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KIMA AND THE FLOOD IN *SEDER 'OLAM*
AND B.T. ROSH HA-SHANA
STELLAR TIME-RECKONING AND URANOGRAPHY
IN RABBINIC LITERATURE

BY CHAIM MILIKOWSKY

Three passages in rabbinic literature discuss the relationship between an astral body called *kima* and the beginning of the Flood: *Seder 'Olam* (hereafter *SO*), chapter 4, B.T. Rosh ha-Shana (hereafter R.H.) 11b–12a, and P.T. Ta'anit 1:3 (64a). The P.T. passage is relatively straightforward and presents no special problem.¹ With regard to the other two passages, however, several critical questions are immediately apparent. The text-critical situation is perplexing: contradictory readings are found in the manuscript traditions of both *SO* and R.H. Furthermore, though the passages are closely related, the discrepancies are great and not easily explained. In this study I shall attempt to determine the original form of the passage, delineate the interrelationship between the two texts, and trace the development of the manuscript tradition within each individual text. In addition, the use of the stars in time-reckoning as well as the identification of *kima* and other astral bodies will be discussed.

The fourth chapter of *SO* consists of a detailed chronology of the Flood.² It begins with an argument between two Sages:

¹ See note 10.

² This chronology of the Flood is not part of the earliest stratum in *SO*. *SO*, a midrashic chronography from Adam to the end of the biblical period (with several chronological statements concerning the Second Temple period added on), arrives at the postdiluvian period already in the beginning of chapter one—altogether six lines are devoted to the antediluvian period—and therefore a chronology of the Flood properly belongs in that chapter. Chapter four is part of a larger inter-related unit, beginning from the middle of chapter three, which is an editorial addition inserted before *SO*'s final redaction.

when the Bible tells us that the flood began in the “second month” (Gen. 7:11), does it mean the second month beginning from Nisan, that is Iyyar (so R. ’Eli’ezer), or the second month beginning from Tishrei, that is Marheshvan (so R. Yehoshu’a).³ The passage is as follows:⁴

ר' יהושע או' בחודש השני בשבעה עשר זה אייר אימתי בזמן שהכימה עולה ולפי ששינו את מעשיהם שינה עליהם המקום סידורו שלעולם ר' אליעזר או' בחודש השני בשבעה עשר יום זה מרחשון אימתי ביזמן שהכימה שוקעת וזמנה שלרביעה ביום הזה ניבקעו וגו'

R. Yehoshu'a says: “In the second month, on the seventeenth [day of the month, on that day all the fountains of the deep burst forth]” (Gen. 7:11)—this is Iyyar. When? At the time when *kima* rises; because [the
5 generation of the Flood] altered their actions, the Omnipresent altered the [natural] order of the world against them. R. ’Eli’ezer says: “In the second month, on the seventeenth day”—this is Marheshvan. When? At the time when *kima* sets—the time of the rainfall; “on that day all
10 the fountains of the deep burst forth.”

The passage is quoted from the recently prepared critical edition of *SO*,⁵ and presents the text found in MS Leningrad,

³ In R.H. this argument is correlated to similar arguments regarding the creation of the world and the future redemption: R. Yehoshu'a connects them all to Nisan and R. ’Eli’ezer to Tishrei.

⁴ See next note.

⁵ C. J. Milikowsky, “Seder Olam: A Rabbinic Chronography,” (Ph. D. diss., Yale University, 1981), pp. 233–34. All other editions of *SO*, whether vulgate or “critical” (cited in next note), present the variant text discussed immediately below.

⁶ This reading will be called the Ant. 891 text of *SO*. D.B. Ratner, in his edition of *SO* (*Seder Olam Rabba: Die Grosse Welt chronik* [Vilna, 1897; reprint: New York, 1966], p. 19, note 9), notes that two manuscripts have *kima* “rising” in Iyyar. Since he does not identify the manuscripts which contain this reading, this means that he did not see the reading in any of the manuscripts available to him, but is citing from Neubauer’s edition of *SO* (Adolf Neubauer, *Medieval Jewish Chronicles*, 2 vols. [Oxford, 1887–1895], 2:31). One of the two manuscripts Neubauer cites (his siglum: C) is the Oxford manuscript just

Saltykov-Shchedrin Antonin 891. Though many variant readings are found in the manuscripts and editions, only two are of any importance to us here, and with regard to both MS Leningrad contains the minority reading. In addition to MS Leningrad, only MS Oxford, Bodley heb. c. 18.1, contains the reading “rises” in line 4 and the reading “sets” in line 9,⁶ while the opposite reading—“sets” in line 4 and “rises” in line 9—is attested by nine witnesses.⁷ However, since six of the latter witnesses derive from one hyperarchetype and two others from another, there are only three independent witnesses.⁸ On the other hand, MSS Leningrad and Oxford are not related stemmatically, so there are two independent witnesses in favor of the reading presented. In a situation of this sort, where both variants are attested by two or more independent witnesses, we must presuppose independent scribal emendation (or unique contamination) and consequently it is impossible to determine the correct reading by means of stemmatic analysis.

Without wishing to claim that early manuscripts are necessarily more trustworthy than late ones, it is worth noting that both manuscripts which contain the reading presented are very early, i.e. before the eleventh century, while of the witnesses

mentioned, but with regard to the other, MS Oxford, Bodley heb. f. 27 (his siglum: f), he is mistaken: it has “sets.” Marx, in his edition of *SO* (Alexander Marx, *Seder 'Olam (Cap. 1–10)* [Berlin, 1903], p. 9), also cites the reading “rises” from MS Oxford; MS Ant. was either unknown or unavailable to him.

⁷ This reading will be called the *ed. pr.* text of *SO*. The nine witnesses are *editio princeps* (Mantua, 1513), ed. Constantinople, 1516 (an independent edition, see Milikowsky, “Seder Olam,” pp. 34, 82), MS Oxford, Bodley Opp. 317, MS Oxford, Bodley heb. f. 27, 28–33, MS Oxford, Bodley Hunt. 487, MS Parma, Palatina 2787, MS Munich, Bayerische Staatsbibliothek Cod. Hebr. 95, MS Cincinatti, Hebrew Union College 852, and MS Cambridge, University Library T-S 12:801–812. However, in the latter two manuscripts only “sets” in line 4 is attested. (MS Cincinatti lacks the entire phrase containing “rises” in line 9 and MS Cambridge has a lacuna there.) MS Milan, Ambrosiana T66 Sup., has *kima* rising in both Iyyar and Marheshvan.

⁸ See Milikowsky, “Seder Olam,” pp. 141–162, for the stemmatic analysis of *SO*'s manuscript tradition.

containing the other reading only one is early and all others are from the fourteenth century or later.⁹ Thus there is a slight disposition towards the Ant. 891 text, wherein *kima* sets in Marheshvan and rises in Iyyar.

This reading is also supported by P.T. Ta'anit 1:3 (64a). The argument cited in *SO* is not found there, but within the context of a discussion of the prayer for rain R. 'Abba Mari, a fourth-century Palestinian Amora, states that the seventeenth of Marheshvan is the "time for *kima* to set, for then the flood came down upon the world."¹⁰ Here, like in the Ant. 891 text of *SO*, *kima* sets in Marheshvan.

All printed editions of B.T. R.H. 11b state that *kima* sets in Iyyar and rises in Marheshvan, just like the *ed. pr.* text of *SO*. However, since many manuscripts of R.H. have *kima* setting in Marheshvan and rising in Iyyar,¹¹ the passage cannot be adduced in support of either reading in *SO*.

⁹ MSS Leningrad and Oxford are both Geniza fragments on parchment; according to Malachi Beit-Arié (*Hebrew Codicology* [Paris, 1976], p. 20) parchment was not used in the Orient after the beginning of the eleventh century except for biblical codices. MS Oxford, Bodley heb. f. 27, 28–33, is also a Geniza fragment on parchment; all other manuscripts listed in note 7 are much later (Milikowsky, "Seder Olam," pp. 36–37, 42–43, 44, 47, 52, 67).

¹⁰ Though R. 'Abba Mari does not make explicit mention of Marheshvan (he says only "the seventeenth"), from the context it is clear that he is referring to this month. He bases himself upon an earlier tradition, like that of R. 'Eli'ezer in *SO*, which connects the coming of the Flood to the setting of *kima* and to the 17th of Marheshvan. His purpose is to prove that according to all opinions rain begins to fall by the 17th of Marheshvan; if he were establishing the connections himself and not using an earlier source, then 1) why introduce *kima* into the discussion, and 2) he is using circular reasoning: he connects the 17th of Marheshvan to the rainfall because he connects it to the Flood, but this connection is itself based upon the fact that the 17th of Marheshvan is the time of the rainfall. Note that the citation of Gen. 7:11 in the P.T. passage corresponds to that part of the verse cited in R. 'Eli'ezer's statement in *SO*. In *SO* the citation of this section of the verse follows naturally after the citation of the first few words of the verse in the beginning of the passage; in P.T. its purpose is unclear.

¹¹ See note 44 below.

Obviously, the identity of *kima* is very relevant to this discussion, but before turning to this question it is necessary to ascertain what “rising” and “setting” mean in this context. Though some discordant notes have been sounded, there is an almost general agreement, among both medieval and modern scholars, that we are dealing with the heliacal rising and cosmical setting of *kima*.¹²

A word of explanation may be necessary. Any star, given that it is seen for an extended period of time from any specific latitude, will rise and set every day, since the rising and setting of the stars is dependent, just as is that of the sun, upon the rotation of the earth on its axis. The essential point, however, is that the relative positions of any star and the sun change every day. As the earth proceeds anticlockwise around the sun, the sun advances among the stars on its annual eastward course along the elliptic, the center line of the zodiac, and this direction is opposite to that of the sun's and stars' daily motion from east to west. Consequently, when the earth has completed a complete rotation on its axis and faces the sun as before,¹³ it has already, several minutes earlier, faced the stars

¹² Most prominent among the other interpretations is that of Rashi, R.H. 11b, s.v. *ve'azdu* (towards the end), where he states that “setting” during the day means having passed the eastern horizon and heading towards the western horizon, and R.H. 12a, *yom*, where he defines “rising” as rising sometime during the day. Of course, these two statements would apply to many stars on any specific date, so the choice of *kima* is inexplicable, see further below, note 62. Ratner (*Seder Olam*, p. 18) emends “sets” to “shines”, but I do not understand his explanation (which is anyway factually incorrect). M. Simon, in the notes to his translation of R.H. (London, 1938), pp. 178–180, is astronomically correct, but misses the exact denotation of “rises” and “sets.” (His reference to *SO* on p. 43, note 1, is strange: to which text of *SO* is he referring?).

¹³ This is the *actual solar day*. Our day of twenty-four hours is based upon the *mean solar day* since actual solar days vary slightly in length. The solar day is actually a slight bit more than a complete rotation of the earth since, in the meantime, the sun has also moved. A complete rotation of the earth, based upon fixed stars, is called a *stellar* or *sidereal day*.

as before. Since the orbit of the earth around the sun lasts approximately three hundred and sixty-five days, the sun lags about four minutes behind the stars in its daily course.¹⁴ Thus any specific star will be seen at any given point in the heaven at any given minute during the day only once a year. Though a moderately sophisticated stellar observer using elementary mathematical procedures can calculate the position of any star at any given time, obviously for the agriculturist there are specific points during the day when the position of the star in the sky will have more meaning and can be put to a very practical use. One of these is the visibility of the star on the eastern horizon just about at the same time that the sun becomes visible on that horizon; in other words, the sun and the star are rising at the same time.¹⁵ This is called the *heliacal* rising of the star and will occur only once a year. Every day the star will rise several minutes earlier in relation to the sun until, approximately a half year later, the star will have risen so much earlier that it will be setting when the sun is rising. In other words, it will be visible on the western horizon when the sun is visible on the eastern horizon: this is the *cosmical* setting.¹⁶

¹⁴ After one day, the sun has moved 1/365 of its yearly journey. Dividing the 1440 minutes in a day by 365, there remain approximately four minutes of rotation for the earth to overtake the sun.

¹⁵ Actually, the star must rise a little in advance of the sun. When the rising of the sun is simultaneous with that of the star, the latter will not be visible. Only a few mornings later, when it rises just before the sun, will it be visible on the eastern horizon until the sky grows too light.

¹⁶ This explanation is based upon M. P. Nilsson, *Primitive Time-Reckoning* (Lund, 1920), pp. 3–7; E.J. Bickerman, *Chronology of the Ancient World*, revised edition (London, 1980), pp. 52–56; and M.L. West, “Excursus II: Time-Reckoning,” in his edition of *Works and Days* by Hesiod (Oxford, 1978), pp. 376–381. It is worth noting that there was a considerable body of literature in the Hellenistic and Roman world concerning the rising and setting of astral bodies, see, e.g., the *Oxford Classical Dictionary*, second edition (Oxford, 1970), s.v. Eudoxus (1) and Hipparchus (3), and F.K. Ginzel, *Handbuch der Mathematischen und Technischen Chronologie*, 3 vols. (Leipzig, 1906–1914),

Though all this may seem quite complicated, this is only so because most people today are entirely without knowledge of the stars. But for a person without a yearly calendar which can help him determine the seasons,¹⁷ it is the most natural thing to notice that the stars which rise and set as the sun rises (and he begins his day of work) vary during the year, and that this variation is yearly. By experience, which passes into common lore, he learns that the rising and setting of certain stars coincide with natural phenomena such as the changing of the seasons.

Since the rising and setting of any star occurs only once a year, we could determine which was the correct reading in *SO*—"rising" in Iyyar and "setting" in Marheshvan or "setting" in Iyyar and "rising" in Marheshvan—if we knew which stellar body *kima* was, and conversely if we knew which was the correct reading we could roughly determine *kima*'s position in the stellar map. Since it is not possible to conclusively determine which reading is correct by means of internal criteria, let us turn to the question of the identity of *kima*.

This word is found three times in the Bible,¹⁸ and there is no doubt that it refers to a star or configuration of stars. It is generally taken to be the Pleiades, but various scholars have also suggested Sirius, Scorpio, and Draco.¹⁹ Unfortunately, in

2:423. There is actually another "rising" and "setting" in addition to those discussed in the text: when the star rises and sets as the sun is setting on the western horizon. This rising is called *acronychal rising* and this setting *heliacal setting*. However, as West (*Works and Days*, p. 380) notes with regard to the Greeks and other peoples, "rising" and "setting" without qualification normally means at sunrise and not at sunset.

¹⁷ This is true of any calendar not exclusively solar. Even with a luni-solar calendar, the yearly variation of the months in relation to the seasons is too great for them to be sufficient indicators of crucial agricultural decisions.

¹⁸ Amos 5:8, Job 9:9 and 38:31.

¹⁹ Sirius was first suggested by M. A. Stern ("Die Sternbilder in Hiob Kp. 38, v. 31 und 32," *Jüdische Zeitschrift* 3 [1864–65]: 269) and was accepted by Georg Hoffman ("Versuche zu Amos," *Zeitschrift für die alttestamentliche Wissenschaft* 3 [1883]: 107, 279). Stern justified his identification by comparing

none of its occurrences can *kima* be identified on the basis of its context, nor does it appear in any contemporaneous cognate language. The identification of *kima* as Pleiades is based upon two considerations, neither conclusive. The Septuagint to Job 38:31 translates *kima* as Pleiades, as does also Symmachus and the Vulgate.²⁰ However, at Amos 5:8, while Symmachus and Theodotion have Pleiades, Aquila and the Vulgate have

the order of the stellar bodies in Job 38:31–32—*kima*, *kesil*, *mazzarot*, and *'ayish*—with the four contiguous groups of stars most important in Greek mythology and stellar time-reckoning—Sirius, Orion, Hyades, and Pleiades. His basic datum was that *kesil* is easily identifiable as Orion and therefore *kima* must be Sirius. Scorpio as the translation of the biblical *kima* was suggested by P. Jensen (“Der *kakkab mišri* der Antares,” *Zeitschrift für Assyriologie* 1 [1886]: 264–265), who cites earlier identification of the talmudic *kima* as Scorpio. These earlier identifications stem from S. Y. Rapoport’s discussion of astronomical terms in the Talmud (*Erekh milin*, second edition [Warsaw, 1914], pp. 288–301; these comments were excerpted from a letter to C. Z. Slonimsky, which was originally printed in the unpaginated introduction to the latter’s *Toldot ha-shamayim* [Warsaw, 1838], and, translated into German, in *Literaturblatt des Orients* 1 [1840]: 133–136, 152–153, 169–172, 182–184, 193–195, 230–231, 259–263.) On the basis of the parallel to SO in R.H. 11b and a passage in B.T. Berakhot 58b, Rapoport argues that *kima* must be Scorpio. Since Rapoport knew only of the vulgate editions of the Babylonian Talmud, he could not realize that the manuscript evidence invalidates his conclusion from the R.H. passage. With regard to this passage and also the Berakhot passage, see below. Draco as the identification of *kima* was suggested by Marcus Jastrow (*A Dictionary of the Targumim, the Talmud Babli and Yerushalmi, and the Midrashic Literature* [New York, 1886–1903], p. 633): “a constellation, prob. Draco (not Pleiades).”

²⁰ For Symmachus, see Frederick Field, *Origenis Hexaplorum quae supersunt*, 2 vols. (Oxford, 1875–76), 2:71. According to Field, Flaminio Nobilio, a sixteenth-century scholar who dealt extensively with fragmentary remnants of ancient biblical translations, attests that Aquila translated *kima* in this verse as Pleiades. Field himself did not accept this attribution: he cites it only in his notes and makes no mention of it in his text. The Symmachean attribution, accepted by Field, is found in three witnesses, all three very much earlier than Nobilio, but is not found in Nobilio; there is good reason, therefore, to suspect Nobilio’s attribution on internal grounds, even before noting that Aquila has a different translation for *kima* at Amos 5:8.

Arcturus.²¹ And, at Job 9:9, in addition to Arcturus in the Septuagint and Pleiades in the Origenic revision of the Septuagint, the Vulgate has Hyades and Ambrose has Ursa Major.²² It is difficult, therefore, to draw any firm conclusions from this morass; in any event the evidence in favor of Pleiades is only slightly stronger than the evidence in favor of Arcturus.²³

The word *kima* is attested in Syriac and Ethiopic, and in both languages definitely refers to the Pleiades.²⁴ However, this does not necessarily prove a common Hebrew-Aramaic-Ethiopic name for the Pleiades; it may only indicate that the biblical word *kima* was identified as the Pleiades in certain Aramaic-speaking Jewish or Christian communities.²⁵ The question of the original meaning of the word in the Bible, as well as the possibility that alternative identifications existed, remain open.²⁶

Kima does not appear in any other tannaitic text, so there is

²¹ Symmachus, Theodotion, and Aquila apud Joseph Ziegler, *Duodecim Prophetarum*. Septuaginta Vol. 12 (Göttingen, 1943), p. 192. The Septuagint to this verse translates *kima* as *panta*.

²² For the Origenic revision, see Field, *Hexapla*, 2:18. Ambrose, *De Interpellatione Job et David* I, 4 (*Sancti Ambrosii Opera*, Part 2, ed. Carolus Schenkl [Corpus scriptorum ecclesiasticorum latinorum 32; Vienna, 1897], p. 217).

²³ The Targum and Peshitta translate *kima* with the Aramaic form of *kima*. This can mean 1) the translators are unaware of its meaning, or 2) *kima* is called *kima* in Aramaic also. The evidence from Syriac (see immediately below) indicates that the second possibility is correct. Nonetheless, it may be true that different translators understood the Aramaic word *kima* differently.

²⁴ For Syriac, see R. Payne Smith, *Theasaurus Syriacus*, 2 vols. (Oxford, 1879), 1:1723, and for Ethiopic, Erno Littman, "Sternensagen und Astrologisches aus Nordabessinien," *Archiv für Religionswissenschaft* 11 (1908): 299, and J.J. Hess, "Die Sternbilder in Hiob 9, und 38₃₁f.," *Festschrift Georg Jacob*, ed. Theodor Menzel (Leipzig, 1932), p. 96.

²⁵ With regard to Syriac, this possibility is obvious; with regard to Ethiopic, see Theodor Nöldeke (*Neue Beiträge zur Semitischen Sprachwissenschaft* [Strassburg, 1910], p. 45), who states that Ethiopic *kima* is a loanword from Hebrew or Aramaic.

²⁶ This possibility will be explored below.

no material contemporaneous to the *SO* passage,²⁷ but it does occasionally appear in the Babylonian Talmud and in the *midrashim*. A number of these passages support the identification of *kima* as the Pleiades.²⁸

From the statement of R. Papa (fourth-century Babylonian Amora) in B.T. Baba Meši'a' 106b it follows that the position of *kima* at nightfall around February or March is the middle of the sky: this is roughly true of all astral bodies from the Pleiades to Sirius. In B.T. Berakhot 58b–59a, a number of passages concerning the stars are cited, several of which are relevant to our problem. Samuel (third-century Babylonian Amora) gives an etymology of the name *kima*: like a hundred (*keme'ah*) stars. Though only six or seven stars are easily visible to the naked eye, the Pleiades consist of several hundred stars bunched closely together. Consequently, Samuel's description is very applicable though it remains a question how he can have known this.²⁹ More important is the subsequent passage which states that *kima* is pursued³⁰ by 'ayish (or 'ash),³¹ which is identified by the Aramaic *yuta*. Ever

²⁷ The tannaitic dating of *SO* is upheld by Milikowsky ("Seder Olam," pp. 12–24); see also idem, "Seder 'olam ve-ha-tosefta,'" *Tarbiz* 49 (1979–80): 246–263.

²⁸ Only one of the following passages (the last) actually indicates that *kima* is the Pleiades; the other two are suggestive but not exclusionary.

²⁹ A. E. Fanning (*Planets, Stars and Galaxies*, revised by D. H. Menzel [New York, 1966], pp. 151–152) writes that "a good eye may pick out as many as a dozen stars in the Pleiades." The Pleiades of Greek mythology were seven in number, so obviously that was the number of stars easily visible in antiquity. Samuel's impression that the Pleiades contain about a hundred stars may have come about because this group of stars encompasses "a good deal of interstellar dust which is illuminated by the star-light it reflects" (Fanning, *Planets*, p. 152).

³⁰ The notion of pursuing and fleeing stars is very common, see West (*Works and Days* by Hesiod, p. 314, note to line 620) for parallels from Greek and other cultures.

³¹ Biblical 'ayish (Job 38:32) is presumably identical to biblical 'ash (Job 9:9). At any rate, the talmudic discussion begins with 'ash and switches in middle to 'ayish.

since Schiaparelli's discussion,³² there can be no doubt that 'iyutha in Syriac is the Hyades; consequently *kima* must be the Pleiades which immediately precede the Hyades.³³

One could still posit that alternative identifications of *kima* existed, and consequently we cannot determine the meaning of *kima* in *SO* from the above evidence. There is, though, additional evidence which, to my mind, conclusively proves that *kima* in *SO* is the Pleiades.³⁴

The passage in *SO* deals with the beginning of the Flood. According to R. 'Eli'ezer, the Flood began in Marheshvan when *kima* sets (or rises) and rain falls, and according to R. Yehoshu'a the flood began in Iyyar when *kima* rises (or sets) and rain does not fall, but God changed the "order of the world."³⁵ It is evident from the passage that the astral body *kima* was coupled with the coming of the rain and this gave rise to its association with the beginning of the Flood.

³² G. Schiaparelli, *Astronomy in the Old Testament* (Oxford, 1905), pp. 161–163; see G.R. Driver, "Two Astronomical Passages in the Old Testament," *Journal of Theological Studies* N.S. 7 (1956): 1–2, but cf. Hess, "Sternbilder," pp. 98–99.

³³ There are also a number of relevant passages in later rabbinic literature. According to Bamidbar Rabba 10:8, *kima* is antipodal to Scorpio, so it must be near Taurus or Aries; Pleiades is between the two of them. Seder Eliyahu Rabba, 2 (ed. Friedmann, p. 9), states that *kima* contains seven stars, all seven lying close to each other; this is an apt description of what the human eye sees in Pleiades. Midrash Tadshe 6 (in Abraham Epstein, *Mi-qadmoniyot ha-yehudim* [Jerusalem, 1965], p. 148) also says that *kima* has seven stars, and continues, "when it sets plow the land for seeding, and when it rises it is the time for the harvest." This is an almost exact parallel to what Hesiod (*Works and Days*, 383–385) says about the Pleiades.

³⁴ Since there are indications that an alternative interpretation of *kima* existed (see below), this additional evidence is essential in order to determine the original reading of the *SO* passage.

³⁵ There are two possible explanations of this phrase. According to the elaboration of this passage in R.H. the change introduced in order to make the rain fall was the reversal of *kima's* position so that it conformed to the position necessary for rain to fall. From the *SO* passage, however, it is possible to understand the change as the bringing of rain when *kima* is in a position not naturally associated with the coming of rain.

If one examines the available evidence regarding astral bodies whose risings and settings were noted, one receives the overwhelming impression that it was the setting of the Pleiades which was most often coupled with the coming of the rain. In the Near East the role of harbinger of the rains is almost exclusively attached to the Pleiades; comparative material can also be adduced from the general Mediterranean area and from traditional cultures the world over.

G. Dalman, in his *Arbeit und Sitte in Palästina*, cites several examples of Bedouin sayings associating the setting of the Pleiades and the coming of the rain.³⁶ Indeed, in certain places the first important rainfall is called after the Arabic name for the Pleiades.³⁷ Josephus, in his account of Antiochus VII's siege of John Hyrcanus, tells of the "great downpour of rain which came with the setting of the Pleiades."³⁸ Similarly in Greece: Hesiod tells us of the storms which rage when the Pleiades set, and the *Geoponica* discusses the exact relationship between the setting of the Pleiades and the beginning of the rain.³⁹ There was even a popular notion that the setting of the Pleiades in the autumn was the cause of the rains which followed.⁴⁰

Since the rise of ethnography and comparative folklore a great deal of ethnographic data concerning star-lore has been collected. From this material it is clear that: 1) the Pleiades are far and above the most important astral body used for indications of seasonal change; and 2) of the numerous statements concerning the Pleiades noted in the literature, very many expressly connect them to the coming of the rain.⁴¹

³⁶ 7 vols. in 8 (1928-42), 1:38-39.

³⁷ *Ibid.*, 1:123.

³⁸ *Antiquities* 13. 237.

³⁹ Hesiod, *Works and Days*, 620-621; *Geoponica* 1. 5.

⁴⁰ J.G. Frazer, *The Golden Bough*, 12 vols., third edition (London, 1935), Part 5, *Spirits of the Corn and of the Wild*, Vol. 1, pp. 318-319.

⁴¹ See Frazer, *Golden Bough*, Part 5, Vol. 1, pp. 307-319, and Nilsson, *Primitive Time-Reckoning*, pp. 129-146.

In the light of these parallels, there can be little doubt that in the *SO* passage *kima* is the Pleiades. Therefore, the reading presented—*kima* setting in Marheshvan and rising in Iyyar—must be correct, for the cosmical setting of the Pleiades occurs in the middle of the autumn and its heliacal rising in the late spring.⁴² And, as already noted, this reading is found in the more ancient *SO* manuscripts and also agrees with the Palestinian Talmud passage.

How, though, did the alternative reading—*kima* rising in Marheshvan and setting in Iyyar—develop? If only one independent testimony to this reading existed, one would blame some careless scribe who inadvertently switched the words; but three independent textual traditions testify to this reading, and so it cannot be attributed to chance. There is only one possible way of explaining this variant: the scribes or scholars who “corrected” the Ant. 891 text of *SO*, which has *kima* setting in Marheshvan, to read that *kima* rises in Marheshvan, did not identify *kima* as the Pleiades. This emendation must be based upon an alternative identification of *kima*, according to which *kima* is an astral body roughly antipodal to the Pleiades.

Evidence in favor of such an identification, though weak, is extant. Earlier, when discussing the meaning of *kima*, it was emphasized that there is no conclusive proof that the biblical word *kima* means the Pleiades; only with regard to *kima* in the *SO* passage is the evidence completely convincing. The

⁴² A convenient table of dates for the rising and setting of several prominent stars is given by Bickerman, *Chronology*, pp. 112–114, and Dalman, *Arbeit und Sitte*, 1:492–495. (Bickerman’s explanation is, at several points, incorrect. Helical rising and setting means rising and setting with the sun; thus, helical rising is rising at sunrise and helical setting is setting at sunset. Cosmical setting is setting at sunrise and acronical (or achronychal) rising is rising at sunset, see also West, *Works and Days*, by Hesiod, p. 380.) Since our discussion hinges on a luni-solar year where there is no close coordination between the phases of the solar year and the days of the month, the degree of accuracy in these tables is of no importance.

evidence drawn from the ancient translators in favor of the Pleiades is only slightly stronger than the evidence in favor of Arcturus. Especially worth noting is Aquila's use of Arcturus to translate *kima*, Amos 5:8, which was accepted by Jerome both in the Vulgate and in his commentary to Amos.⁴³ These alternative interpretations should not, perhaps, be understood as indicating a wide-spread uncertainty with regard to the meaning of *kima*, but rather the existence of two alternative interpretations of the word. And—let me immediately note—the heliacal rising of Arcturus falls in the autumn and its cosmical setting in the spring.⁴⁴

There is one other piece of evidence which suggests that *kima* was located by some on the stellar sphere at a position roughly antipodal to the Pleiades. In B.T. Berakhot 58b *kima* is contrasted to *kesil*: “were it not for the heat of *kesil* the world could not endure the cold of *kima*; and were it not for the cold of *kima* the world could not endure the heat of *kesil*.” Though some doubt exists, *kesil* is generally taken to be Orion,⁴⁵ whose heliacal rising occurs in the summer. This

⁴³ Above, note 21, Jerome, *Commentariorum in Amos Prophetam* 5.260 (*S. Hieronymi Presbyterei Opera*, Part I, 6, Corpus christianorum scriptorum latinorum 76 [Turnhout, Belgium, 1969], p. 280), cf. Pierre Lardot, “Culte Astral et Culture Profane chez S. Jérôme,” *Vigiliae Christianae* 35 (1981): 336–340.

⁴⁴ See Bickerman, *Chronology*, p. 114. Though Arcturus' setting occurs at about the same time as the Pleiades' rising, Arcturus' rising occurs over a month before the setting of the Pleiades.

⁴⁵ See Schiaparelli, *Astronomy*, pp. 60–61, Hess, “Sternbilder,” pp. 97–98, and Driver, “Two Astronomical Passages,” pp. 1–2. According to Saadiah Gaon, Job 9:9 (*Iyov 'im tirgum u-pirush ha-ga'on rabenu Sa'adyah ben Yosef Fayumi*, ed. Yosef Kafah [Jerusalem, 1973], p. 71), *kesil* is Canopus. (The Arabic word is *suhail*, on which see P. Kunitzsch, *Arabische Sternnamen in Europa* [Wiesbaden, 1959], pp. 208–210; Dalman's [*Arbeit und Sitte*, 1:14] identification of *suhel* in Saadiah as Sirius cannot be accepted.) However, neither the rising nor the setting of Canopus can be connected in any way to the summer (see the table in Dalman, *Arbeit und Sitte*, 1:495), so Canopus is definitely not the *kesil* of this talmudic passage. For Orion's heliacal rising, see Bickerman, *Chronology*, p. 113.

implies, therefore that *kima* is an astral body whose heliacal rising occurs in the winter or autumn, which of course excludes the Pleiades whose heliacal rising occurs in May.⁴⁶ This *kima* therefore is roughly antipodal to the Pleiades and may be the same as the *kima* in the *ed. pr.* text of *SO*.⁴⁷

Unfortunately, the rabbinic material supporting an alternative identification of *kima* does not corroborate the translation of *kima* as Arcturus, found in some of the ancient versions. Nonetheless, taken together, they indicate the plausibility of the existence of alternative identifications of *kima* in late antiquity, which led to the development of the *ed. pr.* text of *SO* with *kima* rising in Marheshvan.

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The other passage dealing with *kima* and the Flood, R.H. 11b–12a, though similar to *SO*, has several important variations. Here also two versions of the passage exist, one with *kima* setting in Marheshvan, and the other with *kima* rising in

⁴⁶ Dalman (*Arbeit und Sitte*, 1:497–501) offers a different interpretation of this passage, according to which *kima* is the Pleiades. Aside from other problems with his explanation, he is forced to maintain that the passage refers to *kima*'s setting but *kesil*'s rising. (Dalman's identification of *kesil* as Sirius, though irrelevant to the point under discussion [Sirius lags behind Orion by only two to three weeks], should be rejected. The talmudic passage does not call *kesil* the heat-star *par excellence*; rather, as part of its exegesis of Amos 5:8 and Job 9:9 the heat of *kesil* is contrasted to the cold of *kima*.)

⁴⁷ Also worthy of note is the subsequent passage in Berakhot 58b: it discusses Scorpio (*'agrav*) but cites as proof-text Job 38:31 which contains only *kima* and *kesil*. If *kesil* is Orion, then *kima* must be Scorpio or some star (e.g. Antares) within the constellation of Scorpio. It is however possible that the proof-text refers not to the Scorpio passage but to the preceding passage which deals with *kima* and *kesil*. This suggestion, proposed by Samuel Edels (MaHaRSHa') in his *Hiddushei 'Aggadot*, ad. loc., has the added benefit of elucidating the function of the biblical citation within the context of the passage. In the text as it stands now, with the improper positioning of the Scorpio passage, the proof-text seems to offer no proof.

Marheshvan. But, as we shall see, the relationship between the two versions in R.H. is not the same as the relationship between the two versions in SO. Because of the differences between SO and R.H., it is essential to quote the R.H. passage in full:⁴⁸

דתניא בשנת שש מאות שנה לחיי נח בחודש השיני בשבעה עשר יום לחדש רבי יהושע אומר אותו היום י"ז באייר היה יום שמזל כימה שוקע ביום ומעיינות מתמעטים ומתוך ששינו מעשיהן שינה הקב"ה עליהם מעשה בראשית והעלה מזל כימה ביום ונטל שני כוכבים מכימה והביא מבול לעולם רבי אליעזר אומר אותו היום י"ז במרחשון היה יום שמזל כימה עולה ביום ומעיינות מתגברים ומתוך ששינו מעשיהם שינה הקב"ה עליהם מעשה בראשית (והעלה מזל כימה ביום)⁴⁹ ונטל שני כוכבים והביא מבול לעולם.

As it has been taught: "In the sixth hundredth year of Noah's life, in the second month, on the seventeenth day of the month" (Gen. 7:11). R. Yehoshu'a says: That day was the seventeenth of Iyyar, a day when the constellation of *kima* sets at daybreak and the fountains dry up, and because [the generation of the Flood] altered their ways, the Holy One, blessed be He, altered upon them the work of creation and made the constellation of *kima* rise at daybreak and took two stars from *kima* and brought a flood on the world. R. 'Eli'ezer says: That day was the seventeenth of Marheshvan, a day when the constellation of *kima* rises at daybreak and the fountains fill up, and because they altered their ways, the Holy One, blessed be He, altered upon them the work of creation, (and made the constellation of *kima* rise at daybreak)⁴⁹ and took two stars from *kima* and brought a flood on the world.

Before turning to a discussion of the differences between this passage and the SO passage, it is necessary to survey the relevant manuscript evidence. Most important is the question of the rising and setting of *kima*. The reading presented—

⁴⁸ The passage is quoted from the Venice 1520–21 edition, and is virtually identical to the vulgate text available today.

⁴⁹ The phrase inserted within the parentheses should be deleted, see below.

kima setting in Iyyar and rising in Marheshvan—is found in seven witnesses, that is, six in addition to the Venice 1520–21 edition presented here.⁵⁰ The alternative reading—*kima* setting in Marheshvan and rising in Iyyar—is upheld by only four witnesses, one of which however is a Geniza fragment and another a manuscript originating in Yemen.⁵¹ With regard to

⁵⁰ The reading presented, which will be called the Rashi text of R.H. (see immediately below), is found in the Venice 1520–21 edition, MS Munich, Bayerische Staatsbibliothek Cod. Hebr. 95, MS Munich, Bayer. Staats. Cod. Hebr. 140 (margin), MS London, British Library Harl. 5508 (after correction), MS Oxford, Bodley Opp. Add. fol. 23, MS New York, Jewish Theological Seminary Rab. 1608 (ENA 850), and an early printed edition (Fez, ca. 1516), published in facsimile by H.Z. Dimitrovsky, *S'ridei Bavli* (New York, 1979), pp. 218–219, see his introduction, pp. 45–47.

⁵¹ This reading, which will be called the Tos. text of R.H., is attested by MS Munich, Bayer. Staats. Cod. Hebr. 140, MS London, British Library Harl. 5508 (before correction), MS Cambridge, University Library T–S F2(1). 165, and MS New York, Jewish Theological Seminary Rab. 218 (EMC 270). The next to last manuscript is from the Geniza, and the provenance of the last is Yemen. (On the importance of Yemenite Talmud manuscripts, see Shelomo Morag, “‘*Al riq'ah shel mesoret ha-'aramit ha-bavlit shel 'adat teiman u-birur shetei sugyot be-masoret zo't*,” in *Mehkerei 'edot u-genizah muqdashim le-profesor Shelomo Dov Goitein*, ed. S. Morag and Y. Ben-Ami [Jerusalem, 1981], p. 149, and the references in note 41. Eliezer Segal [“*Mesorot ha-nosah shel bavli megillah*,” (Ph. D, diss., Hebrew University, 1981), pp. 1–107] recently proved that the text of a late Yemenite manuscript of Megillah often corresponds [against all other manuscripts] to Geonic and other early citations of the Talmud.)

As opposed to the situation with *SO*, where the two texts differ only with regard to the position of “rising” and “setting,” in R.H. the differences between the two texts are considerable. Consequently, I think it worthwhile to quote in full the Tos. text of R.H. Unfortunately, the Genizah MS is fragmentary and the Yemenite MS is lacking an entire section, so the following is taken from MS Munich, Bayer. Staats. Cod. Hebr. 140 (with one addition, inserted between brackets, taken from the other manuscripts):

דתניא בשנת שש מאות שנה לחיי נח בחודש השני ר' אליעזר אומ' אותו היום שבעה עשר במרחשון היה [יום] שמזל כימה שוקע ביום ומעיינות מתמעטין ומתוך ששינו מעשיהן שינה הקב"ה עליהן מעשה בראשית והעלה מזל כימה ביום ונטל שני כוכבים מכימה והביא מבול לעולם ר' יהושע אומ' אותו היום שבעה עשר באייר היה יום שמזל כימה עולה ביום ומעיינות מתגברות ומתוך ששנו מעשיהן שנה עליהן הקב"ה מעשה בראשית ונטל שני כוכבים מכימה והביא מבול לעולם.

medieval scholars, Rashi, who was probably aware of both readings, has *kima* setting in Iyyar and rising in Marheshvan.⁵²

⁵² Rashi, R.H. 11b, s.v. *ve'azdu*. Since Rashi begins his discussion with the phrase "*hakhi garsinan be-seder 'olam*" (such is the reading in *SO*), he is clearly excluding some other reading. I do not think that the textual options available to Rashi differ only with regard to the order of the statements by R. Yehoshu'a and R. Eli'ezer, that is, Rashi maintains that R. Yehoshu'a should precede R. 'Eli'ezer in R.H. just as he does in *SO*. Much more probably, Rashi knows of and means to exclude a text which commences with R. 'Eli'ezer stating that *kima* sets in Marheshvan (as is true for all manuscripts extant containing the Tos. text of R.H.). Rashi argues, therefore, that R. Yehoshu'a's statement should come first, the passage still begins with *kima* setting, but in this other text R. Yehoshu'a and Iyyar have replaced R. 'Eli'ezer and Marheshvan, so now *kima* is setting in Iyyar.

Rashi justifies his reading by recourse to a parallel rabbinic source, *SO*. Presumably, this means that, faced with two alternative readings, he supports his decision by pointing to the parallel which agrees with him. (For an explanation of Rashi's decision, see below, note 63.) Another possibility, though, is that Rashi is emending against his R.H. manuscripts on the basis of this parallel. In other words, Rashi had in front of him no manuscript containing the Rashi text of R.H.; it developed only as a result of his emendation. If such were indeed the case we would expect Rashi to be more explicit, as he is, e.g., in R.H. 34b, s.v. *mi-tish'ah*, where he states that such and such is the reading of *all* manuscripts and he is emending according to the Tosephta.

Nonetheless, this possibility—that the Rashi text developed out of Rashi's emendation—must be given serious consideration, if only because later medieval exegetes considered it to be true. Thus, an anonymous note to the Rashi under discussion (printed in the vulgate Talmud text, R.H. 35a) states, "Such was the reading ... until *our teacher (rabeinu)* emended it," and then continues with the citation and defense of the Tos. reading. This anonymous note considers the Tos. text, which has *kima* setting in Marheshvan, the original text and the Rashi text a secondary development. Similarly, R. Zerahiah b. Isaac ha-Levi (12th century) writes in *Ha-Ma'or ha-qatan* (ad. loc.), "... and R. Shelomo (=Rashi), blessed be his memory, changed the reading and I do not know why."

Obviously, the manuscripts attesting the Rashi text of R.H. are the crucial factor here. Since it is well known that the textual tradition of the Babylonian Talmud was often emended to conform with Rashi's textual glosses, the existence of seven witnesses attesting the Rashi text of R.H. does not prove that this text did not originate with Rashi. It is necessary to ascertain with

But, to my knowledge, he was the only medieval exegete to decide in favor of this reading, while Tosafot, R. Hananel, and

regard to each witness whether or not it was influenced by Rashi's commentary. Though it is difficult to determine if any specific reading stems from an "early" Talmud text or from Rashi's glosses, nonetheless the problem can be resolved in several ways. The extent of agreement with Rashi throughout the manuscript is the most important indicator. Also, at times manuscripts incorporate sections of Rashi's commentary in their text, and this definitely proves that they were influenced by Rashi. (David Rosenthal [*"Mishnah 'avodah zarah: mahadurah biqqortit u-mavo"*] (Ph.D. diss., Hebrew University, 1980), pp. 228–229] recently pointed out an instance of a comment of Rashi included in MS Munich, Bayer. Staats. Cod. Hebr. 95.)

In order to ascertain the extent of Rashi's influence upon the seven witnesses attesting the Rashi text, it was necessary to compare comments of a textual nature made by Rashi in R.H. with the readings of these witnesses. In a hasty survey I located twelve textual comments; of these, seven are of no use for our discussion since just about all manuscripts agree with Rashi or just about all disagree. (General agreement occurs when Rashi is eliminating a rogue text—or else we must assume all manuscripts extant were influenced by Rashi; manuscripts which normally follow Rashi disagree with him when his emendation is very radical or when he himself testifies to the existence of another reading.) Analysis of the remaining five passages (admittedly a small sample) indicates that MS Munich, Bayer. Staats. Cod. Hebr. 95, MS Oxford, Bodley Opp. Add. fol. 23, and the printed editions generally follow Rashi, and consequently their reading with regard to *kima* may be a "correction" introduced into the text on the basis of Rashi's commentary. However, the evidence indicates that MS New York, JTS Rab. 1608, was not influenced by Rashi's commentary. There are therefore sufficient grounds to conclude that the Rashi text of R.H. did not originate with Rashi. (With regard to three witnesses, MS Munich, Bayer. Staats. Cod. Hebr. 140 (margin), MS London, British Library Harl. 5508 (after correction) and ed. Fez, ca. 1516, the evidence is insufficient to draw any firm conclusions, though my presupposition is that at least the first two were extensively influenced by Rashi's comments.)

Segal (*"Bavli megillah,"* pp. 127—212) devotes a long chapter to this very problem. Since all of the above noted manuscripts, aside from MS New York, contain both R.H. and Megillah, the results of his investigation—MS Munich 95, MS Oxford, Bodley Opp. Add. fol. 23, the printed editions, MS Munich 140 (margin), and MS London, Harl. 5508 (after correction) were all influenced by Rashi—also suggests that the Rashi text of the *kima* passage in these manuscripts may derive from Rashi's commentary. And, on the other hand, E. S. Rosenthal (*"La-'arikhat masekhet pesah ri'shon bavli,"* [Ph.D. diss., Hebrew

a long list of scholars and commentators follow the alternative reading.⁵³

There is one other fairly important variant: only in the printed editions and two manuscripts⁵⁴ does the phrase “and made the constellation of *kima* rise at daybreak” occur twice, after both Marheshvan and Iyyar. All other witnesses have it only once, after either Iyyar or Marheshvan, depending upon within which month *kima* normally sets. This latter reading conforms to our expectations: only when *kima* normally sets can it be considered a “change” to make it rise. Consequently, in the quotation from ed. Venice above, one occurrence of this phrase, when referring to Marheshvan wherein *kima* naturally rises, was inserted between parentheses and should be deleted.

Though the major difference between the Rashi and Tos. texts of R.H. is their contradictory dates for the rising and

University, 1959], preface [separate pagination], pp. 1–3) classifies MS New York, JTS Rab. 1608, among those manuscripts unencumbered with glosses and emendations which developed as a result of the comments of Rashi and the Tosafot; this substantiates the conclusion that the Rashi text of the *kima* passage is not dependent upon Rashi.

In truth, though, even if MS New York, JTS Rab. 1608, did not exist and all witnesses attesting the Rashi text were known to have been influenced by Rashi, I would still be convinced that the Rashi text of R.H. is the original one; only by positing such a text can I explain the relationship between *SO* and R.H., see below for discussion.

⁵³ Tosafot, ad. loc., s.v. *yom*; R. Hananel, Commentary to R.H., ad. loc.; R. Yosef Tov Elem (Bonfils), Responsum apud R. Bezalel Ashkenazi, *Shitah mequbbešet*, *Baba Meši'a* 106b, s.v. *ve-nish'al*; R. Zerahiah b. Isaac ha-Levi, *Ha-Ma'or ha-qatan*, ad. loc.; Maimonides, *Hiddushim* to R.H. attributed to, ad. loc., ed. M.Y.L. Sachs (Jerusalem, 1963), pp. 67–69; R. Solomon b. Abraham ibn Adret (RaSHBa'), *Hiddushim* to R.H., ad. loc., ed. H.Z. Dimitrovsky (New York, 1961), p. 55; R. Nathan b. Jehiel of Rome, '*Arukh*, s.v. *kmh* (*'Arukh ha-shalem*, ed. by Alexander Kohut, 8 vols. [Vienna and New York, 1878–92], 4:244); and others.

⁵⁴ Actually only one manuscript, MS New York, JTS Rab. 1608; but the *Vorlage* of MS Munich 95 also had this reading. MS Munich 95 itself has “and the constellation of *kima* rose at daybreak,” a scribal “correction” which involved changing *ve-he'elah* to *ve-'alah*.

setting of *kima*, a comparison of the two texts brings to light additional variations, all related to this basic difference. In the Rashi text, the Flood is naturally expected when *kima* rises in Marheshvan—this is when “the fountains fill up”; when *kima* sets in Iyyar the Flood is not naturally expected—“the fountains dry up”—so *kima*’s position must be changed— “He ... made the constellation of *kima* rise at daybreak.” According to the Tos. text the months are reversed⁵⁵: when *kima* rises in Iyyar the Flood is naturally expected—“the fountains fill up,” while at *kima*’s setting in Marheshvan when “the fountains dry up” it is necessary to make “the constellation of *kima* rise at daybreak.”

A comparison of the differences between the two variant texts of *SO*, on the one hand, and the differences between the two variant texts of R.H., on the other, proves to be very interesting (see chart on next page). In *SO*, all witnesses agree that the Flood would naturally come in Marheshvan; they disagree with regard to the position of *kima* at that time. But in R.H., only the Rashi text states that the Flood would naturally come in Marheshvan; according to the Tos. text the Flood was naturally expected in Iyyar.⁵⁶ All witnesses to R.H. agree that the Flood would come when *kima* rises; they disagree with regard to the month within which *kima* rises. The implications of these distinctions will be analyzed in the ensuing discussion.

Even a cursory examination of *SO* and R.H. leads one to the conclusion that *SO* has retained a more original form of the passage.⁵⁷ The simplicity of the *SO* passage has been lost in R.H.: no longer is Marheshvan the natural month of the Flood because it is the time of the rainfall and only Iyyar the month

⁵⁵ See note 51, where the Tos. text of R.H. is quoted in full.

⁵⁶ Though from a climatic perspective this seems questionable, see discussion below.

⁵⁷ This is not to say that the R.H. passage is dependent upon the book we call *SO*; indeed, I doubt if this is the case.

Ant. 891

ed. pr.

<i>SO</i>	Marheshvan: <i>kima</i> sets Iyyar: <i>kima</i> rises	Marheshvan: <i>kima</i> rises Iyyar: <i>kima</i> sets
	Flood naturally expected in Marheshvan	Flood naturally expected in Marheshvan
	Flood naturally expected when <i>kima</i> sets	Flood naturally expected when <i>kima</i> rises

Tos.

Rashi

<i>R.H.</i>	Marheshvan: <i>kima</i> sets Iyyar: <i>kima</i> rises	Marheshvan: <i>kima</i> rises Iyyar: <i>kima</i> sets
	Flood naturally expected in Iyyar	Flood naturally expected in Marheshvan
	Flood naturally expected when <i>kima</i> rises	Flood naturally expected when <i>kima</i> rises

wherein a “change” is needed. In R.H. the Flood began with a “change,” whether it began in Iyyar or in Marheshvan.

Essentially the difference has to do with the phrase “God altered the order of the world/the work of creation”: in *SO* it appears only once, and, according to all witnesses, with regard to Iyyar (when rain does not fall). In R.H. it appears twice, with regard to both Marheshvan and Iyyar. But with regard to one of them (depending upon the reading) the coming of the Flood is not unnatural—*kima* anyway rises⁵⁸—so what need is there for a change? The *sugya* following the *baraita* asks this very question; its answer, however, suggests that the *baraita* means something not even hinted at and is therefore problematic. Most probably, the introduction of this phrase a second time serves to emphasize the supernatural and point

⁵⁸ In R.H., as opposed to *SO*, all witnesses agree that the Flood would naturally come when *kima* rises.

out that no matter when the Flood occurred, it should not be considered a natural event. So what did God change (if *kima* was in the correct position for a flood)? He took away two stars from *kima*.⁵⁹ This “change” applies to both Iyyar and Marheshvan, while the other change applies to only one (depending upon the reading).

The motif of taking two stars from *kima* is part of a larger aggadic elaboration on the interrelationship of two constellations, *kima* and *'ayish*. In B.T. Berakhot 59a we find that “when the Holy One, blessed be He, wished to bring the Flood to the world He took away two stars from *kima* and brought the Flood to the world, and when He wished to close it He took away two stars from *'ayish* and closed it.”⁶⁰ The R.H. passage is simply quoting from the larger passage⁶¹ the

⁵⁹ R. Yom Tov b. Abraham Ishvili (RiṭVa'), *Hiddushim* to R.H., ad. loc. discusses this possibility, but for him the problem is to explain why the Talmud does not give this obvious response to the question “What did He change?” Professor David Halivni (*Meqorot u-mesorot: bi'urim be-talmud le-seder mo'ed* [Jerusalem, 1975], p. 370, note 2) refers to the Ritva, and seems satisfied with the latter's explanation. He concludes (concerning this point we follow him) that the original formulation of this passage is that of *SO* with only one “change.” He then presents two alternative explanations of the R.H. text: either it developed by means of a mechanical transferral of this phrase from one half of the *baraita* to the other, or by means of an amalgamation of two different formulations of this *baraita*, each containing only one “change,” but in one the “change” is associated with R. Yehoshu'a and in the other with R. 'Eli'ezer. The focus of Halivni's reconstruction is very different from the one in this paper. Since he accepts the position of the Ritva while rejecting the answer given by the later *sugya*, his major concern is with the development of the R.H. text containing two “changes” and not with the inter-relationship of *SO* and R.H.

⁶⁰ The passage translated here is in Hebrew while further elaborations upon this motif both before and after the passage are in Aramaic. Does this indicate that this passage is an independent tradition unit which was incorporated into the *sugya*?

⁶¹ This does not mean a mechanical borrowing from Berakhot. The *baraita* in R.H. was almost definitely formulated before the passage was incorporated into the *sugya* in Berakhot.

phrase “He took away two stars from *kima* and brought the Flood to the world” in order to tell us exactly what change God made in the order of creation when he brought the Flood.

Since this extraordinary act of God—taking two stars away from *kima*—is the same whether it occurred in Marheshvan or in Iyyar, whether *kima* is rising or setting, it has no relevance to our basic problem. The other change in the work of creation is very relevant: according to all witnesses of R.H. God made *kima* rise in order to bring the Flood to the world. If *kima*'s rising is necessary in order to bring the Flood, it follows that the natural time for the Flood to come is when *kima* rises, and the anomalous time when *kima* sets.

Keeping this in mind, that according to both the Rashi and Tosafot text of R.H., that is to say, whether *kima* is said to rise in Iyyar or Marheshvan, it is its rising which is the necessary antecedent for the coming of the Flood, we shall return to the problem of the two alternative readings in *SO* and R.H. and also to the question of the relationship between these two texts.

Let us start with the Rashi text of R.H.: In Marheshvan *kima* rises and the springs fill up, that is to say, the time of the rainfall (Marheshvan) is the natural time for the Flood to begin. In Iyyar *kima* sets and the springs empty, that is to say, the coming of the Flood is anomalous at this time, so the natural order must be changed and *kima* made to rise. When one compares this with *ed. pr.* text of *SO*, which also has *kima* rising in Marheshvan and setting in Iyyar, there is no tension between the texts. Both agree that in Marheshvan it is not necessary to make any change in order to bring the Flood and in Iyyar it is necessary. The problem, though, is obvious: if *kima* is the Pleiades, in Marheshvan it sets not rises.⁶²

⁶² This forced Rashi to interpret “rising” and “setting” the way he does (above, note 12). Rashi was convinced that the natural time for the Flood was Marheshvan (see next note), but the text which has the Flood naturally coming in Marheshvan also has *kima* rising in Marheshvan. Consequently, “rising” cannot mean heliacal rising.

With the Tosafot text of R.H.—*kima* setting in Marheshvan and rising in Iyyar—the problems are different. If *kima*'s rising causes the flood, and according to the natural order *kima* rises in Iyyar and sets in Marheshvan, then the position of *kima* must be changed in Marheshvan, but not in Iyyar. This itself is a problem: why should the natural order need to be changed in Marheshvan—the rainy season—and not need to be changed in Iyyar—the dry season? Tosafot and other exegetes who uphold this text give the following answer: Flooding should be expected at the end of the winter, in Iyyar, when the springs have filled up, and not at the beginning of the winter, in Marheshvan.⁶³ Though one can see a certain logic in this argument, nonetheless, it counters our natural tendency to connect the Flood with rainfall (and not simply overflowing springs), and of course, rain falls in Marheshvan not Iyyar.

The real problem, however, becomes evident when we compare the Tosafot text of R.H. and the Ant. 891 text of *SO* (both containing *kima* setting in Marheshvan). According to *SO* the Flood naturally comes in Marheshvan when *kima* sets, and in Iyyar when *kima* rises the natural order must be changed. How did this become the passage we find in the Tosafot text of R.H.: the Flood naturally comes in Iyyar when *kima* rises, and in Marheshvan when *kima* sets the natural order must be changed to make *kima* rise? The contradiction is blatant: in R.H. with no supernatural change of the position of *kima* the Flood is associated with Iyyar and the rising of *kima*; in *SO* with no supernatural change the Flood is associated with Marheshvan and the setting of *kima*.

Since there is little doubt in my mind that the Ant. 891 text of *SO* is original, I cannot understand how the R.H. passage,

⁶³ See, e.g., Tosafot and R. Solomon b. Abraham ibn Adret, cited above, note 53. The improbability of the Flood being naturally expected in Iyyar rather than Marheshvan was probably the reason Rashi chose the Rashi text of R.H. and not the Tos. text.

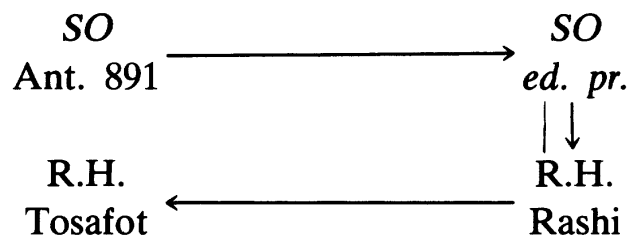
as evidenced in the Tosafot text, could have developed from it. The change in the *baraita* is not merely the elaboration of existing material nor the inclusion of additional material, both of which are relatively common in the transmission of rabbinic sources, but the replacement of the original meaning of the passage with a directly contradictory one. True that texts are often “corrected,” but in our case this would presuppose that some scholar, reading (or hearing) that the Flood should naturally come in Marheshvan, the rainy season, “changed” this to have the Flood naturally come in Iyyar. In other words, the first possibility is so illogical that it *must* be changed: such a presupposition seems very improbable.⁶⁴

My conclusion therefore is that the Tosafot text of R.H. did not develop out of the Ant. 891 text of *SO*, even though 1) both agree that *kima* sets in Marheshvan and rises in Iyyar; and 2) this agrees with our conclusion that *kima* is the Pleiades.

The essential point of the following hypothetical reconstruction of the transmission-history of this passage is that, while the Tosafot text of R.H. and the Ant. 891 text of *SO*—both having *kima* set in Marheshvan—contradict each other, the Rashi text of R.H. and the *ed. pr.* text of *SO*—both having *kima* rise in Marheshvan—agree with each other. Consequently, if one assumes that the scholar who elaborated on the original passage and added “and made the constellation of *kima* rise at daybreak ... and brought a flood on the world” had in front of him a form of the passage identical to that of the *ed. pr.* text of *SO*, it is easy to see how the R.H. passage developed out of the *SO* passage.⁶⁵ In diagram form the transmission-history looks like this:

⁶⁴ In the final analysis, though, this is a subjective consideration incapable of being proven or disproven.

⁶⁵ See note 57. I use the phrase “*SO* passage” in place of the awkward “passage identical to the *SO* passage.” The essential point is that we are dealing with the interrelationship of two passages in *SO* and R.H. and not with the interrelationship of the two texts, *SO* and R.H. In rabbinic literature the distinction is crucial.



In the original *SO* passage, *kima*, which was associated with the coming of the rain, must have been the Pleiades, which set in Marheshvan and rise in Iyyar. An alternative interpretation of *kima*, identifying it as an astral body which sets in Iyyar and rises in Marheshvan, caused the text to be changed accordingly (the *ed. pr.* text of *SO*). This text was taken over into the Babylonian Talmud, and sometime during the transmission, the phrase “and made the constellation of *kima* rise at daybreak ... and brought a flood on the world” was added.⁶⁶ Since, according to *SO*, the natural order had to be changed in Iyyar—the dry season, and according to the *ed. pr.* text of *SO*, *kima* set at this time, this new phrase conformed to the meaning of the original passage and merely made explicit what type of change was necessary in Iyyar for the Flood to come.

The further emendation of this passage—from the Rashi text of R.H. to the Tos. text—is easy to explain. Since *kima* was identified by all medieval exegetes and scholars as the Pleiades, which set in Marheshvan, it was only natural to “correct” any text asserting the opposite. Sometime during the transmission of the R.H. passage, one or more exemplars of the original text (i.e. the Rashi text of R.H.), which had *kima* setting in Iyyar and rising in Marheshvan, were emended so that *kima* sets in Marheshvan and rises in Iyyar. However, the R.H. passage already stated explicitly that the Flood was brought by making *kima* rise at daybreak, with the further implication that the Flood is naturally expected in the month within which *kima* naturally rises at daybreak. In this new text, then, on the

⁶⁶ Whether or not all of the additions in the R.H. passage were added by one person is irrelevant to our discussion.

one hand, *kima*, identified as Pleiades, sets in Marheshvan and rises in Iyyar, and, on the other hand, the Flood is naturally expected when it rises; there was no choice, therefore, but to conclude that the natural habitat of the Flood was Iyyar. Thus, the notion we find in the Tos. text of R.H., that in Iyyar *kima*'s natural position does not need to be changed for the Flood to come while in Marheshvan it does need to be changed, did not arise deliberately; this conclusion was forced by the earlier transmissional stages of the passage.

By means of this reconstruction we can understand the different dates given for *kima*'s rising and setting in the different texts, resolve the apparent enigma of having two texts, Ant. 891 in *SO* and Tos. in R.H., agree with regard to the setting and rising of *kima*, yet differ with regard to the month within which *kima*'s position must be changed, and thereby satisfactorily explain the formation of all versions of this passage, the two in *SO* as well as the two in R.H.