

THE GREEK CALENDAR

THE Greek calendar has not received as much attention from students of Greek religion as it deserves. The data have been collected by Bischoff. Nilsson has always appreciated its importance, and his contributions to the subject have laid a broad and solid foundation for further research. Both Farnell and Harrison neglected it, and Deubner's *Attische Feste* (1932) is less adequate in this respect than Mommsen's *Feste der Stadt Athen* (1898). The question of intercalation was raised in an acute form by Fotheringham, and has never been satisfactorily solved.¹ Meanwhile progress has been made in the study of the Egyptian and Babylonian calendars, with results that have an important bearing on the Greek.² This paper does not pretend to be exhaustive. It is merely a discussion of some of the wider issues that arose in the course of an attempt to solve a particular problem—the peculiar method adopted at Olympia for fixing the date of the Games.

I. ITS ULTIMATE ORIGIN

Originally, as Nilsson has shown, all calendars were regulated by the moon.³ The basic unit was the month, corresponding to a complete lunation and divided into two or three parts according to the lunar phases. The lunar (synodic) month contains 29.53 days, and twelve lunar months make the lunar year of 354.36 days. There is thus a difference of approximately 11 days between the lunar year and the solar astronomical year of 365.24 days. With the development of agriculture it became necessary to construct a solar calendar. At first the lunar year was taken as the basis, supplemented by periodical intercalations designed to co-ordinate it with the solar year. This is the lunisolar calendar. Later the lunar basis was abandoned. The months remained, but they were adapted to a period corresponding more or less closely to the solar year. The Egyptian and Babylonian calendars, as we know them, were solar, but the Greek was lunisolar. The lunar basis was preserved in Greece because, as Geminus explains, so many of the festivals were fixed by the moon.⁴ The Greek system was thus more primitive than either the Egyptian or the Babylonian. A brief comparison will make this clear.

The Egyptians had two calendars, which they used concurrently. The year was divided into thirds, each containing four months of 30 days each. In the Sliding Calendar, which was probably in continuous use from the protodynastic period down to Roman times, five days were intercalated annually, bringing the total to 365. The Egyptians knew that the true length of the solar year was approximately $365\frac{1}{4}$ days, but they neglected the fraction deliberately in order to create a progressive deviation between this Sliding Calendar and the Sothic Calendar, which is believed to have been instituted at the summer solstice in 2769 B.C. This differed from the Sliding Calendar in that a sixth day was intercalated in every fourth year, as in our Julian calendar, which is derived from Egypt. Thus, after the lapse of a century the Sliding Calendar would be 25 days behind the Sothic. And so by citing any event according to both calendars it was possible to determine not only the day of the year, but the year of the era. This is the most perfect chronological system that has ever been devised.

The Babylonian calendar was based on a year of 360 days divided into halves and beginning at the vernal equinox. Each half-year contained six months of 30 days. But instead of insert-

¹ L. Bischoff in Pauly-Wissowa *s.v.* Kalender (1919); M. P. Nilsson, *Entstehung und religiöse Bedeutung des griechischen Kalenders* (1918), *Primitive Time-Reckoning* (1920), 'Sonnenkalender und Sonnenreligion,' *Archiv für Religionswissenschaft* 30. 141 (1928); J. K. Fotheringham, 'Cleostratus,' *JHS* 39. 179 (1919).

² For the Egyptian calendar I have relied on J. W. S.

Sewell, 'The Calendars and Chronology,' in S. R. K. Glanville, *The Legacy of Egypt* (1942), and for the Babylonian on S. Langdon, *The Babylonian Menologies and Semitic Calendars* (1935), cf. F. Hommel in Hastings *s.v.* Calendar, Babylonian.

³ *PTR* 148-223.

⁴ Gem. 8. 7-8.

ing five or six days annually, the Babylonians intercalated a whole month every sixth year. This system was cruder than the Egyptian, because it involved a recurrent deviation of 26 days.

The New Year festival at Babylon lasted 11 days, and in a seventh-century Assyrian document, based on an older Babylonian original, we are told that this figure was chosen in recognition of the difference between the solar and lunar years.⁵ This indicates that the Babylonian calendar had once been lunisolar, and in fact we know that the old Sumerian calendar, of which some remains have survived, was lunisolar.⁶ The antecedent stages of the Egyptian solar calendar have not been reconstructed.

In Greece each city-state had its own calendar, but so far as we know the structure was everywhere the same. The year was divided into twelve months alternating in length between 29 and 30 days and so leaving an annual deficit of $11\frac{1}{4}$ days.⁷ Thus, though the Greeks had behind them many centuries of Egyptian and Babylonian experience, they failed to profit by it. In this matter they were hampered, like the Sumerians, by the autonomy of their city-states. The Egyptians enjoyed the advantage of having been united from the earliest times under a central government. This had been forced on them by the need to control the Nile flood, on which the whole of their agriculture depended. That is why their system is the most perfect of the three. The importance of this political factor reappears in the later history of Greece. Under Alexander and his successors, when the city-states lost their autonomy, the Macedonian calendar came into general use.

The conclusion to which this comparison seems to lead is that the Greek calendar was founded on an Anatolian or Syrian prototype which was derived from Mesopotamia at a time when the lunisolar calendar had not been superseded.

Its Babylonian affinities are confirmed from other sources. As Nilsson has observed, all the Apolline festivals of which the dates are known fall on the 7th day of the month, the day of the first lunar quarter.⁸ The Babylonians recognised four lunar quarters and treated the 7th, 14th, 21st, and 28th as *dies nefasti*, corresponding to the Hebrew sabbath.⁹ This fourfold division of the month is found only in Babylonia and in countries where it can be traced back to that source.

There are also numerous correspondences between Greek and Babylonian festivals which suggest that the two calendars had a common basis.

In Babylonia offerings to the dead were made in the month of Teshrit, the first of the second half-year (September–October); at Athens the Genesia, a feast of ancestors, fell in the corresponding month of Boedromion. In the month of Kislev (November–December) libations were offered to Ereshkigal, goddess of the underworld, to fructify the earth; the Attic Haloa, an agrarian festival of Demeter, was held in the month of Poseideon (December–January). These parallels were pointed out by Langdon.¹⁰ There are many others.

There was great diversity in Greece in regard to the beginning of the calendar year. In Athens and Delphi it began at the first new moon after the summer solstice; in Boeotia and Delos after the winter solstice. In Chios, on the other hand, it began with the vernal equinox; in Sparta, Rhodes, Crete, and Miletos with the autumnal equinox. These variations have not been explained. They may have been determined by local factors, or they may have been inherent in the Greek calendar from the outset. At Babylon, as I have remarked, the New Year festival took place at the vernal equinox, but at Erech and Ur it was repeated at the beginning of the second half-year, that is, at the autumnal equinox,¹¹ and there is evidence that the old Sumerian year had begun at the winter solstice.¹²

⁵ Langdon *BMSC* 107–9.

⁶ Langdon in *Cambridge Ancient History* 1. 461–2.

⁷ In addition there was a discrepancy of .36 days between the calendar year and the true lunar year, which meant that the lunar phases did not always coincide with those days of the calendar month to which they were traditionally assigned. Hence, for example, the distinction between the actual new moon and the nominal new moon (Th. 2. 28). This is why, in the last section of the *Works and Days*

(765–828), dealing with the traditional associations of particular days, all of which had their *origin* in the lunar phases, there is no mention of the moon.

⁸ *PTB* 366–8, *Griechische Feste* 397.

⁹ Langdon 86–7.

¹⁰ *Ib.* 105–6, 138.

¹¹ C. J. Gadd, 'Babylonian Myth and Ritual,' *Myth and Ritual* (1933) 46.

¹² Langdon in *CAH* 1. 462.

Notwithstanding these discrepancies, we find all over Greece traces of a bipartite year divided, as in Babylonia, at the equinox.

The Delphic Amphictyony met twice a year, in spring and autumn.¹³ Theseus left Athens for Crete on the 6th of Mounychion (April–May) and returned six months later on the 7th of Pyanopsion (October–November).¹⁴ In the cult of Apollo at Delos oracles were delivered only in the six summer months; in the cult of the same god at Patara they were delivered only in the six winter months.¹⁵ The tie between these two centres was probably very old, because the Delians possessed some ancient hymns to Apollo which they attributed to Olen of Lycia,¹⁶ and it may have been renewed by the Greek family from Xanthos which supplied several of the Ionian cities with their kings.¹⁷ It will be observed that at Delos the oracular season cuts across the calendar year, which began in the historical period with the winter solstice.

At Athens the training of ἔφηβοι began in Boedromion (September–October),¹⁸ and they had important duties to discharge in Elaphebolion (March–April). In this month, under the direction of the ἄρχων, they sacrificed a bull to Dionysus.¹⁹ At Magnesia-on-the-Maiandros a bull was presented to Zeus Sosipolis at the new moon of Kronion (October–November) with prayers for the safety of the city, peace, plenty, and the welfare of the crops, and after being fattened through the winter it was sacrificed on the 12th of Artemision (April–May).²⁰ The sacrifice was performed by the στεφανηφόρος, an official whom we find in several Ionian cities. He was entitled to wear a crown, and also apparently purple, as a mark of royalty,²¹ and he gave his name to the year.²² For these reasons he may be equated with the Athenian ἄρχων βασιλεύς, who exercised the sacral functions inherited from the kingship. From an entry in Hesychios it appears that a similar festival was observed in Miletos.²³

At Olympia the Basilai sacrificed to Sosipolis on the Hill of Kronos at the vernal equinox,²⁴ and this rite may have been connected with the Games, which fell six or seven months earlier. We are not told what the victim was, but the origin of the Basilai is betrayed by their name, and the parallel with Magnesia is confirmed by the fact that in both cults the god Sosipolis was associated with the snake.²⁵

At Kos a specially selected bull was sacrificed to Zeus Polieus by the γεραφóρος βασιλέων, whose royal origin is again clear, on the 20th of Batromios (Badromios), which in Kos was probably February–March.²⁶ In this case, however, there is no record of any corresponding observance six months before.

This evidence suggests that there was in several Greek states an ancient co-ordination of equinoctial rites corresponding to the Babylonian New Year festival observed in Nisan (March–April) and again in Teshrit (September–October). This was a coronation festival, in which the king was derobed and reinvested. On the fifth day he performed a ceremony, signifying the victory of Marduk over his enemies, in the presence of a white bull, which he addressed

¹³ Str. 420, cf. D. 18. 154–5.

¹⁴ Plu. *Thes.* 18, 22.

¹⁵ Serv. *ad Verg. A.* 4. 143, cf. Hdt. 1. 182, D.S. 2. 47.

¹⁶ Hdt. 4. 35, Call. *Del.* 296–315, Paus. 1. 18. 5, 8. 21, 9. 17. 2, 10. 5.

¹⁷ Hdt. 1. 147.

¹⁸ Mommsen *FSA* 176.

¹⁹ *CLA* 2. 471 = *IG* 2. 471. 12 εἰσήγαγον δὲ (sc. οἱ ἔφηβοι) καὶ τὸν Διόνυσον ἀπὸ τῆς ἐσχάρας εἰς τὸ θέατρον μετὰ φωτὸς καὶ ἐπεμψαν τοῖς Διονυσίοις ταῦρον ἀξίον τοῦ θεοῦ, ὃν καὶ εἴθυσαν ἐν τῷ ἱερῷ τῆς πομπῆς, cf. *CLA* 4. 318b = *IG* 2. 478 δεδόχθαι τῷ δήμῳ τὰ μὲν ἀγαθὰ δέχεσθαι τὸν δῆμον δὲ ἀπαγγέλλει ὁ ἄρχων γεγονέναι ἐν τοῖς ἱεροῖς ἃ εἴθυσεν ἐφ' ὑγίειαν καὶ σωτηρίαν τῆς βουλῆς καὶ τοῦ δήμου τῶν Ἀθηναίων καὶ τῶν καρπῶν τῶν ἐν τῇ χώρᾳ.

²⁰ *SIG* 589. Kronion is identified with Pyanopsion by the fact that it coincided with the sowing (ἀρχομένου σπόρου μηνὸς Κρονιῶνος), while the equation of Artemision with Mounychion can be inferred from the position of Artemision at Delos, Artamitios at Rhodes, Kos, and elsewhere, and Artemisios in the Macedonian calendar.

²¹ Str. 648, cf. 633.

²² *SIG* 589. 1.

²³ Hsch. Διὸς βοῦς· ὁ τῷ Διὶ ἄνετος βοῦς ὁ ἱερός· ἔστι δὲ ἡ

ἑορτὴ Μιλησίων.

²⁴ Paus. 6. 20, 1.

²⁵ J. E. Harrison, *Themis* 241 fig. 61. E. N. Gardiner, who contended that the Olympian cult of Sosipolis was a late innovation 'typical of the superstitious credulity of the fourth century' (*Olympia* 125), forgot that an almost identical cult had flourished from prehistoric times on the Athenian acropolis (Hdt. 8. 41. 2–3, Hsch. οἰκουρὸν ὄφιν, cf. *Apld.* 3. 14. 6).

²⁶ *SIG* 1025. This last example resembles the Attic Bouthonia, in which an ox was dedicated to Zeus Polieus. But the Bouthonia fell on the 14th of Skirophorion, the last full moon of the Attic year, and so was related to the summer solstice. At Samos, where the year also began after the summer solstice, the last month was Kronion (*SIG* 976). The Attic Kronia fell on the 12th of Hekatombaion, before the first full moon of the New Year, and this month had formerly been called Kronion (Plu. *Thes.* 12). Considering the extreme antiquity of the cult of Kronos and its affinity to the Babylonian Sakaia (see Langdon, *The Babylonian Epic of Creation* 57), I suspect that there is an underlying thread here which has not yet been disentangled.

as 'divine bull of Anu, glorious light which illumines the darkness.' That the bull was subsequently sacrificed is not stated in our records, which are fragmentary, but it was certainly intended to represent the constellation Taurus, in allusion to the fact that the sun was in the sign of Taurus at the vernal equinox in the era when the ceremony was instituted. This was the sun's position at the time of year in question throughout the fourth and third millennia. It moved out of Taurus into Aries about 1900 B.C.²⁷ The presentation of the bull must therefore have belonged to the original nucleus of the festival, and from it presumably the constellation derived its name.

Whether these bull cults really go back to a common origin must be left an open question until we know more about the Minoan bull cult, which, as the myth of the Minotaur implies, was associated with the kingship.

II. ITS IMMEDIATE ORIGIN

In his *Primitive Time-Reckoning*, which is an admirable example of the comparative method, Nilsson has shown that the Greek calendar differs from type in one important respect. Among primitive peoples the months are generally named after seasonal phenomena or occupations. In Greece, with very few exceptions, they bear the names of religious festivals. This shows that the Greek calendar developed under hieratic control. Nilsson concludes that it was of non-Greek origin, and that it was introduced not earlier than the seventh century, or at most the eighth, under the supervision of the Delphic priesthood.²⁸

The first part of this conclusion is undoubtedly correct in the sense that the Greek calendar did not belong to the indigenous tradition of the Greek-speaking conquerors of the Aegean. They took it over from the cultures with which they came in contact. But when? If it was a religious product, there is a strong presumption that, like so much else in Greek religion, it was a heritage from the Mycenaean age, and in fact there are positive reasons for believing that it was both older and less dependent on Delphi than Nilsson allows.

If it had been organised in comparatively recent times by Delphi, we should expect to find some degree of panhellenic uniformity in the beginning of the calendar year and in the names of the months. But this is not the case. Only at Athens and Samos does the year begin, as at Delphi, with the summer solstice. The names of five of the Delphic months occur sporadically elsewhere, but the rest are unique.²⁹ Moreover, a comparison of the Attic-Ionic and Doric names suggests that their history followed that of the dialects themselves.

The Attic nomenclature agrees closely with the Delian,³⁰ pointing to an Attic-Ionic prototype, older than the Ionian migration. We turn naturally to Boeotia. There we find a month Lenaion, mentioned by Hesiod,³¹ which recurs in Delos and all over Ionia. At Athens

ATHENS	DELOS	RHODES	DELPHI
*Hekatombaion	Hekatombaion	Panamos	*Apellaios
Metageitnion	Metageitnion	Karneios	Boukatios
Boedromion	Bouphionion	Dalios	Boathoos
Pyanopsion	Apatourion	*Thesmophorios	Heraios
Maimakterion	Aresion	Sminthios	Daidophorios
Poseideon	Poseideon	Diosthyos	Poitropios
Gamelion	*Lenaion	Theudaisios	Amalios
Anthesterion	Hieros	Pedageitnyos	Bysios
Elaphebolion	Galaxion	Badromios	Theoxenios
Mounychion	Artemision	Artamitios	Endyspoitropios
Thargelion	Thargelion	Agrianios	Herakleios
Skirphorion	Panemos	Hyakinthios	Ilaios

* First month of the calendar year.

²⁷ Gadd 54, Langdon *BEC* 26.

²⁸ Nilsson *ERBGK* 29, *PTR* 365.

²⁹ Some are very difficult to explain, e.g. Ἀμάλιος, Βύσιος, Ἰλαῖος. The Attic for Ἐνδυσποιτρόπιος would be Ἐνδοπροσ-τρόπιος, but what does it mean?

³⁰ In addition to the actual homonyms, the Delian Apatourion, Lenaion, and Galaxion all correspond to Attic feasts. Πάναμος (Πάνημος) is Macedonian.

³¹ Hes. *Op.* 504.

the feast of Lenaia was kept in the same month, and there is no doubt that, like other cults of Dionysus, it reached Athens from Boeotia. Similarly, Poseideon, found only in the Ionic calendars, recalls the Panionic cult of Poseidon Helikonios, which, as the name shows, originated in Boeotia.

The Doric nomenclature is different again and within itself remarkably uniform. Karneios and Hyakinthios, referring to ancient Dorian festivals, are almost universal. The same is true of Pedageitnyos, Badromios, and Theudaisios. The first two of these, though differently placed, are the same names as the Attic-Ionic Metageitnion and Boedromion; and Badromios = Boedromion correspond in meaning to the Delphic Boathoos. But their different positions in the calendar make it difficult to suppose that they were borrowed from Delphi as late as the seventh or eighth century. And finally, the Doric Agrianios, which occurs at Aigina, Sparta, Rhodes, Kos, Kalymnos, and Byzantium, is found nowhere else except in Thebes and three other towns of Boeotia (Chaironeia, Lebadeia, Oropos). Similarly, the feast of Agriania is recorded only in Boeotia and Argos,³² and it is clear that it reached Argos from Boeotia. At Argos it was associated with the Proitides, who reduplicate the Minyades of Orchomenos, and with Melampous, who was descended from Minyas.³³ Where and when did this month get into the Doric calendar? Not in Argos, because that would not account for its wide diffusion in other Doric communities. It seems they must have picked it up in Boeotia before they conquered the Peloponnese.

If the Attic-Ionic and Doric calendars go back to a common source in Boeotia, their origin must be placed in the Mycenaean age. This confronts us with a further question. What was the relationship between the Boeotian and Delphic calendars? Here we are at a loss, because the Boeotian material is fragmentary. It is possible to reconstruct a Boeotian calendar, as Bischoff has done, but only by combining data, mostly very late, from different states. If, however, we are to go back to the Mycenaean age, there is no reason to give Delphi priority over Thebes and Orchomenos. All we can safely say is that the Attic-Ionic and Doric calendars are derived from a prehistoric original located in Central Greece.

If this hypothesis is accepted, it provides us at once with the oriental connections which we have already been led to postulate. The Cretan affinities of the Delphic Apollo were remembered in Greek tradition,³⁴ and, as Nilsson has shown, his origin is to be sought in S.W. Anatolia,³⁵ with which Minoan Crete had early and close relations. Further, Kadmos, the founder of Thebes, was unanimously regarded as a Phoenician, connected through Europa with the Minoan dynasty of Knossos.³⁶ Many scholars have discounted this tradition on the ground that there were no Phoenicians in the Aegean before the ninth century, but the recent excavations at Ras Shamra (Ugarit) have set the whole matter in a new light.³⁷ Here, as we now know, there flourished a populous commercial city in close contact with Babylonia and the Hittites on the one hand and on the other with Minoan Crete and Mycenaean Greece. Kadmos may very well have been a Phoenician in the sense that the ancestors of the prehistoric dynasty of Thebes had come from this part of Syria, and in fact the cuneiform texts of Ugarit record a legend in which the bull El and the mother-goddess Asherat present a close parallel to Zeus and Europa.³⁸

If the Greek calendar was of Minoan-Mycenaean origin, how, it will be asked, does it come about that only one month is mentioned by name in the *Works and Days*, a poem devoted to the agricultural labours of the year, and none at all in Homer? The answer to the first part of this question is that owing to the Greek system of intercalation, which will be discussed in the next section, the calendar months were useless for the purpose of the poem, which is to pre-

³² Plu. *M.* 299c, 717a, Hsch. Ἀγρᾶνια.

³³ Apld. 2. 2. 2.

³⁴ Hom. *H.* 3. 388-96. The seven-stringed lyre appears on the Hagia Triada sarcophagus (Evans, *Palace of Minos* 2. 834-6).

³⁵ Nilsson *PTR* 367-8, *Minoan-Mycenaean Religion* 443-4; C. Picard, *Ephèse et Claros* 458-9, 463. With the Carian

Λητώ, 'the woman,' cf. *Mu-al-li-da-at* (Μύλιττα), 'the woman who bears,' a title of the Babylonian goddess of childbirth (Langdon *BEC* 217).

³⁶ Hdt. 5. 57, 61, Apld. 3. 1. 1.

³⁷ For the latest bibliography see S. H. Hooke, *The Origins of Early Semitic Ritual* (1938) 69-72.

³⁸ C. F. A. Schaeffer, *Cuneiform Texts of Ras Shamra* 60-1.

scribe the exact time of year at which the farmer was to undertake his various tasks. That could only be done by reference to the solar year as revealed in the apparent annual motion of the stars. In regard to the second, it is a mistake in my opinion to assume, as Nilsson does,³⁹ that the Homeric Greeks had no names for the months just because they are not mentioned in the poems. Homer's silence on this matter is in conformity with the epic tradition, which, since its aim was to present a unified, idealised picture of the heroic past, studiously avoided all mention of institutions which had only a local or contemporary interest. On this principle allusions to the calendar were necessarily excluded, because its nomenclature varied from one city-state to another.⁴⁰

To this I would add a further consideration. It is surely incredible that the Minoans, with their wide navigational experience, their highly-organised priesthood, and their advanced civic and commercial life, had failed to work out a serviceable calendar. There may, it is true, have been some loss after the fall of Knossos, and still more after the Dorian invasion, but even so the astronomical knowledge possessed by Hesiod, including as it does an acquaintance with the solstices,⁴¹ contains all the data necessary for constructing a lunisolar calendar; and where did he acquire this knowledge if not from traditions inherited from the Mycenaean age?

III. INTERCALATION

When did the Greeks begin to intercalate systematically? If we were to confine ourselves to the internal evidence, the problem would be fairly simple, though even that is not quite free from difficulties, but in view of what has been said about the origin of the Greek calendar, we are obliged to take account of intercalation in Babylonia. On this question the authorities are still sharply divided. Weidner claimed to have identified an intercalary cycle of 38 years at Ur as far back as the third millennium; Kugler denied that there was any systematic intercalation in Babylonia before 528 B.C.⁴² Accepting the latter view, and assuming quite rightly that the Babylonians must have worked out a system before the Greeks, Fotheringham concluded that there was no systematic intercalation in Greece until the fourth century. Langdon was of the same opinion.⁴³

It is impossible for me to discuss the Babylonian problem. All I can do is to re-examine the Greek evidence without prejudice.

Herodotus writes (2.4.1): "Ἕλληνες μὲν διὰ τρίτου ἔτεος ἐμβόλιμον ἐπεμβάλλουσι τῶν ὥρέων εἴνεκεν, Αἰγύπτιοι δὲ τριακοντημέρους ἄγοντες τοὺς δωδέκα μῆνας ἐπάγουσι ἀνὰ πᾶν ἔτος πέντε ἡμέρας πάρεξ τοῦ ἀριθμοῦ, καὶ σφι ὁ κύκλος τῶν ὥρέων ἐς τωὺτὸ περιυῶν παραγίνεται. In the Sliding Calendar, which is here described correctly, there was no intercalation as Herodotus understood the term, that is, no intermittent additions to the calendar year. Appreciating the convenience of this arrangement, he contrasts it with the Greek method of intercalating a month διὰ τρίτου ἔτεος. This passage, which Fotheringham and Langdon overlooked, proves that systematic intercalation was general in Greece in the fifth century B.C.

Intercalation presupposes an appreciation of the difference between the solar and calendar years, which in Greece amounted to $11\frac{1}{4}$ days. Without this knowledge there could be no question of intercalation at all. The months would drift through the seasons in a cycle of

³⁹ PTR 345-6.

⁴⁰ There is, it appears, one allusion to a calendar feast in the *Odyssey*. Odysseus landed in Ithaca 'at the turn of the month' (14. 162, 19. 306), when there was no moon (14. 457), and five days later the towncriers announced a festival at which a hecatomb was to be offered to Apollon Noumenios (20. 276-8, 21. 258-9 et sch.). This must have been the Hekatombaia, which was observed at Athens on the 7th of Hekatombaion (SIG 615) and also at Delphi (CIG 1715). That is why Odysseus prays to Apollo to direct his aim against the suitors (22.7), who, since there were 108 of them (16. 247-61), made a symbolic hecatomb.

⁴¹ *Op.* 479, 564, 663. The convention of the ἔνη καὶ νέα, designed originally to neutralise the 30th of the 'full'

months so as to adjust them to the true lunar month of $29\frac{1}{2}$ days, is said to have been introduced at Athens by Solon (D.L. 1. 57, *Plu. Sol.* 25), but it was already known to Hesiod (*Op.* 771, cf. Nilsson *ERBGK* 27) and is implied in the Homeric phrase (*Od.* 14. 162, 19. 306) τοῦ μὲν φθίνοντος μηνός, τοῦ δ' ἰσταμένου. This, taken in conjunction with what has been said in note 7, shows that the Greek calendar year of $12 \times 29\frac{1}{2}$ days was at least as old as the eighth century. One of the factors which gave the *Works and Days* its popularity and importance was that it made accessible to all astronomical knowledge which had hitherto been a perquisite of the priesthood.

⁴² See Nilsson *PTR* 260.

⁴³ Fotheringham 179, Langdon *BMSC* 109.

33 years, and consequently it would be impossible for them to acquire traditional associations with particular seasons. Now, Hesiod describes Lenaion as a midwinter month (*Op.* 504 μῆνα δὲ Ληναίων, κάκ' ἤματτα, βούδορα πάντα). This was the position of the Attic Gamelion in the fifth century and the Delian Lenaion in the third. If this verse is genuine, there was a stable relationship between the calendar and the seasons, and therefore a system of regular intercalation, as far back as Hesiod's time.

Some scholars have denied that it is genuine, and Nilsson himself has rejected it as 'a later interpolation.'⁴⁴ The termination -ών is Attic-Ionic, not Boeotian; no Boeotian month named after the Lenaia was known to Plutarch;⁴⁵ and this is the only mention of a calendar month in the poem. It seems to me that the force of these objections has been exaggerated. The Ionic termination is dictated by the epic dialect. The other Boeotian data are all many centuries later than Hesiod, and the nomenclature of the Greek calendars was subject to frequent change. The reason why this month is singled out for mention may be that, as the first after the winter solstice, it marked the opening of the Boeotian calendar year. Furthermore, if we expunge v. 504, we must do the same with vv. 557-8, where the same month is alluded to again, and then the whole of the intervening passage, which contains some characteristically Hesiodic conceits, will be left in the air. From the standpoint of textual criticism there is no case for rejecting the verse at all. And lastly, even if we do reject it, the point at issue is not materially affected. The author, if not Hesiod, must have been a rhapsode, who can hardly be placed later than the sixth century, and that will still be too early for a system of intercalation to have reached Greece from Babylonia, if none was known there before 528 B.C. For these reasons I cannot help suspecting that there is something wrong with Fotheringham's solution of the Babylonian problem.

The proper place for Lenaion was the lunation following the winter solstice. After falling there in a given year, it would fall $11\frac{1}{4}$ days earlier in the next year, and in the third year, if there was no intercalation, it would fall $22\frac{1}{2}$ days too early. On the other hand, if a month was intercalated in the second year, it would fall in the third $7\frac{1}{2}$ days too late. With the month as the intercalary unit all that could be done was to limit the range of deviation. The inconvenience of these recurrent anomalies is obvious, and it must sometimes have been found expedient to depart from the regular course of intercalation for the sake of particular occasions. We know that this was done at Rome, where the republican calendar was thrown into confusion by persistent interferences of this kind.⁴⁶ The same temptation must have made itself felt in Greece, and in Babylonia. The fact that an intercalary system was not consistently operated does not prove that it was unknown.⁴⁷

The problem that confronted the authorities, apart from these occasional considerations, was to reduce the oscillation to a minimum. In early Greece, according to Geminus, the practice had been to intercalate a month in every other year.⁴⁸ It may be conjectured that this is the principle underlying the Greek trieteric festivals, which were associated almost exclusively with Demeter and Dionysus, that is, with agriculture and viticulture. But on this system the intercalations are excessive. After eight years the calendar will have gained a whole month over the solar year. Accordingly it was modified by omitting one of the four intercalations in each octennium. This is the octennial cycle: $8 \times 365\frac{1}{4} = (8 \times 354) + (3 \times 30)$. The intercalations then fell at successive intervals of 3, 2, and 3 years—for example, in the third, fifth, and eighth years;⁴⁹ or, in other words, one and two months were inserted

⁴⁴ *ERBGK* 41, cf. *Studia de Dionysiis Atticis* 1-5.

⁴⁵ Procl. *ad loc.*, Hsch. Ληναίων.

⁴⁶ W. W. Fowler, *Roman Festivals* 4.

⁴⁷ As Langdon points out, Babylonian astronomers of the sixth century had worked out the length of the lunar month to a degree of accuracy comparable with that of modern science, and 'such precise calculations were the result of more than 2000 years of observation and continuous records' (*BMSC* 11). That being so, they must have long possessed an accurate knowledge of the difference

between the solar and lunar years, which is the prerequisite for systematic intercalation.

⁴⁸ Gem. 8. 26 οἱ μὲν ἀρχαῖοι (sc. τῶν Ἑλλήνων) τοὺς μῆνας τριακονθημέρους ἤγον, τοὺς δὲ ἐμβολίμους παρ' ἑναιτόν.

⁴⁹ Gem. 8. 33 τοὺς ἐμβολίμους μῆνας ἔταξαν ἀγεσθαί ἐν τῷ τρίτῳ ἔτει καὶ πέμπτῳ καὶ ὄγδοῳ, δύο μὲν μῆνας μεταξύ δύο ἑτῶν πηπτόντων, ἓνα δὲ μεταξύ ἑναιτουῦ ἑνὸς ἀγομένου· οὐδὲν δὲ διαφέρει ἕαν καὶ ἐν ἄλλοις ἔτεσι τὴν αὐτὴν διάταξιν τῶν ἐμβολίμων μηνῶν ποιήσῃται τις.

alternately in each quadrennium. This is what Herodotus means when he says that a month was intercalated διὰ τρίτου ἔτεος. The expression is not quite exact. He is speaking loosely, and it is all the easier for him to do so, because this phrase was ambiguous. It could mean either 'every third year' or 'every other year.'⁵⁰

In the historical period we hear of four festivals celebrated in every ninth year, all of them in the region just identified as the earliest home of the Greek calendar. They are the Daphnophoria at Thebes, and the Charila, Stepteria, and Herois at Delphi.⁵¹ We are also told that the Pythian Games, which we know as quadrennial, had originally been a festival of this type.⁵² They were probably made quadrennial in 582 B.C., the date of the first Pythiad.⁵³

This eight-year period was termed indifferently an ὀκταετηρίς or an ἐνναετηρίς, because, as Censorinus explains, a new period began in every ninth year.⁵⁴ It corresponds to the octennial intercalary cycle.

Here we encounter an apparent contradiction in the ancient authorities, which Fotheringham used to discredit them. Censorinus says that the octennial cycle was invented by Kleostratos of Tenedos, who was a younger contemporary, possibly a pupil, of Thales. The festivals just mentioned must have been older than that. 'If,' it is argued, 'Censorinus was right in explaining the eight-yearly festivals by the ὀκταετηρίς, he was wrong in attributing the ὀκταετηρίς to Kleostratos.' The first alternative is accordingly dismissed as 'the fancy of a later age.'⁵⁵ This does not follow.

Perhaps an analogy will help. It seems inconceivable that the people who built the pyramids should not have known that a triangle whose sides stand in the ratio of 3:4:5 is right-angled; yet, although the Egyptians used equations of the type $3^2 + 4^2 = 5^2$, there is no evidence that they ever stated this truth in general terms.⁵⁶ That was done by Pythagoras. Every scientific discovery has a history behind it, and some have been applied in practice long before receiving a correct theoretical formulation. Indeed, the achievement of the early Greek scientists seems to have consisted largely in this—in the theoretical interpretation of empirical knowledge acquired from Egypt and Babylonia. It may be suggested therefore that what Kleostratos did was to state the formula for the octennial cycle, which had long been operated but only by rule of thumb.

It is possible that he did more than that. Censorinus says that there were several forms of the octennial cycle, which differed from one another in the distribution of the intercalary months, and he ascribes them to various scientists, one of whom is Kleostratos. Thus, we may accept him as the inventor of a particular form of the cycle without denying that the cycle had been known in some form long before.

This conclusion, that at least in Central Greece the octennial cycle went back to the Mycenaean age, does not of course exclude the possibility that in other parts of the country it remained unknown, or unused, until a much later date.

IV. THE OLYMPIC GAMES

The Pythian Games were held on the 7th of Boukatio.⁵⁷ Since the octennium contains 99 months, they must have fallen at alternate intervals of 49 and 50 months; and in order to keep them in the same calendar month it was necessary that one month should be intercalated in the quadrennium of 49 months and two months in the quadrennium of 50 months. The reason why they were held on the 7th is of course that this day, marking the first lunar quarter,

⁵⁰ See L. and S., and cf. Hdt. 1. 32. 3 τοῦτερον τῶν ἐτέων μηγὶ μικρότερον γίνεσθαι.

⁵¹ Procl. *Chr.* 26, Paus. 9. 10. 4, Plu. *M.* 293c, 418a, Ael. *VH* 3. 1.

⁵² Cens. *ND* 18. 6. The Pythia began as a music festival (Str. 421) correlated with the Stepteria both in myth and ritual (*FHG* 2. 189, 4. 539, Ael. *VH* 3. 1). There was an ἐννεαετηρικός ἀγών in Pisidia as late as the 2-3rd cent. A.D. (*BSA* 16. 117).

⁵³ Nilsson *PTR* 364-5.

⁵⁴ Cens. *ND* 18. 4 octaeteris facta, quae tunc ennaeteris vocitata, quia primus eius annus novo quoque anno redibat.

⁵⁵ Fotheringham 176. He adds: 'And in fact it is easier to explain the festival periods as mere powers of two. We have two-year festivals, and four-year festivals, and eight-year festivals.' This explanation explains nothing.

⁵⁶ R. W. Sloley, 'Science,' *Legacy of Egypt* 171.

⁵⁷ Farnell, *Cults* 4. 421.

was sacred to Apollo. In practice, however, owing to the difference between the Greek calendar month of 29.50 days and the true lunar month of 29.53 days, the dates of the lunar phases varied slightly from month to month. The connection of the 7th with the first quarter was therefore formal.

The Olympic Games were also held at alternate intervals of 49 and 50 months. For this we have the explicit statements of Porphyry and the Pindaric scholiasts, which are confirmed by an allusion in Bakchylides.⁵⁸ But they differed from the Pythia in two respects.

We are told that they lasted five days, from the 11th to the 16th, and that they were held at full moon, which fell nominally on the 15th. Pindar speaks of the full moon shining when the first race was run by their founder, Herakles. It is probable therefore that they were held at the actual full moon, like the Spartan Karneia,⁵⁹ the dates mentioned being nominal. For a panhellenic event this arrangement would have the advantage that its date could be calculated without reference to the local calendar.

Secondly, instead of keeping to the same month, like the Pythian Games, they fell alternately in Apollonios and Parthenios. Apollonios was the eighth month after Thosythias,⁶⁰ the month of the winter solstice, and Parthenios must have been the ninth, because we are told that these two months corresponded respectively to Mesori and Thot, which were consecutive months in the Egyptian calendar. Apollonios was therefore the Delphic Boukatios and the Attic Metageitnion.

Weniger's explanation of this rule, adopted by Cornford, is well known.⁶¹ It is that, if the Games had been held regularly in Apollonios, they would have interfered with an older quadrennial festival, the Heraia, which was fixed at the new moon of Parthenios. To obviate this difficulty they were placed a fortnight before and a fortnight after the Heraia in alternate Olympiads.

In my *Aeschylus and Athens* I accepted this hypothesis, but I am now convinced that it is untenable. It may be conceded that Parthenios is named after Hera Parthenos, and, though we have no information on this point, that this was the month of the Heraia; but the only support for the further assumption that the feast was held at the new moon is a statement to the effect that the new moon was sacred to Juno at Rome.⁶² The truth is that the date of the Heraia is unknown; and, even if it were as Weniger supposed, it would still be necessary to explain why the juxtaposition of the two feasts, if it caused any difficulty, was not avoided by the simple expedient of rearranging the quadrennia so that they never fell in the same year.

Fotheringham explained the rule by denying that it was a rule at all. He supposed that the alternation of 49 and 50 moons was not a regular procedure but 'merely meant that there was sometimes an intercalation between Thosythias and the Games and sometimes not'.⁶³ This is impossible. Not only is it directly contradicted by Porphyry (ἐναλλάξ ἀγομένων διὰ ν' μηνῶν καὶ διὰ μθ') but, if intercalation had been unsystematic, as he is trying to prove, the normal interval between two celebrations would not have been 49 or 50 months but 48.

Nilsson rejects Fotheringham's view, but his own is far from clear:

Originally the Olympic festival was not fixed according to the calendar, but the date was simply arranged by the numbering of the months of the ὀκταετηρίς, in which the first half was given 50 months and the second 49. In the calendrical ὀκταετηρίς, on the other

⁵⁸ Porph. *ad Il.* 10. 252 καὶ τῶν Ὀλυμπίων δὲ ἐναλλάξ ἀγομένων διὰ ν' μηνῶν καὶ μθ', οἱ ποιηταὶ πεντηκοντάμηνον φασὶ τὴν πανηγυριν εἶναι, Ba. 7. 2-3 πεντήκοντα μῆνες ἀγαγον ἑκαταδικάταν ἐν Ὀλυμπία, Pi. O. 3. 33 sch. Ambr. (Weniger's text) περὶ τοῦ χρόνου καθ' ὃν ἀγεται τὰ Ὀλύμπια καθ' ἑκάστην Ὀλυμπιάδα καὶ Κώμαρχος ὁ τὰ περὶ Ἡλείων συντάξας φησὶν οὕτως: ἄρχειν νομηνίαν μηνὸς δς Θωσυθιάς ἐν Ἡλίδι ἑνομάζεται, περὶ δὲ τροπαί ἡλίου γίνονται χειμεριναί, καὶ πρῶτα Ὀλύμπια ἀγεται ἡ' μηνί- ἐνὸς διαφερόντων τῆ ὥρα, τὰ μὲν ἀρχομένης τῆς ὀπώρας, τὰ δὲ ὑπ' αὐτὸν τὸν Ἀρκτοῦρον, 35 sch. γίνεται δὲ ὁ ἀγὼν ποτὲ μὲν διὰ ν' μηνῶν, ποτὲ δὲ διὰ μθ' ὅθεν καὶ ποτὲ μὲν τῷ Ἀπολλωνίῳ μηνί, ποτὲ δὲ τῷ Παρθενίῳ, παρ' Αἰγυπτίους δὲ Μεσῶρι ἢ Θῶθ, ἐπιτε-

λείται, 5. 14. sch. ἐπὶ πέντε ἡμέρας ἦγετο αὐτὰ τὰ ἀγωνίσματα, ἀπὸ ἐνδεκάτης μέχρι ἑκαταδικάτης, 3. 35. sch. διχόμηνης ἢ σελήης, ἐπεὶ ἐν τῷ παυσελήνῳ ὁ Ὀλυμπιακὸς ἀγὼν ἀγεται.

⁵⁹ E. *Alc.* 445-51.

⁶⁰ Θωσυθιάς may be corrupt. Διόσθους Boeckh. Θεωδαίσιος would be closer to the text.

⁶¹ L. Weniger, 'Das Hochfest des Zeus in Olympia,' *Klio* 5. 1; F. M. Cornford, 'The Origin of the Olympic Games,' Harrison *Themis* 212.

⁶² Jo. Lyd. *de mens.* 36.

⁶³ Fotheringham 178.

hand, there is an intercalation once in the first half and twice in the second, *i.e.*, the first four years have 49 months and the next four 50. Hence it follows that, when the old custom was to be preserved in regard to the date, the month of the festival necessarily varied in the given manner. When the chronological arrangement of the Olympic Games was introduced, the ὀκταετηρίς calendar therefore was not known, but only the ὀκταετηρίς period.⁶⁴

Seeing that the octennial period of 99 months includes three intercalary months, it is difficult to understand his distinction between that period and the corresponding calendar cycle; and since there is nothing in the cycle which demands that the third intercalary month should be assigned to one quadrennium rather than the other, it would have been open to the authorities to distribute the intercalations in such a way as to keep the feast in step with the calendar. The problem remains.

Nevertheless, although not clearly thought out, Nilsson's account of the matter is, I believe, on the right lines. He is right in insisting, as against Weniger and Fotheringham, that the rule arose from some peculiarity in the intercalary system. Before pursuing this question we must take account of some general considerations.

In the first place, the vacillation of the festival in the local calendar was of no concern to the vast majority of those attending it, who came from all corners of the Greek world. All they knew, or needed to know, was that it took place at alternate intervals of 49 and 50 lunations, so that, given the date of one celebration, they could always calculate any other simply by counting the appropriate number of moons.

Secondly, we may presume that the Games had existed in a rudimentary form long before 776 B.C., which was the traditional date of their foundation. It is true that hitherto the Altis has been singularly unproductive in Mycenaean remains, but this negative evidence is not decisive, and there are two considerations to set against it. According to the local tradition the Games were founded by the Idaean Herakles, who came from Crete.⁶⁵ Pindar, on the other hand, says they were founded by the other Herakles from Argos. Now, on the former hypothesis it is easy to see how after the Dorian conquest, and still more after the Argive hegemony of Pheidon, the credit came to be transferred to the Dorian, Argive Herakles; but on the alternative view it becomes extremely difficult to explain how this full-blooded hero was induced to withdraw in favour of the faded partner of the Minoan mother-goddess. Further, the Idaean Cave on the Hill of Kronos, the Hill of Kronos itself with its priest-kings, the Basilai, and its cult of Eileithyia and the snake—all these point clearly to the Mycenaean age and particularly to Crete, and they are paralleled in various parts of Arcadia by a number of local cults referring to Rhea and the birth of Zeus.⁶⁶

Since the Pythian Games were originally octennial, they must have always been a calendar feast, with no direct functional relation to the agricultural year. But there is no reason to suppose that the Olympic Games had ever been octennial. Their dependence on the octennial cycle is due simply to the fact that this cycle formed the basis of the calendar. Now, it is quite intelligible that an octennial feast should have been instituted to mark the conclusion of an octennial cycle, but there was no such thing as a quadrennial cycle and consequently no *raison d'être* in the calendar for a quadrennial feast. The quadrennial basis of the Olympic Games must therefore have been determined by some extraneous factor. If the festival was to attract competitors from other states, there was an obvious objection to holding it every year. It would have clashed constantly with similar local events established elsewhere. The Spartan Karneia, for example, took place at the same full moon.⁶⁷ Accordingly, I believe that the Games began as an annual seasonal feast and were made quadrennial in 776 B.C.,

⁶⁴ PTR 365.

⁶⁵ Paus. 5. 7. 6, quoting Ἡλείων οἱ τὰ ἀρχαιότατα μνημονεύοντες.

⁶⁶ Paus. 8. 28. 2, 38. 2, 41. 2, Str. 387, cf. Paus. 4. 31. 9,

33. 1. They may have been brought to the Peloponnese by the Kydones (Str. 348, *Od.* 19. 176).

⁶⁷ Nilsson, *Griechische Feste* 118.

the date from which the Olympiads were counted, in order to give them a panhellenic status.⁶⁸

Apollonios, corresponding to the Attic Metageitnion and the Spartan Karneios, was the month of the fruit harvest, which falls normally towards the end of August. The Olympic prize of victory was a crown of wild olive, plucked from the sacred trees that grew in the Altis; and it was said that the Idaean Herakles and his companions used to rest after their exercises on beds of olive leaves.⁶⁹ For these reasons it is probable that the primitive nucleus of the Games was a festival consecrated to the fruit harvest.

Throughout antiquity the religious administration of the Games was in the hands of two priestly clans, the Iamidai and the Klytiadai. The Iamidai can be traced to N.W. Anatolia.⁷⁰ The Klytiadai claimed descent from Melampous, which means that they had come from the Boeotian Orchomenos.⁷¹ Yet, despite the prestige of Olympia, Elis never attained a position of any political importance. With the exception of its Arcadian hinterland it was always the most backward state in the Peloponnese. As late as the fifth century its people were still living, 'after the old Hellenic fashion' as Thucydides expresses it, in open village communities.⁷² Here, therefore, an ancient sacerdotal tradition, derived in part from one of the main centres of Mycenaean civilisation, was combined with a simple rural economy. These considerations suggest that the local calendar, which was of course controlled by the priesthood, may have preserved some archaic features; and on this supposition the Olympian rule can, I think, be explained.

The function of the octennial cycle was, as we have seen, to reconcile the calendar with the solar year. When first instituted, it must have proceeded from what was regarded as the proper relation between the two. Let us take as an example the form of the cycle in which a month is intercalated at the end of the third, fifth, and eighth years, and see how a festival fixed by the calendar will change position in the solar year. Assuming that in the first year the harvest moon is full on August 22, we get the following dates for the harvest festival in the ensuing years: (2) Aug. 11, (3) Aug. 1, (4) Aug. 18, (5) Aug. 7, (6) Aug. 27, (7) Aug. 16, (8) Aug. 4, (9) Aug. 23.⁷³ It will be seen that in the second, third, fifth, and eighth years the festival falls 11, 21, 15, and 18 days before the harvest is normally ready. This difficulty could be surmounted by applying the principle of the movable feast, which must have been a familiar one in the days when systematic intercalation had been unknown. In these years the festival was postponed to the next full moon.

If this was the practice established at Olympia when the Games were made quadrennial, the result of that reorganisation would have been the Olympian rule as we know it:

	Apoll.	Parth.	
1.	Aug. 22		
5.		Sept. 6	50th month
9.	Aug. 23		49th month.

This hypothesis meets the case, but, considering the paucity of our data, it will perhaps be wiser to state it in more general terms. It is simply this. When the Olympic festival was made quadrennial, it had, for the reasons given, fluctuated between the two months for so long that both were regarded as consecrated to it, and therefore it was divided between them.⁷⁴

⁶⁸ An intermediate stage in the same process can be seen in the Lesser (annual) and Greater (quadrennial) Panathenaia.

⁶⁹ Paus. 5. 7. 7, 15. 3, Str. 353.

⁷⁰ Iamos was a son of Euadna, daughter of Pitana (Pi. O. 6. 28-30, cf. Paus. 6. 2. 5), and Eurotas, father of Pitana, was a son of Lelex (Apld. 3. 10. 13), king of the Spartan Leleges (Paus. 3. 1. 1). Pitana was a Spartan townland (Paus. 3. 16. 9) and repeats Pitana in N.W. Anatolia (Str. 587, 607), which was one of the main centres of the Leleges (Str. 605-10). The termination -αμος is Anatolian (Kretschmer, *Geschichte der griechischen Sprache* 325). I hope to

deal elsewhere with the origin and distribution of the Leleges.

⁷¹ Paus. 6. 17. 6, cf. SIG 1021. 12.

⁷² Str. 336-7, cf. Plb. 4. 73. 7.

⁷³ The dates, which are merely *exempli gratia*, are taken from Weniger's table (21). I have illustrated my argument from the 3-5-8 form of the cycle, because that appears to have been the one in general use (see note 49), but the other possible variants would serve as well.

⁷⁴ The month of the Games, whether Apollonios or Parthenios, was called Ὀλυμπικός (*Inscr. Olymp.* 8; Weniger 8).

Weniger admitted that the effect of the rule was to keep the festival closer to the harvest, but considered that this factor was not important enough to account for its origin.⁷⁵ If the rule had been introduced after the Games had been made quadrennial, this consideration would hold good, but my contention is that it had come down from earlier times. And if we ask why such an arrangement is found only at Olympia, the answer lies in the specific historical conditions. The Olympic Games were established at an earlier date than any other quadrennial feast known to us, and they were established in an exceptionally backward community under the control of an ancient priesthood. The Olympian rule represents the application of the octennial cycle to a calendar which retained its primitive seasonal function and consequently was not fixed. And once established it was never altered. It was hallowed by antiquity, and it served its purpose.

Yet, although as it stands the rule is unique, the principle of subordinating the calendar to the season, which is its distinctive and archaic feature, can be found elsewhere. In the cult of Zeus Sosipolis at Magnesia, the bull was to be sacrificed on the 12th of Artemision (μηνὸς τοῦ Ἄρτεμισιῶνος τῆ δωδεκάτῃ). The naming of a specific date shows that the state of the moon was disregarded. The presentation, on the other hand, was fixed by reference to the new moon of the sowing month (ἀρχομένου σπόρου μηνὸς Κρονιῶνος ἐν τῆ νοσημνίᾳ), which means that the calendar date must have varied from year to year. This too was a movable feast.

This solution of the problem cannot be regarded as certain. In the present state of knowledge certainty is impossible. All that can be claimed for it is that it is more probable than Weniger's, clearer than Nilsson's, and as simple as the problem allows.

V. THE OCTENNIAL AND THE KINGSHIP

If I am right in my main contention, that the octennial cycle goes back to the Mycenaean age, we are free to accept without reserve the numerous indications in Greek mythology of a connection between the octennium and the kingship.

Every ninth year the tenure of the Spartan kings was confirmed by the ephors after inspecting the stars.⁷⁶ This was doubtless an ancient custom which the Dorians had brought with them from Central Greece.

Every ninth year King Minos used to retire to the Cave of Zeus to commune with his god.⁷⁷ Every ninth year the Athenians used to send him a sacrificial tribute of seven boys and seven girls.⁷⁸ That this myth of Theseus and the Minotaur has a historical foundation is, I think, certain. It was enacted in the Crane Dance, imitating the windings of the Labyrinth, before the Horned Altar of Apollo at Delos.⁷⁹ The date of the dance is not given, but it was probably performed on the 7th of Thargelion during the festival which celebrated the birth of Apollo and Artemis.⁸⁰ This would explain the number of the victims, seven for Apollo and seven for Artemis; and the 6th of Thargelion was the day on which the Athenians despatched their annual pilgrimage to Delos in commemoration of their deliverance from the tribute.⁸¹ At Athens too a festival began on the 6th. This was the Thargelia, in which two human victims were put to death, one on behalf of the men, the other on behalf of the women; and according to tradition this rite was instituted to expiate the death of Androgeos, who was a son of Minos.⁸² All this suggests very strongly that the myth of the Minotaur and the ritual of the Thargelia were founded on customs of vicarious sacrifice in connection with the kingship such as we find in Babylonia and Egypt.⁸³

⁷⁵ Weniger 19.

⁷⁶ Plu. *Agis* 11.

⁷⁷ *Od.* 19. 178-9, Pl. *Min.* 319c, *Legg.* 624a-b, Str. 476,

482, D.S. 5. 78.

⁷⁸ Plu. *Thes.* 15. The tribute is also described as annual: Verg. *A.* 6. 21.

⁷⁹ Plu. *Thes.* 21, Call. *Del.* 307-13, *Il.* 18. 590-606.

⁸⁰ Hsch. θαργήλια, D.L. 2. 44, Anon. *VPlat.* 6 Cobet,

Plu. *M.* 717d.

⁸¹ X. *Mem.* 4. 8. 2, Pl. *Phdo* 58a-b.

⁸² D.L. 2. 44, Phot. *Lex.* φαρμακός, Suid. φαρμακούς, Phot. *Bibl.* 534 Bekker.

⁸³ Hooke, *Early Semitic Ritual* 10-16; Langdon *BEC* 34-49, 57-9, 215-7; G. A. Wainwright, *The Sky-Religion in Egypt* (1938).

This gives us the clue to the octennial festivals of Thebes and Delphi, which are connected by internal evidence with both the calendar and the kingship. At the Daphnaphoria the girls carried in procession an olive trunk decorated with pendant balls as symbols of the sun, moon, and stars, and with 365 chaplets representing the solar year.⁸⁴ At the Stepteria the hut in which Apollo's fight with Python was enacted represented a royal palace.⁸⁵ The duel between Apollo and the dragon of Delphi may therefore be compared with the duel between Marduk and the monster Tiamat, symbolising the king's triumph over his enemies, which was celebrated at the New Year festival in Babylon,⁸⁶ and with the sham fight that had the same significance in the Egyptian feast of Khoiak and was projected in myth as the duel between Osiris and Seth.⁸⁷

There are many indications that nine was a sacred number in Minoan–Mycenean religion. The excavations at Pergamon have revealed, adjacent to the temple of Demeter, a terrace of nine steps. Another terrace of nine steps has been found outside the temple of the same goddess at Lykosoura. The Minoan origin of Demeter is generally recognised. At Lato in Crete there is yet another terrace of nine steps, and here it is in the market-place.⁸⁸ In Minoan Crete such terraces were always contiguous to the king's palace, which normally faced on to the market-place, like Priam's palace at Troy and the *στοὰ βασιλῆως* at Athens.⁸⁹ The purpose for which they were designed is still a matter of conjecture. Perhaps they served to accommodate groups of priests as superintendents of choral performances, like the nine *αἰσυμῆται* who directed the dance in the market-place at Phaeacia.⁹⁰ Whether these officials stood in any definite relation to the kingship is not clear, but we are justified in inferring that, at least in prehistoric times, their number had a functional value, and that the institution was sufficiently widespread to survive as a sacred precedent in the historical period; for it can scarcely be an accident that these nine *αἰσυμῆται* are paralleled by the nine *ἐλλανοδίκαι* who supervised the Olympic Games and the nine *ἄρχοντες* who succeeded to the Athenian kingship.⁹¹

Again, when Telemachos landed in Pylos, Nestor and his people were engaged in sacrificing nine groups of nine bulls, corresponding to the nine territories of his kingdom.⁹² These were probably tribal divisions, like the three 'ninth' (*ἐνάτῃ*) into which each of the three Dorian tribes was divided at Kos and Sparta. At Kos the bull sacrificed to Zeus Polieus was selected from twenty-seven bulls presented by the tribes, three from each *ἐνάτῃ*.⁹³ At Sparta nine huts were erected for the Karneia, each accommodating nine men, three from each phratry.⁹⁴

In other cases the number had no functional value, being chosen simply for the sake of its traditional associations. No further explanation is needed for the nine Muses, the nine Kouretes who tended the infant Zeus,⁹⁵ the nine days' purification at Lemnos, or the nine boys and nine girls who headed the procession when the bull was presented to Zeus Sosipolis at Magnesia;⁹⁶ and when we read that Bellerophon was feasted in Lycia for nine days on nine oxen, and that animals were selected for sacrifice at the age of nine years,⁹⁷ the inference is that the perfect number was regarded as appropriate for a perfect feast or a perfect sacrifice.

Lastly, since at the end of the octennium sun, moon, and stars were back where they had been at the beginning, the octennial period became a symbol of universal renewal and regeneration, a world cycle of birth, death, and resurrection. Herakles laboured for eight years to expiate the murder of his children.⁹⁸ Kadmos served a penance of eight years for the slaughter of the Theban dragon.⁹⁹ In the ninth year Persephone released the souls of the dead, who

⁸⁴ Procl. *Chr.* 26, cf. Paus. 9. 10. 4.

⁸⁵ Plu. *M.* 418a.

⁸⁶ Langdon *BEC* 12–31.

⁸⁷ A. M. Blackman, 'Myth and Ritual in Ancient Egypt,' *Myth and Ritual* 22–3.

⁸⁸ F. J. Tritsch, 'Die Agora von Elis und die altgriechische Agora,' *Jahresh. d. öst. arch. Inst.* 27. 83, 100.

⁸⁹ *Il.* 2. 788–9, cf. Tritsch 98, 102.

⁹⁰ *Od.* 8. 258–9, cf. 109.

⁹¹ The *ἐλλανοδίκαι* are expressly described as *ἐπόπται* of the Games (Paus. 5. 9. 5) in keeping with my interpretation of that term (*Aeschylus and Athens* 125–6).

⁹² *Od.* 3. 5–8, *Il.* 2. 591–601, cf. *Od.* 3. 7 sch.; Glotz, *La cité grecque* 44. These figures have been carefully

calculated. The total of 9×500 men on the beach corresponds to the strength of the contingent (90×50).

⁹³ *SIG* 1025.

⁹⁴ Ath. 141e–f.

⁹⁵ Str. 473.

⁹⁶ Philostr. *Her.* 740; *SIG* 589.

⁹⁷ *Il.* 6. 174, *Od.* 10. 19, 390, cf. *Il.* 18. 351, Theoc. 26. 29, Hes. *Op.* 436.

⁹⁸ *Apld.* 2. 5. 11 ἐν μηνὶ καὶ ἔτεσιν ὀκτώ. I do not understand the extra month. Was the *ἐκατόμβη* originally a sacrifice of 99 oxen, corresponding to the months of the *ὀκταετηρίς*?

⁹⁹ *Apld.* 3. 4. 2, cf. Serv. *ad Verg. A.* 7. 761, Hes. *Th.* 801.

were born again to be 'exalted as wise men, athletes, and kings, and to be remembered on earth as sanctified heroes for ever.'¹⁰⁰

If the number nine was based on the octennium, whence came the sanctity attaching to the number seven? In Egypt there were two kingship cycles, one of nine years and one of seven. The former was introduced from the north, the latter was indigenous.¹⁰¹ We have seen that seven was also a sacred number in Babylonia. The Babylonian kingship cycle, so far as I know, has not yet been identified. There may have been more than one, as there was in Egypt. With regard to the number seven, it might be supposed that it derived its sanctity, at least in Babylonia, from the four lunar quarters. But, as Nilsson has pointed out, the quadrupartite division of the month cannot have arisen from simple observation; it 'is in its very nature a numerical system.'¹⁰² It is possible therefore that the reverse was the case—that the month was divided by the sacred number. Now, if the Minoan ἐνναετηρίς was founded on the octennial cycle, it may be surmised that the Egyptian ἑπταετηρίς and the Babylonian hebdomad go back to a cycle of six years of 360 days, supplemented by the intercalation of one month: $(6 \times 360) + 30 = 6 \times 365$. The two cycles would then correspond to the two different types of calendar. But this is no more than a conjecture.

However this may be, it is clear that the Minoan kingship, like the Babylonian and the Egyptian, had its origin in agrarian magic. As high priest of the community, the king had in his hands the regulation of the calendar, which determined the agricultural labour of the year,¹⁰³ and, since the people were thus dependent on him for their crops, their wealth, their health, for life itself, they worshipped him as a god.¹⁰⁴

VI. CONCLUSION.

Let me end with a word of warning. It would be a mistake to assume that every instance of the number nine in a sacral context is to be referred, even remotely, to the octennium. In particular cases, of course, it may have been determined by purely adventitious factors. That goes without saying, but what I have in mind is something different. The Iobakchoi used to meet on the ninth of every month.¹⁰⁵ This has nothing to do with the octennium. It marks the beginning of the second third of the moon, in which it came to the full; and no doubt it was for the same reason that the Karneia, which were held at full moon, lasted nine days.¹⁰⁶ Similarly, when we read that, at the time of the rape of Persephone, Hekate was 'in her cave', that is, invisible, and that she appeared to Demeter, torch in hand, nine days later,¹⁰⁷ the reference is clearly to the last third, the period of the waning moon, when the women used to sacrifice to Hekate at the cross-roads¹⁰⁸ and wail in imitation of Demeter.¹⁰⁹ From this and other evidence it is clear that the sanctity of the number nine goes back beyond the octennial cycle to the primitive lunar calendar. The lunar significance of the number has been studied very thoroughly by Roscher.¹¹⁰ Though unable to accept his conclusions as they stand, I think he has proved that beneath Greek religion there lies a substratum of pre-agricultural moon-worship. This, however, must be reserved for another occasion. I mention it here only to guard against misunderstanding.

GEORGE THOMSON

¹⁰⁰ Pi. fr. 133, cf. Orph. fr. 295; Rohde, *Psyche* 2. 211.

¹⁰¹ Wainwright 91, cf. Hooke, *Early Semitic Ritual* 40.

¹⁰² *PTR* 171.

¹⁰³ This, I take it, is what was meant by 'the fixing of the fates,' which was done at the Babylonian New Year festival by the king as the earthly representative of Marduk (Gadd 55-6; Hooke, *Early Semitic Ritual* 18-19). In an Assyrian text the king is instructed to 'seek the place of the celestial equator, and thou shalt know the days to be filled in, and then fix thou the year and complete its supplement' (Langdon *BMSC* 108-9).

¹⁰⁴ The Sumerian king was regarded as the earthly 'tenant' of the divine king, i.e. the local god (Gadd 61), which means that the god was a projection of the kingship. The Egyptian king prayed for life, health, and wealth in

JHS—VOL. LXIII.

order that he might pass them on to his subjects (Blackman 25). Among the Jukuns of Nigeria, when a new king is proclaimed, the people fall down before him and cry, 'Our crops! our rain! our health! our wealth!' (C. K. Meek, *A Sudanese Kingdom* 137).

¹⁰⁵ *SIG* 1109. 42.

¹⁰⁶ Ath. 141f; Nilsson, *Griechische Feste* 119 n. 3.

¹⁰⁷ Hom. *H.* 2. 25, 51-2.

¹⁰⁸ Harp. δῆσθύμια, A. Ch. 97 sch., Plu. *M.* 708-9, Ar. *Pl.* 594 sch., Poll. 5. 163, Thphr. *Char.* 16. 17, Ath. 325a.

¹⁰⁹ Apul. *Met.* 11. 2, Serv. *ad Verg. A.* 4. 609, *E.* 3. 26, cf. Paus. 1. 43. 2, and see Cornford, 'Ἀπαραχαί', *Essays and Studies Presented to W. Ridgeway*, 161.

¹¹⁰ See the bibliography in his *Lexikon* 4. 646 and his *Selene und Verwandtes* (1890).