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Tampering with the Calendar

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Tampering with the Calendar

In several influential studies, W. K. Pritchett has argued that the Athenian calendar, throughout its history, was subject to tampering and willful manipulation by the archon.[1] Although it was greeted with some reservations (Gomme noted in passing that "we are not compelled to assume political or other unworthy motives" for certain adjustments to the calendar),[2] Pritchett's view now holds the field. Bickerman follows Pritchett in speaking of archons "tampering" with the calendar; Samuel echoes Pritchett's view that the calendar "was subject to radical tampering by the archons"; and even Meritt speaks of "all the tampering which the archons permitted themselves down through the centuries," disagreeing with Pritchett chiefly on how promptly such tampering was corrected.[3] In what follows, I shall show that our evidence does not support this characterization. In quantitative terms, the number of adjustments to the calendar is much smaller than Pritchett suggested. And in qualitative terms, few adjustments warrant his negative judgement that tampering (harmful interference or rash meddling) took place. Emphasizing the number and the willful nature of calendar adjustments strengthened Pritchett's view of the Athenian calendar. Against scholars such as Dinsmoor and Meritt, he was attempting to demonstrate that the religious or festival calendar administered by the archon did not follow a fixed or regular scheme. His general argument has rightly won the day: scholars now agree that the festival calendar was to some degree irregular—meaning, for example, that there is no fixed correspondence between inscriptional festival dates and Julian or Gregorian dates. Yet by lumping together many different kinds of irregularity, and by characterizing all of these in negative terms, he created a misleading impression of how the Athenian calendar was administered.

The evidence Pritchett presented can and should be divided into four classes. First, the calendar may not be strictly aligned with the astronomical phases of the moon. If we find, for example, that the astronomical new moon falls several days before the first day of the month (*noumenia*), we may conclude that the festival calendar is not "astronomically correct". Evidence of this kind proves, against scholars such as Dinsmoor, that the festival calendar did not follow a strict astronomical scheme like that attributed to Meton.[4] It does not prove that any adjustment took place. Second, the calendar of one polis may not be aligned with that of another. If the first of the month in Sparta, for example, is the fifth of the month in Athens, we may conclude that at least one of the calendars is not astronomically correct. It does not follow that one of the two calendars has been adjusted or interfered with, since there is no reason to suppose that the calendars of different city-states were normally in exact agreement. Third, days may have been added to (or subtracted from) a given month, and a certain month may have been added to the year. Such intercalations may be astronomical, in that they align the festival calendar more closely with the observed lunar month or tropical year; and they may be religious, in that they place festivals at convenient or appropriate times. Intercalations are obviously adjustments to the calendar, but

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[1] Especially in W. K. Pritchett and O. Neugebauer, *The Calendars of Athens* (Cambridge MA 1947); W. K. Pritchett, "Calendars of Athens Again", *BCH* 81 (1957) 269-301; W. K. Pritchett and B. L. van der Waerden, "Thucydidean Time-Reckoning and Euctemon's Seasonal Calendar", *BCH* 85 (1961) 17-52; W. K. Pritchett, "Ancient Athenian Calendars on Stone", *UCPCA* 4 (1959-63) 267-393; and W. K. Pritchett, *The Choiseul Marble* (Berkeley 1970) 27-33. Characterizations include "tampered ... at will," "arbitrary modification" and "juggling the calendar." Subsequent references to these works will use their abbreviated titles.

[2] A. W. Gomme, *A Historical Commentary on Thucydides,* III (Oxford 1956), 714.

[3] E. J. Bickerman, *Chronology of the Ancient World*, revised ed. (London 1980), 36; A. E. Samuel, *Greek and Roman Chronology: Calendars and Years in Classical Antiquity* (Munich 1972), 57; and B. D. Meritt, *The Athenian Year* (Berkeley 1961), 208. Compare M. P. Nilsson, *Die Entstehung und religiöse Bedeutung des griechischen Kalenders* (Lund 1918) 47-48, citing several of the passages discussed below.

[4] See, for example, W. B. Dinsmoor, *PAPS* 80 (1939) 95-173; and the rebuttal of W. K. Pritchett, *CP* 42 (1947) 235-243. For a fuller discussion, see B. L. van der Waerden, *JHS* 80 (1960) 168-180.

they need not involve tampering. Fourth, days or months may have been renamed. In this case we have adjustments that may well involve tampering. Yet as we shall see, examples are few and of these, some were judged necessary for military reasons.

As this summary suggests, it will be necessary to consider the calendar and its administration in some detail. In so doing, this paper will correct some common arguments and assumptions concerning the calendar in general, as well as correcting Pritchett's claims about tampering in particular. I now turn to the evidence assembled by Pritchett and to some additional pertinent evidence, observing the distinctions outlined above.

1) Evidence that Calendar Months Did not Coincide with Lunar Phases

Herodotus 6.106-7 (compare scholiast to Aristophanes, *Acharnians* 84). Before the Battle of Marathon (490), the Spartans said they wanted to help the Athenians but could not do so right away without contravening *nomos*: οὐ βουλομένοισι λύειν τὸν νόμον· ἦν γὰρ ἱσταμένου τοῦ μηνὸς εἰνάτη, εἰνάτῃ δὲ οὐκ ἐξελεύσεσθαι ἔφασαν μὴ οὐ πλήρεος ἐόντος τοῦ κύκλου. οὗτοι μέν νυν τὴν πανσέληνον ἔμενον, τοῖσι δὲ βαρβάροισι κατηγέετο Ἱππίης κτλ. This passage is controversial, but its literal meaning is clear: it was the ninth day of the month, and the Spartans refused to march out on the ninth unless the moon was full. This implies that according to *nomos* the Spartans would not set out on campaign in the early part of the month (when the important monthly festivals occurred). The reference both to the date of the month and to the full moon further implies that although campaigns were normally dictated by the calendar (e.g. not before the 10th or the 12th), as soon as the full moon arrived the date became irrelevant and expeditions were allowed. The passage is controversial only because it assumes that the full moon could fall as early as the ninth of the month. For How and Wells this "would imply a grossly disordered calendar," and they maintain that "the Spartans could not go out on the 9th or any day till the 15th (full moon)."[5] As Pritchett points out ("Calendars… Again" [n. 1] 278-79), How and Wells ignore the meaning of the Greek; his own answer is to accept the implication that the calendar was "grossly disordered" and to conclude from this that tampering had occurred. But the implication that How and Wells reject and Pritchett accepts is based upon a false premise.

They assume that the full moon normally falls on the 15th, and that a full moon on the 9th would be six days out of place. In other words, they assume that the Spartan calendar was astronomically precise, beginning each month at conjunction. But this assumption is false, not just for Sparta but for all Greek calendars. Let us turn from this particular anecdote to the general workings of the calendar. Greek calendars were based, not upon the calculated moment of conjunction, but upon observation of the new lunar crescent (see discussion of Thucydides 2.28 below). The difference is significant. The astronomical (lunar synodic) month begins with conjunction—that is, with the moment at which, according to calculation, the moon crosses a line between earth and sun. The time from conjunction to full moon varies slightly from month to month; between 1990 and 1995 the times varied from 333.88 to 374.5 hours, or from less than 14 days to slightly more than 15 and a half.[6] An observational lunar month, however, begins with the first visible crescent. The visibility of the lunar crescent depends upon many factors: the time of day or night at which conjunction occurs, the season of the year (and thus the angle of the ecliptic), the latitude of the observer, weather conditions, terrain that might obscure the horizon, and so on.[7] One well-known set of observations from Athens, recorded by Julius Schmidt at the National Observatory, gives a range of 29 to 63 hours between conjunction and the first visible crescent.[8] Since Schmidt's

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[5] W. W. How and J. Wells, *A Commentary on Herodotus* (Oxford 1928) II, 108.

[6] "Phases of the Moon", *The Handbook of the British Astronomical Association,* 1990-95.

[7] Variations that depend upon astronomical factors are explained by Samuel (n. 3) 8-10; and O. Neugebauer, *The Exact Sciences in Antiquity* (Providence 1957) 106-9. Additional factors affecting visibility are discussed by L. E. Doggett and B. E. Schaefer, "Lunar Crescent Visibility", *Icarus* 107 (1994) 388-403.

[8] Some observations were reported in J. F. J. Schmidt, "Ueber die früheste Sichtbarkeit der Mondsichel am Abendhimmel", *Astronomische Nachrichten* 71 (1868) 201-208. The complete set of observations was reported by A. Mommsen, *Chro-*

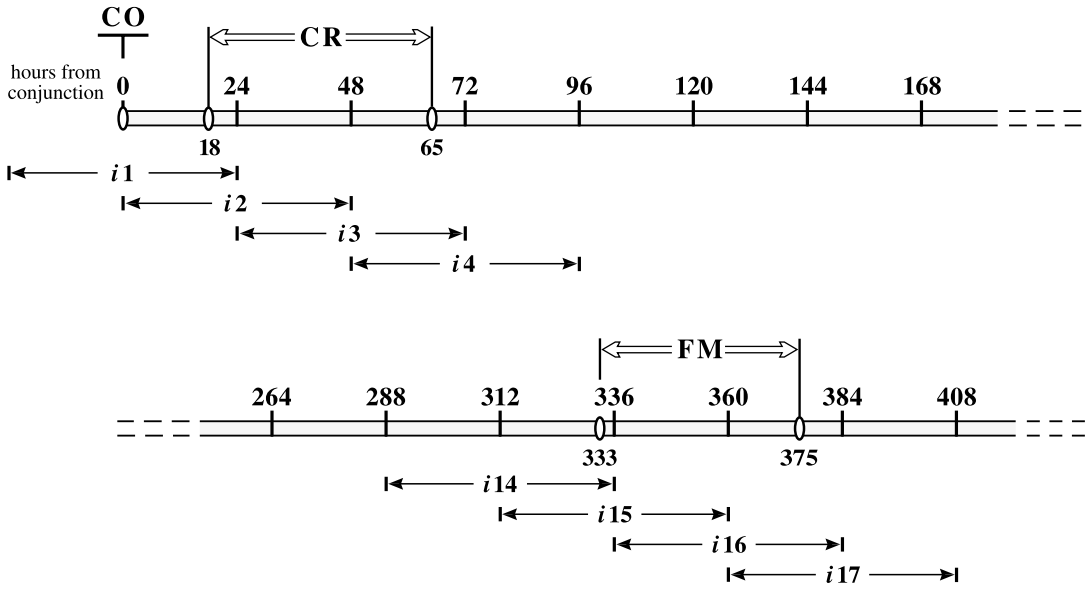

Table 1. The linear scale indicates the number of hours from conjunction (CO) to the first visibility of the lunar crescent (CR) and to the full moon (FM).

The intervals indicate where calendar dates would fall. The calendar day in which conjunction occurs will fall somewhere within the 48-hour interval ***i*1**. The calendar day after that will fall within ***i*2**, and so on.

	ideal conditions					ideal and less than ideal conditions						
	calendar day	period from conjunction				calendar day	period from conjunction					
N =	1	*i* 2	*i* 3	*i* 4	*i* 5	1	*i* 2	*i* 3	*i* 4	*i* 5	*i* 6	*i* 7
	2	*i* 3	*i* 4	*i* 5	*i* 6	2	*i* 3	*i* 4	*i* 5	*i* 6	*i* 7	*i* 8
	3	*i* 4	*i* 5	*i* 6	*i* 7	3	*i* 4	*i* 5	*i* 6	*i* 7	*i* 8	*i* 9
	4	*i* 5	*i* 6	*i* 7	*i* 8	4	*i* 5	*i* 6	*i* 7	*i* 8	*i* 9	*i* 10
	5	*i* 6	*i* 7	*i* 8	*i* 9	5	*i* 6	*i* 7	*i* 8	*i* 9	*i* 10	*i* 11
	6	*i* 7	*i* 8	*i* 9	*i* 10	6	*i* 7	*i* 8	*i* 9	*i* 10	*i* 11	*i* 12
	7	*i* 8	*i* 9	*i* 10	*i* 11	7	*i* 8	*i* 9	*i* 10	*i* 11	*i* 12	*i* 13
	8	*i* 9	*i* 10	*i* 11	*i* 12	8	*i* 9	*i* 10	*i* 11	*i* 12	*i* 13	*i* 14
	9	*i* 10	*i* 11	*i* 12	*i* 13	9	*i* 10	*i* 11	*i* 12	*i* 13	*i* 14	*i* 15
	10	*i* 11	*i* 12	*i* 13	*i* 14	10	*i* 11	*i* 12	*i* 13	*i* 14	*i* 15	*i* 16
	11	*i* 12	*i* 13	*i* 14	*i* 15	11	*i* 12	*i* 13	*i* 14	*i* 15	*i* 16	*i* 17
	12	*i* 13	*i* 14	*i* 15	*i* 16	12	*i* 13	*i* 14	*i* 15	*i* 16	*i* 17	*i* 18
	13	*i* 14	*i* 15	*i* 16	*i* 17	13	*i* 14	*i* 15	*i* 16	*i* 17	*i* 18	*i* 19
	14	*i* 15	*i* 16	*i* 17	*i* 18	14	*i* 15	*i* 16	*i* 17	*i* 18	*i* 19	*i* 20
	15	*i* 16	*i* 17	*i* 18	*i* 19	15	*i* 16	*i* 17	*i* 18	*i* 19	*i* 20	*i* 21
	16	*i* 17	*i* 18	*i* 19	*i* 20	16	*i* 17	*i* 18	*i* 19	*i* 20	*i* 21	*i* 22
	17	*i* 18	*i* 19	*i* 20	*i* 21	17	*i* 18	*i* 19	*i* 20	*i* 21	*i* 22	*i* 23
	18	*i* 19	*i* 20	*i* 21	*i* 22	18	*i* 19	*i* 20	*i* 21	*i* 22	*i* 23	*i* 24

Table 2. Periods from conjunction in which a given calendar day may fall, under ideal conditions (left), or ideal and less than ideal conditions (right). Unshaded areas include dates on which the full moon may fall.

nologie: Untersuchungen über das Kalenderwesen der Griechen (Leipzig, 1883) 69-80, and was analyzed by J. K. Fotheringham, "On the smallest visible phase of the Moon," *Monthly Notices of the Royal Astronomical Society* 70 (1910) 527-531. Schaefer's recalculation of Schmidt's data yields a range of 27.0 to 67.2 hours between conjunction and the first visible crescent for these observations: see B. E. Schaefer, "Visibility of the Lunar Crescent", *Quarterly Journal of the Royal Astronomical Society* 29 (1988) 511-523.

observations were subject to the limitations imposed both by weather and atmospheric conditions and by the mountainous terrain, I used a computer simulation program to obtain figures independent of viewing conditions. At the latitude of Athens, from 438 to 431 B.C.E., the first crescent would have been visible under ideal conditions at the earliest 18.3 and at the latest 64.7 hours after conjunction.[9] From this we can calculate when the month would begin, and on which calendar dates the full moon could fall. In Table 1, the linear scale relates astronomical events, showing how many hours transpire from conjunction (CO) to the first visibility of the lunar crescent (CR) and to the full moon (FM). The sequence of intervals below (*i*1, *i*2, *i*3, etc.) indicates where calendar dates would fall. Since conjunction can occur at any hour of day or night, the calendar day in which conjunction occurs lies somewhere in the 48-hour interval *i*1. The calendar day succeeding this lies in the interval *i*2, the next in *i*3, and so on. The first visibility of the lunar crescent thus usually falls in *i*2, *i*3 or *i*4, less commonly in *i*1. Since the visible crescent at sunset is the starting-point for the calendar day that follows, the *noumenia* or first day of the Greek calendar month will fall in *i*3, *i*4 or *i*5, less commonly in *i*2. In other words, the day (sunset to sunset) defined as *noumenia* follows, at the earliest, directly after that in which conjunction occurs and follows, at the latest, after three intervening days. I have so far been assuming level terrain and clear skies. Under less than ideal conditions the first crescent would not be visible for another day or two, and the *noumenia* would fall in *i*4, *i*5, *i*6 or *i*7, less commonly in *i*3. Taking ideal and less than ideal conditions together, the first day of the month could fall in *i*3 to *i*7, less commonly in *i*2. The full moon, however, will fall in *i*15, *i*16 or *i*17, rarely in *i*14. I gather the results in Table 2. The first day of the Greek calendar month (N=1) may fall anywhere from *i*2 to *i*5 under ideal conditions, from *i*2 to *i*7 otherwise. The second day of the month (N=2) may fall from *i*3 to *i*6 under ideal conditions, from *i*3 to *i*8 otherwise. Since the full moon may fall in *i*15, *i*16 or *i*17 (unshaded), rarely in *i*14 (lightly shaded), then on a strict observational calendar:

a) under ideal conditions, the full moon may fall on the eleventh to sixteenth day of the month, rarely on the tenth;

b) including less than ideal conditions, the full moon may fall on the ninth to sixteenth day of the month, rarely on the eighth.

Before applying this result to the anecdote of Herodotus, we must consider one additional variable. Our evidence indicates that Greek calendars were observational, but not strictly so: whereas in Babylon the moon was observed from day to day and the month began with the first visible crescent,[10] in Greece the correlation of the calendar with lunar visibility was schematic or approximate. This can be inferred from the count of days. Since the last decade of each month was numbered backwards (δεκάτη φθίνοντος, ἐνάτη φθίνοντος, κτλ),[11] the last day of the month (ἕνη καὶ νέα)—and hence the first day of the following month (νουμηνία)—was determined before the crescent could be observed. Pritchett has nevertheless argued for a strictly observational calendar by suggesting 1) that the day omitted in a hollow month was the day before last (δευτέρα φθίνοντος), and 2) that observation of the waning crescent

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[9] I used the Voyager II simulator for the years -437 (438 B.C.E.) to -430 (431 B.C.E.) inclusive, assuming that the moon at 1% illumination would be visible when 9.5 degrees or more above the horizon at sunset (not compensating for parallax), at 2% illumination when 8.5 degrees or more, at 3% illumination when 7.5 degrees or more, and at 4% or greater illumination when 6.5 degrees or more above the horizon. These are empirical, not theoretical criteria, but they agree remarkably well with Schaefer's theoretical model. Using Voyager II with these criteria to evaluate the dates observed by Schmidt produced results that agreed in every case but one with Schaefer (see Table I, column 24 in "Visibility of the Lunar Crescent", preceding note). In the single case of disagreement with Schaefer, January 17, 1866, my result agreed with Schmidt who did not observe the crescent; but on either model visibility on this date is very difficult to predict (Schaefer gives R = 0.2 ± 0.2; Voyager II gives 9˚29´ at 1% illumination). On the relative accuracy of the Voyager II program, see S. J. Goldman, "A Peek at Software Accuracy", *Sky and Telescope* 92:3 (September 1996) 85-88.

[10] F. K. Ginzel, *Handbuch der mathematischen und technischen Chronologie* (Leipzig 1906-1914), I 124-125; and Neugebauer (n. 7 above) 106.

[11] Meritt accepted the backward count in B. D. Meritt, *Hesperia* 3 (1935) 525-61, while claiming that sporadic cases of forward count remain; my argument requires only that the backward count be customary.

on the morning of the previous day (τρίτη φθίνοντος) could be used to predict when the new crescent would be visible, and hence when the next month would begin.[12] There is some evidence for Pritchett's version of the count of days,[13] but his suggestion concerning the waning crescent is implausible and unworkable. It is implausible because it supposes that a calendar explicitly based upon the new evening crescent (νουμηνία) would in practice be based upon the old morning crescent. And it is unworkable because there is no fixed interval between the two observations. Pritchett (*loc. cit.* [n. 12] 154) assumes that the first crescent that began the νουμηνία would fall on the evening of the second day after the last visible crescent. This is not true. Parker found that in Egypt in seven of every ten months the new crescent was visible on the second evening, and in three of every ten it was visible on the third.[14] I have made the corresponding calculations for Athens, and find that at this latitude, under ideal viewing conditions, the new crescent is visible in three of every ten months on the second evening, in six of every ten on the third, and in one of every ten on the fourth.[15] There is no way the waning crescent could be used to predict the visibility of the new crescent, and we must therefore conclude from the backward count in the last decade that the νουμηνία was generally determined before observation of the crescent could be made.[16]

Exactly how the *noumenia* was approximated without observation, and how frequently approximations were corrected by observation, are unknown. But it follows that the first day of the month as determined schematically could fall before or after the date on which it would fall by strict observation. In other words, it is theoretically possible that a schematic calendar would admit additional variations and greater divergences between conjunction and *noumenia*. Yet its effect would normally be the opposite. The month could contain only 29 or 30 days, and it seems plausible to assume that these fell in rough alternation (Meritt, *op. cit.*[n. 3] 34-37). Since the lunar (mean synodic) month contains slightly more than 29.5 days, a schematic calendar would tend to ensure that the *noumenia* fell at or near the right time, even if unfavorable conditions hindered observation. Since the nature and degree of schematic regularity are both unknown, we should assume that Greek calendars, as normally administered, might involve a range of values. If certain calendars (or certain calendars some of the time) succeeded in beginning the month immediately after the first visible crescent, the full moon would fall on the eleventh to sixteenth day of the month, rarely on the tenth. If certain calendars (or certain calendars some of the time) allowed a delay because of poor observation conditions, the full moon would fall on the ninth to sixteenth day of the month, rarely on the eighth. This analysis shows that the anecdote in Herodotus is entirely consistent

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[12] On omission of the day before last, see the following note. On observation of the waning crescent, see W. K. Pritchett, *CP* 54 (1959) 151-157.

[13] Proclus, scholion to Hesiod, *Works and Days* 765-768, with discussion in Pritchett and van der Waerden, 24-26; and W. K. Pritchett, "The Athenian Count of Days", *CSCA* 9 (1976) 181-95. For omission of the first day in the third decade, see Meritt (n. 3), 38-59; *Hesperia* 33 (1964) 1-15, where he proposes emending the text of Proclus; and *AJP* 95 (1974) 268-79. The debate is resumed by J. A. Walsh, *ZPE* 41 (1981) 107-124; and W.K. Pritchett, *ZPE* 49 (1982) 243-66.

[14] R. A. Parker, *The Calendars of Ancient Egypt* (Chicago 1950) 13. Pritchett (*loc. cit.* [n. 12] 154) cited Parker without acknowledging these variations. He later (*ZPE* 49 [1982] 264 and 265) acknowledged them without explaining the three days in ten for which the Egyptian model does not work, or testing whether the Egyptian model is valid for Athens.

[15] I used the Voyager II simulator for the years 434 to 431 inclusive, with the same criteria for morning as for evening visibility (see n. 9 above). Of 49 conjunctions, the first crescent was visible on the second evening in 14 cases (28.6%), on the third evening in 29 cases (59.2%), and on the fourth evening in 6 cases (12.2%).

[16] Without withdrawing his proposal concerning observation of the waning crescent, Pritchett offered an "alternative explanation" in *Choiseul Marble* (n. 1) 70-73. On this hypothesis, the twenty-ninth day of the month remained nameless until an observation was made at sunset. If the lunar crescent was visible, the nameless day was retroactively called ἕνη καὶ νέα; if the crescent was not visible, the day was retroactively called δευτέρα φθίνοντος. The hypothesis of a nameless day is especially implausible if we consider the importance of the ἕνη καὶ νέα in repayment of debts (compare Aristophanes, *Clouds* 1188-1200). We must then suppose that payments fell due on a day that had no name until it was over.

with the nature of Greek calendars. What Herodotus has to say about the Spartan calendar does not imply gross disorder, but simply reminds us that Greek calendars did not begin the month at conjunction.[17]

Thucydides 2.28 in a passing mention of a solar eclipse, refers to what we call the conjunction: τοῦ δ' αὐτοῦ θέρους νουμηνίᾳ κατὰ σελήνην, ὥσπερ καὶ μόνον δοκεῖ εἶναι γίγνεσθαι δυνατόν, ὁ ἥλιος ἐξέλιπε μετὰ μεσημβρίαν καὶ πάλιν ἀνεπληρώθη. By specifying νουμηνίᾳ κατὰ σελήνην, Thucydides distinguishes the astronomical "new moon" or conjunction, at which eclipses must occur, from the conventional "new moon" or *noumenia,* which followed the first visible crescent. The historian, in other words, is aware that there is an astronomical "new moon" or conjunction which is different from the first day of the civic month. Pritchett does not use this passage as evidence of tampering, correctly characterizing it as "a conscious rejection of civil terminology, and a recognition, gained from astronomers, that the true *noumenia* of the month might begin at the time of conjunction" (Pritchett and van der Waerden [n. 1] 30). But I include it here for two reasons.

First, this passage confirms that in the fifth century the month of the civic or religious calendar (beginning with *noumenia*) remained distinct from the astronomical month (beginning with conjunction). Since Greek calendars, as noted above, were not strictly observational, it is theoretically possible that they were eventually made to conform to the astronomical month. Yet our evidence tends in the opposite direction, suggesting that the calendar, although not determined by actual observations every month, remained more or less aligned with the appearance of the first visible crescent. Thucydides in the fifth century implicitly contrasts the special term νουμηνίᾳ κατὰ σελήνην or conjunction with the first day of the month. Aratus in the third century explains that the month begins when the first crescent of the moon appears: οὐχ ὁράᾳς; ὀλίγη μὲν ὅταν κεράεσσι σελήνη | ἑσπερόθεν φαίνηται, ἀεξομένοιο διδάσκει | μηνὸς ὅτι πρώτη ἀποκίδναται αὐτόθεν αὐγή (*Phaenomena* 733-735). And Geminus in the first century observes that "the day on which the moon appears anew was called (by combining words) *noumenia*, and the day on which it makes its second appearance they called the second."[18] Whereas the conjunction must be calculated, the first crescent must be observed by eye, and Apollonius in the third century reminds us that the observer's task was not easy. When Lynkeus alone of the Argonauts thought he saw Heracles, he is compared to someone trying to see the obscured moon at the beginning of the month: – – – ὥς τίς τε νέης ἐνὶ ἤματι μήνην | ἢ ἴδεν ἢ ἐδόκησεν ἐπαχλύουσαν ἰδέσθαι (4.1479-80).[19]

Second, the passage in Thucydides continues to be misunderstood. Dinsmoor's notion that the passage proves that Greek calendar months began with conjunction was refuted by Pritchett and Neugebauer.[20] But more recently Rusten (Thuc*., Pelop.War, Bk. II* [Cambridge 1989] 132) misunderstood the passage to imply that calendar reforms had introduced "a discrepancy" in the presumed agreement between the beginning of the civic month and astronomical conjunction. It is, however, evidence both that the notion of astronomical conjunction was relatively novel and unfamiliar, and that conjunction was something different from the *noumenia* or first day of the civic month.

From these two pieces of evidence we can conclude that a) Greek calendars began the month, not at conjunction, but at or soon after the time at which the lunar crescent became visible, b) writers in the fifth century were aware of this distinction, and c) disagreement between Greek calendar months and the synodic month beginning with conjunction is not evidence for tampering with the calendar. However, if

[17] It follows that there is no reason to reject the clear implication of this passage that the Spartan *nomos* applied to all months of the year. This implication is questioned by How and Wells (n. 5) 108-109, but was certainly accepted by ancient readers (Pausanias 1.28.4; Plutarch, *Moralia* 861 E-F; Lucian, *On Astrology* 25; scholion to Aristophanes, *Acharnians* 84).

[18] ἐν ᾗ μὲν γὰρ ἡμέρᾳ νέα ἡ σελήνη φαίνεται, κατὰ συναλοιφὴν νουμηνία προσηγορεύθη· ἐν ᾗ δὲ ἡμέρᾳ τὴν δευτέραν φάσιν ποιεῖται, δευτέραν προσηγόρευσαν, Geminus 8.11; compare van der Waerden, *JHS* 80 (1960) 178.

[19] Theophrastus may therefore not be far from the mark when he says that the light of the moon fails for the first and last four days of the month (*de signis* 1.5).

[20] W. B. Dinsmoor, *The Archons of Athens in the Hellenistic Age* (Cambridge MA 1931) 314-315; and Pritchett and Neugebauer, *Calendars of Athens* 11-12, followed by Gomme (n. 2) II, 88 and III, 714 with his note 2. Pritchett (*ZPE* 49 [1982] 264-5) seems to revive Dinsmoor's view; but he fails to distinguish between the astronomers' mean synodic month which began with (mean) conjunction, and the archon's calendar month which began with the first visible crescent.

a disagreement between the calendar month and the synodic month exceeds the limits we have described, then we may conclude that the calendar was adjusted. This seems to have occurred around the time of the battle of Marathon, not in the Spartan calendar, but in the Athenian.

Herodotus 6.120 and **Plato, *Laws 698E*,** not cited by Pritchett. Herodotus reports that after the full moon two thousand Spartans reached Athens and, although they arrived in three days, missed the battle: Λακεδαιμονίων δὲ ἦκον ἐς τὰς Ἀθήνας δισχίλιοι μετὰ τὴν πανσέληνον, ἔχοντες σπουδὴν πολλὴν καταλαβεῖν, οὕτω ὥστε τριταῖοι ἐκ Σπάρτης ἐγένοντο ἐν τῇ Ἀττικῇ. ὕστεροι δὲ ἀπικόμενοι τῆς συμβολῆς ἱμείροντο ὅμως θεήσασθαι τοὺς Μήδους (compare Isocrates, *Panegyric* 87). The Spartan desire to see the Persians implies they were not yet buried, and Plato specifies that the Spartans arrived on the day after the battle: ὕστεροι δ' οὖν ἀφίκοντο τῆς ἐν Μαραθῶνι μάχης γενομένης μίᾳ ἡμέρᾳ (compare *Menexenus* 240C). According to Plutarch, the battle of Marathon (*Moralia* 861E-F, *Camillus* 19.5) and its later commemoration (*Moralia* 349E) fell on Boedromion 6 at Athens.[21] It follows that the full moon fell at the latest on the evening of the fifth, with the Spartans marching the three nights and days of the 5th, 6th and 7th to Athens. On an observational calendar, however, the full moon would fall on the eighth at the earliest, so the Athenian calendar was delayed by three days or more. Since Boedromion 13 is the day on which the ephebes left Athens to bring the sacred objects to the Eleusinion,[22] one may reasonably suppose that days were added to prevent interruption of the Eleusinian Mysteries.[23] If the archon in this emergency used his prerogative to protect the mysteries, it seems unfair to call this "tampering". In any event, this adjustment is not willful or arbitrary, and is not evidence of a widespread practice.

2) Evidence that Civic Calendars Did not Agree with One Another

Thucydides 5.19 quotes the treaty agreed to at the Peace of Nicias (421), which was dated to Artemisios 27 at Sparta (Ἀρτεμισίου μηνὸς τετάρτῃ φθίνοντος) and Elaphebolion 25 at Athens (Ἐλαφηβολιῶνος μηνὸς ἕκτῃ φθίνοντος). This disagreement of two days in 421 is best discussed in connection with a similar disagreement two years earlier.

Thucydides 4.118-9 quotes the truce of 423, which was approved by the Athenians on Elaphebolion 14 (ἄρχειν δὲ τήνδε τὴν ἡμέραν, τετράδα ἐπὶ δέκα τοῦ Ἐλαφηβολιῶνος μηνός) and approved by the Spartans and their allies on Gerastios 12 (μηνὸς ἐν Λακεδαίμονι Γερασ τίου δωδεκάτῃ). If these dates are the same, as most scholars assume they are,[24] the Athenian calendar was two days ahead of the Spartan in 423 and two days behind it in 421. In other words, the Athenian calendar "lost" four days with respect to the Spartan calendar in a period of 24 months. If the calendars began each month precisely at conjunction, it would be correct to conclude that one of the two had somehow been altered or interfered with. But since the calendars began each month approximately at the first visible crescent, it is not correct to conclude, as Pritchett does (*CP* 42 [1947] 238-9), that one of the two was altered. As we have seen, the variables involved in observing the lunar crescent are such that any two calendars based on observations in different cities, with different horizons, atmospheric conditions and observers, and perhaps with different ways of correcting the schematic calendar by observation, would regularly disagree with one another. A difference of four days over two years is not a "remarkable divergence" to be blamed upon the archon (Pritchett, "Calendars… Again" [n. 1] 278).

Plutarch, *Aristides* 19.8-9 reports that the battle of Plataea (479) was fought on Boedromion 4 on the Athenian calendar and Panemos 27 on the Boeotian (τῇ τετράδι τοῦ Βοηδρομιῶνος ἱσταμένου κατ' Ἀθηναίους, κατὰ δὲ Βοιωτοὺς τετράδι τοῦ Πανήμου φθίνοντος), and proceeds to remark that such

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[21] How and Wells (n. 5) 109 suppose that Plutarch has confused the date of the battle with the date of its commemoration. But there is no good reason to suppose he made such a mistake.

[22] J. D. Mikalson, *The Sacred and Civil Calendar of the Athenian Year* (Princeton 1975) 54.

[23] John Morgan has suggested, in correspondence, a greater retardation of ten days.

[24] See discussion in B. D. Meritt, *Athenian Financial Documents of the Fifth Century* (Ann Arbor 1932) 146-48, followed by Gomme (n. 2) 713.

differences are normal: τὴν δὲ τῶν ἡμερῶν ἀνωμαλίαν οὐ θαυμαστέον, ὅπου καὶ νῦν διηκριβωμένων τῶν ἐν ἀστρολογίᾳ μᾶλλον ἄλλην ἄλλοι μηνὸς ἀρχὴν καὶ τελευτὴν ἄγουσιν. A difference of six or seven days may be due to the normal operations of Greek calendars since, as Plutarch points out, even in his day, "now that astronomical knowledge is more precise, different peoples still begin and end the months at different times."

Ps.-Themistocles, *Epistle* 7. The author says he received this letter on the last day of Boedromion (according to the Athenians) or Panemos 10 (according to the Corinthians): ὡς Ἀθηναῖοι λογίζονται Βοηδρομιῶνος ἔνῃ καὶ νέᾳ, ὡς δὲ ὑμεῖς, Πανήμου δεκάτῃ (ἡ δὲ ἡμέρα ἡ αὐτή). Pritchett ("Calendars…Again" [n. 1] 278) draws attention to a divergence of ten or twenty days "at such an early stage of the year," but we have no idea where Panemos stood in the Corinthian calendar. If the Corinthian year began, as the Boeotian did, around the Athenian Poseideon, Panemos would fall close to the end of the year (Samuel *op. cit.* [n. 3] 68 and 89). If Greek calendars naturally tended to diverge by as many as six or seven days, the greater difference of ten days might have resulted from the accumulation of minor adjustments throughout the year. Yet the equation itself is of dubious authority. The letter is a very late composition, written in the late first or the second century C.E.; it describes an apparently fictitious event, a financial misunderstanding between Themistocles and one Philostephanus; and the date itself seems deliberately vague (ποτε, 7.1).[25] It follows that we cannot regard the letter as reliable evidence for civic calendars of any period, let alone for those of the fifth century.

Aristoxenus, *Harmonica* 2.37. Complaining that discussions of the *tonoi* or keys give all sorts of intervals among hypodorian, mixolydian, dorian and so on, Aristoxenus compares the differences among the calendars of various city-states: ἀλλὰ παντελῶς ἔοικε τῇ τῶν ἡμερῶν ἀγωγῇ τῶν ἁρμονικῶν ἡ περὶ τῶν τόνων ἀπόδοσις, οἷον ὅταν Κορίνθιοι μὲν δεκάτην ἄγωσιν Ἀθηναῖοι δὲ πέμπτην ἕτεροι δέ τινες ὀγδόην. Just as Plutarch, in reporting fifth-century dates, took differences of six or seven days between the calendars of Athens and Thebes to be normal, Aristoxenus in the fourth century considered differences of two and five days between the calendars of Corinth, Athens and other cities to be normal.

Pritchett correctly draws attention to the evidence for frequent divergences among Greek civic calendars from the fifth century onwards. But such differences do not prove, as he claims in connection with the quote from Aristoxenus, that officials of the various cities were "accustomed to tamper with the festival calendar by adding or subtracting days at will" (Pritchett, "Calendars… Again" [n. 1] 277). Let us assume, for the moment, that all cities began the year with the same new moon. Variations in observation conditions from one place to another (weather, terrain, experience of the observer, etc.) would naturally lead to differences of one or two days in observing the first crescent, and hence in determining the *noumenia*. Yet we know that cities began their calendar years at various points in the tropical year (that is, at different new moons). Their starting points were therefore not various attempts at observing the same crescent, but various attempts at observing different crescents. Since we noted above that under ideal observation conditions the *noumenia* may be from one to four days after the day of conjunction, we must add a further difference of up to three days between calendars beginning at different times of the year. Added together, these two sets of variables would regularly produce a difference of up to five days between the calendars of different cities. This is without allowing for different ways of administering and adjusting the calendar from city to city.

When differences between civic calendars on the order of six or seven days are reported, although intercalation may have played a role, it is just as likely that these differences result from the inherent imprecision of Greek calendars. In one case we have evidence for a greater difference of ten days (the letter of Themistocles), but the late date of composition and the fictional content prevent us from de-

[25] On the date of the letter, see N. A. Doenges, *The Letters of Themistokles* (New York 1981) 49-63. On the fictitious nature of *Letters* 6 and 7, see Doenges 285, who adds (99-100) that they seem to borrow names from New Comedy. On the deliberate vagueness of the date, compare Gastaldi in G. Cortassa and E. C. Gastaldi, *Le Lettere di Temistocle* (Padua 1990) II, 93, who allows (91-95) that there might be a general recollection of Sicilian commercial ventures.

termining if and when such a discrepancy actually took place. If the evidence shows that Greek civic calendars were not aligned with one another, it does not follow that these discrepancies resulted from "tampering" by the archon.

3A) Direct Evidence for Adjustments to the Civic Calendar

..a) Intercalation of One Day

***IG* II² 358.** At the end of the fourth century, perhaps in 307/6 (*SEG* XXVI 87), a day was added to the civic calendar, perhaps at the end of Elaphebolion: Ἐ[λαφηβολιῶνος ἕνηι καὶ ν]έαι ἐμβολίμωι.

***IG* II² 471.** In 306/5 a day was added at the end of Mounychion: Μουνυχιῶνος ἔνει καὶ νέαι ἐμβολίμωι.

***IG* II² 495** (compare 496 and 497). In 303/2 a day was added at the end of Skirophorion: Σκιροφοριῶνος ἕνηι κ[αὶ νέ]αι προτέραι.

***IG* II² 791.** In the second half of the third century, probably in 244/3 (*SEG* XXXII 118, XXXVI 170), a day was added at the end of Elaphebolion: Ἐλαφηβολιῶνος ἔνει καὶ νέαι ἐμ[βολίμωι.

***Agora* XV.120.**[26] In 228/7 a day was added near the end of (the second) Hekatombaion: Ἑκατονβαιῶνος [ὑς]τέρου ἕκ{κ}τει μετ' εἰκάδας ἐμβολίμωι.

***IG* II² 1006.3-4.** In 122/1 a day was added in the first decade of Boedromion: Βοιηδρομιῶνος ὀγδόηι ἱσταμένου ἐμβολίμωι κατ' ἄρχοντα.

In one further case (***IG* II² 486**) the text has been restored to indicate an intercalation at the end of the month.

b) Intercalation of Two or More Days[27]

***IG* II² 458.** At the end of the fourth century, probably in 307/6, two days were apparently added near the end of Gamelion: Γαμηλιῶνος δευτ[έ]ραι ἐ[μ]βολίμωι ὀγδόε[ι] μετ' εἰκάδας ἡμερολεγδόν.

***IG* xii.9 207.28-29.** Between 294 and 288, in connection with a tour by artists of Dionysus during Lenaion, four cities in Euboea made provision for the addition of up to three days: ὑπὲρ ἐμβολίμων ἡμερῶν· ἐάν που προσδέωνται [– – –] ἐ[μβ]ολίμων ἡμερῶν, ἐ[ξε]ῖν αὐτοῖς ἐνβαλέσθαι μέχρι ἡμερῶν τριῶν.

***Hesperia* 23 (1954) #183, p. 299.** In 271/0 four days were added in the first decade of Elaphebolion: Ἐλαφηβολιῶνο[ς ἐ]νάτει ἱσταμένου τετάρτει ἐμβολίμωι.

***IG* II² 838.** Toward the end of the third century, probably in 226/5, two days were apparently added to Metageitnion: Μεταγειτνιῶνος ἐνάτ[ηι καὶ δεκάτηι δ]ευτέραι ἐμβολίμωι.

***Agora* XV.135.** In 214/3, two days may have been added to Metageitnion: Μεταγειτνιῶνος ἕκ[τει ἐπὶ δέκα δευτέ]ραι ἐνβολίμωι.

c) Subtraction of Days

Diodorus 1.50.2. Diodorus reports that in his day (first century B.C.E.) most Greek cities intercalated months and subtracted days: ἐμβολίμους δὲ μῆνας οὐκ ἄγουσιν [the Thebans in his day] οὐδ' ἡμέρας ὑφαιροῦσι, καθάπερ οἱ πλεῖστοι τῶν Ἑλλήνων.

d) Addition or Transposition of a Month

***IG* I³ 78.53-54.** In the 430's (*SEG* XXXVI 12), 420's (*SEG* XL 12) or 410's (*SEG* XLII 17), in connection with offerings at Eleusis, the demos instructed the archon to add a second Hekatombaion: μῆνα δὲ ἐμβάλλεν Ἑκατονβαιῶνα τὸν νέον ἄρχοντα.

***Agora* XV.120** (above). In 228/7 a second Hekatombaion was added to the civic calendar: Ἑκατονβαιῶνος [ὑς]τέρου ἕκ{κ}τει μετ' εἰκάδας ἐμβολίμωι.

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[26] B. D. Meritt and J. S. Traill, *Inscriptions: The Athenian Councillors*, vol. 15 of *The Athenian Agora* (Princeton 1974).

[27] Meritt restores an intercalation of eight days in *Agora* XV.186. From the discrepancy between *IG* II² 351 and *IG* ii² 352, Pritchett (*CSCA* 9 [1976] 187) argued for the addition of ten days in Thargelion; most scholars, however, follow Kirchner in positing an error on the stone (compare the editor's correction <ἐπὶ δέκα> at *IG* I³ 377.8). The reconstructed intercalations and suppressions in Pritchett, *Choiseul Marble* (n. 1) 25 and 32 are possible but not certain.

***IG* xii.9 207.49-51** (with corrigenda, p. 176). Between 294 and 288, in connection with a tour by artists of Dionysus during Lenaion, four cities in Euboea made provision for the archons to add months as necessary: περὶ ἐμβολαίων μην[ῶν· π]ερὶ δὲ τῶν [ἐμβ]ολαίων μηνῶν ἐπιμελεῖcθαι τοὺc ἄρχοντας ἐν ταῖc πόλε[cι μ]ετὰ τῶν ἡιρημένων ὅταν καθήκει, ὅπωc ἂν ἅμα ἐν [τ]ῆι Εὐβοίαι γίνωνται.

Diodorus 1.50.2 (above). Diodorus reports that in his day (first century B.C.E.) most Greek cities intercalated months and subtracted days.

Our sources refer to adding or intercalating a particular month. Since adding an extra month to the year, or even adding an extra month and then suppressing an entire month later, would cause intolerable confusion, it is generally assumed that in these cases a different month was chosen as intercalary;[28] in a year already designated as intercalary, for example, the demos might specify that the extra month be a second Hekatombaion rather than a second Poseideon.

As Dinsmoor has pointed out (*Hesperia* 23 [1954] 284-316, pp. 308-9), most of these attested adjustments were made toward the end of the month and toward the end of the year. This would be the natural place for adjustments designed to bring the civic calendar closer to the observed cycles of moon and sun. In fact, of those cases in which a single day was added, all but two fall at the very end of the month, where adjustment would naturally be made to bring the calendar into agreement with prior observation of the lunar crescent. Of the two that remain, one precedes the Eleusinian Mysteries (*IG* II^2 1006) and the other precedes the Panathenaia (*Agora* XV.120; see below). Of those cases in which two or more days were added, one explicitly involves the scheduling of festivals in Euboea (*IG* xii.9 207) and one directly precedes the Great Dionysia in Athens (*Hesperia* 23 [1954] #183). This leaves three cases, one from the year of upheaval in which the democracy was restored at Athens (*IG* II^2 458) and two from late in the third century (*IG* II^2 838 and *Agora* XV.135). Of the three cases of intercalary months, two are explicitly related to religious festivals (the dedication of first fruits at Eleusis, *IG* I^3 78; and dramatic festivals in Euboea, *IG* xii.9 207). In the remaining case (*Agora* XV. 120) we are not told why the adjustment was made, but it may have involved the scheduling of the Panathenaia, which followed immediately after.[29] In summary, the direct evidence for adjustments to the civic calendar includes the addition of one day at the very end of a month (five examples), the addition of days in definite (one example) or probable (three examples) connection with a civic festival, and the transposition of intercalary months in definite (two examples) or probable (one example) connection with a civic festival. Otherwise we have one example of days added in a year of constitutional change, and two examples of days added for unknown reasons late in the third century. The evidence therefore supports an assumption that most adjustments were part of the normal operation of the civic calendar—ensuring that the calendar was roughly in phase with sun and moon, and ensuring that festivals would take place at a necessary or convenient time.

3B) Indirect Evidence for Adjustments to the Civic Calendar[30]

Further evidence for adjustments to the civic calendar comes from the calendar equations provided by double and triple dates on Athenian inscriptions. Since Pritchett was trying to determine how to interpret the double dates, he properly relied just upon the evidence of triple dates. As we shall see, these equations provide indirect evidence for various adjustments to the calendar in the second century, but little evidence for the reasons for these adjustments.

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[28] For example, R. Meiggs and D. Lewis, *A Selection of Greek Historical Inscriptions* (Oxford 1969) 221. For intercalary months other than Poseideon, compare *IG* II^2 844 (Anthesterion), *IG* II^2 1487B (Gamelion), and *Agora* XV. 206 (Metageitnion).

[29] The Panathenaia were probably held on Hekatombaion 26-29; Mikalson (n. 22) 33-34 gives the probable range Hekatombaion 23-30, but this inscription (which he does not cite) further narrows the range.

[30] I am grateful for the assistance of John Morgan, who provided an annotated list of calendar equations from 374 onwards. I cannot here take account of unpublished inscriptions.

Triple dates (festival calendar κατ' ἄρχοντα, festival calendar κατὰ θεόν, and prytany calendar). A number of inscriptions from the second century B.C.E. include dates from the festival calendar κατὰ θεόν, "according to the moon."[31] Pritchett has argued persuasively that dates κατ' ἄρχοντα should be taken as dates according to the civic calendar of the archon (Pritchett and Neugebauer, *Calendars* [n. 1] 19), but it was not clear how we should interpret dates κατὰ θεόν. Pritchett suggested that dates κατὰ θεόν are those of an observational calendar determined by observing the waning lunar crescent, and that the difference between dates κατ' ἄρχοντα and dates κατὰ θεόν indicates the degree to which the archon had tampered with the calendar.[32] On this theory, the civic calendar had always been governed by strict observation of the lunar crescent, and dates κατὰ θεόν are correct or untampered dates while dates κατ' ἄρχοντα result from tampering. Yet as we have seen 1) the Athenians could not have relied upon observation of the waning crescent, and 2) the Athenian civic calendar was not strictly observational. It follows that the significance of dates κατὰ θεόν, and of the difference between dates κατ' ἄρχοντα and κατὰ θεόν, remain to be determined.

The introduction of a new set of inscriptional dates suggests a need or desire in the second century for greater regularity in the calendar. Whereas Pritchett argued that the new dates κατὰ θεόν compensated for large-scale tampering by the archon, Meritt (*TAPA* 95 [1964] 233-235) thought that they compensated for differences among the city-states; on his view, dates κατὰ θεόν followed the astronomical cycles of Meton and Euctemon, and provided a fixed international standard as an alternative to the inconsistent calendars of various cities. Yet the evidence does not support Meritt's hypothesis. Since Meton's astronomical months began with conjunction,[33] this calendar would always be several days ahead of the civic calendar, in which months began after the first visible crescent. In particular, in the period of twelve tribes the prytanies in ordinary years would equal or approximate months of the civic calendar (Pollux 8.115; Pritchett and Neugebauer, *Calendars of Athens* [n. 1] 78). It follows that in ordinary years all dates on Meton's calendar would be on average several days higher than prytany dates. In intercalary years, dates on Meton's calendar would move further ahead of prytany dates in the first half of the year, but after the second Poseideon they would be lower than prytany dates, gradually catching up by the end of the year. Only in Skirophorion of intercalary years would prytany dates agree with those of Meton's calendar (see Table 3). Yet among five preserved equations, the date κατὰ θεόν is in two cases the same as the prytany date—once in Boedromion, where on Meton's calendar the date κατὰ θεόν would be about two (ordinary) or seven (intercalary) days higher than the prytany date, and once in Mounychion, where on Meton's calendar the date κατὰ θεόν would be about two days higher (ordinary) or five days lower (intercalary).[34] In a third case the date κατὰ θεόν agrees with the prytany date if we assume[35] that the year κατὰ θεόν was intercalary and began at the same time as the prytany year (i.e. not at conjunction);[36] on Meton's calendar, however, this date κατὰ θεόν in Thargelion would be about two days higher (ordinary) or two days lower (intercalary) than the prytany date. In the two remaining cases the date κατὰ θεόν is one day lower than the prytany date—both in Elaphebolion, where on Meton's calendar the date κατὰ θεόν would be about two days higher (ordinary) or seven days lower

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[31] For lists of inscriptions in which the phrase κατὰ θεόν is either preserved or restored, see Pritchett and Neugebauer, *Calendars* (n. 1) 15; Pritchett, "Calendars on Stone" (n. 1) 337; B. D. Meritt, *TAPA* 95 (1964) 200-260, esp. 231 n. 109. Only a few of these hold reliable equations; see discussion below.

[32] Pritchett and Neugebauer, *Calendars* (n. 1) 14-23; Pritchett, "Calendars on Stone" (n. 1) 313-6; and discussion above with notes 12 to 15.

[33] Thus van der Waerden (*JHS* 80 [1960] 178), confirmed by his calculations on page 173 which show that Euctemon's "Skirophorion" began at (mean) conjunction.

[34] Preserved date κατὰ θεόν equals prytany date: *IG* II^2 967 (= *Agora* XV. 238), Mounychion 12 κ.θ. = Prytany 10.12; and *IG* II^2 1006, Boedromion 9 κ.θ. = Prytany 3.9. To these we might add the restored reading of *Hesperia* 16 (1947) 164-8 #64 (*SEG* 34.95), [Boedromion] 16 κ.θ. = Prytany 3.[1]6.

[35] As Meritt himself assumes: B. D. Meritt, *Hesperia* 33 (1964) 168-227, esp. 183-4.

[36] Preserved date κατὰ θεόν corresponds to prytany date: *Agora* XV.207, Thargelion 18 [κ.θ.] = Prytany 11.23.

(intercalary).[37] In other words, the close correspondence between dates κατὰ θεόν and prytany dates immediately disproves Meritt's theory that dates κατὰ θεόν follow the astronomical model of Meton.

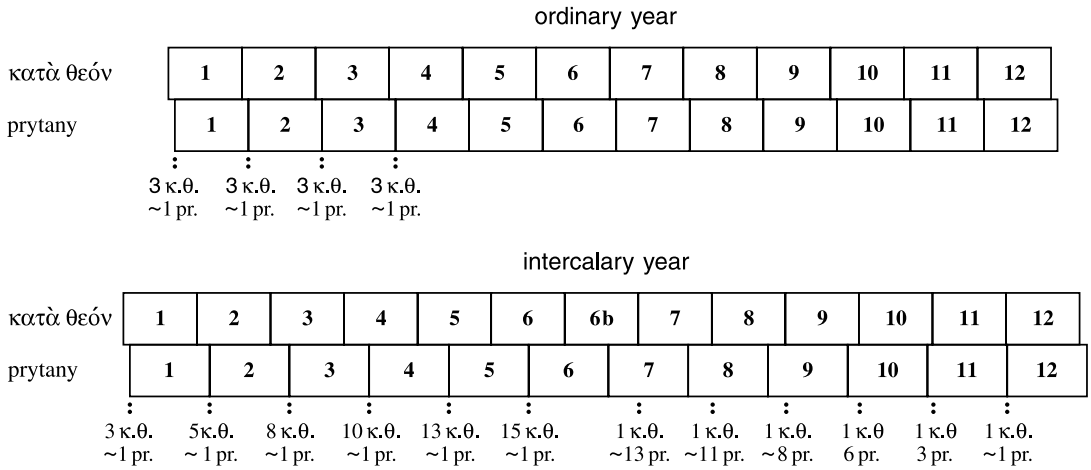

Table 3. Correspondences between dates κατὰ θεόν and dates by prytany in the period of twelve tribes, assuming that dates κατὰ θεόν begin with conjunction.

If the second century dates κατὰ θεόν follow neither a strictly observational calendar (as Pritchett proposed) nor a strictly astronomical one (as Meritt proposed), what sort of calendar do they reflect? Given the close correspondence between prytany dates and dates κατὰ θεόν, the latter most likely follow the civic calendar described above. Dates κατὰ θεόν, in other words, follow the traditional calendar in which the beginning of the month approximated the appearance of the new lunar crescent. Under normal circumstances, dates κατὰ θεόν and dates κατ' ἄρχοντα would be identical, but in the second century for some reason divergences between the festival calendar and the cycles of the moon made a new designation necessary. It is worth pausing for a moment to consider why this new designation was introduced. We tend to think, with our modern prejudices, that a calendar should somehow be regular or precise, and that an irregular calendar must be diverging from a more regular or more accurate counterpart. But there is no reason to imagine that Greek festival calendars were ever designed to be, or were ever expected to be, precise. Their purpose was to schedule monthly and annual festivals, and to allow these to be performed at a reasonable or convenient time. When the city required a more regular calendar for administrative and financial purposes, the calendar of the Boule or prytany calendar filled this need. It is therefore anachronistic to suppose that even large-scale adjustments to the festival calendar would have struck an Athenian as unusual or as something to be corrected. When the designation of dates κατὰ θεόν was added to inscriptions in the second century B.C.E., there is no reason to suppose that the Athenians had finally found the will to "fix" or "correct" their civic calendar. We should conclude instead that adjustments to the calendar were making it harder to coordinate business among the various city-states, and that in Hellenistic times the need for efficient coordination was felt strongly enough in Athens for decrees to be supplied with a new designation that was roughly consistent from city to city. There is no evidence to support Pritchett's hypothesis that a "regulatory" calendar κατὰ θεόν had always been used in Athens, but was noted on inscriptions only in the second century ("Calendars on Stone" [n. 1] 313-16).

[37] Preserved date κατὰ θεόν is one day lower than prytany date: *Agora* XV. 219, Elaphebolion 21 κ.θ. = Prytany 9.22; and *Agora* XV. 171, Elaphebolion 27 [κ.θ.] = Prytany [9].28. I omit equations that depend upon restoration or emendation.

Let us now turn to the triple dates and the evidence they provide for adjustments to the calendar. Seven inscriptions preserve both a date κατ' ἄρχοντα and a date κατὰ θεόν; the date κατ' ἄρχοντα is always lower than the date κατὰ θεόν, and the difference between the two ranges from one to 27 or 28 days. In two cases the difference is one or two days:[38]

IG II^2 1006, Boedromion 8_2 κ.α. = 9 κ.θ.

Agora XV. 219, Elaphebolion 19 = 21 κ.θ.

In two cases the difference is four or seven days:

Agora XV. 171, Elaphebolion 23 = 27 [κ.θ.]

Agora XV. 207, Thargelion 11 = 18 [κ.θ.]

And in three cases the difference is from eleven to 27 or 28 days:[39]

Hesperia 11 (1942) 293-8 #58, [Pyanopsion] 16 κ.θ. = 5 κ.α.

IG II^2 967, Elaphebolion 22 κ.α. = Mounychion 12 κ.θ.

IG II^2 946, Anthesterion 2[9] = Elaphebolion 27 [κ.θ.][40]

Of the three cases in which the difference is greatest, two precede important public festivals (*Hesperia* 11 [1942] #58, before the Proerosia; and *IG* II^2 946, before the Great Dionysia). Taken together, these equations tell us that the festival calendar was adjusted by the addition of substantial numbers of days, and that such adjustments were relatively common. On the other hand, many more inscriptions from the second century lack a date κατὰ θεόν than include one, and since even differences of a single day were noted (*IG* II^2 1006), we can conclude that in most years of the second century the civic calendar was not adjusted. The introduction of the designation κατὰ θεόν implies that adjustment was more extensive in the second century than before, but an adjusted calendar was by no means the norm. Finally, we have no evidence as to why these adjustments were made; two of the largest adjustments may have involved the scheduling of important festivals, but in other cases there is nothing to suggest the reasons.

Double dates (festival calendar and prytany calendar). The value of the triple dates from the second century is that, once we understand the designation κατὰ θεόν, these equations (like the designation of ἐμβόλιμοc days) tell us exactly how many days were added to the festival calendar. Unfortunately these triple dates are few in number, they do not tell us why days were added, and they were employed only in the second century. Some further evidence is supplied by the double dates that were employed from the mid-fourth century on. Since Pritchett was primarily concerned with establishing the relative regularity of the prytany calendar, he did not use these equations as evidence for tampering; but now that his view has won acceptance,[41] we may use the assumption of regular prytanies in interpreting these equations. It is important to remember, however, that this evidence is imprecise, since neither the festival calendar nor the prytany calendar can be firmly reconstructed. Since we cannot assume that full and hollow months followed one another in rigid succession, a date on the festival calendar may vary by one or two days. And since we cannot assume that all the longer prytanies preceded all the shorter ones,[42] a date on the council's calendar may vary by several days. It follows that most equations between the two calendars will yield adjustments subject to an error of several days.

Most preserved double dates do not suggest adjustment to the festival calendar beyond the margin of error we have noted. For example, an inscription dated to 322/1 gives the following equation:

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[38] We might add *SEG* XXXIV 95, line 44, which seems to require the restoration of a two-day difference, Poseideon [22] = [2]4 κ.θ.

[39] A Boeotian inscription of the second century records a difference of one month and ten days: *IG* vii 517, Thouios 1 = Homoloios 11 κ.θ. (incorrectly cited by Samuel [n. 3] 69 as Homoloios 16).

[40] If the restoration by Pritchett and Neugebauer, *Calendars of Athens* (n. 1) 85, n. 25 is correct. Another inscription from the same year, *IG* II^2 947, seems to involve a difference of at least twenty days.

[41] For Meritt's acceptance of a year divided into equal prytanies, see B. D. Meritt, *GRBS* 17 (1976) 147-52.

[42] Aristotle's statement (*Ath. Pol.* 43.2) that four prytanies of 36 days each were followed by six prytanies of 35 days each makes it possible but by no means necessary to conclude that the longer prytanies always fell first.

IG II^2 373B, Thargelion 2 = Prytany 9.23

If we assume strict alternation of full and hollow months, and if we assume for an intercalary year that the 39-day prytanies all preceded the 38-day prytanies, we have an adjustment to the calendar of 4 or 5 days. But if full and hollow months did not follow this scheme, the adjustment might have been two or three days, and if the shorter prytanies came first, as Kirchner assumed, there would have been no adjustment at all. In intercalary years in the periods of twelve tribes, all prytanies were the same length, so these equations will be more helpful.

Allowing for the uncertain sequence of months and prytanies, inscriptional double dates give two occasions on which the calendar was adjusted by a minimum of two days:

Hesperia 4 (1935) 525-61 #39 (226/5), Metageitnion$_{[2]}$ 29 = Prytany 3.27[43]

Agora XV. 135 (214/3), Metageitnion [1]6$_3$ = Prytany [2].21

They give three occasions on which the calendar was adjusted by a minimum of three to five days:

Hesperia 48 (1979) 174-8 #1 (214/3), [Boedromion] 29/30 = Prytany 4.13

IG II^2 896 (186/5) Elaphebolion 21 = Prytany 10.4

Agora XV. 194A (178/7), Pyanepsion 22 = Prytany 4.30

And they give two occasions on which the calendar was adjusted by a minimum of six to eight days:[44]

Hesperia 23 (1954) 296-312 #183 (271/0), Elaphebolion 9$_5$ = Prytany 9.27

Agora XV. 120 (228/7), Hekatombaion$_2$ 25$_2$ = Prytany 2.31

Inscriptions bearing double dates therefore make it clear that during the third century the festival calendar was adjusted by eight days or more, and that such adjustments were not especially rare. It is worth noting that the two greatest adjustments fell immediately before the Great Dionysia and the Panathenaia respectively, although in none of these cases are we explicitly told why the adjustment was made.

The indirect evidence for adjustments to the civic calendar includes seven examples from the second century ranging from one to 27 or 28 days, and seven examples from the third and second centuries ranging from a minimum of two to a minimum of 7 or 8 days. In none of these cases are we told why the adjustments were made, although it is reasonably clear that the scheduling of religious festivals was involved: two of the three largest adjustments involving triple dates preceded important festivals (Proerosia and Great Dionysia) as did both of the largest adjustments involving double dates (Great Dionysia and Panathenaia). Given the selective nature of our evidence (triple dates only from the second century, and double dates only from the late fourth century and after) and the relatively small number of secure equations, we are not in a position to draw conclusions about the fifth and fourth centuries. Nevertheless this indirect evidence and the other evidence we have considered so far are consistent with the premise that occasional adjustments were made in all periods, with an apparent increase in both number and extent in the second century.

4) Evidence for the Renaming of Days and Months

a) Renaming of Days

Thucydides 5.54 reports that in 419/8, after the Spartans postponed an invasion, the Argives invaded the land of Epidaurus and hindered its defense by renaming days the fourth before Carneius: Ἀργεῖοι δ' ἀναχωρησάντων αὐτῶν τοῦ πρὸ τοῦ Καρνείου μηνὸς ἐξελθόντες τετράδι φθίνοντος, καὶ ἄγοντες τὴν ἡμέραν ταύτην πάντα τὸν χρόνον, ἐσέβαλον ἐς τὴν Ἐπιδαυρίαν καὶ ἐδῄουν.

Plutarch, *Alexander* 25.2 reports that during the siege of Tyre (332) a seer announced the city would be taken within the month; when soldiers taunted him, pointing out that it was already the thirti-

[43] The same adjustment in the same month is reflected in *IG* II^2 838, Metageitnion$_{[2]}$ [2]2 = Prytany 3.20, as restored by Meritt, *Hesperia* 4 (1935) 530.

[44] If we follow Kirchner in assuming that Maimakterion was intercalary, no adjustment to the calendar is required by *IG* II^2 702 (*Agora* XV.87), [Maimakterion] 21 = Prytany 6.11. Otherwise the equation requires a minimum adjustment of 15 days.

eth, Alexander proclaimed that day the twenty-eighth: γενομένου δὲ χλευαcμοῦ καὶ γέλωτος (ἦν γὰρ ἡ τελευταία τοῦ μηνὸς ἡμέρα), διηπορημένον αὐτὸν ἰδὼν ὁ βαcιλεύc, καὶ cυμφιλοτιμούμενος ἀεὶ τοῖc μαντεύμαcιν, ἐκέλευε μηκέτι τριακάδα τὴν ἡμέραν ἐκείνην, ἀλλὰ τρίτην φθίνοντος ἀριθμεῖν.

b) Renaming of Months

Xenophon, *Hellenica* 4.7.2-3 (compare 5.1.29) reports that the Spartan king Agesipolis, preparing in 388 to invade Argos, asked the oracles of Zeus and Apollo if he could reject a truce on the grounds that the Argives "proposed the months" not when the proper time arrived, but when the Spartans were about to invade: ἐπηρώτα τὸν θεὸν εἰ ὁcίωc ἂν ἔχοι αὐτῷ μὴ δεχομένῳ τὰc cπονδὰc τῶν ᾽Αργείων, ὅτι οὐχ ὁπότε καθήκοι ὁ χρόνος, ἀλλ᾽ ὁπότε ἐμβάλλειν μέλλοιεν Λακεδαιμόνιοι, τότε ὑπέφερον τοὺc μῆναc. The Argive ploy of proposing a truce when the Spartans were about to invade presumably involved renaming the current month Carneius.

Plutarch, *Demetrius* 26.3-4 (compare Diodorus 20.110.1 and Philippides 25 *PCG*.)[45] reports that when Demetrius Poliorketes returned to Athens in 302, the assembly at the instigation of Stratokles allowed Demetrius to be initiated into all levels of the mysteries by renaming the month Mounychion first Anthesterion and then Boedromion: ἀλλὰ Στρατοκλέουc γνώμην εἰπόντοc, ᾽Ανθεcτηριῶνα τὸν Μουνυχιῶνα ψηφιcαμένουc καλεῖν καὶ νομίζειν, ἐτέλουν τῷ Δημητρίῳ τὰ πρὸc ῞Αγραν· καὶ μετὰ ταῦτα πάλιν ἐξ ᾽Ανθεcτηριῶνοc ὁ Μουνυχιὼν γενόμενοc Βοηδρομιὼν ἐδέξατο τὴν λοιπὴν τελετήν, ἅμα καὶ τὴν ἐποπτείαν τοῦ Δημητρίου προcεπιλαβόντοc.

Plutarch, *Alexander* 16.2, reports that in 334, when Alexander was preparing his assault across the Granicus, he answered objections to waging war in the month of Daesius by calling it a second Artemisius: ἐνίων δὲ καὶ τὸ περὶ τὸν μῆνα νενομιcμένον οἰομένων δεῖν φυλάξαcθαι (Δαιcίου γὰρ οὐκ εἰώθειcαν οἱ βαcιλεῖc τῶν Μακεδόνων ἐξάγειν τὴν cτρατιάν), τοῦτο μὲν ἐπηνωρθώcατο κελεύcαc δεύτερον ᾽Αρτεμίcιον ἄγειν.

These five passages provide our clearest evidence for the reasons or motives involved in adjustments to the calendar. Before the end of the fourth century there are two instances in which days or months were renamed; both involved what we would call national security, and both involved the city of Argos. The case recorded by Thucydides suggests that the Argives, threatened by some kind of attack by the Spartans and knowing that the expedition would be resumed once Carneius was over, used the sacred month as cover for a preemptive strike against Epidaurus. Apparently this game played by the Argive David against the Spartan Goliath became a familiar one, since thirty years later, in the case recorded by Xenophon, the Spartans knew or suspected before their invasion that the Argives would try it again. Neither case involves willful tampering. This defensive ploy clearly became tiresome to the Spartans, who persuaded the temples at Olympia and Delphi to sanction ignoring it, but for the Argives it served vital interests in war.

From the end of the fourth century we have three cases, two of which also involve military considerations. The story of Alexander at the Granicus is part of a larger story about the impetuous king attacking when conditions were unfavorable (against a much larger force, and across a fast flowing river); his generals raised objections for various reasons, including the month, but Alexander rejected them all. His action, like that of the Argives, was prompted by military concerns, although renaming the month Daesius involved a disregard for Macedonian custom rather than for treaties between Greek city states. The story of Alexander at Tyre may be apocryphal but also illustrates the king's impulsive nature. Both stories indicate how an impetuous king might act in the heat of battle, disregarding custom and tradition in order to score a stunning victory; neither indicates tampering by the archon or any other official with a Greek civic calendar. The well-attested story of Demetrius is quite different. To satisfy the king's desire to be initiated, the demos voted that months be renamed in an unprecedented manner. To be sure, this is not willful interference by the archon but a craven gesture by the assembly; yet it was highly irregular and could not be justified as other cases could by the threat of war or the press of battle.

[45] The incident may also be reflected in an inscription restored by A. G. Woodhead, *Hesperia* 58 (1989) 297-301.

5) Evidence for Some Kind of Confusion Involving the Calendar

Aristophanes, *Peace* 414-15. Trygaios claims that the Sun and Moon have been plotting to betray Greece to the Persians, since the latter worship the Sun and Moon, not the gods, to which Hermes replies, "so that's why they have both been stealing days and nibbling at the year": ταῦτ' ἄρα πάλαι τῶν ἡμερῶν παρεκλεπτέτην | καὶ τοῦ κύκλου παρέτρωγον – – –. [46]

Aristophanes, *Clouds* 615-26. The chorus reports the complaint that the Athenians have allowed their days to become confused, conducting city business on festival days and failing to handle days in accord with the moon: ὑμᾶς δ' οὐκ ἄγειν τὰς ἡμέρας | οὐδὲν ὀρθῶς, ἀλλ' ἄνω τε καὶ κάτω κυδοιδοπᾶν – – – κᾆθ' ὅταν θύειν δέῃ, στρεβλοῦτε καὶ δικάζετε – – – κατὰ σελήνην ὡς ἄγειν χρὴ τοῦ βίου τὰς ἡμέρας.

Both passages hint at some long-standing confusion in the calendar (πάλαι *Peace* 414; ἑκάστοτε, πολλάκις *Clouds* 617, 621). The first is more cryptic. When Hermes says that the sun and moon have been vying with the gods by stealing days and nibbling at the year, he implies that the civic calendar which governs the festivals of the gods had somehow been adversely affected by the demands of sun and moon. Yet given the cryptic nature of this aside, and the fact that its chief concern is not with the calendar but with barbarian worship of the sun and moon, we cannot speculate about this nibbling and stealing. The second passage is clearer in that the festival calendar associated with the moon is explicitly contrasted with a newer scheme that does not agree with it. The sustained critique by the chorus, charging that the people of Athens have slighted the moon in their administration of the calendar, strongly suggests that a new scheme or procedure was competing with the civic lunar calendar.[47] If we recall that by this time the council's year had been changed, so that the festival calendar began and ended on different dates than the prytany calendar, we have an obvious reason for the Clouds' complaint: the city's business affairs were now being conducted according to a calendar that conflicted with the festival calendar, thus denying the gods their sacrifices and the Moon her authority.[48] Hermes' cryptic aside may or may not allude to the same conflict between calendars, but there is nothing in either passage to indicate that the archon had been tampering or juggling with the calendar.[49]

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This review of all the evidence assembled by Pritchett, and of some additional evidence as well, does not support his claim that it proves widespread and willful tampering by the archon. We must acknowledge that Pritchett was not examining the topic of "tampering" in itself, but was using evidence of tampering to strengthen his argument that irregularities in the calendar should be assigned not to the prytany calendar but to the festival calendar. This he proved clearly and effectively, and all scholars of the calendar now accept his position that prytanies were divided as evenly as possible among the tribes. Since Pritchett's work on the calendar is so important, it might seem ungracious to criticize him on the topic of tampering; it might even seem that the issue is purely one of wording—what Pritchett calls

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[46] I omit the following puzzling expression ὑφ' ἁρματωλίας (or ὑφ' ἁμαρτωλίας), which is not relevant to this discussion.

[47] Thus B. D. Meritt, *The Athenian Calendar in the Fifth Century* (Cambridge MA 1928) 104-5, who concludes, however, that the longstanding grievance was the discrepancy between civil and true lunar months.

[48] On the change to the council's calendar, see B. Keil, *Hermes* 29 (1894) 32-81; the evidence is summarized in Dinsmoor (n. 20) 323-5. The new calendar probably followed the solar (tropical) year, as I argue in "The Council's Solar Calendar", forthcoming in *AJP*. The passage in *Clouds* I discuss more fully in "The Uses of Time in Fifth-century Athens", forthcoming in *Ancient World*.

[49] The passing jibe at Hyperbolus (*Clouds* 623-5) is equally unclear. The Clouds punished Hyperbolus while he was ambassador, but they do not say whether they punished him for endorsing the new calendar of the Boule or for some other reason.

"tampering" I call "adjustments". I therefore conclude by reviewing my differences with Pritchett, and by setting out some qualifications of his views concerning the Athenian calendar.

My first set of differences involve the calendar in general and the manner in which it was administered.

1) schematic/observational lunar months. Whereas Pritchett argued that the civic calendar was strictly observational, based upon the observation of the waning crescent at the end of each month, and whereas Meritt and others argued that the calendar was schematic, calculated by a scheme such as Meton's to agree with the astronomical cycles of the moon, I have argued that the months were somewhere in between. The length of a given month was determined in advance (presumably with a rough alternation of full and hollow months) but was periodically corrected by observation to ensure that the *noumenia* followed the first visible crescent.[50]

2) approximate nature of the calendar. It follows from the method of determining months that the Athenian calendar was approximate both in concept and in practice. Although Pritchett, Meritt and others sought a precise scheme for the archon's calendar in observation or calculation, expectations of precision are anachronistic. The month was simply expected to begin reasonably soon after the new crescent, and the calendar was thus approximate in concept. It follows that divergences between the civic calendar and the true cycle of the moon, and between the calendar of one city and that of another, would be common, inevitable, and taken for granted. The Athenian calendar was thus approximate in practice.

3) absence of a regulatory calendar. It follows from the approximate nature of Greek calendars that there was no need for a more precise calendar to regulate or control the civic calendar. Pritchett's hypothesis of a regulatory calendar κατὰ θεόν is unnecessary and is not supported by any evidence. It is more economical to suppose that the designation κατὰ θεόν was added to inscriptions in the second century to facilitate transactions among cities, than to suppose that it reflects an earlier, but unattested and unnecessary, calendar.

My second set of differences involve tampering in particular, and follow in part from these general conclusions. I shall begin by speaking in neutral terms of "adjustments" to the calendar.

4) Whether we call them "adjustments" or "tampering", Pritchett included in his evidence for deliberate changes to the calendar much inappropriate material. The evidence a) that calendar months did not agree with the lunar phases, and b) that civic calendars did not agree with one another, all confirm that the calendar was approximate in nature; they do not show that adjustment had taken place. In fact, the only piece of evidence in these categories that indicates an adjustment to the calendar was not cited by Pritchett—namely Herodotus and Plato on the arrival of the Spartans on the day after the battle of Marathon. The evidence c) in Aristophanes for some kind of confusion involving the calendar is elliptical, but more plausibly alludes to a new calendar adopted by the Boule than to isolated instances of adjustment or tampering. And of the direct evidence d) for the intercalation of one day, five of the seven examples involve an extra day at the very end of the month. This is where we would expect the approximate calendar to be corrected by observation: if the lunar crescent failed to appear at the end of what had already been designated the last day of the month, then a second final day could be added. All this material, in other words, is evidence for the normal operation of the calendar, and not for any kind of adjustment or tampering.

5) the evidence for tampering with the calendar. All the remaining evidence cited by Pritchett, as well as some additional evidence involving double dates, attests to some form of deliberate adjustment to the calendar. Having excluded four categories of evidence that are inappropriate, is it simply a matter of wording whether we call examples that remain "adjustments" or "tampering"? It is more than a matter of wording for two reasons. First, the wording Pritchett chose was clearly and consistently invidious: "willful tampering," "tampering at will", "juggling the calendar" *et cetera* are all phrases (as Gomme

[50] Compare Chambers' conclusion, based on the practical difficulties of observation, that the Athenian month was determined "durch eine Kombination von mathematischen Schemata und Beobachtung," in M. Chambers, ed., *Aristoteles: Staat der Athener* (Berlin 1990) 344.

recognized) that attribute "unworthy motives" to the archon. If the evidence shows that most adjustments were prompted by unworthy motives, then Pritchett's characterization should stand; otherwise, we should try to characterize these adjustments more fairly. Second, Pritchett's wording was unhelpful: a wide variety of possible motives were lumped together under a single heading. Whatever this single heading is, it will tell us much less about the calendar than will a more careful attempt to discriminate among various cases. Such discrimination was not necessary to Pritchett's goal of establishing that the prytany calendar was more regular than the festival calendar. But now that his point has been proven, we can and should pay more careful attention to the nature of these various adjustments.

There is no doubt that the archon at Athens had the authority to adjust the festival calendar. What we want to know are a) for what reasons or under what circumstances he adjusted the calendar, b) how often he made these adjustments, and c) which of these adjustments, if any, were improper or exceeded the archon's authority. The evidence does not permit definitive answers to these questions, but it does allow us to make a start, and to improve upon using a single label for all cases.

Of those cases in which we are told or can infer the reasons for an adjustment, several involve war. Just before the battle of Marathon, the Athenians delayed the calendar by several days, apparently to avoid interruption or cancellation of the Eleusinian Mysteries. And when threatened by a Spartan invasion, the Argives delayed the holy month of Carneius in order to take retribution against Epidaurus. In neither case were unworthy motives involved. The Athenians had a vital interest in assuring full attendance at the mysteries, and the Argives had a vital interest in preventing intimidation by a stronger power. We can be sure that in both cases the civic authorities were considered to be acting within their authority. It was only when the Argives began making a habit of exploiting the holy month that their adjustments to the calendar came to be viewed—at least by the Spartans and their sympathizers in Delphi and Olympia—as an improper use of the calendar. The anecdotes concerning Alexander are not useful for our purposes. A case could certainly be made that the king of Macedon had the same traditional authority to adjust the calendar as did the Athenian archon, and that his actions at the Granicus and at Tyre were analogous to tampering by an archon. But there is a world of difference between the words of a king and general on the battlefield on a foreign continent, and the acts of a public official within his city; the difference is all the greater when the sometimes fabulous stories about Alexander are involved. We can conclude that one circumstance in which civic authorities adjusted the calendar was in war, when the city's vital interests were at stake. Our two examples from the fifth century do not seem to involve unworthy motives, while a third from the fourth century (but not from Athens) was considered improper at Delphi and Olympia.

Most of the other adjustments for which we are told or can infer the reasons involve religious festivals. The clearest example concerns the τεχνίται of Dionysus in Euboea (*IG* xii.9 207). Since the artists would be performing at four different cities, it was necessary to coordinate their calendars so the artists would be present on the festival days of each city. Such adjustments were proper and essential. Almost as clear is the case of first-fruits at Eleusis (*IG* I^3 78). It is reasonable to infer, with Meiggs and Lewis, that making the intercalary month a second Hekatombaion would provide more time for first-fruits to arrive during the Eleusinia in Metageitnion.[51] Given the ambitious scope of this decree, which invites offerings from all other Greek cities (lines 30-31), it would certainly be in the city's interest to allow time for such offerings to arrive. Most inscriptions lack such a connection to particular festivals, but their dates are often suggestive. As we have seen, the direct evidence for adjustments to the calendar includes examples preceding the Eleusinian Mysteries (*IG* II^2 1006), the Panathenaia (*Agora* XV.120) and the Great Dionysia (*Hesperia* 23 [1954] #183), while among indirectly attested adjustments, four of the five most extensive preceded the Proerosia (*Hesperia* 11 [1942] #58), the Great Dionysia (*IG* II^2 946

[51] Meiggs and Lewis (n. 28) 221. Although Meiggs and Lewis place the Eleusinia in Boedromion, Mikalson (n. 22) 46 gives good reasons for placing them in Metageitnion.

and *Hesperia* 23 [1954] #183) and the Panathenaia (*Agora* XV.120). Some of the less extensive adjustments presumably likewise preceded minor festivals. The precise reasons for such adjustments are not given. War, weather, the arrival or departure of embassies, omens, oracles and civic unrest might all require the postponement of public festivals and sacrifices. It seems reasonable to assume that a substantial number of adjustments were properly intended to allow for circumstances such as these.

Unfortunately, most adjustments to the calendar, whether attested directly or indirectly, tell us nothing about the reasons behind them. Any claim that the archons were prompted by worthy or unworthy motives cannot be substantiated. Nevertheless it is significant that only in a single case, that of Demetrius' initiation into the mysteries, do we have evidence for an adjustment to the Athenian calendar in which the archon or demos acted improperly—and even here we might better speak of yielding to political necessity than of willful or improper action. The notoriety of this incident, reported by Plutarch and Diodorus and parodied by Philippides, suggests that contemporaries found it shocking and unusual. Perhaps by the second century such autocratic adjustments were common and no longer shocking. Perhaps not. In general, we cannot assume that adjustments to the calendar involved tampering or unworthy motives, and we should always keep in mind the various circumstances that might properly and legitimately have prompted them.

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