

It's for the Birds: Avian Fine-Tuning of Flood Chronology How Knowing When Noah Opened the Window Opens a Window to Chronological Understanding

Steven W. Boyd, Research Professor of Old Testament and Semitic Languages, Raymore, Missouri, 64083.

Abstract

The disparate earth conditions during the three flights of the dove, whether explicitly described in Genesis 8:6–12 or reasonably inferred, and the relationship of the flights with one another and other happenings, disallow an iconic reading of the sequence of the events recorded in Genesis 8:5–13 (further militating against the common understanding that *wayyiqtol* always marks sequence): Noah did not open the window 40 days after the mountain tops appeared, but rather, after the water became powerful; and the mountain tops appeared between the first and second flights. This passage therefore is perhaps best understood as revealing the character of Noah; also, it delimits the time of the water's becoming powerful to between 16 and 23 days after the Flood began.

Keywords: bird(s), dove, earth, condition(s), flight(s), Flood, interval(s), (mathematical) inequality, *Mabbûl* (Flood), mountains, nest, Noah, olive, power, sequence, surface, tests, topography, water, *wayyiqtol*, window

1. Introduction

A biblical Hebrew (BH) text always richly repays a close reading of it. Moreover, it is full of surprises which delight. Genesis 8:6–12 is no exception. It is perhaps a bit surprising that the incident of the birds furnishes us with significant chronological information; yet again, the text *does* open with a chronological reference, *וַיְהִי מִקֵּץ אַרְבָּעִים יוֹם* “it was at the end of forty days.”¹ But what astonishes is that it may reveal geological information as well, because the dove appears to have encountered two radically different environmental conditions in a span of only seven days! What caused this drastic change was a geological phenomenon, the emergence of the mountain peaks (Genesis 8:5b)—which I will argue was between the dove’s first two flights. The time this occurred is not in doubt: it is given to us. But what we are not explicitly told and yet might possibly be able to deduce from the unlikely source of a text about releasing birds, which recounts incidents from the regression phase of the Flood, is the interval of time in which the water of the *Mabbûl* became powerful during the marine transgression phase of the Flood!

When did Noah open the window (t_{Now} in the equations)? It seems to be a reasonable question to ask and what is more, easy to answer. But is it?

The text continues: “(It was at the end of forty days) Noah opened the window of the ark, which he had made” (Genesis 8:6).² This prompts us to ask the natural question: when did the 40 days begin? Or to put it another way: what was the *reference point* from which Noah began his 40-day count, after which he opened the window? We will call this time t_{-40} (in the equations)—formally,

$$t_{-40} = t_{\text{Now}} - 40 \quad (1)$$

So,

$$t_{\text{Now}} = t_{-40} + 40 \quad (2)$$

And more to the point in what we will see is a chronological puzzle is where in the text does the phrase indicating when Noah opened the window, “it was at the end of forty days,” connect?

Were it not for the series of events which occurred in the three weeks after Noah opened the window, we might reasonably conclude that the forty days were measured from the time of the significant event recounted immediately preceding this in the text, the emergence of the mountain peaks. In fact, most commentators assume that the forty days commenced at this time.³ But is this chronologically tenable in light of the earth conditions described or

¹ I have opted not to transliterate/transcribe the Hebrew in most cases, because first of all it is not very useful for those who do not know Hebrew and second it is not needed for those who do. Translations or glosses are supplied instead. Notwithstanding, when I am pointing out a particular characteristic evident only in the original, I do supply transliteration.

² I will not capitalize ‘ark’ (BH תֵּבָה), which Noah built, in order to distinguish it from the Ark (BH אֲרוֹן) of the Covenant; It is not certain whether the relative clause is referring to the window or the ark.

³ For example, in Genesis commentaries by Driver (1926, 93) (for the final “redacted” form of the text); Cassuto (1998, 106); Speiser (1964, 53) (for the final “redacted” form of the text); Keil and Delitzsch (1986, 148); Hamilton (1990, 303); Leupold (1982, 313); and most recently in Guillaume (2013, 73) and Jacobus (2013, 88, 94). The antiquity of this position is evident in 4Q252 at this point, which interposes a comment (indicated by italics in the following) within the biblical text: “And it was at the end of forty day(s) when the tops of the mountain[s] had become visible [that] Noah [op]ened the window of the ark.”

alluded to in the accounts of the dove's three flights (Genesis 8:9; 8:10–11; 8:12) at t_{DF1} , t_{DF2} , and t_{DF3} , respectively; the topographical changes described in the text; and the sequence of the flights, which all impose chronological constraints we must consider in our calculations?

The three earth conditions evidenced in the dove's first, second, and third flights, when coupled with a consideration of the topographical change descriptions and the sequence of the flights, allow us not only to extract specific chronological information from this portion of the Flood account, but also to specify the timing of events recounted in other places in the record, from both the marine transgression and regression phases of the Flood. And so, to a careful consideration of them we now turn.

2. The Chronological Constraints

In light of the seven-day delay after Noah opened the window and released the raven until the dove's first flight,⁴ the seven days more until its second flight, and a further seven days until its third and final flight, we have the following:

$$t_{DF1} = t_{-40} + 47 \quad (3)$$

$$t_{DF2} = t_{-40} + 54 \quad (4)$$

$$t_{DF3} = t_{-40} + 61 \quad (5)$$

The description of each flight either contains explicit details about the earth's condition or the information supplied allows us to deduce it. These three conditions are described or inferred by four clauses in the text: two for the first (Genesis 8:9), two for the second (8:10–11), and none for the third—although its implied condition can be inferred (8:12).

In addition, the descriptions of the status of the mountains, which occur at two points in the text, Genesis 7:19a–20 and 8:5b, must be considered. We will call these 'topographical change descriptions' (TCD). The first emphatically recounts in a highly

structured poetic-like passage the inundation of the mountains. The second, their reemergence, "on the tenth [month], on the first of the month [600/10/1]⁵ the tops of the mountains appeared," which happened at a time we will refer to as t_{pks} in the equations. These are most significant descriptions in that they either assume or imply the following geological conditions (G):

G1) There was subaerial land before the highest antediluvian mountain was inundated.

G2) There was no subaerial land from the time of this submergence until the mountain tops (re) appeared (8:5).⁶ Although we can only approximate how many days into the Flood this reappearance occurred, because we do not know the number of days in each month, if we assume a lunar calendar⁷ and work therefore from an average number of 29.5 days per month,⁸ this would be approximately 220 days after the *Mabbûl* onset (designated DfMO in the equations).⁹

$$t_{pks} \approx 220 \text{ DfMO} \quad (6)$$

The submergence of all the land (which occurred once the water was just above the highest pre-Flood peak) would have taken place before the crest of the Flood, which was forty days from the *Mabbûl* onset, when according to 7:20 the water was twenty-two and a half feet above the highest mountain peaks.¹⁰

G3) There was subaerial land after the mountain tops appeared (at approximately 220 DfMO).

And finally, the sequence of the flights furnishes further chronological information.

2.1 The Condition at the First Flight (C1)

Seven days after Noah opened the window (t_{Now} in the equations) he released the dove for the first

⁴ Numerous speculations have been offered for Noah first dispatching the raven—not surprising, since characteristically much ink is spilled where the text is silent. But for our purposes only the ensuing one-week delay on the dove's flights is significant.

⁵ Year/month/day, that is, in this case the 600th year, 10th month, and 1st day of the month; a number enclosed in bold superscript brackets means that the text does not explicitly state the year; subscript brackets indicate that the word "year," "month," or "day" is not present in the timestamp.

⁶ The text does not specify whether these mountain tops were the re-emergence of previously submerged mountain tops, or the tops of new mountains produced tectonically during the Flood.

⁷ Danny Faulkner adduced the evidence for this position in a private communication. It is beyond the scope of this study to rigorously defend this position. Since other month lengths (30 or 31 days) do not affect the calculations below or the subsequent conclusions, I employ the lunar calendar model heuristically in this study.

⁸ Assuming the present-day orbital period of the moon, which more exactly averages to 29.53059 days.

⁹ מַבְבּוּל *Mabbûl* is the BH term rendered "flood" in most English translations. It refers to only the Noachic Flood and is found only in the Flood account (9× in Genesis 6:7–9:28), in chronological references to the Flood (Genesis 10:1, 32; 11:10), and in Psalm 29:10. Moreover, I have shown elsewhere (Boyd 2016, 197–198) that it specifically refers to only the transgression phase of the Flood, which lasted only 40 days; and the following argument proceeds on that basis. In addition, I will maintain a distinction between the terms *Mabbûl* and 'Flood', reserving the former solely for the marine transgression phase of the inundation and the latter for the entire year-long (or longer; it depends on what kind of calendar Moses was using) event.

¹⁰ This assumes that a cubit is 1½ ft (0.5 m). Other conversions have been suggested as well, but the modern equivalent of the cubit is irrelevant to this analysis.

time—formally,

$$t_{DF1} = t_{Now} + 7 \tag{7}$$

about which time the following statement which reflects on the status of the water from the dove's perspective occurs:

וְלֹא־מָצְאָהּ הַיּוֹנָה מְנוּחַ לְכַף־רַגְלָהּ וּתְשֹׁב אֵלָיו אֶל־הַתְּבֵה

“the dove did not find a resting place for the sole of her foot (מְנוּחַ) and returned to him, to the ark,” (Genesis 8:9aa), which needs to be understood in light of the complementary objective statement of 8:9ab, כִּי־מַיִם עַל־פְּנֵי כָל־הָאָרֶץ, “because water was upon the face (i.e., surface) of all the earth/land.”¹¹ This would appear to indicate the dove’s first flight occurred prior to the peaks of mountains appearing as described in 8:5. However, the question is: do these expressions imply that there was no place for the dove to land; that is, it would have been impossible for the dove to nest there; or that, although there was land, the dove considered it unfavorable for nesting?

If the first of the expressions implies that there was no subaerial land, then based on our calculation of the approximate value of t_{pks}

$$t_{DF1} < 220 \tag{8}$$

But does this necessarily follow? Certainly, the case for this scenario would be strengthened if Moses had used מְקוֹם the usual word for ‘place’ instead of מְנוּחַ ‘resting place’ (or, in keeping with the obvious word play, a “Noah place” [the prefixed מ indicating ‘place’]). Why מְנוּחַ then? Most likely the impetus for the choice was to produce the word play and its concomitant import that no resting place existed apart from Noah and the ark. But if מְנוּחַ implies the idea of a place in which the dove could be at rest, could this have happened with land—albeit not to the dove’s liking—above the water?

Would looking at the second statement help sort out this quandary? We might think so, but it too has two possible interpretations: either the ‘surface of all the earth’ includes the mountains, meaning that no land at all was above the surface of the water at the time of the dove’s first flight; or it excludes the mountains, meaning that no relatively low-lying land was yet above water. Yet again, might not a different collocation, namely, עַל־כָּל־הָאָרֶץ ‘upon/over all the land/earth’, have unambiguously included the mountains?¹² It would seem that עַל־פְּנֵי כָל־הָאָרֶץ

‘upon/over the *surface/face* of all the land/earth,’ is a more restrictive description than עַל־כָּל־הָאָרֶץ ‘upon/over all the land/earth’ because of the addition of פְּנֵי ‘face/surface of’, which qualifies כָּל־הָאָרֶץ ‘all the land/earth’, seemingly to emphasize the *surface* of all the land/earth. It is clear then that at issue is the significance of פְּנֵי ‘the face/surface of.’

This leads us to ask four questions. First: does פְּנֵי denote a surface with some relief, but excluding mountain peaks; or does it denote the surface of the landscape,¹³ whatever that happens to be? In the analysis below, we will first argue for each occurrence of פְּנֵי that it is the latter. Then we will adduce any evidence to the contrary [such counterarguments and caveats will follow “//”]. The second question is: if עַל־פְּנֵי כָל־הָאָרֶץ essentially has the same meaning as עַל־כָּל־הָאָרֶץ, why is פְּנֵי added here? The third (a compound question): how do אָרֶץ and אֲדָמָה differ in meaning? And why is the former used here and not the latter? And fourth: regardless of whether land was exposed or not, what role could floating debris have played?

We start by looking at the usage of the full phrase, עַל־פְּנֵי כָל־הָאָרֶץ ‘upon the surface/face of all the land/earth,’ which occurs eleven times in the Old Testament; after which, we will examine the collocations involving עַל־פְּנֵי, quite reasonably confining ourselves to the Mosaic corpus (unless for the sake of clarification a wider usage must be considered).

2.1.1 The Collocation in Question:

עַל־פְּנֵי כָל־הָאָרֶץ

In the Pentateuch. The collocation occurs seven times. In Genesis: 1:29—Here in the Creation account the collocation is used in the context of seed-bearing plants growing in the upper layer of the ground, which is found all over the earth. Only on the highest *post-Flood* mountains are seed bearing plants not found. In 7:3—At this point in the Flood account it refers to the preservation of animals, who will inhabit all parts of the earth’s surface. This would seem to include even the high mountains. In 11:4, 8, 9—On these three occasions in the account of the Tower of Babel incident it refers to the scattering of man all over the earth’s surface. No place seems to be excluded // although one could question whether people live on high mountain peaks.

In Deuteronomy: the collocation is attested once, in 11:25—This refers to Yahweh placing terror

¹¹ The sex of the dove is decoupled from the grammatical gender. So, the fact that יוֹנָה ‘dove’ has feminine gender is not determinative. What is the fact that female doves find the location for a new nest, not the males. Hence, the translation “her.”

¹² This collocation occurs only 14 times and not within the Pentateuch. Another less ambiguous collocation we might think could have been used here, עַל כָּל הָאֲדָמָה ‘over/upon all the ground,’ is not attested in BH. The most common collocation in the Flood account is עַל הָאָרֶץ ‘over/upon the land/earth’, which occurs 25 times. On the other hand, עַל הָאֲדָמָה ‘over/upon the ground’ is attested only once in the account (Genesis 7:8).

¹³ Which is the geological understanding of ‘surface’ according to geologist Andrew Snelling.

and fear upon all the inhabitants of the land of Canaan, which Israel was about to conquer. This land has extraordinary topographical relief, which is enhanced because it is in such a relatively small area. In a straight-line west to east distance of eighty miles elevation goes from sea level at the Mediterranean to 2,800ft (855m) at Bethlehem to -1,300ft (400m) at the Dead Sea (which is 1,300ft (400m) deep at this point) to 3,000ft (915m) on the plains of Moab! Moreover, in the far north of the land is Mount Hermon, which is over 9,000ft (2,743.2m) in elevation. // Nevertheless, we must keep in mind that Moses spoke and then wrote these words when Israel was on the plains of Moab, about to cross into Canaan. Consequently, we *might* ask what the surface of this land would have looked like from this fairly lofty vantage point.

In the Former Prophets (Historical Books).

In 1 Samuel 30:16—The context here is the camp of the Amalekites who kidnapped David's family. These raiders were sprawled out all over the surface of the ground, satiated into a stupor from their celebration of taking so much booty. In 2 Samuel 18:8ff—this recounts how the battle between Absalom's forces and David's expanded into the thick forest that was near Jerusalem at that time.

In the Latter Prophets (Writing Prophets). In Zechariah 5:3—This refers to a curse that travels to all parts of the land/earth. No part seems to be excluded.

In the Writings. In Daniel 8:5ff—The context here is an apocalyptic vision of Alexander the Great gobbling up all the land of the Middle East. Persia was Greece's inveterate foe, relentless and cruel; and Alexander repaid them in kind. The goat's aerial locomotion in Daniel's vision singles out the quintessential characteristic of Alexander's tactics: his rapid advance of his troops. The terrain may be that of that immediately west of Susa over which the goat traveled to reach the river and the ram, or alternatively, Daniel is seeing the goat cross all of the Ancient Near East (probably including its rugged topography). // Which of these it is, is not evident in this passage.

2.1.2 The Related Collocations Involving עַל־פְּנֵי in the Pentateuch (Primarily)

The phrase עַל־פְּנֵי 'upon the surface/face of' occurs eight times in the Flood account (Genesis 6:1, 7; 7:3, 4, 18, 23; 8:8, 9 [the usage in question]) and is attested 61 other places in the Pentateuch. Outside of these it is found 138 times in the Hebrew Bible.

Prescinding from those texts where it describes borders, refers to actual faces, indicates horizontal proximity, or is part of an expression which denotes hostility, the following eleven collocations are attested in the Pentateuch:

עַל־פְּנֵי הָאֲדָמָה 'upon the surface of the ground'.

The first occurrence is in Genesis 4:14. Since Cain was a farmer, Yahweh's curse upon him because he murdered his brother, that the ground upon which he depended for his livelihood and sustenance would not give its strength to him, effectively drove him off the *surface* of the ground. The collocation also alludes to the creation of Adam. Similarly, in 6:1 the multiplication of man was according to the Divine mandate given at his creation (1:28) Thus, the pronouncement of destruction in 6:7 and 7:4, which is removal from off the surface of the ground, and the realization of the same in 7:23 refer to the uncreation of man. The usage with respect to judgment is similar in Exodus 32:12 and Deuteronomy 6:15. Noah's desire to ascertain whether or not the water was receding from off the ground motivated him to send out the dove (Genesis 8:8). An entirely different context is found in Exodus 33:16; Deuteronomy 7:6; 14:11, which is the uniqueness of Israel vis-à-vis the other nations 'on the surface of the ground': they were created by God. Likewise, the uniqueness of Moses compared to any other man God created 'on the surface of the ground' is asserted in Numbers 12:3. None of these passages suggest limitations on the concept of 'surface of the ground'. // But perhaps that is because they do not seem to define 'surface' at all. It seems to be a well-known construct—somewhat self-evident.

עַל־פְּנֵי הָאָרֶץ 'upon the surface of the land/earth'.

Occurring in only one place, Numbers 11:31, this collocation is used to describe the depth of the quail swarm Yahweh caused the wind to drive to feed His people. It is not clear why אָרֶץ is used rather than אֲדָמָה, since the latter term seems to be more suited to the context. I suspect that the former term is used, because אָרֶץ is a key word immediately preceding, during, and immediately after the Exodus. The plagues demonstrated that Yahweh—not the Egyptian gods—was in control of every aspect of the land of Egypt, its people and its king. The land's productivity was solely dependent on Israel's God, who could both deprive the Egyptians of their means of sustenance and superabundantly feed His people according to their want.

עַל־פְּנֵי סֹדֶם 'upon the surface of Sodom'. This and the next collocation describe in a foreboding way Yahweh and two of His angels looking down upon

Sodom and all the cities of the plain careening toward Divine destruction and Abraham looking down after the fact as the smoke ascended into the sky (Genesis 18:16; 19:28, respectively) just as Yahweh would do from atop the pillar of fire and cloud upon Pharaoh's chariotry who were bent on pursuing Israel into the Red Sea (Exodus 14:24). Since עַל־פְּנֵי can also indicate hostility, its usage here and in Exodus is highly apropos. As to limitations on 'surface', it can only be said that ancient cities frequently had towers (cf. Judges 8:9; 9:51–52; 2 Kings 9:17; 17:9; Proverbs 18:10; etc.). Sodom and the other cities of the plain were probably not an exception and thus their buildings would have been highly differentiated in height. // Although looking down on the city from a height and a distance would diminish the apparent relief, this effect may not be relevant.

עַל־כָּל־פְּנֵי אֶרֶץ הַכְּפָר 'upon all the surface of the land of the plain'. This collocation is found in Genesis 19:28. The argument is substantively the same as the one immediately above.

עַל־פְּנֵי הַמִּדְבָּר 'upon the surface of the wilderness'. The context of Exodus 16:14 is the giving of Manna. When the dew went up in the morning a small scaly substance that looked like frost was over all the surface of the Wilderness (of Sin), which is between Elim and Sinai. The area around Sinai has very rough topography. // But does this not entail that in some instances the people had to climb up cliffs and down into ravines to retrieve the Manna? And, was not the Manna visible from the encampment?

עַל־פְּנֵי הַשָּׂדֶה 'upon the surface of the field'. It turns out that in most cases this is likely an idiom, meaning 'out in the open' or 'in open country', such as in Leviticus 14:7; 17:5; Numbers 19:16; 2 Samuel 11:11; Ezekiel 29:5; 32:4; 33:27.¹⁴ In a few cases (1 Samuel 14:25; 2 Kings 9:37; Jeremiah 9:21; Ezekiel 39:5) it may be referring to someone or something lying on a field, but the idiomatic usage could also obtain in these passages. In its non-idiomatic usage, the constraint on the nature of the terrain seems to come from the word 'field', suggesting that 'upon the surface of' may be used with a word connoting rather level terrain. But by no means does this usage demand that this is the only topography indicated by 'on the surface of'.

עַל־פְּנֵי הַיְשִׁימֹן 'upon the surface of the wasteland'. This expression occurs twice: in Numbers 21:20; 23:28. The geographical area which was called 'the wasteland' has extreme topographic relief. West of the Dead Sea it is a geographical area which falls sharply from the Central Highlands of Cis-Jordan down to the Dead Sea, which is over 4,000ft (1,220m) lower. It is heavily eroded, cut with deeply incised canyons. East of the Dead Sea likewise the land plummets from the Trans-Jordanian Plateau (elevation 3,000ft [915m]) to the Dead Sea (elevation –1,300ft [400m]). This area may include the extensive and extremely deep Wadi Arnon. // But it should be noted that Balaam's perspective was looking out and down upon the wasteland.

עַל־פְּנֵי תְהוֹם 'upon the surface of the deep'. This is a reference to the primordial world ocean from the Creation account in Genesis 1:2. What would its surface have been like? Would it not have been essentially without topographic relief, even if there were a wind to produce waves (because of the ratio of the height of the waves vis-à-vis the extent of the sea)? During the Flood, the Lord did bring a wind to reduce the exceedingly great power of the water of the *Mabbûl* to just powerful (7:20; 8:1b). But we do not know about Creation.

עַל־פְּנֵי הַמַּיִם 'upon the surface of the water'. The same argument can be made for this collocation, which, as the one immediately above, is also found in the Creation account in Genesis 1:2, but possibly an additional element may be here: some would translate "the Spirit of God was hovering over the surface of the water" as "a mighty wind was swooping over the surface of the water." The rationale for this translation is that רוּחַ can be translated as 'Spirit', 'spirit', or 'wind'. In addition, אֱלֹהִים, which is usually 'God' or 'gods', infrequently can function adjectively in the sense of 'powerful (as God)' or 'mighty (as God)'. The result of the sum of these two is the not uncommon translation mentioned above. But is this correct? I do not think so. First, mighty winds (which could cause huge waves) do not 'hover' מְרַקֶּפֶת and second, despite its closer fit to the intertextual allusion in Genesis 8:1 than the conventional translation "the Spirit of God . . .," it smacks of an effort at a secularization of the text—a Bultmannian-like de-supernaturalizing of the text,¹⁵ which is utterly foreign to the patently supernatural character of the Creation account.

¹⁴ This is very similar to the usage of the collocation differing only in the preceding preposition, with בְּ instead of עַל־פְּנֵי. The contrast between בְּעִיר 'in a city' and בְּשָׂדֶה 'out in the open country' determined whether a betrothed woman was considered culpable if a man had sexual intercourse with her. In the former case (Deuteronomy 22:23–24) she would be stoned along with the man, because it is assumed that since no one *in the city* heard her cry out that she was being raped, she must not have cried out, for if she had, it would have been heard *in the city*. It was concluded therefore that she had consented to this act and hence was guilty of a capital crime. On the other hand, if this crime occurred 'out in the open country', even if she had cried out, it would not have been heard. And therefore, she was not considered guilty (Deuteronomy 22:25–26).

¹⁵ Bultmann called this expurgation of a text *demythologization*; but, using his expression seems to accede to his premise that the supernatural is mere myth and therefore inadmissible to the canons of biblical criticism; consequently, I prefer the neologism "de-supernaturalizing" instead to refer to the practice.

עַל־פְּנֵי הַשָּׁמַיִם ‘upon the surface of the expanse of the sky’. This is an intriguing usage of **עַל־פְּנֵי** from the Creation account in Genesis 1:20—speaking of birds flying upon or above a surface which is above our heads and higher than theirs!—describing their position as above, rather than what we might expect, below, this surface. Yet when seen from the phenomenological perspective of Genesis 1–11, it accurately describes the unique appearance of the flight of birds: imagining that we are looking down at the blue, water-like-in-appearance expanse of the sky, they appear to be flying upon or above it rather than flying within it, which is altogether different from the appearance of the sun, moon, and stars, which appear to be imbedded in the expanse.

עַל־פְּנֵי הַכַּפְּרֶת ‘upon the surface of the remission-cover’. In some ways, this is the most equivocal of all the collocations with respect to answering the first question posed above in this subsection, because the “remission-cover” seems to comprise two parts, but in other places they are united. The parade example of this is in its first usage, in which the *kapporet* proper (Exodus 25:17) and the gold cherubim (25:18) are considered to be separate things; whereas, in the very next verse (verse 19) they seem to be one piece, with the cherubim statuettes as part of the *kapporet*. This understanding stems from one prepositional phrase in this verse, **מִן־הַכַּפְּרֶת** which in this context means ‘part of the *kapporet*’. The significance of this is that the cherubim sculpture was a far cry from the flat profile of the “remission-cover” proper. Other passages which seem to differentiate the *kapporet* from the cherubim are Exodus 25:20, 22; 37:7, 9; Leviticus 16:2; and Numbers 7:89. On the other hand, the following passages suggest that ‘*kapporet*’ incorporates the cherubim-figures: Exodus 25:21; 35:12; 37:8; 39:35; and possibly Leviticus 16:13. A third category obtains in those passages in which the cherubim are not mentioned but the *kapporet* is, such as Exodus 25:21; 26:34; 30:6; 31:7; 40:20; and possibly Leviticus 16:13.¹⁶ What can we deduce from the usage of this collocation? It is a negative conclusion: // neither flatness nor dramatic relief can be precluded.

2.1.3 Medial Conclusion

In the words of the Preacher from Ecclesiastes 12:13a, we ask, **סוֹף דְּבַר הַכֹּל בְּשִׁמְעוֹ** “(What is) the end of the matter? Everything has been heard.” Again, it is somewhat negative and tentative: the counterarguments are not sufficiently weighty to

convincingly overturn the idea that **פְּנֵי** ‘surface’ includes high relief surfaces in addition to low relief surfaces; hence, ‘surface’ seems to comport with the geological concept of a surface, which admits all types of terrain. However, although the usage supports the geological concept of a surface, making it the more probable of the two, the idea that **פְּנֵי** ‘surface’ is limited to low relief surfaces is not definitively foreclosed either. Consequently, we should allow for the possibility that the peaks had emerged already, but the dove did not want to land on them or they were out of her several hundred-mile range.

Furthermore, Moses never employs what would seem to be the less ambiguous collocation, **עַל־כָּל־הָאָרֶץ** ‘over all the land/earth’ (admittedly, an argument from silence), but seems to prefer **עַל־פְּנֵי כָּל־הָאָרֶץ** instead, with no apparent difference in meaning from the former.

This naturally leads us to the second question which was asked in the beginning of this subsection, why is ‘surface’ added to ‘upon/over all the land/earth’ here? Of course, this could be merely an example of grammaticalization of **פְּנֵי**, in which the lexeme has been hollowed out so that it has no meaning aside from being part of a fixed phrase denoting ‘over’ or ‘upon’.¹⁷ But in this theologically-charged account, I suspect its inclusion is more significant than just that. I surmise that this is alluding to the condition of the earth mentioned in Genesis 1:2, where **פְּנֵי** is found twice, and the condition of the earth mentioned in 1:9, which the transgression of the waters of the *Mabbûl* undid (7:19b–20) and their regression restored (8:5b).

Now on to the third question which was asked. We could argue that **מַעַל הָאָרֶץ** and **פְּנֵי הָאֲדָמָה** are basically interchangeable, because **קָלוּ הַמַּיִם מֵעַל הָאָרֶץ** “the water was diminishing from off the earth/land” of Genesis 8:11 seems to correspond to **נִקְלְוּ הַמַּיִם מֵעַל פְּנֵי הָאֲדָמָה** “was the water diminishing from off the surface of the ground?” of verse 8. But we could counter this: that what Noah learned about the status of the water from the dove’s second flight was not necessarily the same as what he wanted to know—and maybe even that that flight did not furnish enough information. In fact, it could be that this was why he sent the dove out a third time. To follow this line of reasoning a bit further we must look at the narrator’s description of the status of the water during the first flight **מַיִם עַל־פְּנֵי כָּל־הָאָרֶץ** “water was on/above the surface of all the land /earth,” which seems to connote the global geographical extent of

¹⁶ Perhaps, technically, we ought to create a fourth category to account for 1 Chronicles 28:11, in which the *kapporet* is mentioned, but the Ark itself is not! It appears in a list of various chambers for which David provided plans for Solomon “the house of the *kapporet*.”

¹⁷ According to Matthews (2014, 164–165), ‘grammaticalization’ has two meanings. Our concern is the second one he defines and illustrates, which is under the rubric of internal diachronic linguistic change.

the water coverage. And seven days later the dove's second flight showed that there was a gap or limit to this coverage. But this is not what Noah wanted to know. He wanted to know about the status of the ground, apart from its geographical location: was water running off of it yet? Perhaps then we should not assume synonymy here: אֶרֶץ 'ground' and אֲרָץ 'land' or 'earth' could refer to distinguishable physical realities.

Finally, as for the fourth question, we must consider the possibility that even if no land was exposed (if that is what these texts imply), there was flotsam of various sorts (floating log mats, remnants of floating forests, etc.) upon which the dove could have landed if they were within its flight range; but, would it have chosen to do so? We can only go by the behavior of doves today.¹⁸ Although doves in Israel commonly nest in the rocks, as Jeremiah 48:28b attests וְהָיוּ כִּיּוֹנָה תִּקְנֶן בְּעֵבְרֵי פִי־פִתְחָה, “be like a dove, which makes a nest on the sides of the mouth of a chasm,” and therefore the dove Noah sent out likely could and would have chosen a newly emerged rocky crag for a nest, it is doubtful that the dove would choose flotsam for this, because about the only kind of terrain doves will not nest in is wetlands. In fact, Noah, most likely, was aware of this behavior, and accordingly chose the dove for his fact-finding mission.

To conclude our discussion of this first condition, we state the obvious, that the plain sense of the text is that the dove did not land on its first flight, in that there was no place for it to land, because the mountain peaks had not yet emerged. In addition, the first flight did not give Noah the information about the status of the water he was seeking. If it had, he would have had no reason to send the dove out again. Nor did Noah know about the status of the water about which we are told. But since we are told, we presumably are meant to infer what the earth conditions were at that point. To be sure Noah sedulously pursued this information, sending out the dove in the first place and moreover, very likely making use of the opportunity to inspect it carefully during the retrieval process, which is described in great detail. In fact, other than revealing Noah's character, is it not reasonable that such an intense focus on this relatively simple action is also meant for us to conclude that indeed there was purposeful scrutiny? And yet, he still found nothing. What would he have been looking for but did not discover, in spite of his diligence? Is there a clue for us in his

disappointment? Is it so obvious that we *should* not need to be told or so unimportant that we *do* not need to be told? Could it be mud or—even better—dirt? Was that what he was looking for? Mud or dirt on the feet of the dove?¹⁹ Evidence of earth above water? Intriguing questions, but we must move on to the dove's second flight.

2.2 The Condition at the Second Flight (C2)

This refers to the earth condition implied by the dove being able to obtain a fresh olive leaf and Noah thereby concluding that there was a change in the status of the water. One possibility is that this means that the dove encountered subaerial land on its second flight (which occurred at t_{DF2}), upon which an olive seed had germinated and produced a leaf. This was fourteen days after Noah opened the window (t_{Now}), which formally expressed is

$$t_{DF2} = t_{Now} + 14 \quad (9)$$

Moreover, according to the fact that there was subaerial land after the mountain tops appeared (TCD) and including the time needed for the olive seed to germinate after it was no longer submerged (referred to as Δt_{gos} in the equations), the dove's second flight could not have been earlier than 220 days after the onset of the *Mabbûl* plus the time needed for germination—formally,

$$t_{DF2} \geq 220 + \Delta t_{gos} \quad (10)$$

Substituting the right side of (9)—the time Noah opened the window plus 14 days—in (10) and solving for t_{Now} we get the following inequality:

$$t_{Now} \geq 206 + \Delta t_{gos} \quad (11)$$

A second possibility is that the olive leaf was produced by a floating cutting or a seedling (or cutting) on some debris, perhaps a floating log mat. But I believe the text makes this an untenable scenario for two reasons. First, in that we are told that Noah sent out the dove לְרִאוֹת תְּקַלּוּ הַמַּיִם מֵעַל פְּנֵי הָאָדָמָה in order to ascertain the status of the water: was it receding (the root קלל is in bold, literally, ‘getting lighter’, possibly rapidly receding?) from off of the surface of the ground? (8:8) and that by the dove bringing the leaf to him, וַיָּבֵר נֹחַ כִּי־תִקְלֶה הַמַּיִם מֵעַל הָאָרֶץ, (10) Noah knew that this was the case (קלל [in bold] is used again to make the connection as strong as

¹⁸ BH has two words translatable as “dove,” which refer to different kinds of doves: תוֹר ‘turtle dove’ and יוֹנָה ‘pigeon’ or ‘rock dove’. The fact that they are separate species is supported by the legislation on acceptable sacrifices in Leviticus 1:14; 5:7, 11; 12:6, 8; 14:22, 30; 15:14, 29 and Numbers 6:10, in that two of either species could be offered. But only the latter species is referred to in the Flood account.

¹⁹ Sarna (1989, 57) suggests “clay.”

possible),²⁰ we are prompted to ask: would a leaf taken from floating debris or a log mat have provided such information to Noah? The answer is: no. Would he then have thought that it did—which the text clearly states he did—if it did not? The answer again must be no—unless we are prepared to say that Noah was mistaken (?) and yet Moses felt it incumbent upon himself to inform us of Noah’s incorrect conclusion. But this is contrary to Moses’ portrayal of him. Second, it goes against the purposeful flow of the text as constructed by the narrator. Moses has deliberately recounted the dove’s flights to maximize the fact that they represent a progression, while also conveying their commonalities. The general progression is quite evident in the lengths of the account of each flight as they get progressively shorter; but, we can note the following explicit changes from flight to flight, organized under seven rubrics as follows:

waiting

First flight of dove: no mention

Second flight of dove: explicit mention, using the root *הוּל* in the *Hiphil* stem, instead of the usual *יָהַל*

Third flight of dove: explicit mention, but employing the usual root *יָהַל* in the *Niphal* stem

sending

First flight of dove: מֵאֵתוֹ “from him”

Second flight of dove: מִן־הַתֵּבָה “from the ark”

Third flight of dove: nothing

raison d’être

First flight of dove: stated (in contrast with no purpose being given for him sending out the raven); the purpose is introduced by *כִּי* *רָאָה*; question about the status of the water [see “information?” below]

Second flight of dove: not stated, but presumably the same purpose

Third flight of dove: not stated, same purpose?

landing?

First flight of dove: explicit statement of non-landing (two clauses describing this, from two different perspectives)

Second flight of dove: yes (implied by olive leaf); but no explicit statement about the landing

Third flight of dove: yes (implied by the dove’s non-return)

return

First flight of dove: uses *שׁוּב*; “dove” is non-lexicalized topic/subject; elaborate description of the return; time of return is not specified

Second flight of dove: uses *בּוֹא* in the *Qal* stem; “dove” is a redundantly lexicalized topic/subject; the return is described in two short clauses; time of the return is specified

Third flight of dove: no return; in “did not return again,” *יָסַף* “again” is very atypically in the *Qal* stem—it is almost always in the *Hiphil*, as in 8:10b

Noah to dove

First flight of dove: Noah brought her in (*בּוֹא* in the *Hiphil* stem is the last of three verbs used to describe the retrieval); Noah is non-lexicalized topic/subject; the phrase, *אֶלְיָו אֶל־הַתֵּבָה* “to him and to the ark,” occurs twice

Second flight of dove: no mention of Noah bringing the dove in; only *אֶלְיָו* “to him” occurs and only once

Third flight of dove: nothing

information?

First flight of dove: none; the elaborate retrieval described—in part—could have been Noah’s effort to gain information

Second flight of dove: significant information; “Noah knew” has redundant relexicalization of “Noah”; *יָדַע כִּי* instead of *רָאָה* of verse 8; status of water described as *מַעַל הַמַּיִם הָאֲרָצִי* instead of *הַמַּיִם מַעַל פְּנֵי הָאֲרָצָה* of verse 9. The information, however, may not have been adequate. Hence, the third flight.

Third flight of dove: most significant information, because there were no further sendings (recorded); the dove must have found a place to nest, because it did not return; thus, indicating that there was exposed land—but nothing is explicitly stated.

In short, putting floating log mats or debris into the picture requires a counter reading of the character of Noah and makes Moses’ efforts to convey a coherent cogent narrative futile.

At the time of the dove’s first flight (t_{DF1}) arguably [see other possibilities below] there was no subaerial land on the earth (the earth-condition at the first flight implied by its description we call C1); seven days later, the description of its second flight (which occurred at t_{DF2}) seems to indicate that by then land had appeared, because there had been a botanical development, the germination of an olive seed (the time needed for this we call Δt_{gos} and the condition C2). Notwithstanding, the germination factor introduces some inexactitude into the picture and it is likely that in this flight Noah still did not obtain the information he was seeking from the bird’s flight, because after all he did send out the dove again. Consequently, we will look at the dove’s third flight seven days later (t_{DF3}).

²⁰ “To see was the water getting lighter/rapidly receding from off of the surface of the ground?” cf. “then Noah knew that the water was getting lighter/rapidly receding from off of the earth/land.”

3. the day the ark came to rest (8:4). We are told this exact date as well, that it was on 600/7/17. Based upon a lunar calendar this would be approximately 148 days after the onset of the *Mabbûl*. Thus,

$$t_{-40} \approx 148 \text{ DfMO} \quad (25)$$

4. the day the mountain peaks appeared (8:5), which the text tells us was on 600/10/1. Thus, $t_{-40} = t_{\text{pks}}$, which was approximately 220 days after the onset of the *Mabbûl* for a lunar calendar—formally,

$$t_{-40} \approx 220 \text{ DfMO} \quad (26)$$

5. the end of the 150 days of powerful water (7:24). (We date this from the first time the water was described as powerful (7:18), not from the time afterwards when its power diminished from being extremely (7:19a) powerful (7:19a) to being merely powerful (7:20), because when it was extremely powerful, it was powerful as well.) Let us call the instant the water became powerful T_p . One hundred fifty days after this would have been $T_p + 150$. Thus, for this possibility

$$t_{-40} = T_p + 150 \quad (27)$$

3.2 Two Tests

Before we subject the candidates to the constraints put on them by the flights of the dove, we want to reflect on the nature of the reference point in view and how each of them fares in its light. For it to be a specific point from which Noah could count, almost certainly, it had to be a moment of perceptible change which was accessible to him. The beginning and end of the *Mabbûl* would satisfy this criterion—as would have been the case when the ark came to rest and at the quieting of the waters. Each of these involved perceptible change accessible to his senses: the entry into the ark, the beginning of the downpour, the shutting of the door; the end of the rain (presumably heard within, as the din of rain ended); the resting of the ark (probably felt, as the movements of the ark suddenly stopped); the quieting of the water (likely perceived as the cessation of the battering of the waves against the side of the ark), respectively. But what of the emerging peaks? How would Noah have known about them? He must have seen them or was told by God about them. We will consider both of these. But first we will find out which of the five possibilities pass an inequality test imposed by the flights of the dove.

The five candidates yield the following values for the time of the dove's first flight (t_{DF1}) according to (2) and (7), repeated here for convenience

$$t_{\text{Now}} = t_{-40} + 40 \quad (28)$$

$$t_{\text{DF1}} = t_{\text{Now}} + 7 \quad (29)$$

1. $t_{\text{DF1}} = 47$
2. $t_{\text{DF1}} = 87$
3. $t_{\text{DF1}} = 195$
4. $t_{\text{DF1}} = 267$
5. $t_{\text{DF1}} = T_p + 150 + 47 = T_p + 197$

3.3 A Bit of Weeding

Although the first three candidates meet the standard for a reference point, the constraints on the time of the dove's first flight in (22), eliminate them from contention, in that they do not fall in the interval bounded by 206 days after the onset of the *Mabbûl* (206 DfMO) and 220 days plus the number of days since the mountain tops appeared until the dove nested (220 DfMO + Δt_{nest}). On the other hand, if the time of the dove's first flight is at 267 days or later ($t_{\text{DF1}} = 267$) it would fall in the interval if the time from the emergence of the mountains to the time of the nesting (Δt_{nest}) is greater than or equal to 47 days. Similarly, if limitations are put on the time the water became powerful (T_p), it also could pass the test. So, now we will look carefully at these last two candidates.

3.4 The Remaining Contenders

3.4.1 A Closer Look at the Emergence of the Mountains

Could Noah have known about the appearing of the mountain tops? The answer is yes, but with one of the two obvious following caveats: either he had to first open a window and then see the protruding peaks or YHWH had to tell him about them.

Opening a Window. The text records such an opening in 8:6, but this presents a challenge to the idea that the emergence of the mountains triggered Noah's opening of the window forty days later at

$$t_{\text{Now}} = 220 + 40 = 260 \quad (30)$$

in that the opening of the window permitted the mountain tops to be seen and thus perforce preceded their being seen; that is,

$$t_{\text{Now}} < 220 \quad (31)$$

But if the emergence of the mountains was the trigger, then it must have preceded the opening of the window. The ensuing contradiction is obvious, but it can be easily proved mathematically. If

$$t_{\text{Now}} \geq 220 \text{ and } t_{\text{Now}} \leq 220 \quad (32)$$

then

$$t_{\text{Now}} = 220 \quad (33)$$

But above, equation (30), we said it was 260. Hence, a contradiction.

An apparent solution is to posit an earlier opening of the window, different from the one recounted in the text, which allowed the peaks to be seen, but which was not recorded. Moreover, 8:6 entails that the window was shut before Noah opened it. And so, if he did open the window earlier, he had to shut it afterwards. But such a series of scenarios is at variance with the narrator's practice to record only the most significant events and even multiple times.

It is well known that the biblical narrator is characteristically rather taciturn and that no unnecessary details clutter his account. Only that which advances his story, provides insight into character, or drives home his theology is included. Few places evidence this more clearly than here in the Flood account, where its sparseness highlights only the most important events and characteristics. Even about those things we might consider important, such as the location of the compartments of humans vis-à-vis animals, the storage and dispensing of food and water, sanitary arrangements, etc., which have prompted seemingly endless speculation and debate, there is silence. Decades and even centuries go by in the period recorded in Genesis 1–11 about which nothing is said. Why? Because as far as the narrator is concerned nothing happened of theological significance. That is the principle of selection.

In the Flood account the closing of the door of the ark shuts off our access to all the interactions which occurred therein. But the narrator can go behind the door, taking us with him—he frequently does—but not this time. And stunningly the Lord is silent as well. What happened *within* the ark is not important to the narrator's purposes. Only what happened *to* the ark is significant to him and thus worth his mention.

Details are supplied therefore about the progress of the Flood: how long the *Mabbûl* lasted and the exact date it started, how the water increased in volume and power, the effect on the ark; and twice the covering of the mountains. Four times we are told about the destruction of all air-breathing life outside the ark. In contrast, we learn that those within were spared. We are informed how long the water was powerful. Then the narrator takes us back to the

Lord's interaction with Noah and his fellow passengers. The mention of the Lord causing a wind to pass over the water is an unmistakable allusion to the Spirit (the same word רוח as wind) hovering over the water at Creation (Genesis 1:2). The wind began to quiet the water (8:1bb). The water sources closed up and the water began its steady but slow regression. This is described in several sentences in which exact lengths of time are given. The exact date is given for the ark's coming to rest and even the location where that happened. More information about the regression follows. Then the appearing of the mountain tops, an echo of the appearing of the dry land at the Creation (1:9) and the reversal of their earlier submergence (7:19b–20), is highlighted with an exact date. Then the narrator turns us to look at Noah's character by focusing on four days spaced seven days apart out of a year of days on which he otherwise has nothing to say. Noah says nothing either—even during the four days—but courtesy of the narrator we are privy to his thoughts, but not on the first of these days. For reasons known solely to the narrator, that information is withheld.²² How different is the treatment of the dove's first flight. We are told of Noah's purposes for dispatching her. We are given the reasons the dove returned, both from her subjective perspective and also from an objective point of view. Twice "to him" and "to the ark" occur. And the narrator gives us a close-up of Noah taking the dove back into the ark, using three verbal phrases; whereas, in other places in the account of the Flood year not a single word is spent. On the dove's second flight we know what Noah knew, but of the happenings after the third flight until Noah removed the cover of the ark, perhaps months later, we know nothing. And from that latter moment until the Flood was over it is the same.

Why such disparate treatment? Theology drives selection. Only the dramatic, the crucial, the significant is recorded.

So, what of the opening of the window? The *first* opening would have been the event recorded, not a later opening. We have in 8:6 then just that: the momentous first opening of the window after months of being shut up inside the ark.

There is another problem with an 'earlier-opening' hypothesis: what prompted Noah to do such a thing? He certainly would not have done so until after the ark came to rest and the water quieted. Then he opened the window and it just so happened that he saw the peaks, but none of these things were recorded?

²² Both MT and Samaritan Pentateuch. The LXX, not surprisingly, supplies the reason—the same as is given for the dove—consistent with its proclivity to address apparent asymmetries.

YHWH told Noah. Or did the Lord tell Noah that the mountains had emerged,²³ but this is not recorded? Why then would Noah, being a righteous man, have felt compelled to confirm this for himself?

Also, would not the moment God *first* broke His silence have certainly been recorded (which is consonant with the narrator’s practice)? But no such words are recorded here. What *is* recorded is God’s command to Noah at the *end* of the Flood: “Exit from the ark, you, and your wife, and your sons, and the wives of your sons with you...” (8:16ff). *This* is the moment God first broke His silence, not at the time of a putative earlier unrecorded announcement.

In addition, the account in 8:6–12 strongly intimates that Noah was ignorant of the geophysical conditions outside the ark. If he had already seen the mountain peaks and counted forty days from the time of their first appearance, would he have had to resort to sending out birds to discover the status of the water when he could have seen the dropping of the water level on the mountains outside his window? All points to quite the contrary: he did not see the mountain tops. Nor did the Lord tell him about them. Nevertheless, Moses did tell us.

The end of the matter is that the emergence of the mountain tops could not have been the reference point from which Noah counted forty days. It was in fact inaccessible to him at that time and therefore not a perceptible change to him. Notwithstanding, it was a dramatic geological event which figures prominently in our understanding of the significance of each of the bird flights.

This leaves us only possibility 5 to consider²⁴ and to this task we turn.

3.4.2 The One “Man” Standing: When the Water became Powerful

Since we have already argued that the instant the water could no longer be described as powerful would have been an accessible perceptible change to Noah, we need only subject this possibility to (22) [repeated here as (34) for convenience].

$$206 < t_{DF1} < 220 + \Delta t_{\text{nest}} \quad (34)$$

where, again, t_{DF1} refers to the time of the dove’s first flight and Δt_{nest} the time from the appearance of the mountain peaks until the dove nested.

Since (from above) the time for the dove’s first flight in terms of when the water became powerful is

$$t_{DF1} = T_p + 150 + 47 = T_p + 197 \quad (35)$$

for this scenario to be tenable, the time of the dove’s first flight, which equals the time the water became powerful and a further 197 days, must fall in the interval bounded by 206 days after the onset of the *Mabbûl* and 220 days after the onset of the *Mabbûl*, plus the number of days after the mountain tops appeared that the dove nested, formally,

$$206 < T_p + 197 < 220 + \Delta t_{\text{nest}} \quad (36)$$

Subtracting 197 from all three members of (36) we get

$$9 < T_p < 23 + \Delta t_{\text{nest}} \quad (37)$$

That is, to satisfy the conditions of the third flight, the water could not have become powerful before the ninth day of the *Mabbûl*.

This puts lower and upper bounds on the time when the water became powerful, because although the time from the emergence of the mountains to when the dove nested is theoretically open-ended, the time the water became powerful is not. The text notes that the water was powerful at the peak of the Flood, when all the highest mountains were inundated by many feet of water (7:19b–20). This would have been at or near the end of the 40-day *Mabbûl*, because after this the water sources stopped up and the regression of the water began (8:2). Moreover, also the blowing of the wind reduced the power of the water sometime before this according to 8:1. The upshot of all these observations is the somewhat obvious conclusion that the water must have become powerful during the 40-day *Mabbûl*; that is, T_p could not have exceeded 40 days (and was likely much earlier). This means that the right-hand side of (37) cannot exceed 40 and consequently

$$9 < T_p < 40 \quad (38)$$

The repercussions for our calculations are that the right-hand sides of (36) and (37) are not floating values, dependent on Δt_{nest} , but fixed; thus, effectively capping Δt_{nest} at seventeen days.

But the conditions described or alluded to in the dove’s first two flights allow us to narrow this interval even more.

4. Refining the Analysis?

Let us suppose for sake of argument—and we have shown that the following is quite plausible—that the earth conditions described in the account of the

²³ As the Renaissance commentator Tostado (1507) avers.

²⁴ Alternative possibilities, such as Noah (or his sons) seeing the mountains through something like air vents right under the roof of the ark, are quite unlikely (what would be the motivation for doing this? was it a daily drill? how would the vents be situated such that Noah could see out them but rain not enter?); further even more implausible scenarios can be envisaged.

dove's first flight implies that no solid land (flotsam is not under consideration) was exposed by the time of this flight; that is,

$$t_{DF1} < 220 \quad (39)$$

According to this assumption

$$\Delta t_{\text{nest}} = 0 \quad (40)$$

This allows us to transform (22) into

$$206 < t_{DF1} < 220 \quad (41)$$

(36) into

$$206 < T_p + 197 < 220 \quad (42)$$

and (37) into

$$9 < T_p < 23 \quad (43)$$

That is, the time when the water became powerful must have been before 23 days after the *Mabbûl*'s onset to satisfy the conditions of the dove's first flight.

Now let us further refine our analysis by bringing the second flight into the picture. Proceeding from the assumption that the olive seeds germinated as soon as the peaks emerged Δt_{gos} days later (and this is also a quite plausible assumption), we can write this as follows:

$$220 + \Delta t_{\text{gos}} < t_{DF2} \quad (44)$$

Recalling that

$$t_{DF2} = t_{DF1} + 7 \quad (45)$$

we can replace the right-hand side of (44) with the right-hand side of (45), which yields

$$220 + \Delta t_{\text{gos}} < t_{DF1} + 7 \quad (46)$$

Solving for t_{DF1} yields

$$213 + \Delta t_{\text{gos}} < t_{DF1} \quad (47)$$

Thus, the left-hand side of inequality (41) is modified with the following result:

$$213 + \Delta t_{\text{gos}} < t_{DF1} < 220 \quad (48)$$

And the left-hand side of (42) becomes

$$213 + \Delta t_{\text{gos}} < T_p + 197 \quad (49)$$

And thus (43) becomes

$$16 + \Delta t_{\text{gos}} < T_p < 23 \quad (50)$$

Consequently, to satisfy the conditions of the dove's second flight, the time the water became powerful had to be later than 16 days after the onset of the *Mabbûl* plus the time needed for the olive seed to germinate. A bonus from this is that it puts a cap of seven days on the time that elapsed between when the mountain tops appeared and the olive seed germinated, for the inequality to remain valid—formally,

$$\Delta t_{\text{gos}} < 7 \quad (51)$$

To summarize: the peaks would have been below water at the time of the dove's first flight (satisfying the first flight conditions) and above water at the time of the dove's second flight (satisfying the second flight conditions), if the time the water became powerful fell in the interval between 16 days after the *Mabbûl* began plus the time for the olive seed to germinate and 23 days after the *Mabbûl* began, formally,

$$16 \text{ DfMO} + \Delta t_{\text{gos}} < T_p < 23 \text{ DfMO} \quad (52)$$

But the peaks would have been above water at the time of the dove's first flight, which violates the first flight conditions, if the water were to have become powerful later than 23 days into the *Mabbûl*, formally,

$$T_p < 23 \text{ DfMO} \quad (53)$$

Finally, we give a parting consideration of the most popular view, that the forty days is to be measured from the day the mountain tops appeared (Genesis 8:5), which was on or about the 220th day of the Flood. Although this scenario is in keeping with what the description in the text seems to indicate about the dove's second flight, that there was subaerial land then, nevertheless, concomitantly, it violates the conditions of the dove's first flight seven days previous, when, as the text seems to indicate, that there was no subaerial land. Couched schematically, because this scenario requires that

$$t_{DF1} \geq 220 + 40 + 7 = 267 \quad (54)$$

and since

$$t_{\text{Now}} = t_{DF1} - 7 \quad (55)$$

the time Noah opened the window would have had to have been no earlier than 260 days after the Flood began. But this violates inequality (31), which

is based on the description of the earth conditions which obtained during the first flight.²⁵

These results tell us something about the text at this point as well: since the earth conditions described in the dove's first flight in 8:9 require that the time of that flight must have been prior to the reemergence of the mountains described in 8:5b, this portion of the Flood account is not iconic.

5. Summary Calculations

We can gather all of the calculated ranges for the three dove-flight times (t_{DF1} , t_{DF2} , t_{DF3} , respectively), the time Noah opened the window (t_{Now}), when the water became powerful (T_p), and when it quieted (T_{P+150}) into three different scenarios. For the sake of brevity, in the following summary C1, C2, and C3 are the earth conditions during the first, second, and third flights of the dove, respectively; TCC is the topographical change condition; BSC is the basic temporal sequence of the flights; and Δt_{nest} is the time from the emergence of the mountain peaks until the time the dove nested.

- I. Based on only C3 as well as TCC and BSC and recalling that $\Delta t_{nest} \leq 17$
 - A. $t_{DF1} \in [206, 237]$
 - B. $t_{DF2} \in [213, 244]$
 - C. $t_{DF3} \in [220, 251]$
 - D. $t_{Now} \in [199, 230]$
 - E. $T_p \in [9, 40]$
 - F. $T_{P+150} = t_{-40} \in [159, 190]$
- II. Based on C3 and C1 as well as TCC and BSC
 - A. $t_{DF1} \in [206, 220]$
 - B. $t_{DF2} \in [213, 227]$
 - C. $t_{DF3} \in [220, 234]$
 - D. $t_{Now} \in [199, 213]$
 - E. $T_p \in [9, 23]$
 - F. $T_{P+150} = t_{-40} \in [159, 173]$

III. Based on C3, C1, and C2 as well as TCC and BSC

- A. $t_{DF1} \in [213 + \Delta t_{gos}, 220]$
- B. $t_{DF2} \in [220 + \Delta t_{gos}, 227]$
- C. $t_{DF3} \in [227 + \Delta t_{gos}, 234]$
- D. $t_{Now} \in [206 + \Delta t_{gos}, 213]$
- E. $T_p \in [16 + \Delta t_{gos}, 23]$
- F. $T_{P+150} = t_{-40} \in [166 + \Delta t_{gos}, 173]$

To wrap up this section let us calculate for each scenario the possible interval lengths between the time the ark came to rest on 148 days after the Flood began and the time the water quieted, which we will call INT_{ar-wq} . To do so we subtract 148 from all three members of the equivalent inequalities for I. F., II. F., and III. F.

- For I. $INT_{ar-wq} \in [11, 42]$
- For II. $INT_{ar-wq} \in [11, 25]$
- For III. $INT_{ar-wq} \in [18 + \Delta t_{gos}, 25]$

Furthermore, let us define INT_{ar-Now} as the interval from the ark coming to rest to Noah's opening of the window, which for each scenario is INT_{ar-wq} for that scenario plus 40. Thus

- For I. $INT_{ar-Now} \in [51, 82]$
- For II. $INT_{ar-Now} \in [51, 65]$
- For III. $INT_{ar-Now} \in [58 + \Delta t_{gos}, 65]$

Finally, the time between the third flight of the dove and Noah's removing the cover of the ark at approximately 309 days after the beginning of the Flood for each scenario is of interest to us. We will call this interval INT_{DF3-rc} . The three ranges are easily computed by subtracting the value of the endpoints from 309.²⁶ Thus,

- For I. $INT_{DF3-rc} \in [58, 89]$
- For II. $INT_{DF3-rc} \in [75, 89]$
- For III. $INT_{DF3-rc} \in [75, 82 - \Delta t_{gos}]$

6. Events and their Times

In the table 1 italics marks the relevant events and their chronology, with adjusted times in bold. These times (t) are in DfMO.

Table 1. Relevant events during the Flood and their chronology.

Event (Reference)	Text Time	Adjusted Time	Traditional Time
Marine transgression began (the <i>Mabbûl</i>) (Genesis 7:11)	600/2/17	0	0
<i>Water became powerful (Genesis 7:18)</i>		<i>16 ≤ t < 23</i>	
Water became very very powerful (Genesis 7:19a)		<40	<40
Water returned to just powerful (Genesis 7:20)		<40	<40
Marine transgression ended (the <i>Mabbûl</i>) (Genesis 7:12, 17)		40	40
Ark came to rest (Genesis 8:4)	600/7/17	148	148
<i>Water ceased being powerful (Genesis 7:24)</i>		<i>166 ≤ t < 173</i>	<i>150 ≤ t < 190</i>
<i>Noah opened the window (Genesis 8:6)</i>		<i>206 ≤ t < 213</i>	<i>260</i>
<i>Release of the raven (Genesis 8:7)</i>		<i>206 ≤ t < 213</i>	<i>260</i>
<i>Dove's first flight (Genesis 8:8–9)</i>		<i>213 ≤ t < 220</i>	<i>267</i>
Emergence of mountain peaks (Genesis 8:5)	600/10/1	220	220
<i>Dove's second flight (Genesis 8:10b–11)</i>		<i>220 ≤ t < 227</i>	<i>274</i>
<i>Dove's third flight (Genesis 8:12)</i>		<i>227 ≤ t < 234</i>	<i>281</i>

²⁵ Because the proponents of this view clearly do not consider such a date for the dove's first flight to be a violation of the earth conditions described in 8:9, they must (consciously or not) understand "surface of all the land" to be different from and less extensive than all the land.

²⁶ In terms of the inequalities behind the intervals, this amounts to multiplying all members by -1 (hence, the " $-\Delta t_{gos}$ "), which reverses the inequalities (< becomes > and > becomes <), and then adding 309.

7. Discussion and Questions for further Study

7.1 Geological Implications

Some change in the nature of the Flood was the impetus for Noah to begin to count out 40 days, at the terminus of which he opened a window. What was this change? We have come to the rather remarkable conclusion that it was *not* when the ark came to rest after being afloat for five months. Although the verb ‘come to rest’ suggests that it was a gentle grounding, it was a grounding nevertheless and would have been very different from the incessant motion the ark (and its occupants) underwent on the surface of the water. Nor was it the spectacular emergence of the mountain peaks from beneath the watery depths. To the contrary, this study has ascertained rather that it was a change that took place 11 to 42 days later than the grounding of the ark and over a month earlier than the appearance of the mountain tops: it was a change in the force of the water at the cessation of the powerful water between the 159th day of the Flood and the 190th day in the least restrictive analysis and between the 166th and 173rd day in the analysis considering all conditions—however that would have been evident to him, in that before he opened the window he could not have seen what was happening outside the ark which was dramatic enough to cause him to begin his count. What caused this diminution in the force of the water? Moreover, what caused the water to become forceful in the first place? And then what caused it to become *extremely* forceful, apparently skipping *very* forceful on the way? Can we sensibly divide up the marine transgression phase of the Flood into parts delimited by the power of the water (which according to Genesis 7:24 was powerful for 150 days): the initial coming of the waters to the time when they are called powerful (Genesis 7:17b), powerful to when they are called very very powerful (7:18), and very very powerful to when they are called just powerful again (7:19)? Should we include the mentions of increasing volume in this picture? Or are they inexorably tied up with the changes in power in a mutual cause and effect relationship? What geological signature would each of these sub-phases possess? Could this be responsible for the Sloss (1963) mega-sequences?²⁷

7.2 Chronological Musings

And if either scenario II. or III. is accurate, Noah opened the window before the 213th day after the

beginning of the Flood, and he would have seen no land therefore for at least a week. But he would not have known this. From his perspective, he may have wondered if there was land beyond what he could see. Hence, he started sending out the birds. What did he hope to accomplish by doing this? Perhaps realizing that because all but they were marooned on an island of wood and that they were not confined to terrestrial locomotion, they could wing their way beyond where he could see or go and somehow convey information to him—although they could not speak—about the status of the water, about the presence of land. We are not told with respect to the raven. We are told, however, about the purpose of the dove’s flights, but in rather curious language: *הִקְלִי הַמַּיִם מֵעַל פְּנֵי הָאָרֶץ* “(to see) was the water [literally] *getting lighter* from off the surface of the ground?” (Genesis 8:8). What does this mean? Getting lighter?

We are told earlier in the text that after the water sources closed (8:3a), the waters began a steady retreat (8:3b) and were less at the end of 150 days. This moves us to ask: what 150 days? The same as referred to earlier in 7:24, the 150 days of powerful water, which as we have shown above began between the 16th and 23rd day of the Flood, or another 150 days, which commenced on the fortieth day of the cataclysm? Verses 7:24 and 8:3b describe disparate facets of the water: its power and its volume, respectively, which are the two characteristics emphasized in 7:17–20. The volume of the water is explicitly mentioned after 7:24; the power of the water is not mentioned after that point in the text—or is it? Could the verb, ‘getting lighter’ mean diminishing in power? What was Noah’s concern: the volume of the water or the power of the water? Can we discern this from his actions or lack thereof?

Recall that Noah wanted information which he thought the dove somehow could provide. Already at this point he had some information: that the power of the water had decreased and that either the water had diminished or the subaqueous land had risen underneath him so that the ark came to rest. Notice when he did not open the window. He did not open the window when the ark came to rest. And the reason for this may be that at that time there was no window to open.²⁸ He had to make one. Nor did he open the window when he could perceive that the power had diminished. He did not need the birds to tell him this. He could have felt the rocking and tossing stop. He could have heard the slap of the water on the side

²⁷ This refers to the large-scale lithostratigraphic sedimentary units deposited during the Flood, listed in the following from oldest (the lowermost unit) to the youngest (uppermost unit): Sauk, Tippecanoe, Kaskaskia, Absaroka, Zuñi, and Tejas first proposed by L. Sloss (1963). For further discussion see Snelling (2014a, 103, 105; 2014b, 150, 158, 183, 184).

²⁸ I am not persuaded by the arguments that *צַהֲרָה* in Genesis 6:17 refers to a window. Rather, I think it refers to the top deck or cover of the ark, which Noah subsequently removed on 309 DfMO according to Genesis 8:13. In addition to the etymological arguments based on this meaning in Akkadian, I find the specific directive to the ship-builder in the Nippur Flood Tablet “[with] a strong deck roof [it]” to be more than a bit compelling.

of the ark cease and then its pounding on the rocks below get progressively quieter. Yet, he waited at least fifty-one days (a week shy of two months) after the ark came to rest before he opened the window. Why? I suspect he wanted to make sure that the water did not dislodge the ark from its precarious position and set it afloat again.

When did he make the window? Most likely, when he wanted to see the world outside the ark, in that his other senses could not give the necessary information. He could have surmised that the water was decreasing, the ark had grounded. But it was not sufficient for their survival that they were grounded; the rest of the land must be exposed. The question he wanted answered: was there land besides their rocky perch?

When he opened the window, all he could see was water and at that time that is all there was. But unbeknownst to him that situation would radically change within a week or two. Even after he opened the window, which was after the ark came to rest, he did not have an answer. The raven did not give an answer either. And apparently the dove on its first flight came up empty from Noah's perspective, because he sent it out again a week later. Most likely, Noah carefully inspected the feet of the bird for evidence (wet clay or mud?) that there was land beyond his sight, hence his slow deliberate retrieval of the dove, which the text emphasizes (8:9b).²⁹ Noah had an answer and not a happy one: there was no land even within the considerable range of the dove's flight capabilities for one day. But he hoped that situation would change and so he sent out the bird again. This time the dove brought back evidence that "the water was getting lighter" (8:11b)—the evidence, a plucked fresh olive leaf. What could he learn from a fresh leaf? That there was other land; that the water level was continuing to go down. In other words, information about the level of the water. Could he learn anything about the power of the water? Maybe that it was not forceful enough even to tear away a delicate leaf. Why did Noah send out the dove a third time? What knowledge did he hope to gain by this that he had not already accrued from the second flight? The fact that he did not send out another dove for a fourth sortie may provide the answer. That the dove did not return to the safe haven of the ark, meant that it had found another safe haven more to its liking or else it would have returned again. Another safe haven, where it could establish its regular life again, presaging what would

happen with all the animals and more to the point for him and his family. The dove had found a place to begin its life again. Recreation. What need for a fourth flight? I am suggesting that Noah's purpose for the third flight was to see if the dove would do exactly what it did.

7.3 *Philological Reflections*

Since according to our analysis the 40 days mentioned in 8:6 did not follow the emergence of the mountain peaks recounted in 8:5b (nor did they follow the beginning or end of the *Mabbûl*, or the grounding of the ark); but rather, they followed the quieting of the water which had been powerful for 150 days. These findings controvert the usual understanding of the significance of the *wayyiqtol* (with which Genesis 8:6 begins)³⁰: that it marks temporal or logical sequence. If this were the case, the mountain tops would necessarily have had to emerge before Noah began his 40-day count. But we have shown that the descriptions of the dove's flights do not allow for this scenario. And since this didn't happen, the *wayyiqtol* is not marking sequence here either: there is a dischronologization between 8:5b and 8:6. In fact, it appears that the episode of the birds in 8:6–12 interrupts the report of the regression of the Flood, only for the latter to resume in 8:13–14 with *way^{hî}* "and it was."³¹ Also, the initial *way^{hî}* in 8:6 could indicate a break which allows for the dischronologization I am suggesting obtains here. And finally, the fact that these verses are bracketed by *way^{hî}* in an inclusio-like fashion seemingly sets them apart as a separate unit.

This state of affairs provokes a series of questions: what are the connections of Genesis 8:6–12 to 8:3–5 and 8:13–14? Why is this episode placed in the middle of a seemingly sequential recounting of the regression? And why this episode at all? I believe Moses inserted it here to recrudescence the themes of the Flood/water, Noah, the animals, etc. cycling through the earlier parallel panels (in particular Noah's care for the animals) and to highlight in the most compelling of ways the attributes of a man of whom it is said "with God he walked," but about the specifics of his character very little has been said until now: to display him as cautious, industrious, inquisitive, purposeful, judicious, sagacious, responsible, tender, gentle, kind, understanding, compassionate, tenacious, patient, and righteous; because prior to this portrayal, we have only seen two prominent traits of him displayed in the account, that he believed God's pronouncements

²⁹ This is a commonplace—and quite reasonable—rabbinic explanation for this emphasis.

³⁰ *Wayyiqtol* is the most common verb form in BH narrative and outlines the narrative flow, forming its "backbone."

³¹ According to Stephen Kaufman in a private conversation, resumption is one of the functions of *wayyiqtol*. And I would add it is even more so when it is *way^{hî}* functioning as a macrosyntactic marker, as in this case and in 8:6; *Way^{hî}* can be translated maximally as 'and it came to pass', minimally by ignoring its presence, and taking a middle ground (which I prefer and use here and in 8:6) 'and it was'.

would be actualized and that he obeyed God's directives. In addition, up to this point in the narrative we have only been afforded a glimpse in the most general of terms of Noah discharging his God-given duty with respect to the animals. Now we see specifics. To affect these and more Moses used 15 verbs in seven verses to describe Noah's actions and thoughts; whereas, earlier in the text, only five verbs in 39 verses are employed. The flight of the raven (within the birds' episode) is skillfully connected to the end of the Flood (outside of this pericope)—and incidentally to the Creation account in Genesis 1:9 as well—by using the same lexeme יָבֵשׁ 'be dry' in all three. It scarcely needs to be stated that the phrase "at the end of forty days" links the passage in question to an earlier place in the narrative and to an earlier time. And obviously, for Noah to discover the progression of the regression, of which we are informed by the account bracketing this scene, but of which Noah had been ignorant before his experimentation, inexorably ties the entire text together.

In addition to the specific features of the unit itself mentioned above, we may note the following. The unit is tightly structured by the five-fold use of שָׁלַח (*š l h*): twice in the *Piel* stem 'send out', followed by a *Qal* 'stretch out [a hand]', and then two more uses in the *Piel*. The description of Noah retrieving the dove comprises three verbs, which are sandwiched between two occurrences of אָלְיוּ אֶל־הַתְּבָרָה "to him to the ark," clearly focusing our attention on this action. Moreover, the opening grouping פָּנֵי הָאֲדָמָה מֵעַל פְּנֵי הָאֲדָמָה לְרֹאשׁ הַקְּלוּ הַמַּיִם מֵעַל פְּנֵי הָאֲדָמָה *l'rwṭ hqlw hmym m'l pny h'dmh* "to see was the water getting lighter from off the surface of the ground?" is reprised as וַיֵּדַע נֹחַ כִּי קָלוּ הַמַּיִם מֵעַל הָאָרֶץ *wyḏ' nḥ ky qlw hmym m'l h'rs* "then Noah knew that the water was getting lighter from off of the earth" at the end of this unit (with boldface highlighting the identical wording). Furthermore, the description of the first of the dove's flights, besides being the first, is the longest and the most detailed, furnished with both ontological and epistemological perspectives. And as discussed above Moses has artfully mirrored in the language itself the differences and progression of the flights.

Conclusions

Assuming that the *Mabbûl* lasted only 40 days and following a lunar calendar, we have concluded the following from this study:

1. At the time of the first flight of the dove, it is likely there was no subaerial land.
2. The first flight occurred no earlier than the 206th day after the onset of the *Mabbûl* and according to II. and III., earlier than the emergence of the mountains on 220 DfMO.³

3. At the time of the second flight of the dove, there was subaerial land.
4. Although the second flight could have occurred as early as 213 DfMO (scenario I.), which means that there would not have been subaerial land, it most likely occurred after the 220th day after the onset of the *Mabbûl* plus the time needed for the olive seed to germinate (scenario III.). Since according to (51) this germination period has an upper limit of seven days, the earliest the second flight could have happened was 227 DfMO.
5. According to scenario III., the mountain tops appeared between the first two flights of the dove.
6. Noah could not have opened the window before the 199th day after the onset of the *Mabbûl* and according to II. and III., it could not have been later than 213 DfMO. This means he could not have seen the mountain peaks emerge on 220 DfMO.
7. The reference point from which Noah counted could not have been earlier than 159 DfMO and according to II. and III., it could not have been later than 173 DfMO. This means that Noah could not have used the emergence of the mountains to begin his count, because they had not emerged yet.
8. The 40 days of Genesis 8:6 could not have commenced at the beginning or end of the *Mabbûl*, when the ark came to rest, or when the mountain tops appeared.
9. The 40 days of Genesis 8:6 began at the end of the 150 days of powerful water.
10. The water could not have become powerful before 9 DfMO and according to II. and III., not after 23 DfMO—although I. allows for this to be as late as 40 DfMO.
11. The time needed for the olive seed to germinate could not have exceeded seven days.
12. If the text in 8:5–6 is iconic (i.e., the text sequence mirrors the event sequence), Noah had to open the window forty days after the mountain peaks appeared on 220 DfMO, which would be on 260 DfMO. But in scenarios II. and III. he opened the window no later than 213 DfMO; and even in scenario I. no later than 230. Consequently, the text is not iconic here.

References

- Boyd, Steven W. 2016. "The Last Week Before the Flood: Noah on Vacation or Working Harder than Ever?" *Answers Research Journal* 9 (August 17): 197–208.
- Cassuto, U. (1944) 1998. *A Commentary on the Book of Genesis*. Translated by Israel Abrahams (1961). Jerusalem, Israel: The Magnes Press.
- Driver, S.R. 1926. *The Book of Genesis*, 12th ed. London, United Kingdom: Methuen.

- Guillaume, Philippe. 2013. "Sifting the Debris: Calendars and Chronologies of the Flood Narrative." In *Opening Heaven's Floodgates*. Edited by Jason M. Silverman, 75–102. Piscataway, New Jersey: Gorgias.
- Hamilton, Victor P. 1990. *The Book of Genesis: Chapters 1–17*. Grand Rapids, Michigan: Eerdmans.
- Jacobus, Helen R. 2013. "Flood Calendars and Birds of the Ark in the Dead Sea Scrolls (4Q52 and 4Q254a), Septuagint, and Ancient Near East Texts." In *Opening Heaven's Floodgates*. Edited by Jason M. Silverman, 103–130. Piscataway, New Jersey: Gorgias.
- Keil, C., and F. Delitzsch. 1986. *Commentary on the Old Testament in Ten Volumes. Volume I. The Pentateuch*. Translated by J. Martin. Repr. Grand Rapids, Michigan: Eerdmans.
- Leupold, H. C. (1942) 1982. *Exposition of Genesis. Volume I. Chapters 1–19*. Grand Rapids, Michigan: Baker.
- Matthews, P. H. 2014. *Oxford Concise Dictionary of Linguistics*. 3rd ed. Oxford, United Kingdom: Oxford University Press.
- Sarna, Nahum M. 1989. *JPS Torah Commentary: Genesis*. Philadelphia, Pennsylvania: The Jewish Publication Society.
- Sloss, L. L. 1963. "Sequences in the Cratonic Interior of North America." *Geological Society of America Bulletin* 74, no. 2 (February): 93–114.
- Snelling, Andrew A. 2014a. "Geological Issues." In *Grappling with the Chronology of the Genesis Flood: Navigating the Flow of Time in Biblical Narrative*. Edited by Steven W. Boyd and Andrew A. Snelling, 77–109. Green Forest, Arkansas: Master Books.
- Snelling, Andrew A. 2014b. "Paleontological Issues." In *Grappling with the Chronology of the Genesis Flood: Navigating the Flow of Time in Biblical Narrative*. Edited by Steven W. Boyd and Andrew A. Snelling, 145–185. Green Forest, Arkansas: Master Books.
- Speiser, E. A. 1964. *The Anchor Bible Genesis*. Garden City, New York: Doubleday.
- Tostado, Alfonso Fernandez de Madrigal. 1507. *Commentaria in Genesim*. Venice: Petri Liechtenstein. Printed by Gregorio de Gregori.
- Westermann, Claus. 1994. *Genesis 1–11. A Continental Commentary*. Minneapolis, Minnesota: Fortress.