

Tame and Wild Time in the Qumran and Rabbinic Calendars

Ron H. Feldman

It is well known that for about four centuries starting in the second century BCE the calendar was a focus of conflict between different Jewish groups: one tradition, which culminated in the rabbinic calendar still used by Jews today, favoured an observational lunisolar calendar while the other, extensively documented in the literature found at Qumran, favoured a strictly calculated 364-day year calendar.¹ While there are ongoing scholarly debates about when, where and by whom these different types of calendars were used, and especially their use by the priests officiating in the Second Temple, for purposes of this paper I want to set aside the arguments about historic usage.² Here I want to focus on the different ways time is constructed in these calendars, and what this tells us about how their proponents differently negotiated the relationship between humans, God and nature in the temporal realm.

The calculated Jewish calendar (properly called “the Hebrew calendar”) in use today is the latest stage of a lunisolar calendar tradition known primarily from rabbinic texts; these begin with the Mishnah, which was redacted over a century after the destruction of the Temple in 70 CE.³ The earliest texts of this tradition describe an observational lunisolar calendar that is focused on correctly marking the first crescent of the new moon, which is considered the beginning of a new lunar month. In contrast, the 364-day year calendar is based exclusively on calculation rather than observation, and was forgotten until modern times. Today it is known from the Qumran texts (also known, more popularly, as the Dead Sea Scrolls) and the related texts of Jubilees and the *Astronomical Book* of 1 Enoch.⁴ The texts describing a 364-day year calendar were all composed prior to the destruction of the Second Temple, and are mostly dated to the second or first century BCE at the latest, thereby predating the Mishnah by at least 300 years. Most scholars agree that this calendar tradition reflects priestly views and traditions. In discussing both types of calendars we are really discussing not a single calendar but calendar *traditions* because there are various features that changed as they evolved over time.

While there are well-known conflicts between proponents of these calendars concerning when to observe certain holidays and what to do when annual holidays fall on a Sabbath,⁵ in my view the underlying point of calendrical conflict between these traditions is that they gave different solutions concerning the problem of reconciling the 29.5 day cycle of the New Moon with the seven-day cycle of the Sabbath. We will see that the 364-day calendar favoured the Sabbath at the expense of the New Moon while the rabbinic lunisolar calendar favoured the New Moon at the expense of the Sabbath. Of course, these divergent solutions are associated with different ideological positions and world-views.

Central to my analysis is the qualitative difference between the temporal cycles of the lunation versus the Sabbath. The common distinction between sacred and profane time is of no use here because what is at stake are different ways of establishing sacred time.⁶ Methodologically speaking, because I agree with those who argue that humans are embedded within nature rather than separate from it, I will characterize these different rhythms of time by borrowing a distinction made in environmental thought between *wild* versus *tame*, where wild describes something beyond human control while tame describes that which is subject to human domination.⁷

The *lunation* and the *Sabbath* exemplify two qualitatively different types of time, *wild* and *tame*. The rhythms of the sun, moon and stars are part of *wild* nature that cannot be controlled by humans and, according to contemporary astronomy, existed before humans came on the scene. The biblical creation account of Gen 1–2:4a seems to be in general agreement with this sequence: the sun, moon and stars are created on the fourth day of the primordial week for the joint purpose of illumination and time keeping (Gen 1:14–19), and therefore existed before the creation of humans on the sixth day. The precise visibility of the first crescent of the new moon is an especially *wild time*, not only because it is uncontrollable, but because it remains unpredictable for contemporary astronomy.⁸

In contrast, the seven-day week defined by the Sabbath is a rhythm of *tame time* based exclusively on human counting; it is a direct revelation with no natural intermediary. The Sabbath's seven day rhythm is not governed by the celestial lights created on the fourth day, but is a direct commandment from God. While the biblical editors assert that the Sabbath is integral to the world of creation ("For in six days the Lord made heaven and earth and sea, and all that is in them, and He rested on the seventh day" (Exod 20: 11)),⁹ it seems they are simultaneously aware that the Sabbath is not known to other creatures or peoples, but is a revelation to Israel that is part of its covenant with God:

The Israelite people shall keep the sabbath, observing the sabbath throughout the ages as a covenant for all time: it shall be a sign for all time between Me and the people of Israel. For in six days the Lord made heaven and earth, and on the seventh day He ceased from work and was refreshed. (Exod 31:16–17).

The commandment to rest on the Sabbath is unique to the Israelite settlements, including humans and domesticated animals (see the two versions of the Ten Commandments: Exod 20:10; Deut 5:14). The Sabbath is manifested in this world only through their observance of it.¹⁰

I now want to turn to the Qumran and rabbinic calendar traditions, which both base themselves on these biblical texts and each, in its own way, seeks to *tame the wild* cycle of the lunation and *wild the tame* cycle of the Sabbath.

Before focusing on their differences it is important to acknowledge their similarities. Both of them evolved out of the Mesopotamian lunisolar calendar tradition.¹¹ Both are concerned with the proper and accurate observance of sacred moments, for you do not want to "make a day of testimony something worthless and a profane day a festival" (Jub. 6:37), as succinctly stated by the second century BCE author of Jubilees. Both traditions use the Bible as a resource and proof-text, mapping the annual biblical holidays onto a matrix of time defined by days, months, years and the seventh-day Sabbath. Indeed, they seem to have no conflict over the actual day observed as the Sabbath,¹² which leads to the

conclusion that the calendrical polemics we are exploring arose *after* the successful institutionalization of the seventh-day Sabbath.¹³ It turns out, however, that biblical ambiguities provide the basis for differing interpretations over such things as the definition of “month” and “year”. Indeed, I think of the Bible as an enabler of later calendrical diversity and conflict.

Turning now to their differences, I want to first take up the 364-day calendar. This is a strictly calculated calendar that neither requires nor allows for observation. If there was a method of intercalation to make up for the missing $1\frac{1}{4}$ days per year it is unclear from the existing literature, although there has been much scholarly debate about this.¹⁴ Certainly the later documents of this tradition maintain the idea of a rigid, unchanging arrangement of holy times commanded by God for humans to follow. This view is expressed in Jubilees, a second century BCE retelling of Genesis and Exodus as told by the Angel of the Presence to Moses on Mt. Sinai: “Now you command the Israelites to keep the years in this number – 364 days. Then the year will be complete and it will not disturb its time from its days or from its festivals because everything will happen in harmony with their testimony. They will neither omit a day nor disturb a festival” (Jub. 6:32).¹⁵ The Rule of the Community, a later composition that is a major sectarian text from Qumran, similarly states: “They shall not stray from any one of all God’s orders concerning their appointed times; they shall not advance their appointed times nor shall they retard any one of their feasts” (1QS, 13–15).¹⁶

While many scholars have described this as a “solar” or “concordant” calendar because it mathematically synchronizes the rhythms of sun, moon, stars and Sabbath, I contend that this is best described ideologically as a *Sabbatarian* calendar because the Sabbath, observed by the weekly duty shifts of the priests in the Temple, is the central rhythm of time to which all others are subservient.¹⁷ 364 days conveniently divides evenly into 52 weeks, including 4 seasons of 13 weeks. Because the year has an exact multiple of complete weeks, the dates of the annual holidays fall on the same day of the week every year and have been arranged so that they never fall on the Sabbath. A calculated cycle of lunations appears in important variants of this calendar tradition (the *Mishmarot* texts), yet the months used for setting the dates of the annual holidays are not lunar but purely calculated groups of 30 or 31 days. Over the course of a six-year cycle, the lunations, non-lunar months and years synchronize with the weekly duty cycle of the 24 priestly families.¹⁸ Since its primary temporal cycle is the seventh-day Sabbath, a length of time that does not appear in wild nature, I characterize the 364-day calendar as a calendar of *tame time*.¹⁹

The importance of the Sabbath to the worldview of the 364-day calendar tradition can be seen in Jubilees. Among the important changes compared to the biblical account is that the Sabbath is the now the “first law” (Jub. 2:24), given to the angels at creation and later revealed to Moses at Sinai, not merely the conclusion of the first week of creation as in Gen 1–2:4a:²⁰

He [God] gave us the sabbath day as a great sign so that we should perform work for six days and that we should keep sabbath from all work on the seventh day. He told us – all the angels of the presence and all the angels of holiness (these two great kinds) – to keep sabbath with him in heaven and on earth. (Jub. 2:17-2:19)²¹

To get a sense of how the Sabbath was supposedly observed in heaven we can turn to one

of the major Qumran finds, *Songs of the Sabbath Sacrifice*, a cycle of liturgical prayers referencing the heavenly temple and its angelic priesthood for a sequence of 13 Sabbaths in the 364-day calendar. The text is generally considered to reflect the mysticism of the priestly followers of the 364-day calendar, especially how their practices on earth are connected to those supposedly taking place in heaven.²² Here we find a passage that presents an image of God in His heavenly sanctuary being praised for His judgments and justice by the assembled councils of angels on the Sabbath:

Song of the sacrifice of the seventh Sabbath on the sixteenth of the month. Praise the God of the lofty heights, O you lofty ones among all the elim of knowledge... [For He is] God of all who rejoice... forever and Judge in His power of all the spirits of understanding....And they make acceptable their knowledge according to the judgments of His mouth and their confessions (do they make acceptable) at the return of His powerful hand for judgments of recompense.
(4QShirShabb^d (4Q403) 1 I 30–39)²³

Jubilees explains that the purpose of the people Israel is to manifest the Sabbath on earth:

He said to us [the angels]: ‘I will now separate a people for myself from among my nations. They, too, will keep sabbath. I will sanctify the people for myself and will bless them as I sanctified the sabbath day.Now you command the Israelites to observe this day so that they may sanctify it, not do any work on it, and not defile it for it is holier than all (other) days. (Jub. 2:19–2:26)

To summarize, the 364-day calendar constructs a temporal cosmos of *tame* time, in which the rhythms of the celestial lights are subservient to the rhythm of the Sabbath, a rhythm directly revealed by God to the Israelites without wild nature as an intermediary. These texts tell us that on the Sabbath the angels praise God, who dispenses justice, and while the Sabbath was observed by God and the angels in heaven from the time of the creation, it becomes the task of the Israelites to bring this revealed rhythm into the created world. Here we can see a dual ideological move of *taming the wild* and *wilding the tame*: the wild rhythms of the celestial lights (created on day four) are tamed by their subjugation to the rhythm of the Sabbath, while the tame Sabbath itself is asserted to be an original wild rhythm of time created along with “the heavens and the earth” even if not perceptible in any part of the visible creation.

In contrast to the strict structure of the calculated 364-day calendar tradition, the observational lunisolar calendar described in the Mishnah (redacted in about 200 CE) and later rabbinic texts is mutable. The Mishnah extensively describes the procedure by which the new lunar month is determined and declared by the rabbinic calendrical court after the observation of the first crescent of the new moon. The need for this (discussed more extensively below) is the uncertainty about whether the next first crescent of the new moon will be sighted on the 30th or 31st day following the previous one, which determines whether the month just completed was 29 or 30 days long. Other rabbinic texts discuss the uncertainty concerning the intercalation of an additional lunar month into the year, which is also determined by observation of natural phenomena.²⁴ Because the length of the months and year varies, the length of the year will not be evenly divisible by seven, with the result that the day of the week on which the annual holidays fall will vary year to year, as will the number of weeks in a year. Therefore, in the rabbinic calendar tradition, the seventh-day

Sabbath cycle runs in a parallel and uncoordinated fashion with the annual holidays, which will occasionally overlap the Sabbath.

Before exploring the construction of tame and wild time in rabbinic calendar texts, I want to draw a clear contrast between the rabbinic attitude toward sacred time versus those of the 364-day calendar tradition by considering rabbinic texts written about four to five hundred years after the 364-day calendar tradition texts referred to earlier, but whose settings and motifs are virtually identical. Just as in Jubilees and the *Songs of the Sabbath Sacrifice*, we find God in heaven surrounded by the angelic council dispensing justice on a holy day. The Babylonian Talmud (BT) preserves a *baraita* concerning Rosh Hashanah which says that “the heavenly Court does not assemble for judgment until the Court on earth has sanctified the month” (*b. Rosh HaShanah* 8b). Rosh Hashanah is the only annual holiday that falls on the first of a lunar month, and its timing will determine the observance of the rest of the year’s annual holidays, including Yom Kippur; it is therefore the most important—and paradigmatic—new moon holiday of the year.²⁵

A commentary (*gemara*) in the Palestinian Talmud (PT) colourfully elaborates on the image provided by the BT:

The Court said: today is Rosh Hashanah. The Holy One Blessed be He says to the ministering angels: set up the platform, let the defenders rise and let the prosecutors rise; for my children have said, today is Rosh Hashanah. If the Court changed to make the month full [so that Rosh Hashanah will fall on the next day], the Holy One Blessed be He says to the ministering angels: remove the platform, remove the defenders, and remove the prosecutors; for my children have decided to make the month full. What is the proof? *Therefore it is a statue for Israel, an ordinance for the God of Jacob* (Psalms 81:5). If it is not *a statute for Israel*, as though it were possible, it is not *an ordinance for the God of Jacob*. (*y. Rosh HaShanah* 1:3 (57b)).²⁶

Both the similarities and differences between the rabbinic and 364-day calendar tradition texts illuminate the way these different Jewish cultural formations constructed the relationship between humans, God and nature. To begin with, we see a shift in paradigmatic sacred time: while the 364-day calendar tradition texts are focused on the Sabbath the rabbinic texts are concerned with the new moon and the related observance of Rosh Hashanah. This signifies a shift in emphasis away from the Sabbath and toward the lunation, thereby valorizing the uncertainty that is inherent in the wild time of the new moon.

Of even greater importance is a reversal in the relations of power between humans and God. Rather than the reverential tone we find in the 364-day calendar tradition texts, in which the task of humans is to emulate the actions of the angels, the PT text is almost comical: God doesn’t know what day it is! While the sabbatarian rhythm of the 364-day calendar is eternally set and repeatedly observed, in this PT story God must wait to hear from the rabbinical court to know when Rosh Hashanah will fall since the legal authority to declare the new moons, and therefore the holidays, has been delegated to the court.

We might say that this demonstrates an amazing amount of rabbinical *chutzpah*. In Jubilees the Israelites emulate God and the angels in their observance of Sabbath while in the Talmuds this is reversed: God and the angels *follow* the practice of Israel and must wait around for the human rabbinical Court to tell the heavenly Court when it can be in session to dispense divine justice! While God may know when the new moon occurs, the human sighting the new moon is an inherently uncertain proposition, so what we find here is that

the uncertainty and wildness of the new moon extends, through the rabbinical Court, into heaven. Power over time is shifted from God to humans, i.e., the Rabbis.²⁷ These Talmudic stories about the Heaven's observing holidays as determined by the rabbinic court is consistent with a broader rabbinic arrogation of authority to interpret Torah as a whole.²⁸ In comparison to the doctrines of the Qumran documents and the 364-day calendar tradition, the relationship between humans, God and nature has been redefined by the rabbis, and in important ways both God and nature are tamed and subject to human control.

I want to now turn to a more detailed discussion of the evolution of rabbinic attitudes about sacred time as expressed in rabbinic calendar texts. While the basic operation of the observational rabbinic calendar seems similar throughout the period I will consider—indeed, the rabbinic tradition always asserts that later practice is consistent with former practice—I will identify three key shifts in attitude reflected in texts that are portrayed as taking place at different locations associated with different historical periods. While I do not take the characters of the rabbinic texts, or the texts themselves, as literal reports of historical events, the texts do place characters and events in a rough historical context—and for my purposes here, the sequence is more important than the actual dates. Supposedly there was a calendrical court in Jerusalem that met at *Beit Yazek* during the time of the Temple (*m. Rosh HaShanah* 2:5). After the fall of the Temple this was moved to *Yavneh*, which is the setting for the stories about the generation of Rabban Gamliel (as below in *m. Rosh HaShanah* 2:9); this period ended in the wake of Bar Kochba revolt in 136 CE. By the end of the second century CE the calendar court had moved to *Ein Tav* in the Galilee, which is the setting for the story of Rabbi Hiyya and Judah the Patriarch (as in *b. Rosh HaShanah* 25a discussed below).²⁹

In the earliest Beit Yazek phase there is an agreement with the attitude of Jubilees, that aligning the human observance of sacred time with God's intent is the goal, although the technique is totally different. In the observational lunisolar calendar, the new moon is considered the key divinely ordained temporal marker and is *more important* than the Sabbath according to the Mishnah. We can see this priority through the rulings in which witnesses to the new moon's appearance are encouraged to *violate* the rules of Sabbath observance in order to testify about their sighting of the new moon to the calendrical court (see especially *m. Rosh HaShanah* 1:1–2:9). For example:

If a person saw the New Moon and is unable to walk, they bring him on an ass, or even on a bed; and if any lie in wait for them, they take sticks in their hands; if the way is long, they take food in their hands, because for a journey lasting a night and a day they may *violate* the Shabbat, and they go forth to give testimony about the New Moon, as it is written, "These are the appointed seasons of the Lord...which *you* shall proclaim in *their* appointed season" (Lev 23:4). (*m. Rosh HaShanah* 1:9, emphasis added)³⁰

The Mishnah is arguing that Lev 23:4 is referring to the sacred times marked by the heavenly lights which were assigned this task by God in Gen 1:14, which uses the same term, "appointed seasons – מועד." The human task ("you" in Lev 23:4) assumed by the Court is to "proclaim" the sacred times of Lord's appointed seasons in conformance with the times revealed by the heavenly lights—in the rabbinic view, this is the moon. This requires accurate observation and is construed to be a task so important that it outweighs the laws of the Sabbath, which "they may violate". This also justifies the Court's role in evaluating the

veracity of witnesses and its power to make a final declaration. The ritualistic legal formula for proclaiming the month is described by the Mishnah as follows: “The head of the Court says, “It is sanctified!” And all the people answer after him, “It is sanctified, it is sanctified” (*m. Rosh HaShanah* 2:7).

The Beit Yazek phase portrays a calendar of *wild time* in which uncertainty is highlighted and made central. Accurately determining the time indicated by the wild cycle of the new moon is paramount, and the focus of uncertainty is whether the new month will start on the 30th day. This uncertainty about the appearance of the first crescent is the justification for the entire legal procedure described in *m. Rosh HaShanah* 1:3–3:1, a procedure which gives the rabbinical Court the power and authority to determine and proclaim sacred times. This focus on the 30th day may also explain the use of the odd term “in its proper time”. Why is this day normative while the 31st is described as “not in its proper time”?³¹ I suggest it is because the Court has something it would like to accomplish on the 30th to justify and project its authority: declare the new month. If the new moon is not seen on the 30th, there is no need for the Court.³²

Historically, I believe that the extreme emphasis on observation in the Beit Yazek phase of the rabbinic observational lunisolar calendar described in *m. Rosh HaShanah* is best explained as a response to, and a polemic against, the dysfunction of the 364-day calendar due to its lack of intercalation, (at least at the latest stage of its development as reflected in Jubilees and Qumran).³³ The command to violate the Sabbath when necessary is in direct conflict with the attitude toward the Sabbath of the proponents of the 364-day calendar, for whom the Sabbath is sacrosanct, and whose calendar precludes the overlapping of holidays with the Sabbath. It may have been these opponents who engaged in “disruptive practices” (*m. Rosh HaShanah* 2:1) and were the ones who would “lie in wait” for them (not just robbers), for we know from other mishnaic passages that there were opponents who sought to disrupt these observational procedures.³⁴ This is a conflict between those who followed calendars that had different priorities when forced to choose between the Sabbath and the new moon. It was a conflict between those who preferred certainty versus unpredictability, of tame versus wild time.

The *Yavneh* stage of rabbinic calendrical thought builds on the rabbinical Court’s authority to declare sacred time to reverse the view of Beit Yazek: rather than emphasizing the uncertainty of the wild rhythm of the new moon’s appearance, the lunar cycle is tamed by making a distinction between the *appearance* of the new moon and the *declaration* of the new month. This lays the philosophical groundwork for the eventual development of a fully calculated lunisolar calendar of tame time—although in a different fashion from that of the 364-day calendar tradition’s effort to tame time by entraining the moon and the annual holidays to the rhythm of the Sabbath. I think it is quite likely that this turn of thought and practice was part of changed historical circumstances—namely, that with the destruction of the Temple and Qumran the advocates of the 364-day calendar fade from history at the same time that the rabbis are struggling against growing groups of Jewish-Christians for leadership of a people defeated and diminished by the Romans.³⁵

The Mishnah begins this turn by asking: What happens when the calendar court is mistaken and declares a new month on what is the wrong day according to observation? What we see is a claim by the rabbis that it is their right to declare sacred time, whether this is in concert with the heavenly lights or not. This key philosophical turning point

in the rabbinic calendar tradition is demonstrated in a famous story recorded in *m. Rosh HaShanah* 2:8–9:

Rabban Gamliel had illustrations of the shapes of the moon on a tablet and on the wall in his upper chamber, which he showed to the simple, and he said, “Did you see like this, or like this? It once happened that two came and said, “We saw it in the east in the morning and in the west in the evening.” Rabbi Yohanan ben Nuri said, “They are false witnesses!” When they came to Yavneh, Rabban Gamliel accepted them. And other two came and said, “We saw it at its proper time, and on the night preceding the added day it was not seen”; and Rabban Gamliel accepted them. Rabbi Dosa ben Harkinas said, “They are false witnesses! Can they testify about a woman that she gave birth, and on the morrow her belly is between her teeth?” Rabbi Yehoshua said to him, “I approve your words.” (*m. Rosh HaShanah* 2:8)

Rabban Gamliel sent to him: “I order you to come before me, with your staff and with your money, on Yom Kippur that falls according to your calculation”. Rabbi Akiva went and found him distressed; he said to him, “I have to teach, that all that Rabban Gamliel did is done, for it is written, ‘These are the appointed seasons of the Lord, sacred occasions which you shall proclaim’ (Lev. 23:4), whether at their proper time, or not at their proper time, I have no appointed seasons save these”. He came to Rabbi Dosa ben Harkinas. He said to him, “If we were to investigate the Court of Rabban Gamliel, then we must investigate each and every Court that has arisen from the time of Moses until now; as it is written, ‘Then went up Moses, and Aaron, Nadav, and Avihu, and seventy of the elders of Israel’ (Ex. 24:9). And why are the names of the elders not mentioned? To teach us that each and every three that have risen up as a Court over Israel are as the Court of Moses.” He took his staff and his money in his hand, and went to Yavneh to Rabban Gamliel on the day that Yom Kippur fell by his calculation. Rabban Gamliel stood up and kissed him on his head, and said to him, “Come in peace, my master and my disciple! My master in wisdom, and my disciple because you accepted my words.” (*m. Rosh HaShanah* 2:9)

Rabbi Dosa argues that Rabban Gamliel, the head of the calendar court, has clearly declared a new month on an incorrect day (and from previous criticism by Rabbi Yohanan ben Nuri, this was not the first mistaken declaration). We can infer that this new month happens to be Rosh Hashanah because this mistake will cause Yom Kippur to be observed on a different day vis-à-vis the correct sighting of the moon (as we learn later in the story). Rabbi Yehoshua agrees with Rabbi Dosa’s observation, but is ordered by Rabban Gamliel to violate Yom Kippur according to Rabbi Dosa’s calculation. Rabbi Yehoshua is greatly vexed: should he observe the holy day as declared by the rabbinic court, or on the day indicated by the heavens? In the end, Rabbi Yehoshua conforms to the ruling of the court, which is the primary lesson of this story.³⁶

Rabbi Yehoshua’s surrender to Rabban Gamliel is justified by two arguments: one is that while courts may be fallible, their rulings still hold. The fact that the story is about the moon merely highlights the court’s authority: this is not merely a story about the unclear facts of some case between individuals, but is blatantly public and apparent to anyone who can see the moon.

The second, made by Rabbi Akiva, is more important for the present discussion: Rabbi Akiva argues that God has handed over the authority to declare sacred time to the rabbinic court, an assertion based on his interpretation of the biblical verse, “These are the appointed

seasons of the Lord, sacred occasions which *you* shall proclaim” (Lev 23:4, emphasis added). It is important to note that Rabbi Akiva is using the same proof-text that was used in *m. Rosh HaShanah* 1:9 (referred to above), where it was used to justify the importance of accurately observing the moon and reporting its appearance to the Court even if the Sabbath had to be violated, a Beit Yazek period view now represented by Rabbi Dosa and Rabbi Yehoshua. However, to justify his argument Rabbi Akiva conveniently leaves out precisely the words from Leviticus that were emphasized in *m. Rosh HaShanah* 1:9, “which you shall proclaim in their appointed season”. By emphasizing human proclamation and eliminating the autonomy of the celestial lights to mark time, Rabbi Akiva is reversing the argument of *m. Rosh HaShanah* 1:9.³⁷ Rabbi Akiva further argues that the court’s proclamations are what matter: whether declared “at their proper time, or not at their proper time, I have no appointed seasons save these”. Rabbi Akiva’s words may even be taken as ironic or satiric: “in its proper time” and “not in its proper time” are technical terms for when the moon is sighted on the 30th or 31st day after the prior sighting, but here Rabbi Akiva seems to also be using these terms in a more literal fashion, i.e., whether the time declared is correct or incorrect, the proclamation determines the “appointed season”.

While we should not think that this story is historical, it nevertheless portrays the philosophical shift of rabbinic attitudes about sacred time, which seems to also correlate to the shift from Beit Yazek to Yavneh (at least as indicated by the change in characters and venue). The old view—held by the 364-day calendar tradition, the Beit Yazek rabbinic period (as in *m. Rosh HaShanah* 1:9) and Rabbi Dosa in this story—was that God determined sacred times and it was for humans to conform to them. The difference between the 364-day calendar tradition and this rabbinical view was one of technique, not attitude: the former held to a holiday calendar defined by the divinely commanded sabbatarian rhythm while the latter claimed the moon was the divinely created marker for the holidays, even when the result conflicted with the Sabbath.

The new view of Yavneh, put into the mouth of Rabbi Akiva and implicitly that of Rabban Gamliel, arrogates to humans the right to determine sacred times. There is no such thing as a mistaken proclamation because God has “no appointed seasons save these”. The key innovation is the distinction between the actual *sighting* of the new moon and the *declaration* of the sighting of the new moon. This distinction lays the groundwork for shifting the purpose of the calendrical court from validating the sighting of the new *moon* to the declaration of the new *month* that is only tenuously connected to the actual appearance of the new moon; the moon and the month have been divorced. This is a radical and paradoxical move because—as discussed above—it is the hyper attention to the uncertain appearance of the moon that provides the Beit Yazek rabbis with the justification for the legal proceedings of the calendrical court. Yet, having attained that authority, the court now becomes the venue for the rabbinical assertion of power to determine not the *actual* appearance of the new moon (over which they have no control) but the *socially* determined—and *divinely* accepted, as we saw in the passages from the BT and PT—beginning of the new month.

This power to declare the new month, even when mistaken vis-à-vis the new moon, leads to the next logical step: not just to be accepted when wrong, but to willfully declare the month according to the rabbis’ desires regardless of the appearance of the new moon. What I identify as this third, *Ein Tav* phase is illustrated by a story in the *gemara* of the BT:

Rabbi Hiyya once saw the (old) moon in the heavens on the morning of the twenty-ninth day. He took a clod of earth and threw it at it, saying "Tonight we want to sanctify you, and are you still here! Go hide yourself." Rabbi thereupon said to Rabbi Hiyya, "Go to Ein Tav and sanctify the month, and send me the watchword, 'David king of Israel is alive and vigorous.'" (*b. Rosh HaShanah* 25a).³⁸

This story presents the essence of the rabbis' conundrum: they want to declare the new month, but are constrained by the justifications they have used for legitimating their authority, i.e., correctly observing the new moon. While the court wants to declare the new month that evening,³⁹ Rabbi Hiyya is angered by the old moon's appearance in the early morning because this means the new moon will not be visible as desired when the evening comes. Throwing a dirt clod seems to express his frustration at the same time that it demonstrates that the moon is truly not subject to human control, since it is impossible to hit the moon with the dirt clod. The moon's undesirable appearance is *interfering* with the desire of the court, and Rabbi Hiyya is upset about it. At this point in the story, the wildness of the moon is a problem, and taming it remains a challenge.

To resolve the problem of the old moon's appearance, Rabbi Judah the Patriarch⁴⁰ sends Rabbi Hiyya to another location where he will declare the new month regardless of whether or not he sees the new moon: "Go to Ein Tav and sanctify the month."⁴¹ The calendrical court has decided to *disregard* the physical evidence and do what it wants; the new month does not depend on the new moon but on the Court's declaration. Indeed, the BT debates the conditions for "intimidating" witnesses to provide testimony when the court wants to either shorten or lengthen the month (*b. Rosh HaShanah* 20a). Observation has become a legal fiction and the wildness of the new moon has been tamed for calendrical purposes. This attitude lays the groundwork for the eventual rise of the calculated rabbinic calendar, which further dissociates the month from the observed new moon by adding rules that adjust the length of some months by a day or two in order to satisfy the rabbinic desire to control the days of the week on which certain holidays fall.⁴²

At this point we can see that the post-Beit Yazek stages of the rabbinic calendar texts carry out a *dual reversal*, of *taming the wild and wilding the tame*. While the 364-day calendar tradition performed a similar dual reversal by (theoretically) forcing the rhythms of the celestial lights into alignment with the Sabbath, the later rabbinic texts take a different route. While the Beit Yazek texts argued for the wildness of the new moon and the need to violate the Sabbath to testify to its precise arrival, the Yavneh and Ein Tav texts *tame the wild* by claiming that humans have the ability to recognize or withhold recognition of the natural cycle of the moon—a wild cycle which takes place whether or not humans mark its passage. This process of taming the new moon took place incrementally. In the Beit Yazek phase the rabbis claimed the authority to validate the moon's appearance; the Yavneh phase built on this authority to assert the power to declare the new month even if mistaken vis-à-vis the moon; the Ein Tav phase expanded this power to declare the new month when desired, which provided the philosophical basis for a fully calculated calendar that calculated a theoretical new moon and included various postponements due to other considerations.

On the other hand, the Rabbis *wild the tame* by agreeing with the doctrine of the 364-day calendar tradition that the seventh-day Sabbath rhythm is an aspect of the primordial creation that does not require human recognition. As we saw above, for Jubilees (Jub. 2:19) the Sabbath is established in heaven by God and merely echoed by humans on the

earth. The rabbinic parallel is most concisely expressed by a passage in the BT that states, “The appointed seasons of the Lord need sanctification by the Court, but the Sabbath of creation does not need sanctification by the Court” (*b. Nedarim* 78b). That is, while the right to determine the new month was given to humans, the rabbinical court has no jurisdiction over the Sabbath, which is a part of creation whose timing is set by God without the intermediation of the heavenly lights.

Nevertheless, the rabbinic view is somewhat less strict than that of the 364-day calendar tradition, which is consistent with the less rigorous approach to the Sabbath that we saw above in the rabbinic preference for the new moon over the Sabbath. Despite their effort to “naturalize” the “Sabbath of creation”, the rabbis are aware that neither the Sabbath day’s rest nor its seven day rhythm are tied to the world of nature. This is expressed by a baraita in the BT that reads: “If one is travelling on a road or in a wilderness and does not know when it is the Sabbath, he must count six and observe one day” (*b. Shabbat* 69b). The issue being addressed here is a situation where it is impossible to know from nature when the counting begins. The uncertainty expressed here echoes the perspective about sacred time we find in the Beit Yazeq period of the rabbinic calendar, where uncertainty concerning the appearance of the new moon is highlighted. But unlike the moon, there is no indicator of the Sabbath for the individual who is lost in the wilderness because wild nature knows nothing of the seventh-day Sabbath and does not rest on a seven-day rhythm.

The rabbinic solution is to focus on the seven day *rhythm* of the Sabbath since the exact day may be unknowable; this is in contrast to the attitude of Jubilees, for whom the exact *day* is important, since humans must be in alignment with heavenly observance. The rabbis seem to acknowledge that all we can know is how the Sabbath has been counted by a community; the individual who loses that social context has no choice but to begin to count for oneself a seven-day rhythm, which may not match the counting of society or God. The rabbis endorse the idea that the rhythm and ritual elements of Sabbath rest are still commanded, even if one is uncertain about the exact day. Even though wild nature does not observe the Sabbath, humans must remember to observe it. In comparison to Jubilees, whose emphasis was on manifesting on earth what is going on in Heaven, the Rabbis’ focus is on fulfilling God’s commandments as mediated through their interpretation of Torah.

The lunation and the Sabbath are examples of two types of time, wild and tame, expressing two ways of temporally relating to the more-than-human cosmos in which we find ourselves.⁴³ In examining and contrasting two different Jewish calendar systems—the 364-day tradition and the rabbinic tradition—we have seen how different tactics were used to make sense of, and assert human control over, temporal experience. The seventh-day Sabbath, a rhythm of time that is not part of wild nature, is construed as part of nature, a process I have called *wilding the tame*. Simultaneously, I have described a process of *taming the wild* in which the uncertain appearance of the new moon is managed, either by subsuming it to the seventh-day Sabbath as in the 364-day calendar or, in the case of the Rabbis, subjecting it to a legal procedure that asserts the human right to declare a new lunar month regardless of the actual appearance of the new moon.

Both taming the wild and wilding the tame are complimentary tactics for *taming time* engaged in by elite groups aiming to gain authority, legitimacy and power. Yet, time is a dimension of wild nature that is even less amenable to human control than space. Therefore, the words and actions of these groups are unable to tame time per se—which is untouched by human effort—but tame the human experience of time by asserting the right to

structure the human interface with time in the context of a particular cultural formation. Calendars are models *of* and *for* social practices of time; a dominant calendar projects the ideology, practice and authority of the dominant group.⁴⁴ Every calendar is a map of time, a narrative of time that mediates the phenomenological experience of time itself; every calendar projects its own ideological position and world-view and can be “read” as a “text” that negotiates the relationship between humans and nature.

While calendars inevitably mediate the human experience of time, they vary in the degree to which they align cultural rhythms to those of wild nature. The lunar element of the calculated rabbinic calendar preserves a practice of sacred time that in principle adheres closely, if not precisely, to the lunation, while justifying this practice by remembering a past in which time was uncertain and less controlled.

On the other hand, like the later invention of the mechanical clock, in the ancient world the establishment of the seventh-day Sabbath was an important step in the process of taming nature by taming time, which in turn contributed to creating an experienced separation of human culture from wild nature.⁴⁵ But this shift was neither simple nor straightforward, involving transformed understandings of the interrelationship of humans, God and nature in what Rabbi Abraham Joshua Heschel described as Judaism’s “*architecture of time*”.⁴⁶ The calculated Hebrew calendar in use today preserves echoes of these ancient controversies and temporal transformations in the unruly lack of fit between the rhythms of the Sabbath and the lunation.

Notes

1. For discussion of the conflict between the proponents of these different calendars see Talmon (1951); Talmon (1958); Talmon (1999a); Talmon (1999b); Schiffman (1995), pp. 304–305; Rubenstein (1999), pp. 175–177; Baumgarten (1985), pp. 395–397.
2. The main debate is between two views. First are those who contend that the Second Temple’s calendar was lunisolar, similar to the one described in rabbinic texts and has clear antecedents in Mesopotamian calendar practices. Second are those who contend that the Temple used a 364-day year calendar similar to that found in the Qumran (and related) texts, although there are various hypotheses concerning when and for how long such a calendar may have been used. For a brief discussion of academic positions concerning the possible historical use of the 364-day calendar and its priestly orientation, along with further references, see Feldman (2009), esp. pp. 343–350.
3. For standard descriptions of the history and functioning of the rabbinic calendar derived from examination of rabbinic texts (and assuming the use of this calendar in the Second Temple, as described in these texts) see Tabory (2000), pp. 19–34; Alon (1984), pp. 237–248. For a more critical evaluation of the historical use and evolution of the rabbinic calendar see Stern (2001).
4. For a concise explanation of the 364-day calendar along with a discussion of the texts, scholarship and debates surrounding it, see VanderKam (1998). For discussion of the variety among the texts of this calendar tradition, see n. 18.
5. This question of correct Sabbath observance was a key source of conflict: the rabbis decided that when there was an overlap between a holiday and the Sabbath, the holiday (and its sacrifices) took precedence, while the advocates of the 364-day calendar were completely opposed to this practice. The Bible never discusses what to do when there is such a conflict, and the 364-day calendar never has such a conflict. For further discussion, see references in n. 1.
6. Durkheim argued that cultures classified all things, including time, into two categories, the sacred and the profane; see Durkheim (1961), pp. 52, 347. Eliade greatly developed and popularized this distinction as characteristic of time and place; see for example Eliade (1959), p. 70. The Jewish calendars under

- discussion agree on the idea of distinguishing between sacred and profane, but use different criteria to establish these differences.
7. This terminology is used widely in environmental thought, but derives specifically from the writings of Thoreau (Thoreau (1998), p. 31). While the distinction between tame vs. wild time may seem close to other more familiar dichotomies, such as culture vs. nature or artificial vs. natural, I prefer to use tame vs. wild because I am sympathetic to Merchant's critique of the common nature vs. culture dualism and am attempting to emphasize the embeddedness of humans in the natural environment, where nature and culture are both actors and subjects in systemic interactions; see Merchant (1990), pp. 143–144; Merchant (1989), pp. 1–26.
 8. On the uncertainty of sighting the new moon see Stern (2001), pp. 110–111; Long (1998), pp. 43–47.
 9. See also Gen 2:1–4a. Unless otherwise noted, Biblical translations are from the JPS *Tanakh* (1985).
 10. It seems to me that the biblical editors awareness of the non-natural essence of the seventh-day Sabbath rhythm is revealed by the terms used to describe it and command its observance: one must “remember-זכור” (Exod 20:8) it, “preserve-שמור” (Deut 5:12) it, and “make-לעשות” (Exod 31:16) it. In the Ten Commandments it is the only time cycle mentioned and the only element termed “holy-קדוש”, which means something that is “set apart”. All of these terms imply a positive action (including restful inaction) that must be taken by humans to manifest the Sabbath in this world. In addition, the Sabbath's establishment on day seven, after the creation of humans on day six, could be seen to imply the need of humans in order to manifest the Sabbath, in contrast to the times determined by the luminaries created on day four, which do not require human participation.
 11. There has been no question about the origins of rabbinic calendar practice, especially considering its use of Babylonian month names. As for the 364-day calendar tradition, I am convinced by the recent work of Horowitz and Ben-Dov; Horowitz (1996); Horowitz (1998); Ben-Dov and Horowitz (2003); Ben-Dov and Horowitz (2005); Ben-Dov (2008).
 12. In contrast, there were conflicts over the observance of other holidays, especially the well-known dispute over the proper count of the Omer and the related observance of Shavuot reported in *m. Menahot* 10:3 and *b. Menachoth* 65a–b. For recent discussions about the rabbis' Boethusian opponents as supporters of Qumran calendar practice, see Sussmann (1989), p. 54; Schiffman (1995), p. 304; Tabory (2000), pp. 136–138.
 13. There has been substantial scholarly debate for over a century about the origins of the Sabbath and the associated seven day week. One school credits the continuous seventh-day Sabbath with being a uniquely Jewish idea, while others attempt to derive it from Mesopotamian sources. While I am sympathetic to the first school, this is not a critical issue for the discussion in this paper. There is also a scholarly disagreement about when the seventh-day Sabbath was institutionalized, with the main positions being that it goes back to the dawn of Israelite practice, or that it was established during the Persian period of the Second Temple. For a further discussion of these positions and the process by which the seventh-day Sabbath was institutionalized, see Feldman (2009), especially pp. 351–356.
 14. Among the suggestions for various intercalation schemes: Zeitlin suggested that the “Jubilee” year was not a year, but a 49 day block inserted every 49 years as an intercalation device; Zeitlin (1973), p. 186. Glessmer develops a possible intercalation scheme based on the sabbatical cycle; Glessmer (1996). Vanderkam suggests that 35 days (5 weeks) could have been intercalated every 28 years; VanderKam (1979), p. 406. Wise suggests an intercalary scheme based on adding four weeks to the solar calendar periodically, thereby preserving the coordination with the lunar cycle; Wise (1994), p. 109. Gardner hypothesizes that a week was intercalated every six years, with an additional week intercalated every 84 years; Gardner (2001), pp. 266–271. Among those who discount the possible use of this calendar are Herr (1976); Segal (1957), pp. 251–253; Davies (1983); Beckwith (1996), pp. 126–127; Ben-Dov (in this volume).
 15. Translations from Jubilees are from VanderKam ed. (1989).
 16. García Martínez and Tigchelaar (2000), p. 71.
 17. For further discussion of the characterization of the 364-day calendar see Feldman (2009), pp. 347–350; Ben-Dov and Saulnier (2008).

18. While this brief summary of major features common to the 364-day calendar tradition is sufficient for purposes of this paper, there is a fair amount of diversity in the textual evidence itself from which commonalities must be inferred and differences respected. While the Sabbath is not even mentioned in the *Astronomical Book* of 1 Enoch, and the lunation is not part of the Jubilees calendar, I am highlighting the shared importance of the Sabbath in the Qumran texts and Jubilees. Jaubert's widely accepted reconstruction of the calendar underlying the text of Jubilees is identical to the calendrical texts found at Qumran; see Jaubert (1957), published in English as Jaubert (1965). Ravid critiques Jaubert's reconstruction, but does not diminish the importance of the Sabbath in Jubilees; Ravid (2003). For further analysis of the variety of 364-day calendars see Snyder (1997); Glessmer (1999); Feldman (2004), pp. 73–79; Ben-Dov (2008), pp. 1–67; Talmon, et al. eds (2001); VanderKam (1998). My view of the differing 364-day calendars is that they are more likely to express diachronic developments rather than synchronic competing calendars.
19. Elior similarly emphasizes the central importance of the “sevenfold cycles of Sabbaths and festivals, sabbatical years and jubilees” that “have no visible testimony in nature or any revealed expression other than the audible divine decree taught by the angels and kept by the priests”. Elior (2004), p. 83.
20. As Doering points out, Sabbath observance even supersedes the commandment of Gen. 1:28 to procreate, the first commandment spoken to humans in the Bible, a commandment that is omitted from Jubilees account of the sixth day of creation in Jub. 2:14. Doering (1997), p. 187 n. 39.
21. For discussions of the importance of the Sabbath to the author of Jubilees, see VanderKam (1998), pp. 27–33; Doering (1997).
22. Newsom (1985), esp. pp. 5–21; Schiffman (1995), pp. 355–360; Elior (2004).
23. Newsom (1985), pp. 211–212. Elim, which means divine beings, is probably a reference to angels.
24. For example, a *baraita* (a mishnaic era text) in the BT explains: “Our Rabbis taught: A year may be intercalated on three grounds: on account of the premature state of the corn-crops; or that of the fruit-trees; or on account of the lateness of the Tekufah [season]. Any two of these reasons can justify intercalation, but not one alone” (*b. Sanhedrin* 11b); Talmudic translations are based on Epstein ed. (1983). All three criteria are observational; the first two are agricultural, while the third is the astronomical observation of the spring equinox (while “Tekufah” can refer to either equinox or solstice, intercalation was always a second month of Adar which means that the spring equinox was the event being referred to). There are also multiple versions of a story telling of Rabban Gamliel sending missives to the diaspora to intercalate the year; see *t. Sanhedrin* 2:6, *y. Sanhedrin* 1 (18d) and *b. Sanhedrin* 11b.
25. This is also the same day over which Rabbi Yehoshua and Rabban Gamliel have their dispute *m. Rosh HaShanah* 2:8–9 (see discussion below).
26. Translation from Goldman ed. (1988), p. 44. An even more elaborate version appears in *Pesiqta de-Rab Kahana* 5:20; see Stern (2001), p. 230.
27. The rabbinic assertion of power over time has been recognized for some time (for recent discussions see Rubenstein ed. (2002), p. 86; Stern (2001), p. 231). My point here is that this is a *reversal* of earlier attitudes.
28. As expressed in the much discussed text known as “The Oven of Akhnai” (*b. Bava Metzi'a* 59a–b), the rabbis reject revelation and miracles, asserting that because the Torah was given at Mt. Sinai “it is not in heaven” and its laws are exclusively the domain of human interpretation. For a discussion and references to interpretations of this story, see Rubenstein (1999), pp. 34–63, esp. n. 1–3.
29. For a history of these eras (which largely assumes the rabbinical texts are reporting actual events), see Alon (1984).
30. Translations of the Mishnah are based on Kehati ed. (1992–1994). Similar descriptions of Sabbath violations are in *m. Rosh Hashanah* 1:4, 5.
31. Virtually all translators use the word “proper” even though the Hebrew is literally “in its time” or “not in its time.” I am using “proper” because this reflects the rabbinical attitude about these temporal moments (see Jastrow (1903)). Gandz discusses the various and changing terms used to describe the 30th and 31st days, but he understands the terminology as merely technical; I am suggesting a socio-political motivation; Gandz (1949). “In its proper time” is the earliest term, reflecting this early stage. A later pair of terms is

- “not intercalated” and “intercalated” for the 30th and 31st day, indicating a reversal between which day is construed normative.
32. The Mishnah addresses this issue by relating a disagreement: “Whether it was seen at its proper time, or whether it was not seen at its proper time, they sanctify it. Rabbi Eleazar ben Zadok says, If it was not seen at its proper time, they do not sanctify it, for Heaven has already sanctified it” (*m. Rosh HaShanah* 2:7). While the Mishnah does not decide between these two views, the gemara in the BT debates the issue and decides in favour of R. Eleazar (*b. Rosh HaShanah* 24a), i.e., the court has nothing to do unless the new moon is sighted on the 30th day.
 33. The reasons why the early rabbinic calendar used an observational method deserve a larger discussion than can take place here (see also Stern and Schiffman, in this volume). While assumed to be a practice from long tradition by much scholarship, the reason for using a calendar dependent on observation is not obvious, particularly since a calculated Babylonian calendar seems to have become standard in the Persian Empire by the fifth or fourth century BCE (on the calculated Babylonian calendar, see Wacholder and Weisberg (1976), p. 72. See also Rochberg (1995), p. 1938). Although their answers are inadequate, some scholars have posed this question; see Gardner (2001), pp. 6–7, 123; Schürer (1973), p. 594; Geller (1995), pp. 46–47. Indeed, this is a problem whether one contends the rabbinic system was the “official” calendar throughout the Second Temple period, or that it was introduced into the Temple in place of a 364-day year calendar at some point between the second century BCE and first century CE, for in both cases calculation techniques were available by the fourth century BCE.
 34. They are identified as “Boethusians” and “Cutheans,” See *m. Rosh Hashanah* 2:1; 2:2; *m. Menahot* 10:3. Boethusians are thought to be a priestly group while Cuthians are Samaritans. For discussions of various groups of this era see Baumgarten (1997); Sanders (1992); Baumgarten (1985); Schwartz (2001), pp. 91–99; Sussmann (1989).
 35. D. Schwartz uses a similar diachronic historical analysis of the changes in rabbinic competitors to discuss evolving rabbinic views regarding nature; see Schwartz (2004).
 36. While not critical for my discussion of this story, it is worth noting that the mishnaic text “He said to him”, is ambiguous about who is doing the speaking: Rabbi Akiva, Rabbi Dosa or Rabbi Yehoshua? Most Jewish commentators have assumed that Rabbi Dosa is doing the speaking, but there are good reasons for thinking it is Rabbi Yehoshua. For a thorough discussion of this point, as well as the story as a whole, see Schwartz (2004), esp. pp. 24–33. D. Schwartz’s proposal also makes the Yehoshua in this story more consistent with the Yehoshua in the “Oven of Akhnai” story, the one who stands up for the authority of the Court (see above n. 28). Of more relevance to my discussion is D. Schwartz’s proposal that Rabbi Dosa’s view about nature and law is “characteristic of priestly trends in ancient Judaism—that when the law conflicts with nature (in this case: the moon), it is the latter that prevails” (Schwartz (2004), p. vi, see also pp. 29–30; cf. D. Schwartz’s earlier essay, Schwartz (1992), pp. 234–235 and Rubenstein’s response in Rubenstein (1999), pp. 175–177). I suggest a more nuanced discussion: as I argue below, Rabbi Dosa and the advocates of the 364-day calendar share the idea that God determines sacred time and it is for humans to recognize and adhere to them, but they differ about the calendar and procedures used to determine sacred time. Schwartz’s “priestly trends” were advocates of the 364-day calendar who were in conflict with rabbinic groups that, like Rabbi Dosa, advocated an observational lunisolar calendar. What counts as “nature” was part of what Rabbi Dosa and the priestly advocates of the 364-day calendar were arguing about; Rabbi Dosa’s view exemplifies what I have described as “wild” nature (and time), to which humans are subject, over which they have no control, and which cannot be changed by legal decree.
 37. D. Schwartz cogently argues that the appearance of Rabbi Akiva in the story “is secondary, added in by a tradent who missed the presence of this most prominent Yavnean figure and who also wanted...rabbinic rules to derive from the biblical text”; Schwartz (2004). This, however, does not impact the thrust of my argument; at most it means that the change in thinking reflected in the inversion of the interpretation of Lev 23:4 took place at a slightly later date.
 38. For a slightly different version, see *y. Rosh HaShanah* 2:5 (58a). A significant difference in the PT version is that after Rabbi Hiyya throws a rock at the moon it disappears; it seems that the BT is not comfortable

- with this solution, which is consistent with its views concerning the inadmissibility of supernatural evidence (see above n. 28).
39. The reason why the Court wants to declare the new month is not stated. The medieval commentaries of Rashi and Tosafot to this passage infer that this is because the Court did not want the Day of Atonement adjacent to the Sabbath; this view already assumes the knowledge of at least some of what became the calculated rabbinic calendar's rules of postponement — דחיית that can shift the observance of the new month by one or two days away from the calculated occurrence of the new moon. For a basic discussion of these rules, see Wiesenberg (2007), pp. 354–356; for the historical development of these rules, see Stern (2001), pp. 155–210.
 40. Judah the Patriarch was also the redactor of the Mishnah.
 41. Indeed, the name of this location is possibly a pun: while “Ein Tav — עין טב” would commonly mean “good spring”—i.e., good drinking water—it could also mean “good eye”, implying that Rabbi Hiyya will need a *very* good eye indeed to see the new moon at the desired time. This is the only appearance of “Ein Tav” in the BT, enhancing the possibility of its use as a pun in this context; the term does appear in the PT as a place name, and the later BT commentators (Rashi and Tosafot) assume it refers to a location where the calendrical Court would meet. According to Safrai's analysis of the literature, this was the last location of the calendrical court mentioned in the Amoraic sources, which would also fit my suggestion that this reflects a later stage of calendrical ideology; Safrai (1965), p. 37.
 42. For references on the postponements, see n. 39. While the shift to calculation has traditionally been dated to the fourth century CE, Stern has shown that this was a gradual process that did not reach the current form of the calculated Hebrew calendar until the Tenth century; see Stern (2001), pp. 211–275.
 43. I have adapted this from Abram's use of “more-than-human world” in preference to “nature”; while I agree with the embeddedness this terminology indicates, I find the locution unfortunately awkward, and have therefore stayed with the overused term “nature”. See Abram (1996).
 44. I have drawn these dual aspects of calendars as models of and for reality from Geertz's discussion of cultural patterns in general, of which I take calendars as a particular case. Geertz (1973), p. 93. Durkheim was one of the pioneers concerning the social and political function of calendars: “A calendar expresses the rhythm of the collective activities, while at the same time its function is to assure their regularity” (Durkheim (1961), p. 23; see also pp. 488–491). Although I agree with Durkheim that the natural aspect of calendars serves to legitimize them, I contend that the origins of calendars lie in the effort of humans to make sense of found temporal rhythms. For a more recent sociological treatment see, Levine (1997).
 45. On the similar significance of the clock and the Sabbath, and their function of distancing humans from nature, see Zerubavel, who writes: “The invention of the continuous week was therefore one of the most significant breakthroughs in human beings' attempts to break away from being prisoners of nature and create a social world of their own”. Zerubavel (1985), p. 11. Zerubavel lauds this liberation of humans from nature, but this also helps set up the context for the subjugation of nature in the modern period; on this see Merchant (1990).
 46. Heschel (1951), p. 8.

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