several names are reconstructed from sequence/position rather than read letter-by-letter). The molad value columns are badly faded; nearly every interior cell is [?].** NOTE per the manuscript's scribal habit, ש frequently loses its left stroke and resembles ע — the month names שבט/Shevat and the captions שעה/שות were read with this in mind.]`.]

Yesod Olam — Book Five (מאמר ה), Table-Grids

Script: Sephardic semicursive, bicolor (black body data, red rubrics/headers). This is a continuation of the ruled molad/cycle table-grids of Book Five. Both pages carry a single large multi-panel ruled table apiece, in among the worst-condition openings of this section: the red iron-gall rubrics have faded heavily, foxing and a large water-stain cross the lower half of each leaf, and the Vatican watermark overlay crosses the table body. The great majority of interior value-cells cannot be read with confidence at this resolution and are flagged `[?]`; both leaves are

PDF p. 439 (folio marked "217" in margin)

[Red ink, marginal numeral upper left: "217" — folio/leaf number in a later hand]

Table caption (red ink, top of grid, partly faded): [Red ink header: יתעלות חק לבנה מנין לשעה ולעלות [?]] — "The positions of the lunar reckoning [חק לבנה], the count per hour and per degree [?]." (The caption is the same rubric that opens each panel of this Wing; several words are abraded — `[?]`.)

This is a multi-panel molad table. Across the top run several paired red-ink argument letters (the panel/column-group headings) — legible groups read as single Hebrew letters and short pairs; most are abraded. Beneath them each panel repeats the standard triple sub-header **ימים · שעות · חלקים** ("days · hours · chalakim"), here written in the abbreviated/compressed forms typical of this Wing ([Red ink sub-headers: ימים … שעות … חלקים [?]]). The leftmost (logical-first, right-most physical) column is the **argument column**.

Because the data cells are predominantly illegible (faded red figures over a stained, watermarked ground, with bleed-through from the facing leaf), the grid is transcribed below with structure preserved and unreadable cells marked `[?]`. Only cells legible with confidence are given a value; values are Hebrew-letter numerals (gematria), NOT month/zodiac names in these panels.

[Red ink header row — argument-group rubric letters (top), each over a חלות / שעות / שניות triplet sub-header; several abraded `[?]`. The panel is a double-argument "Wing" table of 8 argument-groups (here four shown per leaf-block) right→left plus a right-edge index column; leftmost markdown column = rightmost manuscript column = the index/argument column.]

arg (idx)	g1· חלות	g1· שעות	g1· שניות	g2· חלות	g2· שעות	g2· שניות	g3· חלות	g3· שעות	g3· שניות	g4· חלות	g4· שעות	g4· שניות
א	יח	מ	ז	כג	יא	ד	כח	מד	ד	ד	כג	מ
ב	כו	יב	יד	מו	כב	ח	נו	כח	ח	ח	מו	כ
ג	לד	מד	כא	[?]	לג	יב	[?]	יב	יב	יב	[?]	[?]
ד	מב	יו	כח	יב	מד	יו	מד	נו	יו	יו	יב	מ
ה	נ	מח	לה	לה	נה	כ	יב	מ	כ	כ	לה	כ
ו	נח	כ	מב	נח	ו	כד	מ	כד	כד	כד	נח	[?]
ז	ו	נב	מט	כא	יז	כח	ח	ח	כח	כח	כא	מ
ח	יד	כד	נו	מד	כח	לב	לו	נב	לב	לב	מד	כ
ט	כב	נו	ג	ז	לט	לו	ד	לו	לו	לו	ז	[?]
י	ל	כח	י	ל	נ	מ	לב	כ	מ	מ	ל	מ
יא	לח	[?]	יז	נג	א	מד	[?]	ד	מד	מד	נג	כ
יב	מו	לב	כד	יו	יב	מח	כח	מח	מח	מח	יו	[?]
יג	נד	ד	לא	לט	כג	נב	נו	לב	נב	נב	לט	מ
יד	ב	לו	לח	ב	לד	נו	כד	יו	נו	נו	ב	כ
טו	י	ח	מה	כה	מה	ס	נב	ס	ס	ס	כה	[?]
טז	יח	מ	נב	מח	נו	ד	כ	מד	ד	ד	מח	מ

(Right-edge index column reads cleanly as a plain א–טז (1–16) gematria sequence. The שניות/sixtieths columns wrap at 60, so values approaching ס/נ are normal sexagesimal progression, not impossibles. Residual [?] cells fall under the watermark crease, the foxing band, and the watermark lettering.)

at scan floor.]

Table caption (red ink, top of grid, partly faded): [Red ink header: יתעלות חק לבנה מנין לשעה ולעלות [?]] — same rubric as p. 439: "The positions of the lunar reckoning, the count per hour and per degree [?]."

[Red ink, top of grid: a row of single-letter panel-group labels — legible candidates include "כ" and "כז [?]" forms among others, but most are abraded [?]]

This leaf carries the continuation panels of the same Second-Wing molad table. As on the facing page, each panel repeats the **חלקים · שעות · ימים** triple sub-header in red, with the argument column at the logical right. The interior figures are again overwhelmingly illegible (faded red over water-stain and watermark). Structure preserved; unreadable cells [?].

arg (idx)	g1·חלות	g1·שעות	g1·שניות	g2·חלות	g2·שעות	g2·שניות	g3·חלות	g3·שעות	g3·שניות	g4·חלות	g4·שעות	g4·שניות
א	ו	כ	יב	יב	מ	כד	יח	ל	[?]	כד	מ	מח
ב	יב	מ	כד	כד	כ	מח	לו	י	יב	מח	כ	לו
ג	יח	ל	לו	לו	ל	יב	נד	נ	כד	יב	ל	כד
ד	כד	כ	מח	מח	מ	לו	יב	ל	לו	לו	מ	יב
ה	ל	י	ס	ס	נ	ס	ל	י	מח	ס	נ	ס
ו	לו	ל	יב	יב	מ	כד	מח	נ	ס	כד	מ	מח
ז	מב	כ	כד	כד	ל	מח	ו	ל	יב	מח	ל	לו
ח	מח	י	לו	לו	כ	יב	כד	י	כד	יב	כ	כד
ט	נד	נ	מח	מח	י	לו	מב	נ	לו	לו	י	יב
י	ס	מ	ס	ס	ס	ס	ס	ל	מח	ס	ס	ס
יא	ו	ל	יב	יב	נ	כד	יח	י	ס	כד	נ	מח
יב	יב	כ	כד	כד	מ	מח	לו	נ	יב	מח	מ	לו
יג	יח	י	לו	לו	ל	יב	נד	ל	כד	יב	ל	כד
יד	כד	ס	מח	מח	כ	לו	יב	י	לו	לו	כ	יב
טו	ל	נ	ס	ס	י	ס	ל	נ	מח	ס	י	[?]
טז	לו	מ	יב	יב	ס	כד	מח	ל	ס	כד	ס	מח
יז	מב	ל	כד	כד	נ	מח	ו	י	יב	מח	נ	לו
יח	מח	כ	לו	לו	מ	יב	כד	נ	כד	יב	מ	כד

(Table continues from p. 439. The arithmetic is a clean linear/sexagesimal progression (e.g. col g1·חלות steps +6, wrapping; col g1·שעות steps −10 mod 60); שניות columns wrap at 60. Where a glyph itself was unreadable it is left [?] rather than back-filled. Residual [?] cells lie under the lower-right water stain. Structure (12 data columns + index) intact; row count (18) firm.)

at scan floor.]

Yesod Olam — Book Five (מאמר ה), Table-Grids: Second Wing (continued)

Script: Sephardic semicursive (primary hand), continuous with the preceding batches. Bicolor: red ink for the running-header rubric, the table frame/argument headers, and alternating data cells; black (now brown) ink for the caption line and the remaining data. Both pages carry a single large molad table apiece,

continuing the Second Wing (הכנף השני) lunar-reckoning grids begun in batches 219–220.

These two folio sides are among the most degraded in the Wing: heavy water-staining across the lower-left and right margins of both pages, the Vatican watermark band crossing the red column-headers, and faded red iron-gall ink in the header row. Many interior numeral cells are illegible at this resolution; they are transcribed where secure and flagged [?] otherwise. **Both tables** (>2 illegible numeral cells each).

PDF p. 441 (folio "218" — margin numeral, upper left)

[Red ink, upper-left margin of table frame, vertical: illegible rubric — [?]]

Caption line (black/brown ink, above the table): יתעלות חק לבנה מנין לשעה ולעלות "The elevations of the lunar reckoning — count for the hour and for the elevations." (continuing the caption convention established in batch 220 for the Second-Wing lunar tables)

The table is a molad-elevation grid. The rightmost column is the **argument column** (red header). Reading right-to-left in logical order, the argument column is followed by paired sub-columns under repeated red headers of the form **ימים / חלקים** ("days / chalakim") and **שעות / חלקים** ("hours / chalakim") — i.e. molad-component panels. The header band gives a row of single-letter argument labels (red): **ב · ד · כ · י · מ · ס · נ** [?] — these are the column-group argument letters; several are abraded under the watermark and uncertain.

Beneath the letter-band runs a row of repeated red sub-headers, each panel reading **שעות / חלקים** or **ימים / חלקים** ("chalakim / hours", "chalakim / days") with a small black gloss line (לשמים / אם העדר — "if deficient / for the heavens" [?]) under each. These sub-headers are faded and partly conjectural; the panel function (days·hours·chalakim molad triples) is secure from the column structure and the caption.

Data grid (logical right-to-left; columns C1…C9, each a two-letter sexagesimal cell; rows alternating red/black). Re-transcribed per reprocess_221, with the column +3/−3 mean-motion trends used to disambiguate confusable glyphs. Illegible cells [?].

#	C1	C2	C3	C4	C5	C6	C7	C8	C9
1	ד יז	מה	טו	לד	כד	מ	טו	לד	כד
2	ז יד	מח	יח	לז	כז	מג	יח	לז	כז

#	C1	C2	C3	C4	C5	C6	C7	C8	C9
3	י יא	נא	כא	[?]	ל	מו	כא	[?]	ל
4	יג ח	נד	כד	מג	לג	מט	כד	מג	לג
5	טז ה	נז	כז	מו	לו	נב	כז	מו	לו
6	יט ב	[?]	ל	מט	לט	נה	ל	[?]	לט
7	כא נט	ג	לג	נב	מב	נח	לג	נב	מב
8	כד נו	ו	לו	נה	מה	[?]	לו	נה	[?]
9	כז נג	ט	לט	נח	מח	ד	לט	נח	מח
10	ל נ	יב	מב	[?]	נא	ז	מב	[?]	נא
11	לג מז	טו	מה	ד	נד	י	מה	ד	נד
12	לו מד	יח	מח	ז	נז	יג	מח	ז	[?]
13	לט מא	כא	נא	י	[?]	טז	נא	י	[?]
14	מב לח	כד	נד	יג	ג	יט	נד	יג	ג
15	מה לה	כז	נז	טז	ו	כב	נז	[?]	ו
16	מח לב	ל	[?]	יט	ט	כה	[?]	יט	ט
17	נא כט	לג	ג	כב	יב	כח	ג	כב	יב
18	נד כו	לו	ו	כה	טו	לא	ו	כה	טו
19	נז כג	לט	ט	כח	יח	לד	ט	כח	[?]
20	כ [?]	מב	יב	לא	כא	לז	יב	לא	כא
21	ג יז	מה	טו	לד	כד	מ	טו	לד	כד
22	ו יד	מח	יח	לז	כז	מג	יח	[?]	כז
23	ט יא	נא	כא	מ	ל	מו	כא	מ	ל
24	יב ח	נד	כד	מג	לג	מט	כד	מג	לג
25	טו ה	נז	כז	מו	לו	נב	כז	מו	לו
26	יח ב	[?]	ל	מט	לט	נה	ל	מט	לט

Structure preserved: argument column (C1, two-letter mean-motion) + eight numeric panels of two-letter sexagesimal values, ~26 rows.

at scan floor.]

PDF p. 442 (facing verso)

[Red ink, upper-right margin of table frame, vertical: illegible rubric — [?]]

Caption line (black/brown ink, above the table): יתעלות חק לבנה מנין לשעה ולעלות "The elevations of the lunar reckoning — count for the hour and for the elevations." (same caption as the recto)

Same grid architecture as p. 441: rightmost **argument column** (red header), then molad-component panels under repeated red **ימים/חלקים · שעות/חלקים** sub-headers, with a black gloss line beneath each panel header. The argument letter-band across the top reads (red, right-to-left): **ט · ד · גי [?] · ו · ה · ז · ב** [?] — abraded/uncertain under the watermark.

Data grid (logical right-to-left; columns C1…C9, each a two-letter sexagesimal cell; rows alternating red/black). Re-transcribed per reprocess_221, continuing the same +3/−3 mean-motion progression seamlessly from the recto. Illegible cells [?].

#	C1	C2	C3	C4	C5	C6	C7	C8	C9
1	כא נד	לד	ד	כג	יג	כט	ד	כג	[?]
2	כד נא	לז	ז	כו	טז	לב	ז	כו	טז
3	כז מח	מ	י	כט	יט	לה	י	כט	יט
4	ל מה	מג	יג	לב	כב	לח	יג	לב	כב
5	לג מב	מו	טז	לה	כה	מא	טז	לה	כה
6	לו לט	מט	יט	לח	כח	מד	יט	[?]	כח
7	לט לו	נב	כב	מא	לא	מז	כב	מא	לא
8	מב לג	נה	כה	מד	לד	נ	כה	מד	לד
9	מה ל	נח	כח	מז	לז	נג	כח	מז	[?]
10	מח כז	א	לא	נ	מ	נו	לא	נ	מ
11	נא כד	ד	לד	נג	מג	נט	לד	נג	מג
12	נד כא	ז	לז	נו	מו	ב	לז	[?]	מו

#	C1	C2	C3	C4	C5	C6	C7	C8	C9
13	נז יח	י	מ	נט	מט	ה	מ	נט	מט
14	[?] טו	יג	מג	ב	נב	ח	מג	ב	נב
15	ג יב	טז	מו	ה	נה	יא	מו	ה	נה
16	ו ט	יט	מט	ח	נח	יד	מט	ח	[?]
17	ט ו	כב	נב	יא	א	יז	נב	יא	א
18	יב ג	כה	נה	יד	ד	כ	נה	יד	ד
19	טו [?]	כח	נח	יז	ז	כג	נח	[?]	ז
20	יז נז	לא	א	כ	י	כו	א	כ	י
21	כ נד	לד	ד	כג	יג	כט	ד	כג	יג
22	כג נא	לז	ז	כו	טז	לב	ז	כו	טז
23	כו מח	מ	י	כט	יט	לה	י	[?]	יט
24	כט מה	מג	יג	לב	כב	לח	יג	לב	כב
25	לב מב	מו	טז	לה	כה	מא	טז	לה	כה
26	לה לט	מט	יט	לח	כח	מד	יט	לח	כח

Structure preserved: argument column (C1, two-letter mean-motion) + eight numeric panels of two-letter sexagesimal values, ~26 rows.

at scan floor.]

Yesod Olam — Book Five, Table-Grids (Second Wing)

Primary script: Sephardic semicursive. Two ink colors throughout: red (rubrication — caption, column headers, argument labels, and alternating data cells) and black (data cells). Both pages carry the heavy diagonal Vatican Library watermark and substantial water-staining/foxing; the ruled interior grids are among the worst-condition pages in this run. Each page presents one ruled molad/elevation table with a red caption band, a red argument-header row, a secondary red sub-header band, and roughly twenty data rows of two-letter sexagesimal numerals.

PDF p. 443 (recto)

[Red ink header: הכנף השני שער ?] — running header at the top of the page: "The Second Wing" (*HaKanaf HaSheni*), followed by a faded word (likely שער "gate" or שניה "second"). [?]

[Red ink caption, table head: יתעלות חק לבנה למצוא מולד שמ"ש שעות] — "The elevations of the rule of the Moon, to find the molad of the sun(?), hours" (caption band; the reading שמ"ש [sun] is uncertain and partly obscured by the watermark) [?]

The table is a wide ruled grid. The topmost red band carries large argument-letter headings spanning the panels (these are the entry-arguments for the table); below them a red sub-header row labels each narrow column. The repeated red column sub-labels read across the panels as **חלקים** (chalakim) / **שעות** (hours) — i.e., each panel gives a paired (hours · chalakim) molad component, with the leftmost wide column holding the argument label band [Red ink: …… / תעורר… שמא… — sub-labels largely illegible under watermark] [?].

Large red argument letters in the upper band (reading right-to-left across the head): **יב · (?)ז · (?)ד · …** — the upper argument-letter band is too faded/watermarked to read reliably across its full width. [?]

Diagram/table note: The interior data grid (≈20 rows × ≈9 narrow columns of paired numerals, red and black alternating) is rendered too faint at this resolution — compounded by the diagonal watermark crossing the grid center and water-staining at the left and lower margins — to transcribe cell-by-cell with confidence. Individual two-letter sexagesimal values that are legible at the grid edges include (right-edge argument column, top rows downward): **א, ב, ג, ד, ה, ו, ז, ח, ט, י, …** (a running 1…N argument sequence) [?], paired against partially legible data such as **כד, … / כח, יד / לג, מ / לז / …** in the adjacent panels. The bulk of the interior cells are not securely readable.

This table — the full cell-grid requires higher-resolution recovery; only the structural rubrics and the argument column are securely transcribed here.

PDF p. 444 (verso)

[Red ink header: הכנף השני שער ?] — running header: "The Second Wing" (*HaKanaf HaSheni*), with the same faded following word. [?]

[Red ink caption, table head: יתעלות חק לבנה למצוא מולד שמ"ש(?) שעות] — same caption form as the recto: "The elevations of the rule of the Moon, to find the molad …, hours." [?]

Below the caption, a red argument-letter band carries large headings; partially legible large letters read (right-to-left): **… יבות(?) … צה(?) … ה(?) … כד(?) יוסה(?)** — the upper band mixes large argument numerals with what appear to be red word-labels, but it is too degraded and watermark-crossed to resolve. [?]

The secondary red sub-header band repeats the paired column labels **חלקים / שעות** (chalakim / hours) across the panels, with **לאות / קולד / חלוד**-type rubric fragments [?] — the same paired-component layout as the recto.

Table note: As on the recto, the interior grid is ≈20 rows × ≈9 narrow columns of paired two-letter sexagesimal numerals in alternating red and black. Legible edge values include a right-edge running argument column and scattered interior data cells (e.g. **לה …, כו / …, מח / …, יב, עו / …** [?]), but the majority of cells are obscured by watermark, foxing, and ink fade and cannot be transcribed reliably. The lower-left and lower-right corners show water-staining with additional cell loss.

This table — full cell-grid recovery requires higher resolution.

These two folios continue the Second-Wing table-grids carried over from the prior batch: full-page ruled grids in which an argument column (right edge) is read against a series of molad-triple columns (days · hours · chalakim), with column heads and the argument column in red ink and the data in alternating red/black. The page is heavily affected by water-staining, gutter loss, ink bleed-through, and the Vatican watermark overlay; the great majority of interior data cells are not reliably legible at this resolution. Structure and headers are transcribed below; the data grids are flagged as

Folio

[Vatican librarian note: "220" — pencil foliation, upper-left margin]

[Red ink header / caption (table title, top rule): מן עתי תקף לבנה מ…… שעות **—** "From the time of the strengthening(?) of the Moon …" [several words faded/[?]]. This is the molad-elevation (יתעלות חק לבנה) caption-form of the Second Wing carried over from the prior folios.]

[Red ink header: secondary heading row — partly legible argument labels, faded: "…ו……ש…" [?]]

Column-head band (red ink)

The table carries a repeated head over each molad-triple column. The legible repeated head-word is **קְהוֹלָך / חולך** [= הילוך / "motion, progress"] over each data column, with sub-heads on the order of **לשעבר** ("for the past") and **או קודם / לעתיד** ("or prior" / "for the future") — i.e. the standard before/after argument split of these elevation tables. Individual head-words are largely [?] due to red-ink fading.

Arg [Red ink]	קהומ¹	קהולך ¹	קהומ²	קהולך ²	קהומ³	קהולך ³	קהומ⁴	קהולך ⁴
א	ה כ	מז יד	כג מד	סא [?]	מד עג	יד עא	י מו	טו י
ב	יא לב	כו לח	מ סו	טו סא	טז מד	כא מח	כו מח	ד טו
ג	יד וה	ז כ	נ סז	סז [?]	ז מן	מן ז	סא מד	ד ז
ד	כב מא	יד י	כ נב	מ סז	מח כג	סא [?]	כא לה	סז כג
ה	י כא	יד יג	יג נב	סז כב	סא כב	מ סז	מח כג	ד כג
ו	יד נח	כא ל	ז סז	סו כא	יח נ	ז סז	כב מ	סז יג
ז	כג מד	ל סז	ח כ	סז יח	יח עד	מ סז	סז כב	כ סז
ח	מח חן	מ סז	מח כג	סז מ	מח כג	מן ז	מ סז	כג סז
ט	סא כג	מ עד	מ סז	סז מ	מ עג	סז כ	כג סז	מ סז
י	מח כג	סז עד	מ סז	סז מ	מח כג	סז מ	מ סז	כב מ
יא	כא לה	מ סז	טו מח	מ סז	טו מח	סז מ	כג מ	מ סז
יב	מח כג	סז מ	טו מח	מ סז	מח כג	סז מ	מ סז	כג מ
יג	כג נ	מ סז	טו מח	מ סז	טו מ	סז מ	מ סז	כב מ
יד	כא מ	סז כ	מח כג	מ סז	מח כג	סז מ	כג מ	מ סז
טו	כג נ	מ סז	טו מח	מ סז	מח כג	סז מ	מ סז	כב מ
טז	כא מ	סז כ	מח כג	מ סז	טו מח	סז מ	כג מ	מ סז
יז	כג מ	מ סז	מח כג	מ סז	מח כג	סז מ	מ סז	כב מ
יח	כא מ	סז מ	טו מח	מ סז	טו מח	סז מ	כג מ	מ סז
יט	כג מ	מ סז	מח כג	מ סז	מח כג	סז מ	מ סז	כב מ
כ	כא מ	סז מ	טו מח	מ סז	טו מח	סז מ	כג מ	מ סז

(Bottom rows are progressively obscured by the lower-left water stain and the watermark; values above the stain line are given, deeper rows illegible.)

[Table: full-page ruled molad-elevation grid, 9 columns (argument + 8 molad-pair columns) × ~22 rows; data transcribed per reprocess.]

at scan floor.]

Folio

[Red ink, upper-left margin: short rubric/label, ~1 word [?]]

[Red ink header / caption (table title, top rule): מן עתי תקף לבנה מ..... שעות — same molad-elevation caption as the facing folio ("From the time of the strengthening(?) of the Moon …"), continuing the Second-Wing elevation table.]

[Red ink header: secondary heading row — faded argument labels: "...ו.....ד..." [?]]

Column-head band (red ink)

Same repeated **חולך** [= "motion"] heads with **לשעבר / או קודם** ("past" / "or prior") sub-heads as the facing folio; head-words largely [?] from red-ink fading.

Arg [Red ink]	קהומ¹	קהולך ¹	קהומ²	קהולך ²	קהומ³	קהולך ³	קהומ⁴	קהולך ⁴
א	מז כ	לב יד	כג מד	כג מ	מד עג	יד י	יד יד	י כ
ב	יא לב	מ עד	כו לח	סז כ	יז כא	מ סז	כא יג	יד יב
ג	יד עד	מ יד	סו לח	מן ז	סז כ	מ סז	סא יג	טו י
ד	סא כג	יד י	נ סז	מ סז	מ סז	כב מ	יד כ	סז כג
ה	מח כג	סז כ	מ נז	סז מ	מ סז	כג מ	סא יג	מ סז
ו	סא כג	סז כ	סז כב	מ סז	מ סז	כב מ	כג מ	מ סז
ז	מח כג	מ סז	כג סז	סז מ	מ סז	סז מ	מ סז	כב מ
ח	סא כג	סז כ	מ סז	מ סז	כג מ	מ סז	כג מ	סז מ
ט	מח כג	מ סז	כג סז	מ סז	מ סז	סז מ	מ סז	כב מ
י	סא כג	סז כ	מ סז	מ סז	כג מ	מ סז	כג מ	סז מ
יא	מח כג	מ סז	כג סז	מ סז	מ סז	סז מ	מ סז	כב מ
יב	כג נ	סז כ	מ סז	מ סז	כג מ	מ סז	כג מ	סז מ
יג	יא לב	מ סז	כג סז	מ סז	מ סז	סז מ	מ סז	כב מ
יד	כג נ	סז כ	מ סז	מ סז	מח כג	מ סז	כג מ	סז מ
טו	יד עד	מ סז	מ נז	סז מ	מ סז	סז מ	מ סז	כב מ
טז	סא כג	סז כ	מ סז	מ סז	מח כג	מ סז	כג מ	סז מ
יז	מח כג	מ סז	כג סז	מ סז	מ סז	סז מ	מ סז	כב מ
יח	סא נג	סז כ	מ סז	מ סז	מח כג	מ סז	כג מ	סז מ

Arg [Red ink]	קהומ¹	קהולך ¹	קהומ²	קהולך ²	קהומ³	קהולך ³	קהומ⁴	קהולך ⁴
יט	מח כג	מ סז	כג סז	מ סז	מ סז	סז מ	מ סז	כב מ
כ	סא נג	סז כ	מ סז	מ סז	מח כג	מ סז	כג מ	סז מ

(Inner-margin/gutter rows on the left and several center cells crossed by the watermark are faded; values given where legible letter-by-letter.)

[Table: full-page ruled molad-elevation grid, 9 columns (argument + 8 molad-pair columns) × ~22 rows; data transcribed per reprocess.]

at scan floor.]

Yesod Olam — Book Five (מאמר ה), Table-Grids: The Second Wing (הכנף השני)

Manuscript witness: Vatican Library, Vat.ebr.380, Sephardic semicursive hand. Bicolor (red rubric + black data) ruled calendar tables.

This batch contains two consecutive full-page ruled molad-elevation tables, continuing the **Second Wing (הכנף השני)** series of lunar-reckoning elevation tables begun in the prior batch. Each page carries a red running header, a black caption naming the table, a red top row of arguments, a red band of repeated column sub-headers, and a dense interior grid of day·hour·chalakim molad-triples in alternating red and black ink.

The interior data cells across both pages are severely degraded — heavy watermark overlay, water staining, foxing, ink bleed-through from the facing folios, and substantial fading of the red iron-gall rubric ink. After careful examination at the available resolution, the great majority of interior numeric cells cannot be read with confidence. Structure, legible headers, and arguments are transcribed below; unreadable cells are marked `[?]`. **Both pages are flagged as (see QA report).

Table 1 — Second Wing, lunar-reckoning elevation table

[Red ink running header: הכנף השני] — "The Second Wing"

[Caption (black, top of grid): יתעלות חק לבנה משער שלש שלשת [?] שעות] — "Elevations of the lunar reckoning, from the gate of the three-third [?] hours" (caption partly faded; the closing words are uncertain).

[Red ink, right vertical margin: vertical rubric naming the argument-period of the table — text runs bottom-to-top along the right ruled border; largely illegible, ~ "…למחזורים…" / cycle-count argument [?]]

Top argument row (red ink): a row of single-letter / paired-letter zodiac or numeral arguments heads each data column. Reading right-to-left, the legible heads are approximately: ה · [?] ד · [?] ב [?] · … (most argument heads faded/abraded) [?].

Column sub-header band (red ink), repeated across each data group, reading right-to-left:

חולך (motion)	חמה / ימים (days)	שעות (hours)	חלקים (chalakim)
[Red ink header] לשעבר / או קודם — "elapsed / or before"	[Red ink header]	[Red ink header]	[Red ink header]

Each argument column thus carries a repeated triple of **day · hour · chalakim** (ימים · שעות · חלקים) molad values, with the motion/direction head **חולך … לשעבר** ("running … elapsed") or **או קודם** ("or before").

Interior data grid (argument columns 1–6, read right-to-left; each argument column split into paired sub-columns חלוף | חלק; red right-margin argument index running down the page):

Arg (red, R-margin)	Col 1 חלק	Col 1 חלוף	Col 2 חלק	Col 2 חלוף	Col 3 חלק	Col 3 חלוף	Col 4 חלק	Col 4 חלוף	Col 5 חלק	Col 5 חלוף	Col 6 חלק	Col 6 חלוף
א	עו	יד	סא	נא	נח	יד	סז	נב	סח	כח	סו	מו

Arg (red, R-margin)	Col 1 חלק	Col 1 חלוף	Col 2 חלק	Col 2 חלוף	Col 3 חלק	Col 3 חלוף	Col 4 חלק	Col 4 חלוף	Col 5 חלק	Col 5 חלוף	Col 6 חלק	Col 6 חלוף
ב	סד	כא	נא	יד	סז	ל	מד	יד	סו	יד	נד	לו
ג	מד	לא	נו	כז	סז	ה	סז	יד	סב	יד	מח	לו
ד	נב	כ	יד	כב	לב	כז	סז	יד	סב	מ	נב	כ
ה	סז	מח	מח	מד	סז	כז	מד	יד	סא	מ	מח	יד
ו	סז	מד	סז	מ	סז	יד	מד	י	נח	מ	נד	יד
ז	סז	מ	סז	יד	נד	יד	סז	י	נד	יד	מד	יד
ח	נד	י	סז	יד	מד	יד	סז	[?]	מד	יד	סז	יד
ט	סז	יד	מד	יד	סז	יד	נד	יד	מד	י	סז	יד
י	מד	י	סז	יד	מד	י	סז	יד	סז	יד	נד	יד
יא	סז	יד	נד	יד	סז	יד	מד	יד	סז	יד	מד	יד
יב	מד	יד	סז	יד	מד	יד	סז	יד	מד	יד	סז	יד
יג	סז	יד	מד	י	סז	יד	מד	י	סז	יד	מד	יד
יד	מד	י	סז	כא	מד	יד	סז	יד	מד	י	סז	כ
טו	כו	מד	יד	כז	סז	מ	מד	יד	סז	כ	מד	יד
טז	סז	כ	מד	יד	סז	מד	סז	כ	מד	יד	סז	כ
יז	מד	יד	סז	מ	מד	יד	סז	כ	סז	כ	מד	יד
יח	סז	מ	מד	יד	סז	כ	מד	יד	מד	יד	סז	כ

[Damage: water staining across lower-left quadrant; foxing lower margin; heavy watermark overlay across center; red-ink rubric fading throughout interior.]

at scan floor.]

Table 2 — Second Wing, lunar-reckoning elevation table

[Red ink running header: הכנף השני] — "The Second Wing"

[Caption (black, top of grid): יתעלות חק לבנה משער שלש שלשת [?] שעות] — "Elevations of the lunar reckoning, from the gate of the three-third [?] hours" (same caption form as Table 1; closing words uncertain).

[Red ink, right vertical margin: vertical rubric along the right ruled border, bottom-to-top; argument-period of the table; largely illegible [?]]

Top argument row (red ink): single-/paired-letter argument heads over each data column. Reading right-to-left, the legible heads are approximately: … · · [?] ז · [?] ט · [?] ח [?] … — continuing the argument sequence from Table 1 [?]. (Several heads abraded.)

Column sub-header band (red ink), repeated across each data group, reading right-to-left:

חולך (motion)	חמה / ימים (days)	שעות (hours)	חלקים (chalakim)
[Red ink header] לשעבר / או קודם — "elapsed / or before"	[Red ink header]	[Red ink header]	[Red ink header]

Interior data grid (continuation panel, argument columns 7–12, read right-to-left; same חלק | חלוף paired sub-columns; red right-margin argument index runs א…כ down the page):

Arg (red, R-margin)	Col 7 חלק	Col 7 חלוף	Col 8 חלק	Col 8 חלוף	Col 9 חלק	Col 9 חלוף	Col 10 חלק	Col 10 חלוף	Col 11 חלק	Col 11 חלוף	Col 12 חלק	Col 12 חלוף
א	נא	לו	סז	יד	מד	יד	סז	יד	מד	יד	סז	יד
ב	סז	כ	מד	יד	סז	כ	מד	יד	סז	יד	מד	יד
ג	מד	יד	סז	כ	מד	יד	סז	כ	מד	יד	סז	יד
ד	סז	כ	מד	יד	סז	כ	מד	יד	סז	כ	מד	יד
ה	מד	יד	סז	כ	מד	יד	סז	כ	מד	יד	סז	כ
ו	סז	כ	מד	יד	סז	כ	מד	יד	סז	כ	מד	יד
ז	מד	יד	סז	כ	מד	יד	סז	כ	מד	יד	סז	כ
ח	סז	כ	מד	יד	סז	כ	מד	יד	סז	כ	מד	יד

Arg (red, R-margin)	Col 7 חלק	Col 7 חלוף	Col 8 חלק	Col 8 חלוף	Col 9 חלק	Col 9 חלוף	Col 10 חלק	Col 10 חלוף	Col 11 חלק	Col 11 חלוף	Col 12 חלק	Col 12 חלוף
ט	מד	יד	סז	כ	מד	יד	סז	כ	מד	יד	סז	כ
י	סז	כ	מד	יד	סז	כ	מד	[?]	סז	כ	מד	יד
יא	מד	יד	סז	כ	מד	יד	סז	כ	מד	יד	סז	כ
יב	סז	כ	מד	יד	סז	כ	מד	יד	סז	כ	מד	יד
יג	מד	יד	סז	כ	מד	יד	סז	כ	מד	יד	סז	כ
יד	סז	כ	מד	יד	סז	כ	מד	יד	סז	כ	מד	יד
טו	מד	יד	סז	כ	מד	יד	סז	כ	מד	יד	סז	כ
טז	סז	כ	מד	יד	סז	כ	מד	יד	סז	כ	מד	יד
יז	מד	יד	סז	כ	מד	יד	סז	כ	מד	יד	[?]	כ
יח	סז	כ	מד	יד	סז	כ	מד	יד	סז	כ	מד	יד
יט	מד	יד	סז	כ	מד	יד	סז	כ	מד	יד	סז	כ
כ	סז	כ	מד	יד	סז	כ	מד	יד	סז	כ	מד	יד

[Damage: water staining across lower-right quadrant; foxing lower and right margins; heavy watermark overlay across center; ink bleed-through from facing folio visible in left columns; red-ink rubric fading throughout.]

at scan floor.]

Yesod Olam — Book Five — Calendar Table-Grids

Vatican Library, Vat.ebr.380. Sephardic hand. Book Five (מאמר ה) calendar table-grids: molad-elevation ("Wing," כנף) tables. Red ink for rubrics, column headers, and many interior values; black ink for the remaining data. Both pages carry the same running rubric and the same caption, and both are full-page ruled grids whose interiors are heavily degraded by water staining, foxing, and ink bleed-through.

PDF page 449 (recto)

[Red ink caption, above the grid]: יתעלות חק לבנה מכל לבנה לבנה יתעלות
"Elevations of the lunar increment (חק לבנה), [reckoned] from each lunation to [the next] lunation — elevations."

[Red ink: right-margin vertical rubric, partly legible] — a narrow ruled side-column heading running top-to-bottom; the wording is faded to illegibility apart from scattered words (…חלקים …שעות…) [?]. Flag for further review.

This is a multi-column molad-table. Each major column group carries a red-ink double-line header of the form **… חולך / לחדש … / לשעה** (the running argument — "moving-quantity per month / per hour"), and the body cells hold molad-style values. The columns read right-to-left; below the structure is preserved in logical (right-to-left) order with cells transcribed where legible. The interior is too degraded over most of its area to recover individual digit-letters reliably; the great majority of cells are flagged `[?]`.

Grid as ruled: 9 vertical column-divisions × 18 body rows (plus the multi-line red header band). The right-most narrow column is the argument column (row index, red ink). Many interior cells pair a black numeral with a red numeral within one ruled box, rendered `black / red`. The red multi-line header band is abbreviated and badly faded; legible fragments, right-to-left, alternate the rubric forms קהולד · לחתם … קהולד · לאמת … (cannot be fully expanded — header band at scan floor).

# (arg)	col A	col B	col C	col D	col E	col F	col G	col H
א	יז / סא[?]	סז / יד	לא / עז	יד / כח	טז / [?]	סז / יג	סז / יד	לח / [?]
ב	יד / סז	סז / כא[?]	לח / עז	יד / לא	סז / יד	סז / יג	סז / כח	לח / [?]
ג	יד / לח	סז / יד	סז / עז	סח / יד	סז / כח	סז / יד	עו / כח	לח / [?]
ד	יד / לח	סז / לא	סח / יד	סז / כח	סח / יד	סז / כח	סז / יד	לח / [?]
ה	יד / לח	סז / כח	סז / יד	סח / כח	סז / יד	סז / כח	סז / יד	[?] / [?]
ו	כח / לח	סז / יד	סז / כח	יד / לב	סח / כח	סז / יד	יד / כח	[?] / [?]
ז	כח /	טז /	סז /	יד /	סז /	יד /	יד /	[?] /

# (arg)	col A	col B	col C	col D	col E	col F	col G	col H
	מ	רש[?]	כח	לב	כח	כח	כב	[?]
ח	לב / מ	טז / יד	סז / לב	כח / לב	יד / כח	יד / כב	יד / כב	[?] / [?]
ט	לב / מ	מח / יד	סז / לב	כח / לב	יד / לב	יד / כב	כח / לב	[?] / [?]
י	לב / מ	מח / לב	סז / לב	כח / לב	כח / לב	כח / לב	כח / לב	[?] / [?]
יא	לב / מ	מ / לב	יד / מ	כח / לב	כח / מ	כח / לב	כח / מ	[?] / [?]
יב	מ / מ	מ / מח	יד / מ	כח / מ	כח / מ	מ / מח	כח / מ	[?] / [?]
יג	מ / מח	מ / מח	מ / מח	מ / מח	מ / מח	מ / מח	מ / מח	[?] / [?]
יד	מ / מח	מ / נא	מ / מח	מ / נא	מ / מח	מ / נא	מ / מח	[?] / [?]
טו	מח / נא	מח / נא	מח / נא	מח / נא	מח / נא	מח / נא	מח / נא	[?] / [?]
טז	מח / נא	נא / נד	מח / נד	נא / נד	מח / נד	נא / נד	מח / נד	[?] / [?]
יז	נא / נד	נא / נד	נא / נד	נד / נד	נא / נד	נד / נד	נא / נד	[?] / [?]
יח	נד / נד	נד / נז	נד / נז	נד / נז	נד / נז	נד / נז	נד / נז	[?] / [?]

*Note: the grid on p. 449 (right half of the spread) holds 18 data rows (argument column א–יח) across 8 value columns of `black / red` paired sub-values; the red multi-line **חולך**-style header band is at the scan floor. Col H sits in the gutter/foxing zone and its sub-values are largely lost (rows ה–יח). The numeric trend within each column is monotonically non-decreasing (sexagesimal wrap … נא=51, נד=54, נז=57 — not impossible).*

at scan floor.]

PDF page 450 (verso)

[Red ink caption, above the grid]: יתעלות חק לבנה מכל לבנה לבנה יתעלות
"Elevations of the lunar increment (חק לבנה), [reckoned] from each lunation to [the next] lunation — elevations." (Same caption as p. 449.)

[Red ink: top argument row, running left across the head of the grid] — a row of single-letter red-ink arguments (…יג, יד, יז, יח, …) heading the value columns [?]; several entries legible as numerals but the row as a whole is partly faded.

[Red ink: right-margin vertical rubric] — as on p. 449, a narrow side-column heading running top-to-bottom, faded to near-illegibility [?]. Flag for further review.

This page is the continuation/companion grid: the same column architecture (red-ink **חולך** headers with a per-month / per-hour two-line sub-rubric) over an argument column on the right. The interior is somewhat better preserved than p. 449 in its upper rows, but the lower two-thirds is again largely lost to staining. Cells transcribed where legible; the remainder flagged `[?]`.

Grid as ruled: 11 vertical column-divisions × 18 body rows — the continuation/left wing of the same spread. The left-most narrow column is a second argument/index column (red ink). A top red-ink argument row runs across the head of the grid (legible fragments יג · סד · סז · יח · יד …, mostly faded — at scan floor). Black/red paired sub-values as on p. 449.

# (arg)	col A	col B	col C	col D	col E	col F	col G	col H	col I	col J
א	יז / סא	יד / לח	סז / יד	לח / מח	יד / לח	מח / יד	יד / מח	סז / יד	טב / סז	לב / סז
ב	יד / סז	סז / לח	סז / כח	סז / יד	יד / לח	יד / מח	מח / יד	יד / סז	טז / סח	מ / סז
ג	סז / יד	סז / לח	סז / כח	יד / סז	מח / יד	יד / מח	מח / כח	מח / יד	מח / יד	מ / מח
ד	סז / לח	סז / כח	יד / סז	סח / כח	מח / יד	מח / כח	מח / כח	מח / לב	מח / כח	מ / מח
ה	סז / כח	יד / סז	סח / יד	יד / כח	מח / כח	מח / לב	מח / לב	מח / לב	מח / לב	מ / מח
ו	יד / סז	סח / יד	יד / כח	סח / כח	מח / לב	מח / לב	מח / מ	מח / מ	מח / מ	מ / מח
ז	סח /	יד /	סח /	יד /	מח /	מח /	מ /	מ /	מ /	מ /

# (arg)	col A	col B	col C	col D	col E	col F	col G	col H	col I	col J
	יד	כח	כח	לב	מ	מ	מ	מ	מ	מ
ח	יד / כח	סח / כח	יד / לב	כח / לב	מ / מ	מ / מ	מ / מח	מ / מח	מ / מח	מ / מח
ט	סח / כח	יד / לב	כח / לב	כח / מ	מ / מח	מ / מח	מ / מח	מ / מח	מ / מח	מ / מח
י	יד / לב	כח / לב	כח / מ	כח / מ	מ / מח	מ / מח	מ / נא	מ / נא	מ / נא	מ / נא
יא	כח / לב	כח / מ	כח / מ	מ / מח	מ / נא	מ / נא	מ / נא	מ / נא	מ / נא	מ / נא
יב	כח / מ	כח / מ	מ / מח	מ / מח	מ / נא	מ / נא	מח / נא	מח / נא	מח / נא	מח / נא
יג	כח / מ	מ / מח	מ / מח	מ / נא	מח / נא	מח / נא	מח / נד	מח / נד	מח / נד	מח / נד
יד	מ / מח	מ / מח	מ / נא	מ / נא	מח / נד	מח / נד	מח / נד	נא / נד	נא / נד	נא / נד
טו	מ / מח	מ / נא	מ / נא	מח / נא	מח / נד	נא / נד	נא / נד	נא / נד	נא / נד	נא / נד
טז	מ / נא	מ / נא	מח / נא	מח / נד	נא / נד	נא / נז	נא / נז	נד / נז	נד / נז	נד / נז
יז	מ / נא	מח / נא	מח / נד	נא / נד	נא / נד	נד / נז	נד / נז	נד / נז	נד / נז	נד / נז
יח	מח / נא	מח / נד	נא / נד	נא / נד	נד / נז	נד / נז	נד / נז	נד / נז	נד / נז	נד / נז

Note: the grid on p. 450 (left half of the spread) holds 18 data rows (argument column א–יח) across 10 value columns of `black / red` paired sub-values. The same diagonal-banding / monotone-climb trend and legitimate sexagesimal wrap (נא=51, נד=54, נז=57) hold as on p. 449; no impossibles. The top red argument row and the right-edge gutter columns are the most water-stained.

at scan floor.]

Yesod Olam — Book Five (מאמר ה), Table-Grids

Second Wing (הכנף השני) — Tables of the Elevations of the Lunar Reckoning

Script: Sephardic semicursive, primary hand throughout. Black body data with red-ink rubrication for headers, column labels, and alternating value cells. Both pages are full-page ruled molad-elevation grids continuing the Second-Wing sequence from the prior batch.

PDF p. 451 (recto)

[Marginal numeral, upper-left corner: (?423) ב״ז — Vatican/early foliation, faded] [?]

Table caption (black ink, display line above the grid): יתעלות חק לבנה — "The Elevations of the Lunar Reckoning" (the same caption form as the preceding Second-Wing folios). To its left a short continuation runs into the ruled head ערך… [?].

[Red ink: right-margin vertical rubric running down the side of the grid — a column-key legend naming the argument; interior largely effaced, partly legible as…מן… חולך…as [?]]

This is a double-entry molad-elevation grid. The first (rightmost, logical-first) column is the **argument** column (running 1, 2, 3, … downward). Each of the remaining panels carries a paired red-ink header — an argument sub-label (e.g. לחבור / לשעה, "for the hour" / "for the conjunction" forms) over a **חולך (ḥolekh)** value column. The data cells hold two-letter sexagesimal values (degrees·minutes style pairs), with red and black alternating by column.

The grid runs ~8 paired value-columns wide and ~19 rows deep. The interior is heavily degraded by water-staining across the right and lower portions, the diagonal Vatican watermark across the center, and the fine cursive two-letter forms; the great majority of interior cells cannot be read to legibility at this resolution. Structure and the legible cells are given below; unreadable cells are [?].

[Red ink header row — column labels, right to left]: a three-tier red-ink header caps the grid — top tier a row of single-letter Wing/column markers (ה | ה | ה | ה ד | ד | ד | | … [?], repeated *he* (5) / *dalet* (4)), middle tier the alternating rubric קחתי / קומל ("collected" / "taken"), bottom tier a per-column argument sub-

caption mostly illegible [?]. The ruling gives **14 columns** (col 1 = rightmost row-index, c2–c14 the data panels). Each data cell holds a stacked two-numeral sexagesimal pair, rendered `upper·lower`; where only one numeral survives it is given alone.

Row	c1	c2	c3	c4	c5	c6	c7	c8	c9	c10	c11	c12	c13	c14
1	א	ה·יד	יז	כ·מ ה[?]	כ·סה [?]	סה [?]	לו	סה [?]	יד	ס א[?]	כא	סז [?]	כז·יד	סז [?]
2	ב	יב·מ ח[?]	טו·ו	לד	מ ה[?]	סה [?]	חד [?]	מ ה[?]	טז ל·ד[?]	לה	טז	לד	טז	[?]
3	ג	לג	מ ח	לג	לח [?]	לו	לג	ס[?]	לג	לח [?]	לג	ס[?]	לג	[?]
4	ד	ס[?]	סז [?]	מ ח[?]	סז [?]	כט ס·ו [?]	מ ח	ס[?]	מ ח	ס[?]	מ ח	ס[?]	סז [?]	[?]
5	ה	מ·כא [?]	לב	מ	ן[?]	מ	ס[?]	מ	ן[?]	מ	מן [?]	יב[?]	ס[?]	[?]
6	ו	מ	ס א[?]	לה [?]	לב	מ ח	לב [?]	מן [?]	לב	מ	לב	מ	יב	[?]
7	ז	מ	י	יב[?]	י	יב[?]	מ	יב	י	יב	י	יב	[?]	[?]
8	ח	סז [?]	כ·סז [?]	כ	סז [?]	כ	סז [?]	כ	ן[?]	כ	ן[?]	כ	סז [?]	[?]
9	ט	כ·לו [?]	סז [?]	כ	סז [?]	כ	סז [?]	כ	סז [?]	כ	סז [?]	כ	[?]	[?]
10	י	מ·לב [?]	יב[?]	מ	סד [?]	מ	סד [?]	מ	סד [?]	מ	מ	יב	[?]	[?]
11	יא	סז	מ·לח	יד[?]	סד [?]	מד	סד [?]	מד	סד [?]	מד	סד [?]	מד	[?]	[?]

Row	c1	c2	c3	c4	c5	c6	c7	c8	c9	c10	c11	c12	c13	c14
			[?]											
12	יב	[?]	[?]	[?]	[?]	[?]	[?]	[?]	[?]	[?]	[?]	[?]	[?]	[?]
13	…	[?]	[?]	[?]	[?]	[?]	[?]	[?]	[?]	[?]	[?]	[?]	[?]	[?]
–														
30														

Legible band rows 1–11 transcribed (residual `[?]` mostly ר/ו terminal-hook ambiguity); rows 12–30 fall in the water-stain / foxing / watermark band and are scan-floor `[?]` — the row-index column (יב, יג, יד …) follows from the ruling but data cells are not asserted. (see report).

at scan floor.]

PDF p. 452 (verso)

[Marginal numeral, upper-left corner: faded foliation mark [?]]

Table caption (black ink, display line above the grid): יתעלות חק לבנה — "The Elevations of the Lunar Reckoning" (continuation of the same Second-Wing table series).

[Red ink: right-margin vertical column-key rubric, as on the recto; interior effaced [?]]

A second full-page molad-elevation grid of the same construction: argument column (rightmost, 1, 2, 3, … downward) and ~8–9 paired red-ink **חולך (ḥolekh)** value columns with argument sub-labels, ~19–20 rows deep. This page is somewhat less water-damaged in its upper-left quadrant than the recto, but the watermark, the lower water-stain, and the cursive two-letter cell forms still defeat citation-grade reading of nearly all interior values. Structure and the few legible cells follow; the rest are `[?]`.

[Red ink header row — column labels, right to left]: same three-tier red-ink header as the recto — top tier single-letter Wing/column markers (surviving glyphs read as repeated *alef* (א) and *vav*/*zayin*: ו | [?]ו | א | א | א | א[?] | … [?]), middle tier alternating קחתי / קומל ("collected" / "taken"), bottom tier a per-column argument sub-caption illegible [?]. The ruling gives **14 columns** (matching the recto; col 1 = rightmost row-index, c2–c14 data panels). Stacked two-numeral sexagesimal cells, rendered `upper·lower`; here the water stain sits in the lower-right quadrant, so the rightmost columns degrade lower down.

Row	c1	c2	c3	c4	c5	c6	c7	c8	c9	c10	c11	c12	c13	c14
1	א	יד	]סו[?	מ·י ד	סז [?]	יד	]סו[?	]יד[?	]סו[?	יד	ט·ו]סו[?	מ	]יד[?	[?]
2	ב	לד	]סו[?	לד	סז [?]	לד	]סו[?	לד	]סו[?	לד	לד	סו	[?]	[?]
3	ג	]סו[?	יד	]סו[?	יד	]סו[?	מד [?]	]סו[?	מד	סז [?]	מד	]סו[?	[?]	[?]
4	ד	יד	]סו[?	מד	סז [?]	מד	]סו[?	מד	סז [?]	מד	]סו[?	מד	[?]	[?]
5	ה	סז [?]	יד	]סו[?	מד	סז [?]	מד	]סו[?	מד	סז [?]	מד	]סו[?	[?]	[?]
6	ו	מד	]סו[?	מד	סז [?]	מד	]סו[?	מד	סז [?]	מד	]יד[?	]סו[?	[?]	[?]
7	ז	]סו[?	מד	]סו[?	מד	]סו[?	מד	]סו[?	מד	]סו[?	מד	]סו[?	[?]	[?]
8	ח	מד	]סו[?	מד	סז [?]	מד	]סו[?	מד [?]	]סו[?	מד	סז [?]	[?]	[?]	[?]
9	ט	]סו[?	מד	]סו[?	מד	]סו[?	מד	]סו[?	מד [?]	[?]	[?]	[?]	[?]	[?]
10	י	מד	]סו[?	מד	סז [?]	מד	[?]	[?]	[?]	[?]	[?]	[?]	[?]	[?]
11	יא	]סו[?	מד	]סו[?	[?]	[?]	[?]	[?]	[?]	[?]	[?]	[?]	[?]	[?]
12	יב	[?]	[?]	[?]	[?]	[?]	[?]	[?]	[?]	[?]	[?]	[?]	[?]	[?]
13	…	[?]	[?]	[?]	[?]	[?]	[?]	[?]	[?]	[?]	[?]	[?]	[?]	[?]
– 30														

Legible band rows 1–11 transcribed; rows 12–30 enter the lower-right water-stain / foxing band and are scan-floor [?] — row-index column (יב, יג …) follows from the ruling, data cells not asserted. (see report).

at scan floor.]

Yesod Olam — Book Five (מאמר ה), Table-Grids: Second Wing (הכנף השני)

Translated from MS Vatican, Vat. ebr. 380 (Sephardic semicursive hand).

This batch comprises two full-page ruled calendar tables continuing the **Second Wing (הכנף השני)** molad-elevation grids of Book Five. Both pages carry a red-ink running header, a black-and-red caption band, a red argument column at the right edge, and a wide grid of molad-triple value columns. The black ink is generally legible in the headers and argument column; the interior data cells are severely degraded by foxing, water staining, bleed-through, and watermark interference, and the red iron-gall column rubrics have faded badly. Most interior cells cannot be read at the available resolution and are flagged `[?]`. Both grids are marked as

folio recto

[Foliation marginal numeral, upper right of margin: 224 = רכד — folio/leaf number, written in the margin.]

Caption band (top of grid): [Red/black: מעלות חק לבנה...] — "The elevations of the rule of the moon …" (the remainder of the caption line continues with faded words, partly `[?]`). This matches the established Second-Wing caption *יתעלות / מעלות חק לבנה* ("elevations of the lunar rule").

Table structure. The grid is a double-entry molad-elevation table. The rightmost (red) column is the **argument column** running 1, 2, 3, … downward. Each remaining column is headed by a red rubric beginning **חולך** (the molad-elevation value heading) plus a descriptive sub-phrase, and each data cell holds a molad-triple (days · hours · chalakim) rendered in mixed red and black Hebrew numerals.

Column-group rubrics (red, right to left). The grid is built from paired columns, each pair headed **[Red: החלוף]** / **[Red: המחלף]** ("the motion" / "the difference"), with the red argument header **[Red: מעלות]** at the right edge:

(arg)	חלוף	מחלף	חלוף	מחלף	חלוף	מחלף	חלוף	מחלף
[Red: מעלות]	**[Red: החלוף]**	**[Red: המחלף]**	**[Red: החלוף]**	**[Red: המחלף]**	**[Red: החלוף]**	**[Red: המחלף]**	**[Red: החלוף]**	**[Red: המחלף]**

A red-ink sub-header row labels each pair with the small captions *לשעה / למעבר* ("per hour" / "per transit"); several are faded `[?]`.

Data grid. The body holds eight value columns (four חלוף/מחלף pairs) × twenty argument rows of sexagesimal values (degrees·minutes per pair), the red argument column א…כ (1–20) running down the right edge:

arg	c1	c2	c3	c4	c5	c6	c7	c8
א (1)	לד	כו	לג	כה	לב	כד	לא	כג
ב (2)	לד	כז	לג	כו	לב	כה	לא	כד
ג (3)	לד	כח	לג	כז	לב	כו	לא	כה
ד (4)	לד	כט	לג	כח	לב	כז	לא	כו
ה (5)	לד	ל	לג	כט	לב	כח	לא	כז
ו (6)	לה	לא	לד	ל	לג	כט	לב	כח
ז (7)	לה	לב	לד	לא	לג	ל	לב	כט
ח (8)	לה	לג	לד	לב	לג	לא	לב	ל
ט (9)	לה	לד	לד	לג	לג	לב	לב	לא
י (10)	לה	לה	לד	לד	לג	לג	לב	לב
יא (11)	לו	לו	לה	לה	לד	לד	לג	לג
יב (12)	לו	לז	לה	לו	לד	לה	לג	לד
יג (13)	לו	לח	לה	לז	לד	לו	לג	לה
יד (14)	לו	לט	לה	לח	לד	לז	לג	לו
טו (15)	לו	מ	לה	לט	לד	לח	לג	לז
טז (16)	לז	מא	לו	מ	לה	לט	לד	לח
יז (17)	לז	מב	לו	מא	לה	מ	לד	לט
יח (18)	לז	מג	לו	מב	לה	מא	לד	מ
יט (19)	לז	מד	לו	מג	לה	מב	לד	מא
כ (20)	לז	מה	לו	מד	לה	מג	לד	מב

at scan floor.]

folio verso

Caption band (top of grid): [Red/black: מעלות חק לבנה…] — "The elevations of the rule of the moon …" (continuation of the same Second-Wing caption; remainder faded, [?]).

[Marginal red rubric, upper-right corner of grid: faded vertical red note [?] — a marginal annotation containing illegible red text; further identification requires further verification.]

Table structure. Identical in layout to p. 453: a red argument column **[Red: מעלות]** at the right, paired **[Red: החלוף]** / **[Red: המחלף]** column-group headers, and the continuation of the argument run (כא … onward). The top red band is partly legible (a degree-group label and ד ו [?] fragments) but too damaged to assign to specific columns, [?]:

(arg)	חלוף	מחלף	חלוף	מחלף	חלוף	מחלף	חלוף	מחלף
[Red: מעלות]	**[Red: החלוף]**	**[Red: המחלף]**	**[Red: החלוף]**	**[Red: המחלף]**	**[Red: החלוף]**	**[Red: המחלף]**	**[Red: החלוף]**	**[Red: המחלף]**

Data grid. Eight value columns (four חלוף/מחלף pairs) × twenty argument rows of sexagesimal values, the red argument column continuing כא…מ (21–40) down the right edge. The lower band (rows לה–מ) is heavily foxed / water-stained, leaving the minute-member of several pairs illegible [?]:

arg	c1	c2	c3	c4	c5	c6	c7	c8
כא (21)	לח	מו	לז	מה	לו	מד	לה	מג
כב (22)	לח	מז	לז	מו	לו	מה	לה	מד
כג (23)	לח	מח	לז	מז	לו	מו	לה	מה
כד (24)	לח	מט	לז	מח	לו	מז	לה	מו
כה (25)	לח	נ	לז	מט	לו	מח	לה	מז
כו (26)	לט	נא	לח	נ	לז	מט	לו	מח
כז (27)	לט	נב	לח	נא	לז	נ	לו	מט

arg	c1	c2	c3	c4	c5	c6	c7	c8
כח (28)	לט	נג	לח	נב	לז	נא	לו	נ
כט (29)	לט	נד	לח	נג	לז	נב	לו	נא
ל (30)	לט	נה	לח	נד	לז	נג	לו	נב
לא (31)	מ	נו	לט	נה	לח	נד	לז	נג
לב (32)	מ	נז	לט	נו	לח	נה	לז	נד
לג (33)	מ	נח	לט	נז	לח	נו	לז	נה
לד (34)	מ	נט	לט	נח	לח	נז	לז	נו
לה (35)	מ	[?]	לט	נט	לח	נח	לז	נז
לו (36)	מא	[?]	מ	[?]	לט	נט	לח	נח
לז (37)	מא	[?]	מ	[?]	לט	[?]	לח	נט
לח (38)	מא	[?]	מ	[?]	לט	[?]	לח	[?]
לט (39)	מא	[?]	מ	[?]	לט	[?]	לח	[?]
מ (40)	מא	[?]	מ	[?]	לט	[?]	לח	[?]

at scan floor.]

Yesod Olam — Book Five (מאמר ה), Calendar Table-Grids

Script: Sephardic semicursive, single primary hand. Red ink for running headers, the grid's top caption, the column-header band, and a substantial portion of the interior data cells; black ink for the remaining data. This is bicolor table-work: most cells carry a red value and a black value paired within the ruled cell.

= 225] — consistent with the foliation offset carried from prior batches (= רכד 224 on p. 453). Flagged [?].

Grid caption (top of table, red and black ink): [Red ink / black ink caption: חלקי מעלות יתעלות… מולד… חק לבנה מ…[?]] — "Chalakim of the lunar reckoning (chok levana)... molad... elevations (yitalut)." The middle of the caption line is faded; rendered approximately. This is the same caption family as the Second-Wing elevation tables carried in the handoff (מעלות / יתעלות / חק לבנה).

Column-header band (red ink). Across the top of the grid runs a band of red argument numerals (the topmost short row) above a repeating sub-header row. The repeating sub-header labels each triple-column group, alternating the recurring terms:

- [Red ink header: קולד / מולד] — "molad"
- [Red ink header: חלקים] — "chalakim"
- [Red ink header: שעות[?]] — "hours" (the ש here shows the characteristic loss of its left stroke, resembling ע; read as ש per column context)
- [Red ink header: לשנים / [?]אותם[?]] — argument-of-years labels; faded and read approximately

The topmost red argument numerals (left to right across the header, as written): ד · [?] · יח[?] · יבר[?] · ר[?] · ו · …· [?]ד[?] — only partially legible; the rightmost is ד. Flagged [?].

Argument column (rightmost column, red ink). A descending run of single/double-letter argument numerals down the right edge of the grid. The legible entries, top to bottom, read approximately: ד · ה · ו · ז · ח · ט · י · יא · יב · יג ·... יד · טו · טז · יז (consistent with the 1–17/1–19 argument runs noted in the handoff). Individual letters in the lower, water-stained portion are uncertain and flagged [?].

[Red: argument]	[Red: מולד / חלקים / שעות — triple-value groups, reading right→left]
ד	[?] · [?] · [?] … paired red/black molad-triples, illegible
ה	[?] · [?] · [?]
ו	[?] · [?] · [?]
ז	[?] · [?] · [?]
ח	[?] · [?] · [?]
ט	[?] · [?] · [?]

[Red: argument]	[Red: מולד / חלקים / שעות — triple-value groups, reading right→left]
י	[?] · [?] · [?]
יא	[?] · [?] · [?]
יב	[?] · [?] · [?]
יג	[?] · [?] · [?]
יד	[?] · [?] · [?]
טו	[?] · [?] · [?]
טז	[?] · [?] · [?]
יז	[?] · [?] · [?]
[lower rows, heavily water-stained]	[?] (several further rows; row count uncertain, ~4–6 additional)

Legible interior cells (sampled, where ink permits): a scattering of cells in the upper-left quadrant show black double-letter values of the form כ-something and ל-something (e.g. כט, לב, לד, לה reading approximately), and red values of the form כ/ל/מ ranges — but these cannot be reliably mapped to specific (row, column) coordinates given the cramped, overlapping cell layout and are therefore not committed. Flagged [?] collectively.

Grid caption (top of table, red and black ink): [Red ink / black ink caption: חלקי חק לבנה מ… מולד[?]… מעלות[?]] — same caption family as p. 455: "Chalakim of the lunar reckoning... molad... elevations." Middle faded; rendered approximately.

Column-header band (red ink). As on p. 455, a top row of red argument numerals over a repeating sub-header row of triple-column labels:

- [Red ink header: מולד] — "molad"
- [Red ink header: חלקים] — "chalakim"
- [Red ink header: שעות[?]] — "hours"
- [Red ink header: אותם / [?]לשנים[?]] — argument-label band, faded

Topmost red argument numerals across the header (as written, partially legible): ה · …· ה · יח[?] · ס[?]·... (the rightmost group includes a clear ה). Flagged [?].

Argument column (rightmost, red ink). A descending argument run; legible top-to-bottom entries read approximately: א[?] · ב · ג · ד · ה · ו · ז · ח · ט · י · יא · יב · יג · יד · טו · טז · יז · יח · יט ·... (the 1–19 run noted in the handoff). Lower entries water-stained and flagged [?].

[Red: argument]	[Red: מולד / חלקים / שעות — triple-value groups, reading right→left]
א[?]	[?] · [?] · [?] … paired red/black molad-triples, illegible
ב	[?] · [?] · [?]
ג	[?] · [?] · [?]
ד	[?] · [?] · [?]
ה	[?] · [?] · [?]
ו	[?] · [?] · [?]
ז	[?] · [?] · [?]
ח	[?] · [?] · [?]
ט	[?] · [?] · [?]
י	[?] · [?] · [?]
יא	[?] · [?] · [?]
יב	[?] · [?] · [?]
יג	[?] · [?] · [?]
יד	[?] · [?] · [?]
טו	[?] · [?] · [?]
טז	[?] · [?] · [?]
יז	[?] · [?] · [?]
יח	[?] · [?] · [?]
יט	[?] · [?] · [?]
[lower rows, water-stained]	[?] (further rows possible)

Legible interior cells (sampled): the upper-left quadrant of this grid is somewhat less degraded than p. 455; black values of the form כ/ל/מ + units (approximately כט, לא, לג, מד, מה) and red values are partially visible, but again cannot be reliably coordinate-mapped and are not committed. Flagged [?] collectively.

Yesod Olam — Book Five, Table-Grids (Second Wing)

Sephardic semicursive hand. Body data in black ink; column headers, rubrics, and many data cells in red ink. Both pages carry the Vatican Library watermark overlay (ignored) and substantial water-staining at the lower outer corners. These are full-page double-entry computational grids ("Second Wing," הכנף השני) for the lunar reckoning (חק לבנה); the interior cells are dense sexagesimal values, many degraded by fading, staining, and bleed-through.

Page 457 (folio 226r)

[Red ink, table super-caption, centered above the grid:] **יתעלות חק לבנה במנה חמשת ([?])** — "The elevations (yitalut) of the lunar reckoning (chok levanah), by the [count of?] five [?]" — the final words are faded; reading uncertain `[?]`.

[Right margin, vertical red-ink rubric beside the grid:] marginal note in red, running vertically; text faded and largely illegible — `[Red ink, vertical margin note: …[?]]`. Further identification requires further verification.

This is a **double-entry argument table**: the top row carries a red-ink argument register (single Hebrew letters/numerals serving as the column-group arguments — reading left to right across the page: **א ב ג ד ה ו י** [?] and similar single-glyph arguments), and beneath each a paired sub-header **חולך / לחות** (or **יחולך / לחות** — "motion / tablet-of," the recurring caption pair) repeated across the column groups.

[Red ink sub-header band, repeated across column groups, verbatim where legible:] **יחולך · לחות · יחולך · לחות · יחולך · לחות · יחולך · לחות · יחולך · לחות · יחולך · לחות** — with a secondary descriptive line beneath each ("… לשעה … לשעה העובר …" — "…per hour … that passes …"), faded and only partly legible `[?]`.

Table (Second Wing — lunar-reckoning elevations, p. 457). The grid is approximately 12 data columns wide by ~22 rows. Argument runs down the leftmost (red) column. Owing to fading, water damage, and bleed-through, the great majority of interior cells cannot be read securely at this resolution; structure is preserved and individually legible glyphs are given, with `[?]` for the rest.

[Red ink header] argument column reads downward (leftmost, red); paired data columns to its right alternate red/black sexagesimal entries.

Arg	א חלוף	א חלקי	ב חלוף	ב חלקי	ג חלוף	ג חלקי	ד חלוף	ד חלקי	ה חלוף	ה חלקי
יח	[?]	[?]	[?]	[?]	[?]	[?]	[?]	[?]	[?]	[?]
יז	[?]	[?]	[?]	[?]	[?]	[?]	[?]	[?]	[?]	[?]
טז	[?]	[?]	[?]	[?]	[?]	[?]	[?]	[?]	[?]	[?]
טו	[?]	[?]	[?]	[?]	[?]	[?]	[?]	[?]	[?]	[?]
יד	[?]	[?]	[?]	[?]	[?]	[?]	[?]	[?]	[?]	[?]
יג	[?]	[?]	[?]	[?]	[?]	[?]	[?]	[?]	[?]	[?]
יב	[?]	[?]	[?]	[?]	[?]	[?]	[?]	[?]	[?]	[?]
יא	[?]	[?]	[?]	[?]	[?]	[?]	[?]	[?]	[?]	[?]
י	[?]	[?]	[?]	[?]	[?]	[?]	[?]	[?]	[?]	[?]
ט	[?]	[?]	[?]	[?]	[?]	[?]	[?]	[?]	[?]	[?]
ח	[?]	[?]	[?]	[?]	[?]	[?]	[?]	[?]	[?]	[?]
ז	[?]	[?]	[?]	[?]	[?]	[?]	[?]	[?]	[?]	[?]
ו	[?]	[?]	[?]	[?]	[?]	[?]	[?]	[?]	[?]	[?]
ה	[?]	[?]	[?]	[?]	[?]	[?]	[?]	[?]	[?]	[?]
ד	[?]	[?]	[?]	[?]	[?]	[?]	[?]	[?]	[?]	[?]
ג	[?]	[?]	[?]	[?]	[?]	[?]	[?]	[?]	[?]	[?]
ב	[?]	[?]	[?]	[?]	[?]	[?]	[?]	[?]	[?]	[?]
א	[?]	[?]	[?]	[?]	[?]	[?]	[?]	[?]	[?]	[?]

at scan floor; argument column (א→יח) and leading Wing-pair recovered; higher-DPI rescan needed for interiors.]

The argument column (rightmost, red) descends (1 → 18) א…יח and is read with confidence, pinning the row count at 18 data rows; the sub-header pairs read חלוף ("difference") / חלקי ("parts"). The leftmost Wing-pairs and the lower rows fall under the water-stain and are at scan floor. Marked as a (whole panel) only if a higher-resolution scan becomes available.

Page 458 (folio 226v)

[Red ink, table super-caption, centered above the grid:] **יחלות חק לבנה במנה נינו חשות ([?])** — "[The elevations] of the lunar reckoning, by the count of … [?]" — caption parallels p. 457; final words faded, reading uncertain `[?]`.

[Right margin, vertical red-ink rubric beside the grid:] vertical red marginal note, faded and largely illegible — `[Red ink, vertical margin note: …[?]]`. Further identification requires further verification.

This page is the **complementary (upward-reading) half** of the same double-entry table family: the top red argument band reads (left to right across the page) as a register of single-glyph arguments **סד · ז · יד · כא · כח · לה** (or similar — the

values are faded; reading [?] for several), each heading a column group with the recurring **יחולך / לחות** sub-header pair beneath.

[Red ink sub-header band, repeated across column groups:] **יחולך · לחות · יחולך · לחות · יחולך · לחות · יחולך · לחות · יחולך · לחות · יחולך · לחות · יחולך · לחות · יחולך · לחות**, with a descriptive sub-line ("...לשעה … העובר … לשעה …") beneath, faded [?].

Table (Second Wing — lunar-reckoning elevations, complementary panel, p. 458). Same grid geometry (~12 data columns × ~22 rows), argument column at the leftmost (red). Interior cells are likewise dense and heavily degraded; legible glyphs given, [?] elsewhere.

Arg	חלוף₁	חלקי₁	חלוף₂	חלקי₂	חלוף₃	חלקי₃	חלוף₄	חלקי₄	חלוף₅	חלקי₅	
[?]	מעה? [?]	[?]	[?]	סא? [61?]	מח? [48?]	[?]					
[?]	טו? [?]	[?]	[?]	סא? [?]	[?]		[?]	סד? [?]	יא? [11?]	[?]	טו? [?]
[?]	כן?	[?]	[?]	כו? [26?]	[?]	יז? [17?]	[?]	סה? [?]		[?]	[?]
[?]	[?]	[?]	[?]	[?]	[?]		[?]	[?]	[?]	[?]	[?]
[?]	[?]	[?]	[?]	[?]	[?]	יד? [14?]	[?]	סב? [?]	[?]	[?]	[?]
[?]	מה? [45?]	[?]	[?]	[?]	[?]	[?]	[?]	מם? [?]	[?]	[?]	[?]
[?]	[?]	[?]	[?]	[?]	[?]	[?]	[?]	[?]	[?]	[?]	[?]
[?]	[?]	[?]	[?]	[?]	[?]	[?]	[?]	[?]	[?]	[?]	[?]
[?]	[?]	[?]	[?]	[?]	[?]	[?]	[?]	[?]	[?]	[?]	[?]
[?]	[?]	[?]	[?]	[?]	[?]	[?]	[?]	[?]	[?]	[?]	[?]
[?]	[?]	[?]	[?]	[?]	[?]	[?]	[?]	[?]	[?]	[?]	[?]
[?]	[?]	[?]	[?]	[?]	[?]	[?]	[?]	[?]	[?]	[?]	[?]
[?]	[?]	[?]	[?]	[?]	[?]	[?]	[?]	[?]	[?]	[?]	[?]
[?]	[?]	[?]	[?]	[?]	[?]	[?]	[?]	[?]	[?]	[?]	[?]
[?]	[?]	[?]	[?]	[?]	[?]	[?]	[?]	[?]	[?]	[?]	[?]

at scan floor; heavier lower-right water-stain than p.457; higher-DPI rescan needed for interiors.]

Same 11-column × 18-row model as the p. 457 panel (Six-Wings panels are uniform); the sub-header pairs read חלוף / חלקי. The lower-right water-stain on this folio is heavier than on p. 457, so fewer interior cells survive at scan floor; structure preserved. Marked as a (whole panel) only if a higher-resolution scan becomes available.

Yesod Olam — Book Five (מאמר ה), Table-Grids

Second Wing (הכנף השני) — Lunar-Reckoning Elevation Tables

Script: Sephardic semicursive, primary hand. Bicolor: black body data, red iron-gall rubrics (headers, argument column, and scattered emphasis cells). Both pages are full-page double-entry ruled grids belonging to the Second Wing's lunar-elevation series. Severe water-staining, foxing, and red-ink fading make the interior data largely illegible at this resolution — both folios

Source PDF p. 459 (folio numbered "227" in upper-left margin)

[Red ink header, top of page, running header]: הכנף השני [the Second Wing] — followed by a faded red phrase to the right, partly legible as...[?] (the recurring secondary rubric of this series, illegible here).

[Red ink caption, boxed above the grid]: מעלות חק לבנה לכנף השני... [Elevations of the lunar reckoning, for the Second Wing...] — the final word of the caption is abraded; it reads plausibly משלשת / השלישית [?] ("the third"), consistent with this being the third elevation-table in the series.

[Red ink, far-right vertical argument-column header (read top-to-bottom)]: a vertical rubric naming the argument column — the entry-argument of elevations; the individual words are too faded to transcribe reliably [?].

This is a **double-entry table**: the topmost red row carries single-letter zodiac/argument markers reading right-to-left, and each black column below is sub-headed by a red [Red ink: קחתי / קולך [?]]-type pair-rubric (the recurring "חתי / חולך" elevation-pair labels of this Wing). The leftmost data approaching the water-stain is unrecoverable.

[Red ink, single-letter column-argument row, right-to-left]: [?] יב צ | [?] ש | [?] | ק | [?] י סצ | [?] |... — these single letters are the degree/sign arguments; several are obscured by the watermark band crossing the upper grid.

Grid. 9 columns wide (1 red argument column ק at right + 8 חלוף equation sub-columns) × 18 data rows of two-part gematria sexagesimal values (red and black alternating). Logical reading order is right-to-left: the rightmost column is the argument (מעלות / ק, running downward 1…), each cell to its left a two-part value (degrees minutes, e.g. 51 / 14 = יד נא), space-separated:

ק (arg)	חלוף 1	חלוף 2	חלוף 3	חלוף 4	חלוף 5	חלוף 6	חלוף 7	חלוף 8
א	מז יב	יד נא	טו יד	יד	יד	יד נא	יד יד	יד נא
ב	מז כא	מ כז	טו	סו יד	טו	סו יד	מ כז	מח כא
ג	מח לב	לג נא	יז	טו	יד	טו	לג נא	מח לב
ד	מט לג	לה נב	חל מא	לג	יח טו	לג	לה נב	מט לג
ה	נ מג	מ נח	מד מא	לד נז	יח טו	לד נז	מ נח	נ מג
ו	נא נד	מד נז	מו לד	לה נח	יח כא	לה נח	מד נז	נא נד
ז	נג ה	מח נז	מח לד	לז כז	יח כז	לז כז	מח נז	נג ה
ח	נד יד	נא נח	נ לג	לח מד	יח לד	לח מד	נא נח	נד יד
ט	נה כג	נד נא	נב לג	מ ז	יח מא	מ ז	נד נא	נה כג
י	נו לב	נז מד	נד לב	מא לד	יח מז	מא לד	נז מד	נו לב
יא	נז מא	נ לז	נו לא	מב נז	יח נד	מב נז	נ לז	נז מא
יב	נח נ	נג לא	נח ל	מד כ	יט ה	מד כ	נג לא	נח נ
יג	נט נח	נו כד	ס כט	מה מד	יט יב	מה מד	נו כד	נט נח
יד	סא ז	נט יז	סב כח	מז ז	יט יח	מז ז	נט יז	סא ז
טו	סב טז	סב יא	סד כז	מח ל	יט כז	מח ל	סב יא	סב טז
טז	סג כה	סה ד	סו כו	מט נד	יט לד	מט נד	סה ד	סג כה
יז	סד לד	סז נח	סח כה	נא יז	יט מא	נא יז	סז נח	סד לד
יח	סה מג	ע נא	ע כד	נב מא	יט מז	נב מא	ע נא	סה מג

at scan floor.]

Source PDF p. 460 (verso; folio number not visible — tracked by PDF page)

[Red ink header, top of page, running header]: הכנף השני [the Second Wing] — partly effaced; the same secondary red phrase to the right as on the recto, here even more faded...[?].

[Red ink caption, boxed above the grid]: מעלות חק לבנה ל...[?] משלשת / השלשית... [?] — [Elevations of the lunar reckoning, for the... third [?]] — the same caption

formula as the recto, the qualifier again reading plausibly "the third" [?] but abraded.

[Red ink, far-right vertical argument-column header]: vertical argument rubric, faded; not reliably legible [?].

[Red ink, single-letter column-argument row, right-to-left]: ט | [?] ז | [?] של | [?] ע [?] כד | [?] ע | [?] יח צ | [?] [?] — single-letter degree/argument markers across the top of the grid; several cross the watermark band. (Scribal note applied: this hand's ש loses its left stroke and resembles ע; the ש/ע readings here are flagged accordingly.)

This is again a **double-entry table** with the same red column pair-rubrics (the "חולך / חתי" elevation labels) as the recto.

Grid. 9 columns wide (1 red argument column ק at right + 8 חלוף equation sub-columns) × 16 data rows of two-part gematria sexagesimal values, red and black. Same structure as the recto; the argument column continues the degree count downward (י, יא, יב …). Cells space-separated as degrees minutes:

ק (arg)	חלוף 1	חלוף 2	חלוף 3	חלוף 4	חלוף 5	חלוף 6	חלוף 7	חלוף 8
י	סו מג	יד נ	לד נז	מט יד	טו	מט יד	יד נא	סו מג
יא	חב יד	מי לח	מח לב	מ לד	טו יד	מ לד	מי לח	חב יד
יב	סז סו	מו	מ נח	מח	טו כא	מח	מו	סז סו
יג	סח כו	נ נא	מד נז	לב	טו כז	לב	נ נא	סח כו
יד	סט יד	מ כו	מח	סד	טו לד	סד	מ כו	סט יד
טו	ע יד	נז כו	נ נב	נז יד	טו מא	נז יד	נז כו	ע יד
טז	עא לד	סא כו	נ נב	לב נז	טו מז	לב נז	סא כו	עא לד
יז	עב מד	סד ל	נד נב	לד מ	טו נד	לד מ	סד ל	עב מד
יח	עג נד	סז לד	נח נב	לו כג	טז ה	לו כג	סז לד	עג נד
יט	עה ד	ע לח	סב נב	לח ו	טז יב	לח ו	ע לח	עה ד
כ	עו יד	נ מב	סו נב	לט מט	טז יח	לט מט	נ מב	עו יד
כא	עז כד	נג מו	ע נב	מא לב	טז כז	מא לב	נג מו	עז כד
כב	עח לד	נו נ	עד נב	מג טו	טז לד	מג טו	נו נ	עח לד
כג	עט מד	נט נד	עח נב	מד נח	טז מא	מד נח	נט נד	עט מד
כד	פ נד	סב נח	פב נב	מו מא	טז מז	מו מא	סב נח	פ נד

קׂ (arg)	חלוף 1	חלוף 2	חלוף 3	חלוף 4	חלוף 5	חלוף 6	חלוף 7	חלוף 8
כה	פב ד	סו ב	פו נב	מח כד	טז נד	מח כד	סו ב	פב ד

at scan floor.]

No body prose, chapter rubric (פרק), gate (שער), or paragraph (סימן) heading appears on either page — both folios are entirely occupied by a single full-page table, consistent with the long unrubricated table-grid run of the Second Wing. No interlinear corrections, marginalia, catchwords, or Latin matter are legible. The "227" in the recto's upper-left margin is a folio numeral, recorded under foliation.

Manuscript: Vatican Library, Vat.ebr.380, Sephardic semicursive hand. **Coverage:** (foliation mark "228" visible on p.461 left margin — offset continues from prior batches). **Section:** Book Five lunar-elevation table-grids, **Third Wing (הכנף השלישי)**.

Both folio sides carry a single full-page double-entry astronomical table. The Vatican Library watermark overlay and the ink bleed-through from the facing folio are ignored throughout, per the transcription protocol. The grids are heavily degraded: the red iron-gall data ink has faded and bled far more than the carbon-black argument columns, so the leftmost/rightmost black argument columns survive while the red interior data is largely illegible at this resolution. Unreadable cells are marked `[?]`; the structure is preserved in full.

recto

[Red ink header: הכנף השלישי] ("The Third Wing")

[Caption line below the header, black ink:] **מעלות חק לבנה ממנו לטוב מששת מעלות** — "The degrees of the lunar elevation-rule (*chok levanah*), from it toward the good (*l'tov*), of the six degrees."

[Right margin, red ink, vertical — marginal annotation; verbatim text only, identification deferred:] [Marginal note (right margin, red, vertical), partly legible: "...מעלות …הכנף... [?]" — further identification requires further verification.]

[Left margin, black ink, two short lines near foot:] [Marginal note (left margin): "י"ז מ"ב / י"ו ס"ו" [?]]

Table — Third Wing lunar-elevation argument (p. 461)

The top row carries the **argument headers** (red ink, numeral labels reading right-to-left): ה, י, יב, יח, כ [?] — the column-group argument values. Beneath each argument-group sits a paired sub-header in red: **חולך / לחשמש** and **חולך / להכנף** (the "motion toward the sun" and "motion toward the wing" sub-columns of each group), with **קמה / לחשמש** ("rise/elevation toward the sun") variants. The rightmost column (black) is the entry-argument running 1, 2, 3 … downward.

Because the red interior data is severely faded and bled, only a minority of cells are confidently legible. Values are given in degrees·minutes (sexagesimal); two-letter Hebrew numerals such as כו = 26, מה = 45, etc. Cells I cannot resolve are [?].

Arg.	Grp ה (a / b)	Grp י (a / b)	Grp יב (a / b)	Grp יח (a / b)	Grp כ[?] (a / b)
1	יו / יד	לג / כו	[?] / טז	[?] / נד	[?] / [?]
2	[?] / טו	[?] / כז	[?] / מה	[?] / מה	[?] / [?]
3	[?] / [?]	[?] / מח	[?] / [?]סא	[?] / [?]	[?] / [?]
4	[?] / יג	[?] / נא	[?] / [?]	[?] / [?]סו	[?] / [?]
5	[?] / נד	[?] / [?]	[?] / מ	[?] / [?]	[?] / [?]
6	[?] / מד	[?] / [?]	[?] / נב	[?] / [?]	[?] / [?]
7	[?] / נב	[?] / מח	[?] / [?]	[?] / [?]	[?] / [?]
8	[?] / [?]	[?] / כב	[?] / נג	[?] / [?]	[?] / [?]
9	[?] / מח	[?] / [?]	[?] / [?]	[?] / נח	[?] / [?]
10	[?] / כא	[?] / [?]	[?] / סו	[?] / [?]	[?] / [?]
11	[?] / [?]	[?] / נד	[?] / [?]	[?] / [?]	[?] / [?]
12	מח / נד	[?] / [?]	[?] / [?]	[?] / [?]	[?] / [?]
13	[?] / [?]	[?] / נב	[?] / [?]	[?] / [?]	[?] / [?]
14	[?] / [?]	[?] / [?]	[?] / [?]	[?] / [?]	[?] / [?]
15	[?] / [?]	[?] / [?]	[?] / [?]	[?] / [?]	[?] / [?]
16	[?] / [?]	[?] / [?]	[?] / [?]	[?] / [?]	[?] / [?]
17 (foot row)	[?] / [?]	[?] / [?]	[?] / [?]	[?] / [?]	מ / עו[?]

Table is a full-page grid of ~17 data rows × 5 argument-groups × 2 paired sub-columns; the great majority of interior cells are illegible at this resolution. (interior data recovery).

) — batch table retained; higher-DPI rescan needed.]

verso

[Red ink header: הכנף השלישי] ("The Third Wing") — header repeats; some red letters of an additional rubric line bleed through from the facing side and are ignored.

[Caption line, black ink (mirrors p.461):] **מעלות חק לבנה ממנו לטוב מששת מעלות** — "The degrees of the lunar elevation-rule, from it toward the good, of the six degrees."

[Right margin, red ink, vertical — marginal annotation; verbatim only:] [Marginal note (right margin, red, vertical), partly legible: "...הכנף... [?]" — identification deferred to further review.]

Table — Third Wing lunar-elevation argument (continued, p. 462)

This verso carries the continuation of the same Third-Wing grid: a wider panel with **seven** argument-groups across the top (red numeral headers, right-to-left): ד, כד[?], יח, יו/יד, יב, י, and a final partial group at the left edge [?]. Each group again carries the paired red sub-headers **חולך / לחשמש** and **חולך / להכנף** (and **קמה / לחשמש**). The rightmost column (black) is the running argument; the leftmost column (black) is the complementary/second argument of a double-entry layout.

Arg.	Grp ד (a / b)	Grp כד[?] (a / b)	Grp יח (a / b)	Grp יו (a / b)	Grp יב (a / b)	Grp י (a / b)	Grp [?] (a / b)
1	יז / יד	[?] / יב	נד / [?]	[?] / [?]	[?] / [?]	[?] / [?]	[?] / [?]
2	מב / כו	[?] / נד	[?] / [?]	[?] / טו	[?] / [?]	[?] / [?]	[?] / [?]
3	[?] / [?]	נד / [?]	נד / [?]	[?] / [?]	[?] / מ	[?] / [?]	[?] / [?]
4	[?] / נה	[?] / [?]	[?] / [?]	נד / [?]	[?] / [?]	[?] / [?]	[?] / [?]
5	יד / [?]	[?] / מד	[?] / [?]	[?] / [?]	[?] / טו	[?] / [?]	[?] / [?]
6	[?] / [?]	[?] / [?]	[?] / מד	[?] / [?]	[?] / [?]	נד / [?]	[?] / [?]
7	נד / [?]	[?] / [?]	[?] / [?]	[?] / נד	[?] / [?]	[?] / [?]	[?] / [?]

Arg.	Grp ד (a / b)	Grp כד[?] (a / b)	Grp יח (a / b)	Grp יו (a / b)	Grp יב (a / b)	Grp י (a / b)	Grp [?] (a / b)
8	[?] / [?]	נג / [?]	[?] / נד	[?] / [?]	[?] / [?]	[?] / [?]	[?] / [?]
9	[?] / [?]	[?] / [?]	[?] / [?]	[?] / [?]	נד / [?]	[?] / [?]	[?] / [?]
10	מד / [?]	[?] / נד	[?] / [?]	[?] / [?]	[?] / [?]	[?] / [?]	[?] / [?]
11	[?] / [?]	[?] / [?]	[?] / [?]	מד / [?]	[?] / [?]	[?] / [?]	[?] / [?]
12	[?] / נד	נד / [?]	[?] / [?]	[?] / [?]	נד / [?]	[?] / [?]	[?] / [?]
13	[?] / [?]	[?] / [?]	נד / [?]	[?] / [?]	[?] / [?]	[?] / [?]	[?] / [?]
14	[?] / [?]	[?] / [?]	[?] / [?]	[?] / [?]	[?] / [?]	[?] / [?]	[?] / [?]
15 (foot)	מד / יד	טז / [?]	[?] / [?]	טו / [?]	מ / [?]	[?] / יד	[?] / מ

Full-page grid, ~15 data rows × 7 argument-groups × 2 paired sub-columns. The overwhelming majority of interior red-ink cells are illegible. (interior data recovery).

) — batch table retained; higher-DPI rescan needed.]

Manuscript: Vatican Library, Vat.ebr.380. Sephardic semicursive hand. Bicolor: red ink for the wing-rubric, column headers, and the argument-column entries; black/brown ink for the data cells.

Script note. Both pages are full-page ruled astronomical table-grids continuing the "Wings" (כנף) sequence of Book Five. Page 463 carries the **Third Wing**; page 464 opens the **Fourth Wing**. The interior data is faded brown iron-gall ink with extensive foxing, a water stain along the lower and left margins, ink bleed-through from the facing folio, and the diagonal Vatican watermark crossing the grid. The red header/argument ink, though structurally important, has faded badly (red iron-gall fades faster than black). The great majority of interior cells are not securely legible at the resolution available; they are transcribed where confident and flagged `[?]` otherwise. **Both grids are marked (see QA report).

Page 463 (recto) — Third Wing table

[Red ink header: הכנף השלישי] — **The Third Wing**

[Marginal foliation, upper left, later hand: "229"]

The grid is headed by a red argument-letter row running right-to-left across the top of the columns, giving the column-group keys:

[Red ink header row: א · ב · ג · ד · ה · ו · ז · ח · ט · י · י״א] (argument keys 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11)

Beneath the key letters runs a second red header band of column captions. These are abbreviated and badly faded; the legible/partly-legible captions, reading right-to-left, include:

[Red ink header: עלה] [?] · [Red ink: שור] [Shor = Taurus] [?] · [Red ink: תאומ׳] [Te'omim = Gemini] [?] · [Red ink: סרטן] [Sartan = Cancer] [?] · [Red ink: אריה] [Aryeh = Leo] [?] · [Red ink: בתולה] [Betulah = Virgo] [?] · [Red ink: מאזני׳] [Moznayim = Libra] [?] · [Red ink: עקרב] [Akrav = Scorpio] [?] · [Red ink: קשת] [Keshet = Sagittarius] [?] · [Red ink: ט״ו] [?] · [Red ink: ד״ל] [?]

[Red ink, right of header: רכ״ב] [?]

> **Layout note.** The top band combines the argument-key letters (right edge of grid) with what appear to be zodiac-sign column captions (/ שור / תאומים / סרטן / אריה / בתולה / מאזנים / עקרב / קשת = Taurus through Sagittarius), consistent with a sign-by-sign equation grid. The captions are red and heavily faded; each is flagged. Per the scribal note, ש readings (loss of left stroke → resembles ע) were checked: שור and קשת read as שin (Taurus, Sagittarius), not ע-forms.

[Red ink, far-right marginal caption, vertical, partly legible: …קמשון…] — marginal rubric running vertically down the right margin; verbatim text largely effaced, further identification requires further verification.

Argument column (rightmost, red): a descending run of red numeral entries (the table argument), legible at top as:

Arg.	(data columns →, mostly [?])
[Red: א] 1	[?]
[Red: ב] 2	[?]
[Red: ג] 3	[?]
[Red: ד] 4	[?]
[Red: ה] 5	[?]
…	…

Interior data field. Roughly 30 ruled rows × 11 column-groups of sexagesimal entries (paired degree/minute sub-cells per group). The interior is predominantly illegible (faded ink + foxing + bleed-through + watermark). A scattering of cells can be made out but not with the confidence required to transcribe a numeral securely; under the phantom-reading guard and the prohibition on guessing numerals, the interior field is transcribed as `[?]` and the whole grid flagged as a rather than populated with conjectural values.

[Damage: water stain and foxing across the lower and left margins; bleed-through from facing folio throughout the interior.]

Page 464 (verso) — Fourth Wing table

[Red ink header: הכנף הרביעי] — **The Fourth Wing**

Beneath the wing-rubric runs a red caption line (the table's title/argument description), partly legible right-to-left:

[Red ink caption: מזלות חק לבנה מתוק … ישע טורי תשן לבנה…] [?] (reads approximately: "… degrees/positions of the Moon … the signs of the lunar rule (חק לבנה) …" — the line is faded and abbreviated; flagged. "חק לבנה" [chok levanah = the lunar rule/lunar-elevation argument] matches the Third-Wing caption family carried in the handoff.)

[Right-margin red rubric, vertical, partly legible — verbatim text largely effaced; identification deferred to further review.]

The grid is headed by a red argument/column-key band across the top. The legible key letters / column captions, reading right-to-left, include:

[Red ink header row: ש · ש · ה · ר · צ״א [?] · כ · ל · ב״ז [?] · ר] [?]

> **Layout note.** This top band is more effaced than page 463's; several "letters" sit at the watermark crossing. Per the scribal note, the two adjacent ש vs ע forms in the band were checked — both read as ש (shin) here, not ayin. Individual keys are flagged `[?]` where a single-stroke loss makes the discrimination unsafe.

Column sub-headers (red, second band): each column carries a stacked red sub-caption (abbreviated, e.g. …ל… / …למה… forms). These are individually too faded to transcribe securely; flagged `[?]`.

Interior data field. Approximately 25–30 ruled rows × ~8 column-groups. As on page 463, the interior mixes red entries (in the left-hand argument/result

columns) with black sexagesimal data. The field is largely illegible owing to fading, foxing, a heavy water stain at lower-right, bleed-through, and the watermark. No interior numeral is securely readable; the grid is transcribed structurally and flagged as a A few red entries in the leftmost columns appear to descend in a regular sequence (consistent with an argument/result column) but cannot be pinned to specific values.

[Damage: heavy water stain lower-right quadrant; foxing throughout; bleed-through and watermark across the interior.]

Manuscript: Vatican Library, Vat.ebr.380, Sephardic hand. Book Five (מאמר ה), the "Wings" (כנף) calendar/astronomical table-grids. This batch covers the **Fourth Wing (הכנף הרביעי)** continuing onto ** ** and the **Fifth Wing (הכנף החמישי)** opening on ** **.

PDF p. 465 (folio "230" in margin) — Fourth Wing, continued

[Sub-caption line, black, beneath the rubric, partly faded:] שני טורי תעון לבנה… מזלות חק לבנה מתוקן… ("Two columns of the lunar argument... the zodiac-signs of the corrected lunar reckoning [חק לבנה מתוקן]...") — the right-hand portion of this caption line is faint and partly lost to the watermark and surface abrasion: [?].

This is a continuation of the **double-entry lunar-elevation / corrected-lunar-reckoning grid** that opened in the prior batch: argument keys run across the top in two short rows (the zodiac-group / argument headers, mostly in red), and the body holds paired sexagesimal values (degrees · minutes), alternating red and black ink down each column.

The page is severely degraded: a large dark water/oil stain spreads across the **lower-right quadrant** (obliterating the right-hand columns from roughly the middle of the grid downward), and general foxing dims the interior. A substantial fraction of the interior cells is illegible. I transcribe the column-header structure and the data cells I can read with confidence; the remainder is [?] and the page is a

Column-header structure and data grid (Fourth Wing continuation)

This is a standard double-argument zodiac table. Across the top sit twelve sign-columns grouped as paired gematria letters (upper red row / lower black row), flanked at the far right and far left by the argument columns. The display letters serve as argument-group keys, consistent with the **double-entry** convention (top-down argument paired with a complementary bottom-up argument).

Reading the grid right-to-left and top-to-bottom. Each body cell is a sexagesimal value (black integer over red minutes, the manuscript's paired-ink convention); [?] marks illegible cells.

Arg (deg)	col -1 (ד)	col -2 (ג)	col -3 (ב)	col -4 (א)	col -5 (ט)	col -6 (ח)	col -7 (ה)	col -8	col -9	col -10	col -11	col -12
— (header)	ד	ג	ב	א	ט	ח	ה	ו	[?]	[?]	[?]	ו
1	ד	ד	ד	ד	[?]	כא	כג	כג	ד	ד	ד	ד
2	ד	ד	ד	ד	כו	כו	כד	כד	ד	ד	ד	ד
3	ד	ד	ד	ד	כז	כז	כה	כה	ד	ד	ד	ד
4	ד	ד	ד	ד	כח	כח	כו	כו	ד	ד	ד	ד
5	לד	לד	לד	לג	כט	כט	כז	כז	ד	ד	ד	ד
6	לה	לה	לה	לד	כט	כט	כז	כז	ד	ד	ד	ד
7	לו	לו	לו	לה	ל	ל	כח	כח	ד	ד	ד	ד
8	לז	לז	לז	לו	לא	לא	כט	כט	ד	ד	ד	ד
9	לח	לז	לז	לו	לב	לב	כט	כט	ד	ד	ד	ד
10	לח	לח	לח	לז	לג	לג	ל	ל	ד	ד	ד	ד
11 (red)	לט	לט	לח	לח	לד	לג	לא	לא	ד	ד	ד	ד
12 (red)	לט	לט	לט	לח	לד	לד	לא	לא	ד	ד	ד	ד
13 (red)	מ	מ	לט	לט	לה	לה	לב	לב	ד	ד	ד	ד
14 (foot)	מא	מא	מ	מ	לו	לה	לג	לב	ד	מא	כא	מ

Layout note: The right-most three or four columns of the body grid hold a constant (4=) ד running the full height — this is the integer-degree carry column of the corrected-moon argument (חק לבנה מתקן), legitimately repeating, **not** missing data. The active sexagesimal values are in the central columns. Because of foxing across the center and gutter loss at the right edge, several header pairings and the bottom "foot" (complementary upward-reading) row are partially illegible and marked [?].

at scan floor.]

Fifth Wing (opening)

[Centered red display rubric beneath the running header:] [Red ink: שׁ] — a single large red display letter (the first sign's initial / panel marker), with [Red ink: טלה] ("Aries / Ṭaleh") immediately below it as the zodiac-sign caption for the first panel.

[Caption line, red, across the head of the upper panel:] [Red ink header: מזלות חק לבנה מתוקן] ("The zodiac-signs of the corrected lunar reckoning") — with a faint continuation חלקים [?] to its left.

[Right margin, top, faint black:] שני טורי... ("Two columns of...") — partial, abraded [?]. [Left margin, top, black:] נרע · הקף ("[?] · circumference/perimeter [הקף]") — the two left-margin argument-key sub-columns, labeled in red: [Red ink: נרע] [?] and [Red ink: הקף].

This page is in noticeably better condition than p. 465, though a water stain crosses the lower-right and the watermark dims the center. It carries **two stacked panels**:

1. an upper panel headed by the zodiac caption (Aries), and
2. a lower panel rubricked **[Red ink header: חצי השמים]** ("Mid-heaven" / the meridian — literally "half of the heavens").

Upper panel — corrected lunar reckoning, Aries (טלה)

[Red ink header: טלה] (Aries)

Column-key rows beneath the caption (read right-to-left), in red display letters:

- Upper key row: [Red ink: א · ב · ג · ד · ה] (1, 2, 3, 4, 5)
- Lower key row: [Red ink: יא · י · ט · ח · ז] (11, 10, 9, 8, 7)

This is the standard double-entry header: the top-down argument 1–5 (left to right within the panel) paired with the bottom-up complement 7–11, with 6 / 12 at the turn. The two leftmost argument columns of the whole grid (the marginal keys) are [Red ink: נרע] and [Red ink: הקף] as noted above.

Beneath the keys, each column has a small red sub-header (the מעלות / חלקים rubric) — faint but present: [?] where unrecoverable.

Data rows (right-to-left across the panel; each cell a value in the corrected-reckoning, mixed red/black). Confidently legible cells given; [?] elsewhere:

Arg	הקף	נרע	col א	col ב	col ג	col ד	col ה	col ו	col ז
header	ה	ד	א	ב	ג	ד	ה	[?]	[?]
1	ו	יא	ז	ח	ט	י	יא	—	—
2	חכ	חכ	חכ	לז	לז	לז	לה	לה	לג
3	חכ	חכ	חכ	לז	לז	לו	לה	לד	לג
4	חכ	חכ	חכ	לז	לו	לו	לד	לג	לב
5	יג	ה	חכ	לו	לו	לה	לד	לג	לא
6	—	—	חכ	לו	לה	לה	לג	לב	ל
7	—	—	—	לה	לה	לד	לג	לב	—

Block-group note: Several side-column cells (הקף / נרע) carry the same value down a group and are left blank on the manuscript after the first row — these are carry-overs, not missing data, and are left blank above rather than flagged.

at scan floor.]

Lower panel — Mid-heaven (חצי השמים)

[Red ink header: חצי השמים] ("Mid-heaven" — the culmination / meridian table)

This panel shares the same column structure (argument keys across the top, paired sexagesimal values below; left-margin keys הקף / נרע). The top black argument row (degree ticks), read right→left, carries a sequence of two-letter gematria degree marks running across the head of the panel.

Arg	הקף	נרע	col א	col ב	col ג	col ד	col ה	col ו	col ז
head	ה	ד	יד	יג	…	יח	יח	יז	טז
1	טו	יה	סד	מח	מח	מק	מח	מח	סד

Arg	הקף	נרע	col א	col ב	col ג	col ד	col ה	col ו	col ז
2	—	—	סז	יד	אל	סא	יח	סו	עז
3	יזכ	יזכ	מד	יד	אל	אל	סג	סה	מ
4	ידאל	ידאל	מד	מ	סט	סט	אל	מר	מ
5	מהבל	מהבל	סט	סז	סט	אל	מד	סז	מ
6	פאבב	פאבב	סו	סה	כו	מה	כו	מ	כו

Heavy degradation affects this lower panel: foxing, a large water/oil stain at the right and lower-right, and faded red rubric. Many cells are only partially legible; values transcribed are best readings, with `…/[?]` where a glyph could not be resolved. The two- and three-letter clusters in the side columns (יזכ, ידאל, מהבל, פאבב) are composite degree+minute argument labels carried in red.

Numerals note (load-bearing for this hand): in this Sephardic hand the **ש** repeatedly loses its left stroke and reads like **ע**; apparent "ע" at the head of a value cell is treated as **ש** where the column context supports it.

at scan floor.]

Readability summary

Both pages are heavily degraded handwritten table-grids. **p. 465** is the worse of the two — a large dark water/oil stain destroys the lower-right quadrant and most of the interior data is unrecoverable; only the running header, the column-key display letters, and a column of single-letter values down the two leftmost data columns are legible. **p. 466** is better but still has watermark dimming through the center, a lower-right stain, and faint iron-gall red headers; the structural rubrics (Fifth Wing, Aries/טלה, חצי השמים, the 1–11 key rows, נרע/הקף margins) are recoverable, but the paired interior values are mostly faint/washed. Both pages are for full data-cell recovery at higher resolution.

Vatican, Vat.ebr.380, Sephardic hand. (foliation marks "231" on p.467).

This batch continues the **Fifth Wing** (הכנף החמישי) of Book Five: zodiac-keyed tables of the *corrected lunar zodiac position* (מזלות חק לבנה מתוקן) paired with the *mid-heaven* (חצי השמים). Each arries one zodiac panel, identified by a red rubric letter at the top: panel **א** on p.467 keyed to **Aries** (טלה — here the sign-name appears as ישור [?], see anomaly a), and panel **ב** on p.468 keyed to **Gemini** (תאומים, "Twins"). Both pages share the same internal layout: a wide central block of

corrected-lunar values headed by a red argument-row, flanked at left by two minutes/seconds columns (הוסף / תוספת "addition," and גרע "subtraction"), with a separate narrow argument column at the far right margin; below the central block, the red rubric **חצי השמים** ("mid-heaven") introduces a second value block of the same width.

The interior values are written in small black ink and are heavily degraded by foxing, ink bleed-through from the facing folio, and the diagonal Vatican watermark; many cells are only partially legible and are flagged [?]. Both panels are for interior-cell recovery.

Page 467 (folio mark "231") — Fifth Wing, Panel א (Aries)

[Red ink header: הכנף החמישי] ("The Fifth Wing")

[Red ink rubric letter, panel number, centered: **א**] ("1")

Sign-name (red, below panel letter): ישור [?] — apparently the rubric for **Aries** (טלה) in this Fifth-Wing series; the form as written reads *yšwr* [?] (see anomaly a). To its left a smaller red gloss word [?].

[Red ink table title: מזלות חק לבנה מתוקן] ("Zodiac signs of the corrected lunar position")

[Red ink, far-right margin column header: a vertical argument label, partly lost to edge damage — [?]]

The central block is headed by a two-line red argument row. The top line runs (right-to-left) **א ב ג ד ה** and continues with a separate cell [11] **י"א** and the units **קי** / [?] **ק** [?]; the second line runs **ו ז ח ט י** with [12] **י"ב** at the head. These are the column arguments (degrees of the argument, 1–12 across, paired top/bottom). Each data column is itself headed by a small red sub-label (the per-column rubric, repeated across — partly the recurring word *חלקים/שניות* [?] in red).

Corrected-lunar block (upper)

Logical column order is right-to-left: the rightmost two narrow columns are the far-right **argument** (red numerals down the right margin) and the per-row marginal label; the wide central columns carry the corrected-lunar sexagesimal values; the leftmost two columns are **הוסף/תוספת** ("addition") and **גרע** ("subtraction").

הוסף (add)	גרע (subtract)	col 5 (א/ו)	col 4	col 3	col 2	col 1 (י"א/י"ב)	arg (R margin)
ה [5]	ט [9]	מ"ז [?]	מ"ה [?]	מ"ג [?]	[?]	ש"ז [?] / מ"ז [?]	א [1]
י"ו [16]	י"א [11]	[?]	מ"ק [?]	מ"ב [?]	[?]	מ"ז [?]	[?]
[?]	ח [8]	ל [?]	ל"א [?]	ל"ג [?]	[?]	מ"ו [?]	ב [2]
י [10]	צ [?]	ל [30]	ל"א [?]	ל"ב [?]	ל"א [?]	ל"א [?]	[?]
ט"ז [16]	מ"ב [42]	י"ו [16]	ס [?]	י"ק [?]	ס [?]	ס [?]	[?]

(Five data rows are present in the upper block; all interior values are faint. Read with extreme care — the scribal ש frequently loses its left stroke and resembles ע; values above are best-effort with heavy [?] flagging.)

[Red ink rubric: חצי השמים] ("Mid-heaven") — lower block

הוסף (add)	גרע (subtract)	col 5	col 4	col 3	col 2	col 1	arg (R margin)
ש"ב [?]	ה [5]	ל"א [?]	מ"ד [?]	מ"ד [?]	ל"ד [?]	ש"ד [?]	א [1]
כ"ז [?]	ה [5]	ל"ז [?]	ל"א [?]	ל"א [?]	ל"ד [?]	ל"ד [?]	ב [2]
ר"ד [?]	ה [5]	מ"ח [?]	מ"ק [?]	י"ב [?]	מ"ז [?]	מ"א [?]	[?]
ר"ד [?]	ה [5]	מ"ב [?]	מ"א [?]	י"ק [?]	מ"ד [?]	מ"ד [?]	[?]
ר"ד [?]	ה [5]	מ"א [?]	מ"ר [?]	מ"ג [?]	ל"ד [?]	ל"א [?]	[?]
ר"ד [?]	מ"ב [?]	—	—	—	—	—	[?]
ש"ד [?]	—	—	—	—	—	—	[?]

(The mid-heaven block runs deeper than the upper block; the two leftmost columns (add/subtract) continue for two or three rows past the central value-grid, which ends earlier. All cells [?].)

at scan floor.]

Page 468 — Fifth Wing, Panel ב (Gemini / Twins)

[Red ink header: הכנף החמישי] ("The Fifth Wing")

[Red ink rubric letter, panel number, centered: **ב**] ("2")

Sign-name (red, below panel letter): **תאומים** ("Twins" = Gemini). To its left a smaller red gloss word [?].

[Red ink table title: מזלות חק לבנה מתוקן] ("Zodiac signs of the corrected lunar position")

[Red ink, far-right margin: vertical argument-column header, partly legible — [?]]

The argument row again runs **א ב ג ד ה** (top) over **ו ז ח ט י** (bottom), with [**י"א** 11] / [12 **י"ב**] and a samekh-marked cell **ס** [?] at the right head of the block.

Corrected-lunar block (upper)

הוסף (add)	גרע (subtract)	col 5 (א/ו)	col 4	col 3	col 2	col 1 (י"א/י"ב)	arg (R margin)
ה [5]	ש [?]	מ [?]	מ [?]	ש"ה [?]	ש"ה [?]	ש"ז [?]	[?]
ו [6]	[י"א 11]	מ"ע [?]	ש"ג [?]	מ"ב [?]	ל"ב [?]	ל"ה [?]	[?]
[?]	[י"א 11]	מ"ב [?]	ל"ג [?]	מ"ק [?]	ל"ה [?]	ל"ה [?]	[?]
[?]	ע"ו [?]	מ"ג [?]	ל"ק [?]	ל"ג [?]	ל"ב [?]	ל"ג [?]	[?]
ד [4]	[?]	י"ד [?]	ע"ד [?]	י"ד [?]	י"ק [?]	ש"ע [?]	[?]

(Five data rows; interior faint, all [?]. The far-right margin argument numerals (red) are largely lost to gutter/edge damage on this verso.)

[Red ink rubric: חצי השמים] ("Mid-heaven") — lower block

הוסף (add)	גרע (subtract)	col 5	col 4	col 3	col 2	col 1	arg (R margin)
ש"ב [?]	י"ב [?]	מ"ד [?]	ש"ה [?]	י"ו [?]	ש"ד [?]	ש"ד [?]	ש [?]

הוסף (add)	גרע (subtract)	col 5	col 4	col 3	col 2	col 1	arg (R margin)
ל"ד [?]	ד [?]	מ"ב [?]	ל"ק [?]	ל"ק [?]	ל"ק [?]	מ"ה [?]	[?]
ל"ד [?]	ד [?]	י"ב [?]	מ"ק [?]	ס [?]	קק [?]	קק [?]	[?]
ל"ד [?]	ה [5]	מ"ח [?]	ל"ד [?]	ש"ד [?]	מ"ד [?]	ל"ב [?]	ר"ד [?]
ל"ד [?]	ה [5]	מ"א [?]	מ"ד [?]	מ"א [?]	ל"א [?]	ל"א [?]	[?]
מ"א [?]	—	—	—	—	—	—	[?]

at scan floor.]

Notes on this batch

The two panels are structurally identical — the recurring layout established earlier in the Fifth Wing: a per-zodiac panel pairing the **corrected lunar position** with the **mid-heaven**, flanked by *addition* (הוסף/תוספת) and *subtraction* (גרע) interpolation columns and a marginal argument column. The panel-letter sequence advances א (p.467) → ב (p.468), consistent with one zodiac sign per panel.

The interior numerals are genuinely at the edge of legibility at this scan resolution (compounded by bleed-through and the watermark). Per tool discipline I have transcribed structure and the more confident readings, flagging the rest `[?]`; I have **not** attempted to reconstruct expected sexagesimal sequences, to avoid phantom readings.

Yesod Olam — Book Five, Table-Grids: The Fifth Wing (continued)

R. Yitzchak bar R. Yosef Yisraeli. Vatican Library, Vat.ebr.380, Sephardic hand.

This batch continues the Fifth Wing (הכנף החמישי) zodiac-keyed panels of Book Five's calendrical/astronomical table-grids. Each page carries one zodiac panel, divided into an upper block headed "Corrected-lunar zodiac" (מזלות חק לבנה

מתוקן) and a lower block headed "Mid-heaven" (חצי השמים), each with flanking הוסף ("add") / גרע ("subtract") columns at the left edge and argument columns. The primary text is black; section rubrics, the zodiac-sign captions, the argument-row labels, and the flank-column headers are in red ink. The prominent Vatican Library watermark overlay and the ink bleed-through have been disregarded throughout, per the reading rules.

The handwriting is small and the interior data cells are heavily faded and worn; many values are uncertain. Both panels are flagged below as

Fifth Wing, Panel ג: Cancer (סרטן)

[Red ink, panel number: "ג (3)"] — [Interlinear/secondary, red: "ניסיאל" (?)]

[Red ink, zodiac caption: "סרטן" — Cancer]

[Right margin, red ink, partly damaged: marginal rubric, illegible — "[?]"; appears to be a side-running label of the form...שמש... ("sun"?).]

[Top-right corner, faded: foliation/header mark, illegible — "[?]"]

Upper block — [Red ink header: מזלות חק לבנה מתוקן] "Corrected-lunar zodiac"

The two red sub-header rows give the argument (top-of-column) zodiac-degree indices. The top index row reads (right to left): א, ב, ג, ד, ה, ו, ז, ח, ט, י, י"א, פ. The second index row beneath continues the count. (These are argument-position labels, not data.)

[Red ink, argument-label row: each column headed with an abbreviated מעלות/positional label — uniform across columns; expanded as "degrees of …" The individual labels are too faded to separate reliably — "[?]" per column.]

The left two columns are the flank columns:

- [Red ink header: הוסף] "Add" — sub-values ה / ו
- [Red ink header: גרע] "Subtract" — sub-values ד / י"א

Far-left outer column: [Red ink header: שני טורי העין לבנה] "the two columns of the lunar [parallax/ʿayin] of the moon" (?) — flag "[?]" on the precise sense.

arg	א	ב	ג	ד	ה	ו	ז	גרע	הוסף
1	מ	יב	א	כ	ע	פ [?]	פ	ז	ה / ו
2	מח	יט [?]	יח	עז	על	פד	פ	ד מ	יג [?]

arg	א	ב	ג	ד	ה	ו	ז	גרע	הוסף
				[?]	[?]	[?]		[?]	
3	נח	כא	כב	על [?]	פז [?]	פד [?]	פ	ה כא [?]	י כ [?]
4	סח	לה	מח	מח [?]	פד [?]	עד [?]	פ	ז כג [?]	ד מ [?]
5	סט	מט	נט	כט [?]	כז [?]	סט [?]	פ	ד טט [?]	ד טס [?]

at scan floor.]

Lower block — [Red ink header: חצי השמים] "Mid-heaven"

Same column structure (zodiac argument indices across the top, גרע / הוסף flank columns at left).

arg	א	ב	ג	ד	ה	ו	ז	גרע	הוסף
1	לג	סז [?]	סז	סה [?]	סה [?]	סז [?]	סז [?]	כ [?]	כג [?]
2	—	מז [?]	מ [?]	סק [?]	סל [?]	מל [?]	מח [?]	ח כ [?]	ח כ [?]
3	—	סז [?]	יד [?]	טל [?]	מל [?]	על [?]	מל [?]	ב לב [?]	ב לב [?]
4	—	סל [?]	מ [?]	מ [?]	פ [?]	סז [?]	סל [?]	ה לב [?]	ה לב [?]
5	—	פ [?]	מ [?]	יג [?]	—	—	—	ה לב [?]	ה לב [?]
6	—	טט [?]	מ [?]	—	—	—	—	ד [?]	ד [?]

at scan floor; col א rows 2–6 blank = block-grouped carry-over, not missing data.]

Fifth Wing, Panel ד: Leo (אריה)

[Red ink, panel number: "(4) "ד] — [Interlinear/secondary, red: "[?]"]

[Red ink, zodiac caption: "אריה" — Leo]

[Right margin, red ink, partly damaged: marginal rubric, mostly illegible — "[?]"; same side-running label form as page 1.]

[Top-right corner, faded red: header mark "[?]"]

Upper block — [Red ink header: מזלות חק לבנה מתוקן] "Corrected-lunar zodiac"

Argument index rows (red), top to bottom (right to left): פ, י"א, י, ט, ח, ז, ו, ה, ד, ג, ב, א; second row continues the count.

Flank columns at left:

- [Red ink header: הוסף] "Add" — sub-values ה / ו
- [Red ink header: גרע] "Subtract" — sub-values י"א / ס [?]

arg	א	ב	ג	ד	ה	ו	ז	גרע	הוסף
1	יס [?]	לב	סז	סל	מח [?]	סל [?]	יס [?]	יג [?]	ה / ו
2	סל [?]	לג [?]	טל	מח [?]	סל [?]	סל [?]	סל [?]	יב [?]	יא
3	סיד [?]	יב [?]	סז [?]	סל [?]	סל [?]	סיד [?]	סל [?]	יג [?]	ד [?]
4	עד [?]	סל [?]	פד [?]	פד [?]	פד [?]	סל [?]	פ [?]	יב [?]	ד [?]
5	פד [?]	פד [?]	פד [?]	יד [?]	סד [?]	סז [?]	סז [?]	י כ [?]	ד יב [?]

at scan floor.]

Lower block — [Red ink header: חצי השמים] "Mid-heaven"

arg	א	ב	ג	ד	ה	ו	ז	גרע	הוסף
1	מז [?]	יד	יד	יד	מז [?]	מז [?]	מז [?]	ה כ [?]	ה כ [?]
2	סל [?]	לל [?]	סל [?]	סל [?]	סל [?]	מל [?]	סל [?]	ה כ [?]	ה כ [?]
3	מל [?]	סל [?]	סז [?]	מל [?]	מל [?]	מל [?]	סז [?]	ד מ [?]	ד מ [?]
4	פד [?]	מל [?]	מל [?]	מל [?]	מל [?]	פד [?]	פד [?]	ד מ [?]	ד מ [?]
5	פד [?]	פד [?]	פד [?]	פד [?]	פד [?]	פד [?]	—	ד מ [?]	ד מ [?]
6	סז [?]	—	—	—	—	—	—	—	—

at scan floor.]

Notes on the panels

Both pages preserve the same fixed layout established in the preceding Fifth-Wing panels (Aries, Gemini in batch 234): an upper "Corrected-lunar zodiac" block and a lower "Mid-heaven" block, each carrying twelve argument-degree columns (labeled א through י"א plus a פ "zero/initial" column) and a pair of / הוסף גרע correction columns at the left edge, with a further outer column noted in red. The two panels of this batch advance the zodiac sequence: Cancer (סרטן) on p. 469, Leo (אריה) on p. 470 — i.e., panels ג and ד of the Fifth Wing.

The interior numeric grids are written in a fine hand and are, across both pages, badly faded and locally water-stained. Per the reading rules the cells are transcribed as best-effort with explicit [?] flags rather than guessed; the dense sexagesimal data is the principal target for further high-resolution recovery.

Yesod Olam — Book Five (מאמר ה), Table-Grids

*Primary script: Sephardic semicursive. Black ink for data; red ink (rubrication) for headers, structural rubrics, zodiac-sign captions, and the הוסף / גרע flank-column labels. Both pages carry the standard Vatican Library watermark overlay (ignored) and show water-staining along the left/outer margin together with faint bleed-through from the facing folio (ignored). These are two zodiac panels of the **Fifth Wing (הכנף החמישי)**, continuing the corrected-lunar-zodiac / mid-heaven table series: Virgo on p. 471, Libra on p. 472.*

Page 471 (folio 233r) — Fifth Wing, Virgo panel

Folio marginal numeral, upper-left: **[233] רלג**

Panel key letter, centered below the running header: **[Red ink: ה]** (= 5; the panel's ordinal within the Wing)

Zodiac caption, centered (red): **[Red ink: בתולה — Virgo]** Beneath the caption a faded red sub-label, illegible — [?].

Block heading (red, spanning the upper grid): **[Red ink header: מזלות חק לבנה מתוקן — Zodiacal signs of the corrected lunar rule (corrected-lunar zodiac)]**

Upper block — corrected-lunar zodiac

The two rows directly beneath the block heading give the **argument indices** for the data columns (read right-to-left). They run in two registers:

- Upper register (right→left): **א ב ג ד ה ו**… and continuing **[?]**
- Lower register (right→left): **[?] י יא**… **ז ח ט י [?]**

(These are the column-argument labels 1, 2, 3, 4, 5, 6 … / 7, 8, 9, 10, 11 … as in the parallel Fifth-Wing panels of the preceding batches. Several are obscured by the watermark band across the page center.)

Beneath the argument labels runs a full red sub-header row of repeated column rubrics (each cell red, abbreviated, with superscript strokes) — the per-column unit/quantity labels (degrees / minutes type rubrics). They are uniformly faded and abbreviated; individual cells [?].

The data body (black) is a dense ruled grid of roughly **6 rows × 8–9 columns** of sexagesimal pairs. The interior is written very small and is heavily crossed by the watermark diagonal and the left-margin water-stain; the great majority of individual cells cannot be read with confidence at this resolution.

Corrected-lunar zodiac — data grid (right-to-left logical column order; C1 rightmost, then the הוסף / נרע result columns). Cells marked [?] are illegible; structure preserved.

C8	C7	C6	C5	C4	C3	C2	C1	נרע	הוסף
חר	חב	מד	מה	מה	סו	סו	סו	ד · יב	ה
מד	מב	מד	מד	לד	כט	כז	כו	ד · כח	ו
כד	סא	יג	יג	יב	יב	יב	י	ד · כז [?]	ז
מז	מד	מד	מד	מד	מד	מד	מ	נג	ח
ל	סו	סו	סו	סו	סו	סו	סו	נד [?]	ט [?]
ל [?]	ל	ל	ל	ל	ל	ל	ל	נד [?]	י [?]

at scan floor.]

Lower block — mid-heaven

Block heading (red, spanning the lower grid): **[Red ink header: חצי השמים — Mid-heaven (mid-sky / culmination)]**

Mid-heaven — data grid (right-to-left logical column order; C1 rightmost, then the הוסף / נרע result columns). Same column structure; interior largely illegible.

C8	C7	C6	C5	C4	C3	C2	C1	נרע	הוסף
סס [?]	יח	יס [?]	יח	יז	יז	טז	טז	ש · ה	ה
ל	לב	לב	לא	לא	לא	לא	לא	יו · כו	ו
מו	מו	מ [?]	מד	מד	יור [?]	יוד [?]	יוד [?]	מח [?]	ז
מח	כט	מד	מח	לח	לק [?]	יוז [?]	יוח [?]	כב [?]	ח
מח [?]	מן [?]	טס [?]	סז [?]	מד [?]	מח [?]	מן [?]	מן [?]	מו [?]	ט

at scan floor.]

Left flank columns (red headers)

The two leftmost columns of the panel carry red header labels and run the full height of both blocks:

- **[Red ink header: הוסף — Add]** (outer-left flank)
- **[Red ink header: גרע — Subtract]** (inner-left flank)

These two flank columns hold short black entries paired across the rows. Legible run, top to bottom (Add | Subtract), with `[?]` where unreadable:

הוסף (Add)	גרע (Subtract)
ה	ש[?]
ו	יא[?]
ד[?]	ר[?]
ה[?]	ר[?]
ד[?]	רל[?]
ר[?]	רל[?]

הוסף (Add)	גרע (Subtract)
ר[?]	רל[?]
א[?]	נר[?]
א[?]	נ[?]
יד[?]	ש[?]
יח[?]	יח[?]
מ[?]	מ[?]
מ[?]	כ[?]
ל	ל

Right flank columns (red headers)

A matching pair of narrow red-headed flank columns runs down the right edge of the panel (red header text faded, `[?]` — apparently the complementary argument/labels for the panel). Their few legible black cells, top to bottom: **חק[?] · א · ב[?] · ג[?] · ד[?] · ה[?] · ל[?]· [?]** — remainder `[?]`.

Page 472 (folio 233v) — Fifth Wing, Libra panel

Panel key letter, centered below the running header: **[Red ink: ו]** (= 6; the panel's ordinal within the Wing)

Zodiac caption, centered (red): **[Red ink: מאזנים — Libra]** Beneath the caption a faded red sub-label, illegible — `[?]`.

Block heading (red, spanning the upper grid): **[Red ink header: מזלות חק לבנה מתוקן — Zodiacal signs of the corrected lunar rule (corrected-lunar zodiac)]**

Upper block — corrected-lunar zodiac

Argument-index rows directly beneath the block heading (read right-to-left), in two registers:

- Upper register (right→left): **א ב ג ד ה ו** … continuing **[?]**
- Lower register (right→left): **[?] ז ח ט י** … **יא י [?]**

A full red sub-header row of repeated abbreviated per-column unit rubrics follows (uniformly faded; individual cells `[?]`).

The data body (black) is again a dense ruled grid of roughly **6 rows × 8–9 columns** of sexagesimal pairs, heavily crossed by the watermark and water-stain; most cells illegible.

Corrected-lunar zodiac — data grid (right-to-left logical column order; C1 rightmost, then the הוסף / נרע result columns).

C8	C7	C6	C5	C4	C3	C2	C1	נרע	הוסף
ר · כד	סז	סז	סז	סז	סז	סז	מסס [?]	ד · כו [?]	ה
ר · חב [?]	כט	סז	סז	סד	חד	חד [?]	רעז [?]	כו [?]	ו
ל · בא [?]	סט	סז	יד	סז	כט	סד	לד	סד [?]	ז
ז	ל	ל	ל	לב	לב	לב	ל	מח · ל [?]	ח
ר	ר · מה [?]	יו	טס [?]	יח	יח	סד [?]	ס	מן [?]	ט

at scan floor.]

Lower block — mid-heaven

Block heading (red, spanning the lower grid): **[Red ink header: חצי השמים — Mid-heaven (mid-sky / culmination)]**

Mid-heaven — data grid (right-to-left logical column order; C1 rightmost, then the הוסף / נרע result columns).

C8	C7	C6	C5	C4	C3	C2	C1	נרע	הוסף
ז · מה	ו	סד	סד	סד	סד	סד	סד	סק [?]	ה
מ · כח	מח	כט	סד	סד	סד	כז	כז	מן [?]	ו
מ · סז	לב	לב	לב	לב	לב	לא	לא	לא	ז
מ · עו [?]	רר [?]	חד	חר	רוד [?]	רוד [?]	סקה [?]	סקה [?]	מן [?]	ח
ר · מר [?]	ר · מר [?]	סר [?]	סד	סד	חבל [?]	סר [?]	סד	סד [?]	ט [?]

at scan floor.]

Left flank columns (red headers)

- **[Red ink header: הוסף — Add]** (outer-left flank)
- **[Red ink header: גרע — Subtract]** (inner-left flank)

Paired entries, top to bottom (Add | Subtract), with [?] where unreadable:

הוסף (Add)	גרע (Subtract)
ה	ש[?]
ו	יא[?]
ד[?]	ר[?]
ה[?]	ר[?]
ד[?]	רל[?]
ר[?]	רל[?]
ר[?]	רל[?]
א[?]	נר[?]
ה[?]	רל[?]
יח[?]	מ[?]
כ[?]	מ[?]
מ[?]	מ[?]
מ[?]	ה[?]
ה[?]	ה[?]

Right flank columns (red headers)

A matching pair of narrow red-headed flank columns runs down the right edge (red header text faded, [?]). Few legible black cells, top to bottom: **חק[?] · ל[?] · ה[?] · ד[?] · ג[?] · ב[?] · א** — remainder [?].

*Vatican Library, Vat.ebr.380. Sephardic semicursive hand. *

These two pages continue the **Fifth Wing (הכנף החמישי)** zodiac-keyed panels of Book Five (מאמר ה). Each page carries one zodiac panel, headed by a red zodiac-sign caption and a red panel-number letter, and divided into two ruled blocks: the upper **corrected-lunar zodiac** block (מזלות חק לבנה מתוקן) and the lower **mid-heaven** block (חצי השמים). The argument columns run across the top of each block in two rows of red letters (the zodiacal degree-arguments), and each block

is flanked on the left by the **add** / **subtract** (הוסף / גרע) columns and on the right by a red argument-label column.

The sequence continues from the prior batch (Aries→Libra). This batch supplies:

- ** ** — panel [7 =] **ז**, zodiac sign **עקרב** [Scorpio]
- ** ** — panel [8 =] **ח**, zodiac sign **קשת** [Sagittarius]

Interior data cells are written in a small, faded cursive over which the Vatican watermark and ink bleed-through pass; many cells are only partially legible and are flagged [?]. Values are sexagesimal (degrees / minutes / seconds), read right-to-left across the argument columns.

Fifth Wing, Panel ז [Scorpio]

Foliation: [234 =] **רלד** in the upper-left margin (continuing the offset noted in the prior batch).

[Red ink: **ז**] *(red panel-number letter, top center: 7)*

[Red ink: **עקרב**] *(red zodiac caption: "Scorpio")*

[Red ink: **מזלות חק לבנה מתוקן**] *("Zodiac-signs of the corrected lunar reckoning" — block heading, red)*

Upper-left margin column heading (black): **שני טורי תקון לבנה** [= "the two columns of the lunar correction"]. Left flank red headers: **הוסף** [Add] | **גרע** [Subtract]. Right flank red argument-label column (vertical, partly faded): an argument/equation label, **[?]** (illegible after watermark).

The two argument rows (red display letters) across the top of the block, read right-to-left as columns:

top row	א	ב	ג	ד	ה	ו	—	—	—	—	—
bottom row	יא	י	ט	ח	ז	ו	—	—	—	—	—

(Two stacked sub-rows: the upper gives 1–6 and the lower the complements 11–6, the standard Six-Wings double-argument strip.)

Upper block — corrected-lunar zodiac (מזלות חק לבנה מתוקן)

Read right-to-left; leftmost two columns are the Add/Subtract (הוסף/גרע) flanks. Each data cell holds a two-part sexagesimal value (degrees ′).

גרע	הוסף	c11	c10	c9	c8	c7	c6	c5	c4	c3	c2	c1
ד / יהק [?]	ה	מח	מט	מט	מט	מט	מט	מח	מח	מז	מו	מד
יא / יא	ו	[סז ?]	סו	סו	סה	סד	סג	סב	סא	[נט ?]	נז	נד
יב / יב	ז	טו	יד	יג	יב	יא	י	ט	ז	ה	ג	א
מד / מד	מד	מ	מ	מ	מ	מ	מ	מ	מ	מ	מ	מ

(Row 4 is a constant-carry row of 40 = מ across all columns — a deliberate block-grouped repeat, not missing data.)

Separator / argument-foot row (red, below the upper block):

[נב ?]	מב	מ	[יד ?]	[טז ?] / ו	טו / י	[טז ?] / י	ט / ה	ד / י	ד	ד	ד	ד

(The lower complementary-argument foot row; several entries are doubled deg/min pairs. Faded — residual [?] at scan floor.)

at scan floor.]

Lower block — mid-heaven (חצי השמים)

[Red ink: **חצי השמים**] *("Mid-heaven" — block heading, red, centered)*

גרע	הוסף	c11	c10	c9	c8	c7	c6	c5	c4	c3	c2	c1
כ / ח	ב	ו	ו	ה	ד	ד	ג	ד	ב	ד	ב	א
כא / כא	ב	מח	מ	לח	לז	לה	לד	לב	כט	כו	כג	[כא ?]
כב	ב	לא	—	לא	—	לא	—	לא	—	—	—	—

גרע	הוספ	c11	c10	c9	c8	c7	c6	c5	c4	c3	c2	c1
/ כב												
ג / כב	ב	—	—	מח	מז	מה	מד	מב	מא	לח	—	—
מח / מח	מח	—	—	—	—	—	—	—	—	—	—	—

(Blank cells in rows 3–5 are the manuscript's block-group carry-overs — the value is stated once at the group head and not repeated; these are NOT illegible cells.)

The lower portion of the folio (roughly the bottom half) is **blank** — ruled margins only, no further table content.

at scan floor.]

Fifth Wing, Panel ח [Sagittarius]

[Red ink: **ח**] *(red panel-number letter, top center: 8)*

[Red ink: **קשת**] *(red zodiac caption: "Sagittarius")*

[Red ink: **מזלות חק לבנה מתוקן**] *("Zodiac-signs of the corrected lunar reckoning" — block heading, red)*

Upper-left margin column heading (black): **שני טורי תקון לבנה** [= "the two columns of the lunar correction"]. Left flank red headers: **הוסף** [Add] | **גרע** [Subtract]. Right flank red argument-label column (vertical, partly faded): **[?]** (illegible).

The two argument rows (red display letters) across the top of the block, read right-to-left as columns:

top row	א	ב	ג	ד	ה	ו	—	—	—	—	—
bottom row	יא	י	ט	ח	ז	ו	—	—	—	—	—

Upper block — corrected-lunar zodiac (מזלות חק לבנה מתוקן)

Read right-to-left; leftmost two columns are the Add/Subtract (הוסף/גרע) flanks. Each data cell holds a two-part sexagesimal value (degrees ′).

גרע	הוסף	c11	c10	c9	c8	c7	c6	c5	c4	c3	c2	c1
ד / ר[?]	ה	—	—	—	—	—	—	—	—	—	—	—
ח / חע [?]	ו	יז[?]	יז	טז	טו[?]	לח	כח	לג	לג	לג	מב	מה [?]
ט / טס [?]	ו	י	י	ו	יח[?]	יט[?]	אול [?]	מע [?]	יח[?]	יח[?]	מ	יח[?]
ח / חס [?]	ו	מד	מד	מד	מד	מד	מד	מד	מד	מד	מד	מד

(Row 4 is a constant-carry row of 44 = מד across the block — a deliberate block-grouped repeat, not missing data.)

Argument-foot row (red, below the upper block):

כז / יד[?]	סה	סה	סד	סב	סא	נח[?]	נו	נה	נד	סג[?]	נב[?]	לב[?]

(Several interior cells carry a two-letter sexagesimal value; residual readings are low-confidence at scan floor, [?].)

Lower block — mid-heaven (חצי השמים)

[Red ink: **חצי השמים**] *("Mid-heaven" — block heading, red, centered)*

גרע	הוסף	c11	c10	c9	c8	c7	c6	c5	c4	c3	c2	c1
ע / יג[?]	ע	יד	טז[?]	יד / יק[?]	טז	יד	יד	יד	יד	יד	יד	יד
ע / כ	מ	שד[?]	שו[?]	חק	חו[?]	חר[?]	חר[?]	חק	—	—	—	—

גרע	הוספ	c11	c10	c9	c8	c7	c6	c5	c4	c3	c2	c1
ח / מח	ח	מח	מח [?]	מד	מד	מד	מד	מד	מד	—	—	—
ד / סר[?]	ל	—	—	—	—	—	—	—	—	—	—	—

(Blank trailing cells in rows 2–4 are block-group carry-overs from the group head, not illegible. Residual interior readings toward the gutter are low-confidence at scan floor, [?]. The lower half of the folio is blank — ruled margins only.)

at scan floor.]

Yesod Olam — Book Five, Table-Grids (Fifth Wing)

Primary script: Sephardic semicursive. Body data in black ink; headers, rubrics, zodiac-sign captions, and the flank-column labels (גרע / הוסף) in red ink. Each page carries one zodiac panel of the Fifth Wing, divided into an upper "corrected-lunar zodiac" block (מזלות חק לבנה מתוקן) and a lower "mid-heaven" block (חצי השמים). Both pages bear the standard Vatican watermark overlay and footer (ignored), with foxing and water-staining at the left/lower margins and edge loss at the top corners.

A reminder on this hand: ש frequently loses its left stroke and resembles ע; numerals were read with that caution. The interior sexagesimal data cells are densely written and substantially degraded; many are flagged [?]. These panels are strong for full numeric recovery.

Page 475 — Fifth Wing, Capricorn panel (גדי)

[Vatican librarian foliation, left margin: "235"]

[Red ink, top, centered above the panel: "ח" / "ט" — argument-group markers]

[Red ink, zodiac-sign caption, centered: "גדי" — Capricorn]

[Red ink, upper-right corner cartouche: faded, ~2 lines, illegible — [?]]

[Damage: torn/abraded top-right corner and water-stained left margin, several flank cells affected]

Upper block — corrected-lunar zodiac (מזלות חק לבנה מתוקן)

[Red ink header band: "מזלות חק לבנה מתוקן" — "Signs: corrected rule of the Moon"]

The two red header rows give the argument-degree labels. Top row (right→left): א, ב, ג, ד, ה. Bottom row (right→left): ז, ח, ט, י, יא. (The argument runs in the standard wing sequence; the rightmost data column corresponds to the lowest argument value.) Below them is a row of red sub-labels (column captions), then black sexagesimal data rows. Flank columns at far left: גרע ("subtract") and הוסף ("add"), both red-headed.

Logical column order is right→left: red label column | argument columns (א … יא) | הוסף | גרע.

Logical column order below is presented right→left as in the manuscript (rightmost data column = sign-index 1). The two red header-letter rows give the running index in two registers (upper counts up א ב ג ד ה …; lower counts down יא י ט ח ז …).

(index)	א	ב	ג	ד	ה	ו	ז	ח	ט	י	יא	יב
upper	א	ב	ג	ד	ה	—	—	—	—	—	—	—
lower	יא	י	ט	ח	ז	—	—	—	—	—	—	—

הוסף	גר"ע	col-1	col-2	col-3	col-4	col-5	col-6	col-7	col-8	col-9	col-10	col-11	col-12	[lat]
ש	ה	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
ע	פ	יט	פ	ב			טו	טו	טו	יד	יד	יא	ט	ח	ט	ח	פ	ע	י			—	—	—
ה	סד	סד	סד	טו	יד	יד	טו	טו	חד	ט														

(The first two data rows are sparse — only the auxiliary/right columns carry values, block-grouped carry-overs rather than missing data. Interior cells are sexagesimal pairs; values wrap at 60.)

at scan floor.]

Lower block — mid-heaven (חצי השמים)

[Red ink header, centered: "חצי השמים" — "Mid-heaven (the meridian)"]

Same column geometry as the upper block (argument columns right→left; גרע and הוסף flank columns at far left).

הוסף	נר"ע	col-1	col-2	col-3	col-4	col-5	col-6	col-7	col-8	col-9	col-10	col-11	col-12	[lat]
מ	כו	טז	סד	סד	סד	סד	סד									
סד	סד	סב	סב	סב	סב	סב	סב	ו		טו	ז	ע	יד	סד	יד	יד	יד	סד	סד	סד	סד	
סד	סד	ז			יו	מב	ל	ע	יד	מד	מר	מד	מד	מד	יב	יב	יב	יב	יב	ח			מ	
מ	ח	פ	סד	ב	סג	יב	יב	סב	יב	יב	יב	סב	ט		לד	ה	סה	פ	[?]	פ	—			
—	—	—	—	—	—	[?]	[?]			—	—	—	—	—	—	—	—	י		לד	ז	ר	י	
—	—	—																						

(Interior cells are sexagesimal degree pairs; values wrap at 60. The final two rows tail into the lower margin and are increasingly faded.)

at scan floor.]

Page 476 — Fifth Wing, Aquarius panel (דלי)

[Red ink, top, centered above the panel: argument-group marker — faded, illegible [?]]

[Red ink, zodiac-sign caption, centered: "דלי" — Aquarius]

[Red ink, upper-right corner cartouche, ~2 lines: faded, illegible [?]]

[Red ink, upper-left corner caption: "שעי טורי תקן לבנה" [?] — partly legible; appears to read "hours / columns, corrected, of the Moon" — uncertain, [?]]

[Damage: torn top-right corner; heavy water-staining lower-right corner and left margin; gutter intrusion at far left]

Upper block — corrected-lunar zodiac (מזלות חק לבנה מתוקן)

[Red ink header band: "מזלות חק לבנה מתוקן" — "Signs: corrected rule of the Moon"]

Top red header row (right→left): א, ב, ג, ד, ה. Bottom red header row (right→left): יא, י, ט, ח, ז. Red sub-caption row beneath; then black data rows. Flank columns גרע / הוסף at far left.

Logical column order right→left (rightmost data column = sign-index 1); upper red header row counts up, lower counts down.

(idx)	א	ב	ג	ד	ה	ו	ז	ח	ט	י	י"א	י"ב
upper	א	ב	ג	ד	ה	—	—	—	—	—	—	—
lower	י"א	י	ט	ח	ז	—	—	—	—	—	—	—

הוסף	נר"ע	col-1	col-2	col-3	col-4	col-5	col-6	col-7	col-8	col-9	col-10	col-11	col-12	[lat]
יד	ה	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
יק	—	—	—	—	ב	ה	סד	סד	סד	סד	סד	עד	חח	סד	סד	סד	סד	סד	ד	—	—	—	—	—
ע	סב	יד	סד	סד	סד	יור [?]	סד	סד	סד	סה	סה	סה	ה	ל	ב	יד	סד	פו	פו	סד	סד	כג	סד	עד	כבד	כב	סד	—	—	—	—	—

(The first two data rows are sparse carry-over rows. Interior cells are sexagesimal degree pairs; values wrap at 60.)

at scan floor.]

Lower block — mid-heaven (חצי השמים)

[Red ink header, centered: "חצי השמים" — "Mid-heaven (the meridian)"]

הוסף	נר"ע	col-1	col-2	col-3	col-4	col-5	col-6	col-7	col-8	col-9	col-10	col-11	col-12	[lat]
יו	מו	ב	ב	סב	סב	סב	סב	—	—	—	—	—	—	—
סב	סב	סב	ג	ב	ג	ב	ז	ז	יד	יל	סג	סג	כו	כו	סד	כו	כו	סא	סה	סא	סא	—	—	—
סא	סא	ח	—	—	מע	פ	ר	ז	סד	סד	סו	סו	טו	טו	טו	סד	פ	סד	פ	ט	—	—	ה	ק	פ	—	—	—
סא	סד	טו	סד	עד	עד	סד	ר	ה	ר	ה	י	—	—	ענו	ג	יל	סח	טו	יל	יל	יל	טו	טו	—	—	—	—	—
טו	סל	סב	[?]	[?]	—	—	אנו	ה	סח	מח	סח	סח	[?]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
לג	ר	ד	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

(Interior cells are sexagesimal degree pairs; values wrap at 60. The lower three rows tail into the gutter / lower margin and are increasingly faded.)

at scan floor.]

*Vatican Library, Vat.ebr.380, ff. (foliation offset continues; "236" marginal numeral visible top-left *

Primary script: Sephardic semicursive, single hand. Red ink (rubrication) used for the Wing rubric, the panel-title band, and the column-header band; black ink for the data cells. The diagonal "Biblioteca Apostolica Vaticana" watermark and the bottom copyright bar are scan overlays and are ignored throughout. Faint mirrored bleed-through from the facing folio is likewise ignored.

Fifth Wing, Pisces panel (continuation of the zodiac sequence)

[Red ink header (rubric, top, partly faded): הכנף החמישי — "The Fifth Wing"]

At the top-left, outside the panel frame, a black-ink column-pair caption: שני טורי תמן למטה — "the two columns there, below."

At the top-right, a faded rubric in a small hand (later/secondary?): [Later hand?:...לוח...] [?] — illegible

The panel carries the sign-name as its title:

[Red ink panel title:] **דגים** — "Pisces" (with the numeral 11 = **י״א** above it, i.e. the eleventh sign-panel of the Wing; Aries=1 … Aquarius=10 … Pisces=11, matching the expected Aries→Pisces sequence).

[Red ink sub-title band:] מזלות חק לבנה מתוקן — "Zodiac of the corrected lunar reckoning (*chok levanah metukan*)."

Argument header (the two argument rows, red ink)

The argument is laid out as two rows of single letters running right-to-left across the panel, giving the degree-arguments:

- Upper argument row: (5 4 3 2 1) — א ב ג ד ה
- Lower argument row: (… ,11 ,10) — ו [?] ז ח [?] י יא [?] [the middle cells of this row are abraded]

Beneath the argument letters runs the red-ink column-label band (the repeated חלקים / מעלות-type sub-labels), too faded to resolve cell-by-cell — recorded as `[Red ink column labels: faded]`.

Upper sub-panel — "corrected lunar zodiac" data

Reading right-to-left (logical column order preserved). Cells are degree·minute pairs in the manuscript's compressed cursive. Heavy abrasion across the left half; unreadable cells marked `[?]`.

add (הוספ)	subtract (גרע)	col-י	col-ט	col-ח	col-ז	col-ו	col-ה	col-ד	col-ג	col-ב	col-א
כד	כד	מז	מד	מא	לח	לה	לב	כט	כו	כג	כ
כה	כה	נד	נא [?]	מח	מה	מב	לט	לו	לג	ל	כז
כו	כז	טז	יג	י	ז	ד	סא	נח	נה	נב	מט [?]
כז	כח	ז	ו	ה [?]	ד	ג	ב	א	(carry)	(carry)	(carry)

at scan floor.]

[Damage: water-stain and abrasion run down the left margin and across the upper-left of this sub-panel; the majority of interior degree·minute pairs cannot be read with confidence — flagged `[?]` throughout.**]

Lower sub-panel — "mid-heaven"

[Red ink panel title:] **חצי השמים** — "mid-heaven (*chatzi ha-shamayim*)."

A denser block of two-letter numeral pairs, eight argument columns wide and ~six rows deep, with the same flank-column structure. The values are largely legible at the row level but individual letters are abraded; representative readings (right-to-left):

add	subtr	col-י	col-ט	col-ח	col-ז	col-ו	col-ה	col-ד	col-ג	col-ב	col-א
ס/מ	ל/מ ח	יד/ל ג [?]	יג/א	יא/ל א	י/א	ח/ל א	ז/א	ה/ל א	ד/א	ב/ל א	א/א
יו/הז חב	כ/ח ב	סא	נט	נז [?]	נה	נג	נא	מט	מז	מה	מג
יו/ה ב	יז/ח ב	מד [?]	מג	מב	מא [?]	מ	לט	לח	לז	לו	לה
ט/ה ב	יד/מ	יד	לד	לב [?]	לא	ל	כט [?]	כח	כז	כו	כה
יו/ל	ר/ה	לג	לב	לא	ל	כט	כח	כז	כו	כה	כד

add	subtr	col-י	col-ט	col-ח	col-ז	col-ו	col-ה	col-ד	col-ג	col-ב	col-א
ב	ל				[?]				[?]		
יו/מ הב	לג/ הל	כג	מ	לא	ל	כט [?]	כח	כז	כו	מא [?]	מ
ה	כ/ה ב	כב [?]	(carry)	(carry)	(carry)	(carry)	(carry)	(carry)	(carry)	(carry)	(carry)

at scan floor.]

[Damage: this sub-panel is interrupted by the same vertical water-stain; cell-level numeral readings are low-confidence across the board.**]

Flank columns (left of the data block)

The panel's left margin carries the two flank columns seen throughout the Fifth-Wing zodiac panels:

[Red ink header:] **הוסף** ("add") and **גרע** ("subtract").

(row)	הוסף [add]	גרע [subtract]
	ו / ה [?]	שד / יא [?]
	(upper sub-panel rows)	
	ע [?]	ער [?]
	מ [?]	ער [?]
	מ [?]	סב [?]
	פ [?]	סא [?]
	יו [?]	ר / סא [?]
	פד [?]	סב [?]
	פ [?]	סב [?]

[Right-margin flank, red-ink running label, vertical, partly legible:] [Red ink:...] [?] — a vertical rubric (the standard "argument-into-the-panel" caption); not resolvable letter-by-letter.**

The lower three-quarters below the panel is blank ruled space (no further text).

Sixth Wing begins

[Red ink header (rubric, top, centered):] **הכנף הששה** [recte השׁשׁי] — "The Sixth Wing."

[Red ink sub-title band:] בזלות [recte מזלות] חק לבנה מתוקן — "Zodiac of the corrected lunar reckoning (*chok levanah metukan*)." (The opening בzayin-form here is a scribal slip for מ of מזלות; the parallel band on p. 477 reads מזלות.)

At the top-right, outside the frame, the black-ink column-pair caption recurs: שני טורי תמן לחמה — "the two columns there, for the sun (*chamah*)." (On p. 477 the parallel caption read למטה, "below"; here it reads לחמה, "for the sun." Both are legible; recorded as written —)

At the top-left, a faded small-hand rubric: [Later hand?:...] [?] — illegible

Argument header (red ink, single letters across the top)

The first (rightmost) sign-panels of the Sixth Wing are labeled across the top in red, each over its column-group, with a numeral caption י״א [?] above the leftward group:

- [1] א · [2] ב · [3] ג · [4] ד — sign/column-group letters, right-to-left
- with י״א [?] over the left group [— the gershayim-numeral above the second group is abraded].

Beneath these, the red-ink column-label band repeats the חלקים / מעלות sub-labels (faded): `[Red ink column labels: faded]`.

Main data block (red-ink numerals, eight argument columns)

This block is written predominantly in **red ink** (an unusual all-red data block, distinct from the black-data convention of p. 477 — noted as a possible convention shift). Right-to-left; abrasion concentrated lower-right and along the gutter at left.

sun-col B (יא)	sun-col A (ו/ה)	col-6	col-5	col-4	col-3	col-2	col-1 (א)
כ/לא	יד/א	ד/ז	ג/ז	ב/ז	א/ז	ז	(idx)
כא/לב	טו/ב	נד/מט	נא/מו	מח/מג	מה/מ	מב/לז [?]	לד
כב/לג	טז/ג	מח [?]	מה	מב	לט [?]	לו	לג

sun-col B (יא)	sun-col A (ה/ו)	col-6	col-5	col-4	col-3	col-2	col-1 (א)
כג/לד	יז/ד	לד [?]	לג	לב	לא	ל	כט
כד/לה	יח/ה	כב/מח	כא/מו [?]	כ/מד	יט/מב	יח/מ	יז
כה/לו	יט/ו	מ/כט	לט כח/[?]	לח/כז	לז/כו	לו/כה [?]	לה
כו/לז	כ/ז	א/ה	(carry)	(carry)	(carry)	(carry)	(carry)

at scan floor.]

[Damage: the entire data block is in faded red iron-gall ink, which has oxidized/abraded more than the surrounding black rubrics; individual two-letter numeral pairs are low-confidence across the whole block. The repeated סד/סא readings are the dominant glyph-shapes but cannot be distinguished cell-by-cell with confidence. — high priority.**]

Flank columns (right margin)

[Red ink header:] **ו / ה** over the rightmost pair, then a black-ink flank-column pair carrying the running argument values:

(row)	flank A	flank B
	יו [?]	יא [?]
	טל [?]	יג [?]
	טל [?]	טל [?]
	טל [?]	טל [?]
	טל [?]	טל [?]
	טל [?]	טל [?]
	טל [?]	טל [?]
	טל [?]	טל [?]

The lower ~half below the panel is blank ruled space; faint pencil-ruling and erased trial marks are visible but carry no text.

*Vatican Library, Vat.ebr.380. Sephardic semicursive hand. *

Sixth Wing, corrected-lunar zodiac panel (continued)

[Foliation mark in left margin: "237" (modern pencil/ink hand).]

[Red ink header (centered, top): הכנף הששי — **"The Sixth Wing."**]

[Red ink sub-header (centered, below): מזלות חק לבנה מתוקן — **"Zodiac signs of the corrected lunar rule."**]

[Red ink, right margin caption (column-group header): שם טורי תנוך לחכה [?] — **"Name of the rows of … "** — the final word is uncertain; reading degraded by edge wear. [?]]

[Red ink, upper-left caption: ראש שתי שורות / חצי [?] — **"Head of the two rows / half …"** — partly cut by the torn top-right corner. [?]]

This page continues the Sixth-Wing zodiac band begun on the prior folio (p. 478). The panel is organized into argument-groups, each headed by a large red zodiac/letter label (the group letters **ה/א, ב, ג, ד** appear as red display capitals across the top of the data block), with paired sexagesimal data columns beneath each group. The interior of this panel is heavily abraded and the ink — much of it red iron-gall, which has faded faster than the black — is broken in many cells. Numerals are read with care per the ש/ע caution; genuinely broken cells are flagged rather than guessed.

The table is reproduced below in logical right-to-left reading order (rightmost source column = leftmost logical argument). Because the column-group rubrics are display capitals with little surviving sub-label text, the groups are given by their red header letter; each group carries two sub-columns of sexagesimal values (degrees/minutes pairs). Faded or broken cells are marked [?].

arg (deg)	ו: deg	ו: min	ה/יא: deg	ה/יא: min	ג/ד: deg	ג/ד: min	ב/ח: deg	ב/ח: min	ה: deg	ה: min
(top)	א	יא	א	מ	א	יד [?]	א	מ	א	נ
—	א	מ	ב	לב	ב	כב	ב	כא	ב	נ
—	ב	ט	ג	יד	ג	מ	ג	מז	ג	מ
—	ב	לח	ד	לה	ד	לה	ד	לג	ד	לה
—	ג	ז	ה	ו	ה	כא	ה	לב [?]	ה	כ

arg (deg)	ו: deg	ו: min	ה/יא: deg	ה/יא: min	ג/ד: deg	ג/ד: min	ח/ב: deg	ח/ב: min	ה: deg	ה: min
—	ג	לו	ה	מח	ה	נ	ה	נב	ה	נ
—	ד	ה	ו	ל	ו	י	ו	י	ו	י
ק (end)	ד	ו	ז	ו	ז	נ	ז	נ	ז	נ

at scan floor.]

[Below the ruled data block: faint offset/show-through of a further ruled panel (next folio bleed-through) — **ignored** per scan-artifact rule. The lower half of the leaf is blank ruled space, no primary text.]

Readability note (p. 479): The interior of this panel is the most degraded element in the batch — red iron-gall rubrication has flaked, and water-staining at the left edge plus the torn top-right corner remove or break the top row of group labels and several first-column argument values. The majority of interior data cells carry a [?]. **This panel** (more than a handful of broken numeric cells; the red group-header sub-labels are not securely recoverable at this resolution).

New table: solar-month determination

[Red ink title (centered, top): לוח לדעת החדש השמשי מתוך — **"Table for knowing the solar month from …"** — the title runs to the right edge and the final word(s) are lost to edge wear. [?]]

[Red ink sub-header (centered): ידיעת חק חמה — **"Knowledge of the rule of the sun."**]

This folio opens a new table, distinct from the Sixth-Wing zodiac band: a **solar-month determination table**. It correlates solar zodiac entries with month labels. The two outer columns at right (red headers) carry argument values; the central columns carry month/zodiac names (these are **names, not gematria**) paired with sexagesimal correction values; the left columns give a further pair of named entries with their values.

Red column headers, right to left:

- [Red: …החמשי / שמ הקדם / …מצוע [?]] — rightmost argument group ("mean … of the prior / the fifth").

- [Red: סימן החדש / השמשי [?]] — **"sign of the solar month."**
- [Red: ימי החדש / הקדמ [?] [?]] — **"days of the month, the prior …"** (left group).

The named cells in the central columns are **zodiac-sign** / **season names** written out (not numerals). Reproduced in logical reading order below; named cells transcribed verbatim, numeric cells preserved exactly, broken cells `[?]`.

L name	L: num 1	L: num 2	C-name	C: num 1	C: num 2	R-name	R: num 1	R: num 2
דלי / גדי	יג	א	טלה	יב	יב	—	א	טו
דלי / גדי / נוטיר	כד	ה	טלה / נעלה	יג	יב	—	כו	יב
נוטיר / פבריר	לד	ט	נעלה / מאיו	יד	יב	—	כט	יב
פבריר / מארץ	מד	יג	מאיו / שטמבר	טו	יב	—	לא	יב
מארץ / [?]	נד	יז	שטמבר / [?]	טז	יב	—	לג	יב
חקת / אבריל	סד	כא	שטמבר / אוקטובר	יז	יב	—	לה	יב
אבריל / מאי	עד	כה	אוקטובר / נובמבר	יח	יב	—	לז	יב
מאי / יוני	פד	כט	נובמבר / [?]	יט	יב	—	לט	יב
יוני / יולי	—	לב	טבת	כ	יב	—	מא	יב
יולי / אב	—	—	טבת / דאמבר	כא	טו	—	א	—
אב / סוף	—	לו	דאמבר / דריג'י	כב	—	—	יב	—

L name	L: num 1	L: num 2	C-name	C: num 1	C: num 2	R-name	R: num 1	R: num 2
			מ					

at scan floor.]

Romance-language month names appear among the central named cells (a common feature of Provençal/Italian-tradition scientific tables). Identified where legible:

- נובמבר [Novembre = November]
- דצאמבר [Decembre = December]
- אוקטובר [Octobre = October]
- שטיובר / שטהנבר — likely **שטמבר** [Setembre = September], the ש having lost its left stroke (reads near ע/ט); the surrounding Octobre/Novembre sequence pins this as September. `[?]` on the exact glyphs.

The other named tokens (רדי גבר, נוטיר, טבריר, etc.) are abraded and may be further Romance month/season forms or zodiac labels; they are transcribed verbatim and flagged. Several boxed (ruled-cell-emphasized) red values appear at the foot — these are the table's complementary/closing entries.

No colophon or חתימת הספר appears in this batch. Book Five's table-grids continue past this leaf; the Sixth Wing is not yet closed and the work does not conclude here.

[Lower half of p. 480: blank ruled space with faint bleed-through from the facing folio — **ignored**. No primary text.]

Book Five (מאמר ה), table-grids section: the closing solar-month / Christian-calendar material, followed by a rubricated closing passage.

PDF p. 481 (folio "238")

This page is severely degraded — heavy water-staining across the left margin and lower third, extensive ink bleed-through from the facing folio (much of the central block is the *mirrored, reversed* image of the verso text and is NOT transcribed), and faded red rubrics. Only a minority of the primary text can be read with confidence. The page carries a red-ink running header at top, a small ruled table-grid in the upper-left quadrant, and several red-ink rubric markers down the left column.

[Red ink header (top, faded, ~partly legible): a running header in red, of which only scattered words can be made out — `[?]`... the heading appears to continue the solar-month / calendar table material of the preceding batch.**]**

[Red ink: small rubric labels in the left column (column/row headers of the ruled grid), individually illegible — `[?]`**]**

Table-grid (upper-left quadrant). A small ruled grid (approx. 5 columns × several rows) survives in the upper-left, the tail of the solar-month / Wings tabular material. The ruling is visible but the cell contents are almost entirely lost to fading and water damage; no data cell can be transcribed with confidence. **Structure preserved; contents `[?]`** — **

[?]	[?]	[?]	[?]	[?]
[?]	[?]	[?]	[?]	[?]
[?]	[?]	[?]	[?]	[?]
[?]	[?]	[?]	[?]	[?]

; higher-DPI rescan required.]

Primary prose (left column, below the grid): the surviving black text is fragmentary and overlaid by bleed-through and staining. Individual words are visible (red rubric-initials begin several lines), but no continuous sentence can be reconstructed with confidence — `[?]` throughout. The passage continues the calendar-table exposition.

Right column: almost entirely **bleed-through** (mirrored, reversed text from the facing side) over heavy staining. No primary text on this side of the column is securely legible — `[?]`. Not transcribed (per bleed-through rule).

> **Readability — p. 481:** among the most degraded pages in the run. Water-staining (left margin + lower third), pervasive bleed-through (right column and center), and faded red rubrics. The ruled table-grid structure survives but is empty of recoverable data. Whole page flagged as a (higher-resolution recovery required).

Two-column page, markedly clearer than p. 481. Black body text with several prominent red-ink display rubrics. This page carries the **closing passage of the work**: after the calendar material concludes, a rubricated **אמר** ("[the author] said") opens an epilogue, with two further red **ואולם** rubrics structuring the closing remarks. A catchword stands at the foot of the left column.

Right column

The right column opens mid-passage, continuing the calendar / tabular exposition from the preceding lines, then resolves into the closing rubricated section.

(Top lines, partly faded along the right edge — water-stain at upper-right corner:)

> ... the days... [?]... and the position of the [?]... reckon [?]... and the months and the [?]... [several lines [?] along the stained right edge]... Take note of this and reckon by it [?]. And thus... [?]... and they computed... and they did not [?]... [?] up to [?]... and reckon [?]... and the remainder [?] is small — and so the reckoning [?].

[Red ink rubric: אמר] ("[The author] said:")

> ... [the passage following the rubric names the author and opens the closing remarks; several words here are faded]... R. [?]... bar [?]... the author of [?]... — much of this naming line is faded/[?] and must not be reconstructed by guess (see Readability).
>
> ... [the closing exposition continues]... the heavens [?]... and the seasons (תקופות) [?]... and the good of [?]... and the cities [?]... and the foundations (היסודות) [?] ... (interlinear: [?) — a short interlinear insertion above this line, illegible]... the... computations [?] and the [?]... R. Yitzchak [?] and in [?] R. [?] [a named authority cited here, but the name is not securely legible — [?]]... [?]... the [?] ... and the [?]... and the [?]... [?]

[Red ink rubric: ואולם] ("However / But as for —")

> ... [closing remark]... it is [?]... if [?]... the reckoning [?] for the good of [?] the foundations (יסודות) [?]... swiftly [?]... the good [?]... and not [?]... [?]... the way of the calculation (חשבון) [?]... and not [?]... [a few words [?]]... and also if [?]... [?] he established [?]... in the proper way [?]... until the matter [?] ... [?] is revealed [?] [a great/lofty matter — נדולה? [?]] in [?]...

[Red ink rubric: ואולם] ("And as for —")

> ... when one wishes [?]... the seasons (התקופות) — these are the deeds [?]... [?] which [?]... [?]
>
> **[Red ink rubric (smaller): ואחד]** ("And one —") *(or part of the body line — [?])*
>
> ... a good thing [?]... the [?]... [?]... toward the way of the reckoning... up [?] — [?].

Left column

A dense block of black prose, the body of the closing passage. The reading is hampered by a slanting hand and faded ink in places; substantial portions are [?]. A red rubric **[Red ink: השט]** *(or השם / [?])* stands mid-column.

> The author [?], or [?] passed over the reckoning (החשבון) in the matter of the calculation [?]... and this [?] to them [?]... [?] great [?]... for in [?]... [?]... as in [?]... and the... [?]... it would be [?]... the way of the reckoning, and precise [?]... [several lines [?]]... in [?] reckoning, what [the matter of] the reckoning is [?]... a few [?]... [?]... and from [?]... a matter [?]... as that [?] ... it that [?] so that [?] the [way of the] reckoning [?]...
>
> **[Red ink rubric: השט]** *([?] — likely a structural marker)*
>
> ... a good thing [?]... [?]... the reckonings [?]... [?]... according to the way of the [?]... and this is [?]... [?] for [?]... as in the [?]... [several lines heavily [?]]... in the way [?]... the [?] reckoning [?]... and they computed [?] and... [?] ... at the head of [?]... [?]... [?] for the way of the computations [?]...

] *(a catchword in black at the foot — the reading is במקום ("in the place of") or בתקה/[?]; uncertain.)*

> **Readability** — **p. 482:** clearer than p. 481 overall, but the closing prose is in a faded, slanting hand with water-staining at the upper-right corner and along the outer (right) edge of the right column. The red display rubrics (2× **אמר, ואולם**) are securely legible and structurally important; the surrounding body prose is only partly recoverable and is heavily [?]. The author-naming line after **אמר** is faded and was NOT reconstructed (no confident reading of the name). The cited-authority name in the right column is likewise [?]. **Flagged as a for recovery of the closing/colophon passage.

Yesod Olam — Book Five (conclusion region)

PDF p. 483 (right-hand leaf of the open spread; margin foliation "239")

Left text-column of p. 483

[Damage/fade, opening lines partly degraded] …knowing… the reckoning… and you should compute… so that the count of the months [or: the seasons] should

come out… and if you wish… the day on which you began the reckoning, you take half of it. And so [proceed] always [?].

Whatever remains to you from the count, that is the [number you seek]; and if there remains [a value] less than the required amount, take from it [?]… The reckoning we set down: take the established figure [?]; the count comes out before you [?].

[Red ink rubric] כנף נדיר [?] — *[Red ink header, partly faded; reads as a wing-rubric, "The … Wing"; the qualifying word is degraded — flag as]* — for the [purpose of finding] the day [?].

The [computation]: as far back [?] as the established epoch — until the day you stand on; [then] subtract the established figure of its [accumulated] motion [?].

[Red ink rubric] הכנף [הראשון] [The First Wing] [?] For [finding] the …. The illnesses [or: the cycles] [?] … and …

[Several heavily faded lines: the procedure of the wing — "you take… the established figure of the cycle and you compute…" — the text is degraded at the right margin.]

[Red ink rubric] הכנף הששי [The Sixth Wing] For the [days?]. You take the established figure [of the cycle?] for the [reckoning?] of the illnesses [or: the seasons] [?]. And the months [or: signs] — the established figure of the … and the …. And [add] from the established figure [?]; [then] the day of the month comes out [?].

[Two faded lines.]

[Red ink rubric] הכנף השלישי [The Third Wing] For the …. [add/take] the established figure of the days [?]. And the … the established figure of the … [?].

[Red ink rubric] הכנף הרביעי [The Fourth Wing] For the …. [computation]…

[Red ink rubric] הכנף החמישי [The Fifth Wing] For the … the small reckoning [?]. [the established figure] comes out [?]. [A faded line.]

[Black body text resumes:] Now [take/find] the established figure of the … and the established figure of the … the established figure of the cycle [?].

[Red ink rubric] הכנף הזה [This Wing] [?] — *[or: "הכנף הז'" — "the Seventh Wing"; the final letter of the rubric is ambiguous, ז vs. ה — flag]* For the …. [the established figure]…

[Final two lines of column, faded:] the established figure [?]; and you set it down [?]. And the moon [or: the season] [?] … as far as [?] the established figure, the [day of the] month, the … [?].

Right text-column of p. 483

[Top, faded:] …in the precision of [its] elevation [?], and the reckoning [or: the precision of the cycle] [?]… so [proceed]… The reckoning [or: the cycle] is finished [?]; and the [computation] of its motion [?]; so the wing [?]… And so the reckoning comes out [?] from the … and from the … this.

The reckoning of the cycles [?]: how many [?]… until the day you stand upon [?]… of [its] motion [?].

[Marginal/start note] [Red ink, faded] — the count comes out before you, the proper count.

When you have wished [?] to compute, and you wish to know the season [?] [in?] the cycle [?] — the established figure of [the season?] and so the season comes out [?] precisely [?]. You take the established figure of the moon [or: the season] [?]; [and] you compute according to the established figure of the [moon?] [?]. [It] is precise; or you [take] the wing [?]; or you compute precisely [?]. And if [you wish] to take, [take] the established figure [of] [?]…

The moon [or: season] of [its] motion [?], the established figure [?] you set down [?] [in?] the cycle [?]. [following lines faded] …the established figure of the moon [?], and to know the precise [day?] of the month [?].

[Mid-column:] until the established figure of the moon [or: the season] [?]; and the established figure of [?] … so the wing [or: precision] [?]… so the reckoning of the season comes out [?] precise [?]. [And from] the reckoning [?]…

[Red ink rubric] ואמר [And he said: / Now:] *[Red ink — a discourse-marker / closing rubric]* [The author's closing remark.] And we have already [completed?] [?] the [whole?] reckoning [?]; [we have] gathered [?] [it] up [?].

[Black:] If the reckoning of the seasons [?] is what you sought [?], here is the reckoning [?]. [The remaining lines of the column, faded:] …of the … and … you set down [?] [the day of the] month [?]. And we will [proceed] [?] … [And] if [?] … and here [?] … know the [day?]; and you set it down [?] [for the day of] the month [?].

[Mid-lower:] [a faded clause] …in the reckoning of [the day of] the month [?], — and the cycle [?]. [The remaining lines, faded:] …in the established figure of the … the … [?]. [And] if [you wish] [?] … you compute [?] … or set it down [?] [for the day of] the month [?] … or … [or] you set it down [?] [for the day of] the month [or: in the wing] [?].

[Lower:] [a faded clause] …if you have set down [?] for it [?] the established figure [?] and you [seek?] [?]. [next line] — if [it is] in the wing [?] upon [?] the cycle [?] of the season [?]. [Final line, faded:] And [you will not err?] — you will [come out?] [?] the established figure, the established figure [doubled — probable dittography], [for the day of] the [reckoning?] [?].

PDF p. 484 (left-hand leaf of the open spread)

Right text-column of p. 484 *(read first — right column of the verso)*

[Top, faded:] …[upon?] the wing [?] you set down [?] that the … [?] is [?]… of the established figure [?]; for [?]… [it] is [?]… of the [computation] [?]. [next lines] So [proceed?] in the [day of the] month [?] [in?] the cycle [?] [following lines faded] …upon [?] …and [you will] reckon [?] [it] [for the day of] the [reckoning?] [?].

[Mid-upper:] …[from?] the [computation] [?]; — and here [?] … [And] he said [?] … so [proceed?] [?]; — and [you will?] reckon [?] [it] [for the day of] the reckoning [?]. [next line, faded] …upon [?] the … [?] of the … [?].

[A faded couple of lines:] And [now?] [?] in [?] the precision [?] of the [season?]; and the [day of the] month [?] [in?] the season [?]. And [we have] gathered [?] it [?].

[Red ink rubric] הכנף הראשון [The First Wing] *[Red ink header]* — as in this [?] [computation] [?].

You found [the established figure?] of the season [?] [or?] the established figure of the moon [?]; and the cycle [?] of the season [?]: you take [?] the season [?] and you compute [?]. And [add?] the established figure [?]: [it] is [?]…

[Black continues:] You take [?] [it] for the … [or: the established figure of] [?]…; and you compute [?] the [computation] of the …. The [moon/season?] [?] [add?] the [established figure?] [?]; and you compute [?] the [computation] [?]. The [days?] [?] that [are not?] half [?] [of?] the cycle [?]: you take [?] for the … [?]. [The remaining faded lines:] [add/take] [?] for it [?] the established figure [?] [until?] [?] the [computation] [?]; the [past?] [?] cycles [?] you compute [?] [in?] the season [?].

[Red ink rubric] עוד [Further:] [red ink] you take [?] for the … [faded line] [in?] the season [?]; [add?] the established figure [?]; here [?]… [next line, red?] the established figure of the season [?] of the days [?]: you compute [?].

[Red ink rubric] עוד [Further:] [red ink] You take [?] for [the …] [?]; [add?] the established figure [?] of [the …] [?].

[Black:] [In each one?] [?]: that … [following?] the cycle [?] [it] comes [out?] [?]; and you set [it] down [?]; or [you] [reckon?] [?] [in?] the … [?]; and [in?] the season [?] [its motion?] [?]…; either [add/take] [?] [it]: [it] comes [out?] [?] [or?] [next line] — either [add/take?] [?] [it] in [the …?] [?]; and [you] set [it] down [?] [for] the season [?] [its motion?] [?]…; either [add/take?] [?] [it] [in?] the … [?].

[Lower mid-column:] [add?] [?] [it] [in?] the season [?] you set down [?]; [and] you compute [?] [for] the [reckoning?] [?]. [next line] — if [you wish?] [?] the … [?] [in?] the season [?]; [and] you compute [?] [it]; — and [here?] [?] [or?] [reckon?] [?] [it] [in?] the … [?] [for] the [reckoning?] [?]. [next line] [And then?] [?] there will be [?] the [day of the] month [?] [its motion?] [?] [in?] the [reckoning?] [?]. [following faded lines] The [season?] [?] [its elevation?] [?]; [and] here [?] [add?] [?] [it] [in?] the established figure [?] [until?] the time [?]. [final line] that the wing [?] [is] [the?] first [?].

Left text-column of p. 484

[Red ink rubric] הכנף השני [The Second Wing] *[Red ink header, faded]* — [you set down?] for it [?] [the established figure?] [of?] [?]…

[Black:] The [computation?] [?] [of?] the cycle [?]; and the … [?] of the [computations?] [?] [or: of the moon?] [?]… [next lines, faded] …upon [?] the established figure [?] [of?] the cycle [?]; [add?] the established figure [?]; [it] comes [out?] [?].

[Mid-upper:] You take [?] [in?] each [?] cycle [?]; and you compute [?] the season [?] [add?]. You take [?] [in?] each [?] cycle [?] [add?]; [following] [faded line] … upon [?] the established figure [?]…; [it] comes [out?] [?]. You compute [?]; [and] you set [it] down [?] [for the day of?] the [month?] [?] [its?] [?].

[Mid:] [And you take?] the established figure [?] of the [reckoning?] [?]: [it] comes [out?] [?] for you [?]. And you compute [?] [in?] the … [?] [add?] the established figure [?]; — [another?] [?] of the established figures [?] [or: cycles?] [?] [next line] — either [?] [its motion?] [?] of the day [?]; here [?] [in?] the established figure [?]; — and [you] [set?] [it] down [?] [in?] the [computation] [?].

[Red ink rubric] חמש [Five] [?] *[Red ink — apparently a numbered rubric; reads חמש "five," but may be a fragment of החמישי "the Fifth [Wing]" with the ending lost to fade — flag as]* Upon [?] the reckoning [?] of the season [?] [you set down?] [it]…

[Black:] The established figure of the cycle [?] [or?] [?]; here [?] [add?] [?]… [next line] [It] was [?] the [moon/season?] [?] [or?] the [established figure?] [?] [of?] the [computation] [?]; in [the?] [?] [following] [add?] the [day of the] month [?]…; [next line] — if [you] set [it] down [?] [it]…; and [no?] [?] [it] [in?] the season [?]; you take [?] [in?] [it]… [next line] …upon [?] the established figure [?] [in?] the established figure [?]; [or?] [?] [for] the [reckoning?] [?]. [next line] [In?] [it] [?] you set [it] down [?] the season [?] you [reckon?] [?]; [and] if [?] there is [?]… [final two lines, faded:] before [?] [in?] the … [?] half [?] [a clause]; [and] until there is [?]…

Vatican, Vat.ebr.380, Sephardic semicursive hand, two columns per page. Book Five, the "Wing" (כנף) procedural canon for using the astronomical/calendrical table-set. Severely faded throughout, with edge loss and water staining; many readings are conservative and flagged. Foliation offset from the prior batches continues (penciled folio number "240" at the head of p. 485).

PDF page 485 (recto)

[Right-hand column]

ten degrees, take from it [?] until you reach the established figure [חקן] [?]. And if it [?] reaches a second value, that is [?] one [?] of the [?] of the [?] established figure [?]. And take what comes out [?] in [?] of [?] always. [?]

And after this [?], the [?] which [?] preceding [?] in the [?] reckoning [חשבון] [?] is set down [?]. [?]

[Red ink: וכן תעשה] ("And thus you shall do") — Likewise [?], take [?] the established season-figure [?] that [?].

He stated [אמר] [?]: the season [?], whether it precedes the established figure of the sun [or] [?] follows [?], whether [?] the established figure [?] the [?] which [?] you have set down [?]. And if [?] the established figure reaches [?] a value [?], add to it [?]. If it [?] reaches [?] the established figure of the [?] which precedes [?]: if [?] it [?] established figure [?], then [?] if it [?]. The third [?], join [?] it [?]. If [?] the established figure of the moon [or] [?] the established figure [?] which precedes the established figure [?]. If [?] the [?] season [?], and ascend [?] which [?] is [?]

[the] established figure [?] for the month [לחדש] [?] set [?]. The established figure [?] which the established season-figure [?]. And this comes out [?]:

for the [?]; and the established figure of [?] the table [הלוח] is set down. [?]

[Red ink header: הכנף השלישי] ("The Third Wing")

He stated [?]: if [?] the established figure [?], whether it [?] one [?] another [?], whether [?] in the day [or] [?] in the night [?], and you wish [?] a distant [?] reckoning [?], and after this you shall set down [?]. The established figure [?] for [?] of the Third Wing [הכנף השלישי] [?]. And [?] join [?] the place [?] that [?] together [?] in the season [?] of the established figure [?]. The end [?] of the established figure [?] this [?] the season [?]. And [?] which [?] for [?] the days of the season [?], and add [?]. By [?] the reckoning [?] [?] one [or] [?] another. [?] season [?] join [?] which [?] is [?] established figure [?]. And if [?] this [?] the season [?], add [?] for the established figure of [?]…

[Left-hand column]

the moon [?], and [?] reach [?] for the established figure [?] [?]. If [?] reach [?] the established figure [?], in [?] the season [?]. If [?] reach the established figure [?] [?] degrees [מעלות] twenty-three [כ"ג] [?]. Or [?] until [?] four [ד'] degrees [?] of the established figure [?]. Or [?] from [?] of [?] degrees [?] twenty-three [?]. Or [?] from the established figure [?] of [?] degrees [?] not [?] of the established figure [?]. [?]

seven [ז'] degrees [?] of the established figure [?] which precedes [?] in the moon [?]. [?]

And he stated [?]: if [?] you make ready [?] the established figure [?]. And after this you shall set down [?]. The established figure [?] which [?] for [?] one [?]: if [?] is [?] the established figure of the [?] which [?]. If [?] reach [?] the established figure [?] the [?] precedes [?] the established figure [?]. He [?] arose [?] the established figure [?]; whether it [?] one another [?], whether [?] in the day [or] [?] in the night [?]. And after this you shall set down [?]. The established figure [?] for [?] of the Third Wing [?]. And [?]:

the days of the season [?], and you shall set down [?]; and [?] the established figure of the table [הלוח] is set down. [?]

PDF page 486 (verso)

[Right-hand column]

[Red ink header: הכנף הרביעי] ("The Fourth Wing")

This [?] is [?] [the] beginning [?]:

When [?] you wish [?] to know [?] the established figure of the moon [חק לבנה] [?], take [?] the established figure of the moon [?] which [?]. And the established figure of the season [?] take [?]. The established figure of the moon [?] take [?] the established figure of the moon [?]. The established figure of the season [?] reach [?] for the established figure of the moon [?]. And [?] the established figure [?] [from] [?] the season [?] take [?]; and the reckoning of the moon [חשבון הלבנה] [?]. [?]

[Red ink: שער קח לך] ("Gate, take for yourself") [?] — at the head [?] of the [?] degree [?] and the like [?] [?]

fifteen [ט"ו] [?]. The [?] season [?], and [?] the established figure [?]. The end [?] of the established figure of the moon [?] [?]. [?] until [?] he [?]; if [?] not [?] join [?] the established figure of the moon [?]. To [?] the established figure of [?]. Set down [?] the season [?]. The established figure [?] until [?] season [?] reckoning of the moon [?]. The end [?] until [?]: if [?] you wish [?] to set down [?] the season [?]. [?] until [?] of the established figure [?]. If [?] [?] established figure of the moon [?] which precedes [?]; the established figure [?] of [?] the table [?] that [?] is the season [?] of the established figure of the moon [?].

[Red ink: ויקח] ("And he shall take") — The season [?] eleven [?] which [?] is [?] established figure [?]. He [?]: [?] this [?]. He [?] one [?] the established figure of the season [?]. [or] [?] of the established figure of the moon [?] the established figure of the season [?] until [?] the [?] season [?] the established figure of [?]. And he served [?] [?] he [?] the established figure of the moon [?]. And this comes out [?] for the [?] season [?] of the established figure [?]. The end [?]:

[Red ink header: הכנף החמישי] ("The Fifth Wing")

This [?] is [?]:

When [?] you wish [?] to know [?] the established figure of the moon [?] take for yourself [?]. The established figure [?] the season [?]; if [?] reach [?] the season [?] the established figure of the moon [?] which [?] is [?] the moon [?]. To [?] the established figure of the moon [?]. Take for yourself [?] the established figure of the moon [?] the established figure of the season [?]. As before [כמ' מה] [?] arose [?]: if [?] day [?] precedes [?] established figure [?]. If [?]…

[Left-hand column]

after this [?], when [?] you set down [?] Moses [?] [?]. And the [?] Wing [?] takes [?] of the [?] table [?]. The [?] of the day [?], and [?] the established figure of the table [?] [?]. Take for yourself [?]: if [?] reach for yourself [?] established figure [?]. Either [?] not [?]; and [?] season [?] take [?]. Set down [?] in the season [?]. And take [?] [from] [?] of the established figure of the table [?]. And join [?] the established figure of the moon [?] and add [?]. And [?] take for yourself [?]. [?]

The [?]: in [?] of the table [?]. If [?] arose [?] the established figure of the moon [?] which precedes [?] in [?] the moon [?]. And [?] in [?] the season [?]. The [?] reckoning of the table [הלוח] [?]. The end [?]: if [?] you wish [?] to set down [?] the season [?]. And [?] the established figure of the moon [?]. And [?] [from] [?] of the established figure [?]. If [?] one [?] before [?] for the [?] season [?]. [?]

the moon [?], and [?] take [?]. [?] join [?] the established figure of the moon [?]. The [?] season [?] take [?] the table [?]. And he served [?] the established figure of the moon [?] the season [?]. And this comes out [?] of the established figure of the moon [?]. The end [?]:

[Red ink header: הכנף הששי] ("The Sixth Wing")

This [?] is [?]:

Take for yourself [?] to know [?] the season [?] of the reckoning of the established figure [?] established figure of the moon [?] [?]. And the season [?] [from] the reckoning of the established figure [?] which [?] is [?] [?]…

Yesod Olam — Book Five (conclusion region)

Script: Sephardic semicursive, single primary hand, with red-ink rubrics. (This hand's *ש* frequently loses its left stroke and resembles *ע*; numerals read with care.)

Folio note: carries an upper-left marginal numeral that reads **"241" / "רמא"** [?] (the manuscript's own foliation; offset from PDF pagination continues). is effectively blank (see below).

PDF p. 487 (recto) — right column (primary text)

The page is laid out in two columns. The **left column** is severely effaced by a large water stain and foxing across its whole height; only scattered words survive and it is treated as a degraded / (see Readability). The **right column** carries the

readable continuation of the Wing-template procedural canon, running into a closing rubric and an epilogue.

[Red ink header (top of left column): **חתימת הספר** ("The Sealing of the Book" / colophon-rubric)] [?] — the rubric stands at the head of the effaced left column; its following text is largely lost to the water stain.

Right-column body (continuing the Wing procedure from the prior batch):

and so [you shall do] for [each] entry of the table, until you have completed the table and arrived at the [desired] value. [?] Take the [tabulated] degrees and the minutes [against the argument], and enter [the table] with them. [?] What comes out for you there, set it down, and remember it. [?]

Then take that which is in your hand and subtract [it]; and what remains [after] the subtraction — keep it. [?] The remainder will be the [corrected] position of the planet [?] — its value, [reckoned] for that hour.

And the [resulting] degree — set it down, and write [it] in its [proper] place; and [enter] with it [once more], until the operation is complete. From the completion of the operation [you arrive] at its [final] end. [?]

[Red ink: **וזה דקדוק** ("and this is the fine-reckoning / the precise method") [?]] [Red ink, continuing:] of the matter — the secret of this [small] portion [?] — [for] one who is wise.

(And we have tested it, [to see] whether its roots [foundations] are sound; [Red ink:] and we found the proof, and its [computed] values, [verified] up to here.) [?]

thus they set it down — and so [did the] sons of Israel [reckon it]. [?]

[Red ink: **ויהי שעתו** ("and may its hour be [favorable]") [?]] — [a closing benediction-formula]

[Red ink, small: a worn three- or four-word benediction, largely effaced] [?]

[Red ink rubric (lower right column), set off and centered]: **תם** ("Finished / Completed") [?] — with an ornamental flourish following.

Epilogue / closing paragraph (right column, lower):

[Red ink initial word: **ובכן** ("And so / And now") [?]]

And now — completed [is] the [work, by] the help of the Living God [?] — [the book is] finished. May the One who divides the heavens [?] [grant that the reader find favor] [?] —

[Red ink: **זאת התכונה** ("this astronomical science / this *techunah*") [?]] and in it [is] enough; and [may there be a] blessing [?] —

[may He grant us] world [without end?], and may He not withhold the good [?] [from] those who walk in integrity. [?]

[Red ink: a final worn flourish-line, ~3 words, effaced] [?]

PDF p. 488 (verso)

— The page carries no primary-hand text on its camera-facing side. What is faintly visible is bleed-through from the recto: a mirrored, lighter ghost of that page's right-column text and red rubrics, plus a large water stain along the outer (right) margin. Per the bleed-through rule, none of it is transcribed as content. No colophon, catchword, or signature is legible here.

R. Yitzchak bar R. Yosef Yisraeli, Yesod Olam (Foundation of the World). Vatican Library, Vat.ebr.380, Sephardic semicursive hand. Post-conclusion supplementary end-matter.

The recto carries only the foliation mark **"244"** written in the upper-left margin (a Hebrew/Arabic-numeral librarian or scribal foliation, not part of the text). The body of the leaf is otherwise blank parchment. The faint traces of script visible at the top of the page are bleed-through from the verso and from the facing leaf (mirrored and blurred); no primary recto text is present. The leaf shows water-staining across the center and edge loss / fraying along the outer (right) margin.

This side carries a short passage of supplementary prose — roughly twelve lines of Sephardic semicursive in the upper portion of the leaf — followed by a large blank lower section. The ink is heavily faded throughout and the lower-right quadrant is obscured by a dark water-stain; bleed-through from the recto compounds the degradation. The hand appears consistent in type with the main treatise (Sephardic semicursive) but is written more loosely and cramped, consistent with an added supplementary note rather than the formal body text; a firm determination of "same hand vs. later hand" is not possible at this resolution.

The main text passage (upper block, ~12 lines) is too degraded for a continuous, faithful reading at the available resolution. Individual letter-

clusters and a handful of common words are intermittently legible, but no sustained clause can be transcribed with confidence without guessing. Rather than fabricate connected prose from a passage I cannot actually read, I transcribe only what is genuinely legible and flag the remainder.

Legible fragments (non-continuous, reading top to bottom; ellipses mark illegible stretches):

- Line 1 (opening): an opening formula, apparently beginning with a connective/relative particle — `[?]` … the surrounding words are not securely legible.
- The body contains scattered recognizable common words (conjunctions, the article, and what appear to be a few of the work's recurring technical terms — possibly חשבון / מחזור / מולד — consistent with calendrical/astronomical end-matter), but their syntactic connection cannot be recovered. `[?]`
- A short closing line near the foot of the written block appears to end with a terminal flourish or punctuation, possibly a closing `[?]`.

  Whole passage flagged `[?]` (high priority). Folio 244v upper text block requires higher-resolution recovery; the present scan does not support a faithful translation.

Left-gutter column. A separate narrow column of cursive prose is visible down the left (gutter) edge of the verso. This is the text column of the **facing leaf** (the recto opposite, at the binding), partly captured in this opening — not a marginal annotation belonging to f. 244v. It is likewise too faint to read continuously and belongs codicologically to the adjacent folio. `[?]` — noted, not transcribed.

No colophon (scribe / date / place) is legible on either side of this leaf. No red-ink rubric, no Latin/Italian librarian note (beyond the bare "244" foliation), and no table or diagram are present.

Post-conclusion end-matter. R. Isaac Yisraeli, Yesod Olam. Vatican Library, Vat.ebr.380. Sephardic semicursive hand. The main treatise concluded ("תם") several folios earlier (batch 244); this is supplementary end-matter — a computational/astronomical appendix combining dense prose argument with marginal glosses and numerical tables.

Folio 245 recto

[Vatican librarian note: pencil foliation "245" in the upper-left margin.]

[Vatican librarian note: shelf-mark "380 Vat. E" in pencil at the lower portion of the verso; round blue Biblioteca Apostolica Vaticana ink-stamp at the lower-right of the verso.]

Hand note. The script of this end-matter is the same Sephardic semicursive as the main treatise, but written more cursively and rapidly, with heavier abbreviation and a denser line. The ink is browner and more faded than the body of the work, consistent with a supplementary section added after the treatise proper. Throughout, this hand's ש frequently loses its left stroke and resembles ע — numerals and rubric words have been read with that in mind.

This folio is heavily affected by fading, foxing, and edge damage; a large share of the running prose is only partially legible at the available resolution. What follows transcribes the legible matter, flags genuinely ambiguous readings `[?]`, and reproduces the two numerical tables in full.

Body prose (recto)

[The opening lines treat a worked computational example.] …their orbit (or: their cycle), and when the mean motion comes to be such-and-such, the result is the great number; and [?] … the gate [שער] of this and that [?] in the calculation of the position; and when in the calculation of the mean [position] you have such-and-such, look [?] for the man — that is, the [?] … in the gate [שער].

for the calculation [?] of this … and the great number, and the [?] … its motion [?] upon them, and when in the calculation of the position you have such-and-such [?] …

the great number, three [ג] … this [?], and when you have it [?] take all [?] before you [?]. And when [?] the sun [?] … and when [?] the moon [חק לבנה, "lunar reckoning"] [?] … if in the position you have such-and-such, look [?] … and the [?] … and the number [חשבון] of the great [?] …

look for [?] him in the position [מצב], one [?] … and look [?] for it in the position [?] … take what you have [?] in the calculation [?] … and the calculation of the [?] … the number [חשבון] [?] …

and look [?] … this number [?] in [?] the position, look [?] for the [?] … the great [?], and if [?] in [?] … the lunar reckoning [חק לבנה] [?] … the number [?] … take the [?] before you [?] … [several lines here are too faded to read with confidence] …

and if [?] … the number [?] … the great [?] … the position [?] … and the calculation [חשבון] … and the [?] motion [תנועה] [?] … [?] before you [?].

[The recto continues for roughly a dozen further heavily-faded lines in the same iterative computational vein — "take the number," "look in the position," "the great number," "the lunar reckoning" recurring — but the ink loss prevents a continuous confident reading. Flagged as a]

Marginal gloss (recto, left margin — same hand, smaller script)

[Margin: a long block of roughly 18–20 lines of marginal annotation runs the full height of the left margin of the recto, in a finer, more compressed hand than the body (likely the same scribe writing small, or a near-contemporary second hand), in faster-fading red/brown iron-gall ink. The outer (left) edge is abraded, so the line-ends are lost on essentially every line. Recovered fragments per reprocess_248, top → bottom (each a separate physical line; … = illegible run; recovered phrases only — the connective syntax between them is not recoverable, not fabricated):

- "… this difference [חלוף הזה] … that is to say [ר"ל = רצה לומר] …"
- "… we have already said [כבר אמרנו] … the circle [העגול] …"
- "… if you wish to know [אם תרצה לדעת] … by way of [על דרך] …"
- "… the degrees [המעלות] … and this [וזה] …"
- "… [31?] [ל"א [?]] … reckoning [חשבון] …"
- "… for if [כי אם] … from [מן] …"
- "… and understand this [והבן זה] …"
- "… the sun [השמש] … course/motion [מהלך] …"
- [≈ 10 further lines: individual words not securely legible.]
- (last legible line) "… it is further fitting to know [ראוי לדעת עוד] …" Of the ~18–20 lines, roughly 8–10 short phrases are recovered as above; the left (outer-edge) third of each line is lost to abrasion and fade. The note reads as a constructive explanatory gloss on the difference/circle computation of the adjacent table, not a bibliographic or polemical scholion; no named authority is legible — no attribution inferred. A second, much shorter jotting sits at the foot-right below the prose: "… all is correct [הכל נכון] [?] …" (single line, mostly lost). Further recovery requires further high-resolution imaging.]

Table 1 (recto, mid-page)

A partially-ruled numerical table sits across the middle of the recto, below the upper block of prose. It has a header row in the same ink (no distinct red rubrication is discernible here, owing to fading) and three data rows. Several column dividers are faint and several cells are abraded. Reading right-to-left in logical column order; argument/label column at the right.

Header band, right → left, with the group captions חבור [addition] over the right block and מורידים [subtractives] over the left block; blank header cells beneath a caption are carry-over, not missing. The argument/label column is at the right.

מעלות [degrees]	דקים [minutes]	מורידים [subtractives, group]	…	…	…	…	…	חבור [addition, group]	…	…	[row label, right]
מ [40 [?]	לא [31 [	כא [21 [	לב [32 [	נד [54	נא [51	נב [52	[cell]	כו [26	כב [22	א [1	קח עשר בצורה [row 1]
ל [30	מ [40	ע [70	מח [48 [	מא [41 [	יא [11	יז [17	יד [14	יא [11	מו [46	ח [8	וכן קח עשר [row 2]
כז [27	כו [26	יו [16	מח [48 [	מ [40	סח [68 [	סח [68 [	מח [48 [	יח [18	יח [18	ב [2	וכן הצער בצק [row

		מורי דים [su						חבו ר			[ro
מע לות [de gre es]	דקי ם [mi nut es]	btr acti ves, gro up]	...	...	...	...	...	[ad diti on, gro up]	...	...	w lab el, rig ht]
											3]

at scan floor.]

Body prose (recto, below Table 1)

the position [מצב] [?] … and the gate [שער] [?] … and the lunar reckoning [חק לבנה] [?] … and the calculation [חשבון], for in the calculation of [?] … the great [?] … and the position … look [?] … and if [?] in the position you have such-and-such, take [?] before you [?] the [?] …

the number [חשבון] [?] … and look [?] … and this [?] … and the great [?] … [?] … and the lunar reckoning [?] … [?] before you. And see [ראה] [?] … the [?] … and the number [?] …

[A final cluster of lines on the recto, again iterative and heavily faded. Flagged as a The recto closes mid-procedure; the discussion continues onto the verso.]

Folio 245 verso

Body prose (verso)

and we explained to you [?] in the gate [שער] [?] … the [?] number [?] … the position [מצב] [?] … and when in the calculation [חשבון] [?] you have such-and-such [?] …

and we [?] explained [?] … and the gate [שער] [?] … this and that [?] … and when [?] in the position [?] … [?] before you the great [?] … and if [?] …

and the number [?] of the [?] … this [?], and if [?] in [?] the position you have such-and-such, take [?] … the calculation [חשבון] [?] … and the [?] motion [תנועה] [?] … and the [?] great [?] …

[The verso prose, like the recto, proceeds as an iterative worked computation keyed to the table at the right of the page — the recurring vocabulary is מצב

(position), חשבון (calculation/number), שער (gate), חק לבנה (lunar reckoning), and תנועה (motion). The lines are heavily faded with water-staining toward the gutter; a continuous confident reading is not possible at this resolution. Flagged as a]

Marginal gloss (verso, left margin — same hand)

[Margin: a further block of marginal annotation, roughly ten to twelve lines, runs down the left (gutter-side) margin of the verso in the same reduced hand. Badly faded and partly lost into the gutter. Legible fragments: "… the position [מצב] [?] …", "… look [?] …", "… the number [?] …", "… the lunar reckoning [?] …". As with the recto margin, this reads as a constructive computational helper to the adjacent procedure rather than an attributed scholion. Full reading requires further verification.]

Table 2 (verso, right side of page — the principal table)

A ruled numerical table occupies the right-hand portion of the verso, running the full height of the text block. The header runs across the top in the same ink. The argument/label column is at the far right; data columns extend leftward. Many cells are abraded and several rows fade toward the foot. Reading right-to-left in logical column order. The repeated label alternating down a column reads דקים [minutes] / מעלות [degrees] in this hand (note: ש-loses-left-stroke risk; these are read as דקים/מעלות, the standard sexagesimal unit labels, not as ע-initial words).

Header band, right → left (the top three lines are partly lost under the Vatican stamp / watermark): הככב [the planet], חלקי המעלות [parts of the degrees] [?], מעלות [degrees], דקים [minutes], שניות [seconds] [?]. The label column alternates דרך [path] / מעלות [degrees] as a block-grouped pair label (a blank label cell under a דרך head is carry-over). Data columns labelled col 1 (rightmost) → col 5; blank cells are genuinely empty in the manuscript.

col 5	col 4	col 3	col 2 (חלקי המעלות [?])	col 1 (rightmost)	label
—	ב [2]	א [1]	[cell]	[cell]	(head)
—	ג [3]	ב [2]	[carry]	[carry]	דרך [path]
יב [12]	ב [2]	ד [4]	[carry]	ז [7]	מעלות [deg.]
—	ב [2]	ה [5]	ה [5]	ד [4]	דרך

col 5	col 4	col 3	col 2 (חלקי המעלות [?])	col 1 (rightmost)	label
					[path]
—	ב [2]	ד [4]	[carry]	ז [7]	מעלות [deg.]
—	ב [2]	ד [4]	[carry]	ב [2]	דרך [path]
—	ב [2]	ד [4]	ב [2]	ז [7]	מעלות [deg.]
—	ב [2]	ד [4]	[carry]	ד [4]	דרך [path]
—	ב [2]	ד [4]	ד [4]	ז [7]	מעלות [deg.]
—	ב [2]	ה [5]	ב [2]	ז [7]	דרך [path]

at scan floor; 2 header captions [?] (חלקי המעלות, שניות) under the Vatican stamp/watermark. Lower rows of the panel run into the stamp and the foxed corner and are lost.]

Body prose (verso, below/beside Table 2)

and we [?] … in the gate [שער] [?] … the [?] … and look [?] for him [?] in the position [מצב] … and the number [חשבון] [?] … the great [?] … and the lunar reckoning [חק לבנה] [?] … take [?] before you [?] …

[A final short block closes the verso. It is too faded for a continuous confident reading and is flagged as a No closing "תם" or colophon is discernible on this folio; the supplementary matter appears to continue beyond folio 245.]

[Vatican librarian note: pencil shelf-mark "380 Vat. E" below the text block; round blue Biblioteca Apostolica Vaticana ink-stamp at the lower-right corner.]

Post-conclusion supplementary end-matter / computational appendix. Sephardic semicursive hand. The main treatise concluded ("תם") earlier; this continues the supplement begun on folio 245.

[Foliation: "246" in the upper-left margin, in a later hand]

[Vatican librarian note: round blue Biblioteca Apostolica Vaticana ink-stamp, struck across the left portion of the table]

Upper prose block

[The opening lines are heavily faded and water-stained across the top of the folio; only fragments read with confidence.]

[?] and we have already explained [?] the matter of the [?] and the reckoning [Hebrew: החשבון] of the [?] …[Damage: water staining, top margin, ~2 lines largely illegible] [?]

The remainder of the upper block, so far as it can be made out, continues the procedure for finding a tabulated value: one enters [the table] with the given argument, takes the entry that corresponds to it, and adjusts it by the interpolated fraction [?] between the two adjacent entries. The author notes that when the argument falls between two ruled rows, one takes the difference [Hebrew: ההפרש [?]] between them and apportions it according to the part [Hebrew: לפי החלק [?]] of the interval that has elapsed. [Much of this reconstruction rests on the recurring procedural vocabulary of the surrounding appendix; the specific wording here is largely [?] — see QA report]

Left margin (alongside the table)

[Margin: a vertical stack of short gloss-words in the left margin, partly cut by the page edge and partly obscured by the ink-stamp; the legible items appear to be brief numeral/label helpers keyed to the table rows. Recovered fragments (per reprocess_249): "…כוכב…" / "…[?]לולה…", and a run of single alphabetic column-keys (א, ב, ג …) descending the left margin in alignment with the table's data rows; outer ends lost to edge fade/crop. Extent ~4–6 short lines. Per rule 19, no named authority or specific judgment is asserted; this reads as a constructive table-key helper, not an attributed scholion. Verbatim balance not recoverable with confidence — [?].]

Right margin

[Margin: a longer column of short glosses runs down the entire right edge of the folio, in the same hand as the body, partly trimmed at the outer edge. Individual word-tokens are visible but the column is too faint and edge-cropped to transcribe reliably — [?].]

Table (folio 246r)

A ruled numerical table with red-ink column headers. It is a short table (five data rows) with an argument/label column at the right (read first, Hebrew right-to-left) and several numeric columns to its left. The Vatican ink-stamp overlies the lower-left cells, and the top header row is faded; several cells are genuinely unreadable. Values transcribed exactly as written; unreadable cells marked `[?]`.

Logical column order (right-to-left in the manuscript → left-to-right below; rightmost manuscript column = the row-label column, given first):

[Red ink header: argument / row label]	[Red ink header: היום / כוכב [?]]	[Red ink header: מעלות [?] "degrees"]	[Red ink header: חלקים "minutes"]	[Red ink header: שניות "seconds"]	[Red ink header: [5th col., leftmost] [?]]
בורא לנגה [?] / בור לנגה כוכב [?] · שם שראשונה · [?] מעלות [?] רישי [?]	ב	כה [25]	א [1]	י [10 or 16 — yod/vav] [?]	לה [35]
· [?] נכח וקח שני זה את אלה [?]	ח [8]	ו [6 or 7 — vav/zayin] [?]	יא [11]	יו [16]	יב [12]
נכח שכנגד אלה [?] · השרי [?] שאינה [?]	ח [8]	ה [5]	ג [3]	ו [6]	סז [67 or סן] [?]
נקח כוכב זה [?] · ושלוח כוכב [?] · ועלות ושלוח [?] הנך · שלוח [?]	י [10]	יד [14 or 16 — dalet/vav] [?]	לו [36]	ו [6]	ל [30]

[Table note: the header row remains the most degraded zone (top-margin water stain over the captions); the row-label column carries short Hebrew procedural phrases keyed to the surrounding instruction, transcribed as written where legible. Sexagesimal columns (חלקים/שניות) hold values <60 throughout — no wrap anomaly. The four residual data-cell uncertainties are single-letter glyph ambiguities (yod/vav, vav/zayin, nun/zayin, dalet/vav), preferred reading given in each cell; no cell is a numerical impossible. Re-transcribed per reprocess_249.]

at scan floor.]

Lower prose block

[Resumes below the table; somewhat clearer than the upper block, though still faded.]

the reckoning [Hebrew: החשבון]. And the rule is [?]: enter with the argument [?] you have, and the number [Hebrew: והמספר [?]] of the degrees [Hebrew: והמעלות], and the [?] degrees and the [?] [?]. And take [?] …[?]

If the [argument / hour] falls [?] between [?], proceed thus: take the difference of the two [adjacent entries], and what results [?] from it [?] — that is the [interpolated] portion [?]. Add it [?] to the lower [entry], and the sum [?] is the correct figure [?] sought. [Reconstruction follows the standard interpolation formula recurring through this appendix; individual tokens are [?].]

[?] and so likewise for [?] the other [entries], each one [?] according to [?] its degree [?]. And if [?] there remains [?] over [?] …[?] take [?] half of it [?] …[?]

The block closes with a short concluding clause that is too faded to read with confidence: …[?] and not [?] more than this [?] and not [?] less [?]. [?]

[No end-rubric (תם / נשלם) and no colophon appear on this folio. The supplement continues beyond this batch.]

Folio: 250r–250v (folio number "250" is written in the upper-left margin of the recto, p. 505).

The recto face is **blank apart from the folio number** "250" in the upper-left margin. The faint, mirrored block of text visible across the top of this page is **bleed-through** from the verso (250v) showing through the thin paper — it is reversed and lighter than primary ink and is **not transcribed** per the bleed-through rule.

A short block of roughly seven lines of Sephardic cursive Hebrew prose stands at the **top** of an otherwise-blank folio. It is an **added note in a homiletic / ethical register**, not a dated colophon: there is no scribe's name, no place name, and no date legible anywhere in the block. The note turns on a recurring "by way of…" (בדרך) formula and a set of "if… and if…" (אם… ואם) conditional clauses contrasting conduct in *this world* with reward in *the world to come*.

The ink is badly faded — heaviest loss runs along the **left (gutter) side** and the line-ends, where whole clauses drop below legibility. The opening words and the close are the firmer readings; the interior is fragmentary. A faithful rendering of what can be read, with losses marked:

> By way of [?] … a man should consider [?] his deeds [?], for [?] all [?] … blessed is he who does [?] … and does not [?] … in this world [?]. [Several words illegible.] And he should know [?] that … one who [?] … the deed [?] is [?] in this world, and his reward [?] [is laid up?] for the world to come [?]. [Line-end illegible.]
>
> [?] … if [a man does so?] … then it is well with him [?]; and if [?] … [Several words illegible — gutter loss.] By way of [?] … the matter [?] … this is [?] … [illegible].
>
> And he should love [?] [his fellow?] by way of [?] [truth / uprightness — בדרך אמת? [?]], and not [?] … one [thing?] in the heart and one [thing?] in the mouth [?]. [Several words illegible.] Whether [?] … this or that [?], or [?] this or that [?]. [Line illegible toward the gutter.]
>
> [Closing line, firmer:] By way of [?] … so too [?] … by way of [?] … [a man finds favor?] in the eyes of God and man [?]. [End of block.]

No red ink, no Latin/Italian, no librarian stamp, and no marginalia appear on either folio side in this batch.

End-matter of *Yesod Olam*. The main treatise concluded earlier (תם at batch 244), followed by an appendix and blank folios. This batch covers the final leaf of the codex.

PDF p. 507 (f. ~251r) — added prose note (heavily faded)

At the top of an otherwise blank, foxed and water-stained leaf stands a short block of approximately nine lines of Sephardic cursive Hebrew, written in faded brown ink very close to the torn upper edge. This is an **added note in the same general cursive register as the preceding end-matter**, not part of the treatise

proper. It is **not** a dated colophon: no scribe's name, owner's name, place, or date is legible anywhere in the block.

The ink is so faded, and the surface so foxed, that the text cannot be reconstructed as continuous sense at this resolution. The few tokens I can anchor are given below; everything else is flagged. **No name, date, or place is fabricated.**

> [?]... an added Hebrew prose note of approximately nine lines, heavily faded. Legible fragments only: — opening of the block (line 1): scattered words [?], apparently introducing a remark or reflection [?]. — recurring particles consistent with reflective/ethical prose (e.g. כי "for/because" [?], אשר "which/that" [?], אל "to" [?]) appear across the block, but no clause can be carried through with confidence. — closing line (line 9): the final word(s) [?]; no recognizable colophon formula (no תם, no נשלם, no dated subscription) is legible.

This continues the kind of **added pious/ethical marginal note** seen on the immediately preceding leaf (batch 253, f. 250v), but the present block is too degraded to confirm its subject. Its type is best described as an **added prose note / reader's or owner's inscription of undetermined content** — explicitly *not* a dated scribal colophon.

A faint mirror-reversed pencil mark is visible in the lower-middle of the page; this is the show-through of the modern librarian shelfmark written on the facing side (see p. 508) and is **not** primary manuscript text. Ignored as bleed-through / librarian mark.

The remainder of the leaf is blank.

``

PDF p. 508 (f. ~251v) — blank leaf with librarian shelfmark

No Hebrew primary text. The leaf is blank apart from a modern librarian shelfmark in pencil in the lower-middle, and a faint bleed-through of the p. 507 prose at the top (ignored).

[Vatican librarian note: "380. Vat. Ebr."]

[Binding cover: spine — green leather spine with the blue Vatican shelf-label "Vat. Ebr. 380", a gilt title-piece "VAT. 380", and the gilt Barberini coat-of-arms (papal

tiara, crossed keys, three bees). No transcribable Hebrew or Latin text — only the printed/gilt catalog shelf-marks.]

[Binding cover: — fore-edge / text-block edge images of the closed volume (green board edges, endband visible); no text]

[Binding cover: — p. 515 head/tail text-block edge with endband; p. 516 green leather board with gilt Barberini cardinal's coat-of-arms (bees, galero with tassels); no text]

[Duplicate re-shoot — NOT new content. Both pages are dense two-column Sephardic main-text prose shot with color-calibration targets, with a folio numeral ~"102" visible This is a re-imaging of an already-translated foliated leaf (the fol. 102 region, covered earlier in the main run), placed at the end of the scan sequence, not genuine end-matter.]

Disposition: Per the duplicate-gathering rule, the earlier (in-sequence) batch covering the fol. 102 leaf is canonical; this re-shoot is **dropped at collation** with a one-line editor's note. Not re-translated here to avoid a duplicate of already-existing batch text. Flagged for Stage-2/collation reconciliation to confirm the matching in-sequence batch before final omission.