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**ΣΚΟΤΟΣ ΕΓΓΕΝΕΤΟ: LUKE 3:1; 23:44 AND FOUR
FIRST CENTURY SOLAR ECLIPSES AT ANTIOCH***

In Memoriam: Raymond E. Brown (1928-1998)

Henry Innes MacAdam

Abstract

This paper examines the ancient accounts (including eyewitness testimony?) relevant to the total solar eclipse of 24 November A.D. 29, and suggests that it served an important double purpose for the author of *The Gospel of Luke*, who probably experienced its effect.

One purpose occurs at *Luke* 3:1-2: a means of identifying the specific year during which John the Baptist and Jesus began their ministries. The second occurs at *Luke* 23: 44-45: a "cosmic model" serving as an explanation for the Christian tradition of darkness at noon during Jesus' execution.

Three later solar eclipses--those of 20 May, A.D. 49 (annular) 30 April, A.D. 59 (total), and 10 March A.D. 80 (annular) may have reinforced the memory of the 29 eclipse during the creation and/or redaction of *The Gospel of Luke*. This reflects a common literary predilection throughout antiquity to associate celestial phenomena (eclipses, comets, etc.) with the death of notable people.

All four eclipses were visible throughout the eastern portion of the Mediterranean, particularly in the city of Syrian Antioch. The total eclipses of 29 and 59 were either noted by eyewitnesses or referred to by later sources with access to eyewitness accounts. The annular eclipses of 49 and 80 are unrecorded, but their exact duration, intensity and geographic paths can be calculated.

The paper also suggests that the exact chronological datum in *The Gospel of John* 2:20 is directly linked to the date of *Luke* 3:1-2, which strengthens the argument for the date of Jesus' execution being 7 April A.D. 30 and not 3 April A.D. 33.

* *This article has benefited from the critical comments of Zaven Arzoumanian, John Pairman Brown, Sian MacAdam, Paul L. Maier and Brent D. Shaw, not all of whom will agree with everything argued here. None is responsible for any remaining errors. I also wish to thank Jody Kendall, West Windsor Public Library, for her untiring assistance in finding source material in sometimes unusual places.*

Where there is so much doubt as to dating and chronology, is it possible to find outside the New Testament itself a fixed point, chronologically exact and determined, an Archimedean point on which it is possible to take one's stand, and from there to shake the world?

Stephen Neill,
The Interpretation of the New Testament: 1861-1961 (1964) 38.

That overly-dramatic statement is characteristic of the late Bishop Neill's widely-read volume⁽¹⁾, but it is serviceable as a point of departure for what follows. In what some scholars assert was the original opening statement of the *Gospel of Luke* we find the most chronologically precise reference in either Testament of the Bible. I offer here my own translation:

In the fifteenth year of the reign of Tiberius Caesar, when Pontius Pilate was governor of Judaea, and Herod was tetrarch of Galilee, and his brother Philip was tetrarch of the territory of Iturea and Trachonitis, when Lysanias was tetrarch of Abilene, and during the high-priesthood of Annas and Caiaphas, the word of God came to John the son of Zachariah in the desert. (Luke 3:1-2)

Apparently Luke considered "the high-priesthood of Annas and Caiaphas" as shared authority. At any rate, only one of those six chronological indicators, the reference to "the fifteenth year of

¹ It appears with exactly the same wording in a second, revised edition: Stephen Neill and Tom Wright, *The Interpretation of the New Testament, 1861-1986* (New York, 1988) 40. For an assessment of Neill's survey from a very different perspective (that of earliest Islam), see F. E. Peters, "The Quest of the Historical Muhammad", *International Journal of Middle East Studies* 23 (1991) 291-315. This is an article from which all New Testament scholarship would benefit, and of which very few New Testament scholars are aware.

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Tiberius Caesar", is Neill's "fixed point, chronologically exact and determined" by which the beginning of the public ministry of John the Baptist (and also of Jesus) can be dated.

There is no mention of Jesus until his baptism at *Luke* 3:21, so that *strictu sensu* the reference at *Luke* 3:1 is to John only. Luke *implicitly* dates the beginning of the ministry of Jesus in "the fifteenth year of Tiberius"; Jesus without John is mentioned in the corresponding statement with which Luke opens *The Acts of the Apostles*: "In my first book, Theophilus, I set down everything that Jesus did and taught, from the beginning ..." (*Acts* 1:1).

As if to clarify what he meant there, at *Acts* 1:22 (choosing a successor to Judas Iscariot) Luke has Peter insist that the new apostle be someone who knew Jesus "beginning with John's baptismal rites until the day he was taken up from us." Luke's intention is to anchor the appearance of both John and Jesus "in the fifteenth year of Tiberius."

But even with a Roman imperial date as reference it has been impossible to decide with certainty which year (or portions of which two consecutive years) on our modern or "common" calendar corresponds to Luke's confident understanding of when the Emperor Tiberius' fifteenth year occurred.

As is well-known, "regional" or "local" calendars abounded in the classical world. That, and various systems of chronology used in the literary sources, meant that a date on one calendar might be reckoned as much as one full year earlier, or later, on another.⁽²⁾ By modern reckoning Augustus died on 19 August A.D. 14, and a month later (by mid-September) Tiberius' assumption of the imperial power was officially acclaimed. But the date of Tiberius' accession was not calculated uniformly throughout the empire, notably in the Roman Near East.

² In that same respect the ancient and modern worlds have much in common. Many countries today still use a variety of dating systems simultaneously: calendar years, fiscal years, academic years, and the like overlap each other and often seem quite bewildering to the unwary.

In an admirably lucid account of this tangled and vexed issue, John P. Meier reviewed the main arguments for one or another of the calendrical systems then in use, and summarized thus:

There is no way that we can be certain which of these methods of reckoning [the regnal years of Tiberius] was used by Luke. Looking at the main possibilities listed above, we see that the fifteenth year of Tiberius could have included at least parts of A.D. 27, 28 or 29. Interestingly, almost all of the various methods of computation include at least some part, if not the whole, of A.D. 28 as belonging to the fifteenth year. Indeed, if Luke used the Julian calendar and the nonaccession-year system of reckoning, A.D. 28 coincides exactly with Tiberius' fifteenth year. Hence, for convenience's sake and as a preliminary, not definitive, judgment, I will accept A.D. 28 as the year in which John began his ministry and also baptized Jesus. Even if the reckoning be a little off, it is not off by much, since the only other serious candidates are 27 or 29.⁽³⁾

Yet in spite of his detailed and judicious treatment, Meier nowhere addresses the very question which the text itself raises: why did Luke select "the *fifteenth* year of Tiberius" to date the public ministries of John and Jesus?⁽⁴⁾ No other *specific* year is noted at Luke 3:1-2.

³ *A Marginal Jew: Rethinking the Historical Jesus* Vol. I (1991) Chapter 11 (" 'In the Fifteenth Year ...': A Chronology of Jesus' Life", pp. 372-433). See especially pp. 374-5 and 383-6 with the relevant endnotes. The quotation is on pp. 385-6. Worth noting is that Alan E. Samuels, *Greek and Roman Chronology: Calendars and Years in Classical Antiquity* (Handbuch der Altertumswissenschaft I.7), München, C.H. Beck'sche, 1972) p. 190 appears unjustifiably optimistic in accepting the equivalence of Tiberius' 15th year and A.D. 28. He states it as a given, without reviewing the difficulty involved in determining which calendrical system was used by Luke.

⁴ Observe how close Meier comes: "[A]ny exact information Luke might give us is reduced to his clearly intended focus on the *fifteenth* year of

Instead there is a register of the names of several officials, beginning with Tiberius' *praefectus Iudaeae*, Pontius Pilate, then the ranking *tetrarchos* Herod (Antipas), then on to Herod's brother Philip, then another tetrarch, Lysanias. That list ends with two men of the priestly hierarchy, Annas and his son-in-law Caiaphas.

All seven men held some political or religious power in the "fifteenth year of Tiberius." Of them, only Lysanias remains today a near-enigma, with no agreement whatsoever as to why Luke included him and not some other, local dynast.⁽⁵⁾

Indeed, without Tiberius' regnal year to provide us with that chronological "anchor", Luke's reference to the Baptist's entrance to public life, and Jesus' subsequent baptism, any date between A.D. 26 (the beginning of Pilate's term as governor of Judaea) and A.D. 34 (the death of Philip) is possible.⁽⁶⁾

Tiberius" (p. 384; his italics) and "The very positioning of *πεντεκαιδέκῳ* as the first significant word in 3:1 highlights its importance: *ἐν ἔτει δὲ πεντεκαιδέκῳ* ..." (419)

⁵. Which raises a related question: why is this ruler named by Luke? Josephus doesn't mention this Lysanias, but another homonym of that tiny dynastic territory (centered on the headwaters of the Wadi Barada in the Zabadani Valley of modern Syria). There is a badly-damaged Greek inscription (*CIG* #4521) of inexact date but first century A.D. which mentions a "Lysanias" in the region of Abilene. Jesus' ministry included Judaea (*John* 3:22 asserts that it began there), the territory governed by Antipas (Galilee, Peraea?), and included some of the region called "the Decapolis" (whatever that term meant in the late 20s of the first century). The ministry embraced the *territorium* of certain cities (e.g. Caesarea Philippi [=Panas], Sidon and Tyre) as well. That Luke includes Philip and Lysanias at 3:1-2 implies that Jesus' ministry included as well the territories governed by the latter two dynasts. To argue otherwise suggests that their mention has no importance, and that Luke might just as well have mentioned (e.g.) the reigning Nabataean monarch.

⁶. Luke might have avoided *any* ambiguity had he used instead the Roman system of dating by named annual consuls, who assumed that office the first day of January each year. Thucydides is usually cited as Luke's "chronological model". Virginia Hunter's remarks on how that historian

Those additional (but ultimately imprecise) "internal" data provide no clues as to how Luke could determine with exactitude the year that for him (or for the community from which his Gospel came) changed the world. I suggest that such a datum lies outside the NT, and is the total solar eclipse of 24 November A.D. 29.

That eclipse, which was most pronounced in the northeastern portion of the Mediterranean, was either observed by the author of *Luke* 3:1, or observed by whoever edited the source material ("L") unique to certain portions of the *Gospel of Luke*.

Moreover, three other solar eclipses, the first on 20 May A.D. 49, the second almost exactly ten years later on 30 April A.D. 59, and a third on 10 March A.D. 80, all visible at Antioch, served as reminders and "memory reinforcers" at the very time that *Luke* (and *Acts*) were taking shape in the community of their origin.⁽⁷⁾

The eclipses of 49 and 80 were "annular" (also called "ring") eclipses, which do not create the intense darkness characteristic of total eclipses. All four solar eclipses were visible throughout the eastern Mediterranean. For two of them, the eclipses of A.D. 29 and A.D. 59, we have contemporary or near-contemporary accounts.

For that of November A.D. 29, "totality" was complete shortly before noon, and its awe-inspiring effect was alluded to by a minor historian of the mid-first century, Thallus the Samaritan. That same solar eclipse was described accurately a century later by an antiquarian named Phlegon of Tralles.

The April A.D. 59 eclipse was observed simultaneously at Rome and the Near East in early afternoon, and reported upon by

worked are worth noting: "Basically Thucydides' system was a type of relative chronology, and this he continued to prefer, even though he established a fixed point for the beginning of the [Peloponnesian] War in Book 2.2.1." See her *Past and Process in Herodotus and Thucydides* (1982) 319.

⁷ The solar eclipse nearest in time to any of these first century eclipses, and like them visible at Antioch, was the total eclipse of 30 June 9 B.C. There was no eclipse at or near Antioch following that of A.D. 80 until the total eclipse of 19 February A.D. 174.

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several eyewitnesses. The annular eclipse of May, A.D. 49 is not mentioned in any source now available to us, but its characteristics can be described and its path calculated precisely by modern astronomers.

It is further demonstrable that the bands of darkness (shadow of the moon) created by all *four* eclipses passed through the city and the region of Antioch-on-the-Orontes. The maps that accompany this article show clearly the paths of all four eclipses with the place of juncture at the north-east corner of the Mediterranean.

Many residents of Antioch and of its hinterlands therefore experienced very similar celestial phenomena *four times* within two generations, a striking coincidence when one realizes how rare an occurrence is a *single* total or annular solar eclipse at any one place on the earth within a human lifespan:

Weather permitting, a man in his lifetime might expect to see some 50 lunar eclipses, more than half of them total, and perhaps 30 partial solar eclipses. A total eclipse of the sun, however, is a rare event at any one location. For example, the last total solar eclipse visible in the vicinity of New York City was in 1925 and the next will not be until 2079.⁽⁸⁾

Therefore it's likely that "Luke" observed one or all of these eclipses and that this influenced his theological predilection for portentous "visions".⁽⁹⁾ Thus I will suggest that the total solar eclipse

⁸ F. Richard Stephenson, "Historical Eclipses", *Scientific American* (Oct. 1982) 170. I am grateful to Dr. Zaven Arzoumanian, Center for Radiophysics and Space Research, Cornell University, for bringing this and several other sources to my attention.

⁹ The term *horama* ("sight," "spectacle," "vision") is found eleven times in *Acts*. Elsewhere in the NT it is found only in *Mt* 17:9 (the Transfiguration). In every case *horama* denotes a supernatural event only one of which (*Acts* 10:10-17) is of celestial origin. For Luke, an eclipse isn't supernatural; it explained the "noontime darkness" at the death of Jesus.

MacAdam, *Solar Eclipses* IBS 21 Jan 1999 of A.D. 29 provided Luke with a chronological marker for the beginning of the public careers of John and Jesus.

Furthermore, I suggest that all four eclipses served Luke as "celestial models" which explain his unique and dramatic inclusion of a solar eclipse (*Luke* 23:44-45) in his account of the death of Jesus, and in doing so lends indirect support to those who argue for a crucifixion date of 7 April A.D. 30.

I will also demonstrate that the actual dates of celestial phenomena such as eclipses and comets were often "modified" to dramatize events in human history throughout classical antiquity. Such a "literary *Tendenz*" can be discerned clearly in the *Gospel of Luke*, and to a lesser extent in the *Gospel of Matthew*.

Let's examine the last point first, and then widen the net to include the others. Various important MSS of *Luke* 23:44-5 use the expression "the sun having been eclipsed" (τοῦ ἡλίου ἐκλιπόντος), or a slight variation of tense "the sun being eclipsed" (τοῦ ἡλίου ἐκλειπόντος).

Many MSS (not the best) read instead *καὶ εσκοτισθη ὁ ἥλιος* ("and the sun was darkened" or "and the sun became dark"). Though the meaning of the two expressions is the same, the awkwardness of referring to an "eclipse" of the sun when none could occur (at the Passover feast) suggests that we should apply here the criterion of "discontinuity" or "dissimilarity" when compared to the widespread and mysterious "darkness" described by *Mark* 15:33 or *Matthew* 27:45. As Raymond Brown insists in his own scrutiny of *Luke* 23:44-5:

The first Greek reading [ἐκλιπόντος] has more impressive textual support and should be given preference under the rule of choosing as original the more difficult reading.¹⁰

¹⁰ See his full discussion of these MSS variants in *The Death of the Messiah: From Gethsemane to the Grave: A Commentary on the Passion Narratives in the Four Gospels* II (Doubleday, 1994) 1039-40.

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This isn't one of the more common examples of a semantically difficult passage in Mark being "re-worked" by Matthew or Luke to read more easily or appear less crude. Matthew's parallel passage follows the sense of the Markan account quite closely, though the vocabulary in Matthew varies slightly in two places. For the sake of close comparison I set out both below:

Καὶ γενομένης ὥρας ἕκτης σκότος ἐγένετο ἐφ' ὅλην τὴν γῆν ἕως ὥρας ἐνάτης. And beginning at the sixth hour darkness came upon the whole land until the ninth hour. (Mark 15:33)

Ἀπὸ δὲ ἕκτης ὥρας σκότος ἐγένετο ἐπὶ πᾶσαν τὴν γῆν ἕως ὥρας ἐνάτης. And from the sixth hour darkness came upon all the land until the ninth hour. (Matthew 27:45)

Luke's rendition begins with a trademark *ἦν ὡσει* phrase but then follows *word for word* the exact order of Mark beginning with the key expression (common to all three Synoptics) *σκότος ἐγένετο* ("darkness came"). Luke alone has deliberately added a statement about the *cause* of the otherwise unexplained darkness.

In part, Luke's insertion of *τοῦ ἡλίου ἐκλιπόντος* is no more than a clarification of Mark's account of a mysterious crucifixion darkness. We know, as he may not have known, that a solar eclipse is impossible during the "full moon" phase of the lunar cycle.

Nevertheless, Luke's use of the phrase may be more than just whimsical. It may represent the author's vivid recollection of an actual eclipse, or series of eclipses, that he, and the community from which his gospel originated, had witnessed:

*Καὶ ἦν ἤδη ὡσεὶ ὥρα ἕκτη καὶ σκότος ἐγένετο ἐφ' ὅλην τὴν γῆν ἕως ὥρας ἐνάτης τοῦ ἡλίου ἐκλιπόντος
But it was now about the sixth hour, and darkness came upon the whole land until the ninth hour, the sun having been eclipsed. (Luke 23:44-45)¹¹*

¹¹ The position of the phrase *τοῦ ἡλίου ἐκλιπόντος* at the very end of the darkness episode engenders the suspicion that it had been a marginal gloss which was later incorporated in the text of several MS traditions (P⁷⁵, Codex

There is no crucifixion "darkness" or supernatural eclipse in the *Gospel of John*. Perhaps that is to be expected of a tradition which omits the baptism of Jesus, records discourses rather than parables, attaches no sacramental importance to the Last Supper, removes Simon of Cyrene from the passion story, and inserts the character of Nicodemus in the entombment scene.

Clearly the tradition in *Mark* (reinforced by *Matthew*) was that "at the sixth hour a darkness (*σκότος*) came upon the whole land, until the ninth hour". The apocryphal *Gospel of Peter* echoes only the term *σκότος* in its otherwise idiosyncratic (and provocatively anti-Jewish) narrative of the crucifixion.⁽¹²⁾ In *Luke* 23:44 that unexplained mid-day "darkness" becomes a solar eclipse.

Perhaps we should now combine the two questions raised, one by each of the two passages in *Luke*: Why was the "fifteenth year," and not the "fourteenth," "sixteenth" or other regnal year of Tiberius selected, and why does Luke alone insist that an eclipse of the sun occurred at the very time of Jesus' execution (on or near the onset of Passover), when that was manifestly not possible?

In both cases the answer can be linked to natural but quite spectacular events: a total eclipse of the sun on 24 November 29 visible throughout the eastern Mediterranean, and three other solar eclipses within fifty one years also visible in the same region. We need now to look at the evidence, ancient and modern, for all four of these eclipses.

Vaticanus, Codex Sinaiticus and others).

¹² A literal translation of the Greek text of *GoP* is conveniently given in Brown, *Death of the Messiah* II 1318-21 in his Appendix I devoted to that topic. The relevant portions are: "But it was mid day, and darkness (*σκότος*) held fast all Judaea ... But many went around with lamps, thinking that it was night, and they fell ... Then the sun shone, and it was found to be the ninth hour ..." (*GoP* 5:15; 5:18; 6:22). The Greek text is given in F. Neirynck, "The Apocryphal Gospels and the Gospel of Mark" in J.-M. Sevrin (ed.) *The New Testament in Early Christianity* (Leuven, 1989) 171-175. The *GoP* is a work of the second century.

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First it is necessary to document the occurrence of a solar eclipse in A.D. 29 and to determine its geographical extent as it happened. That we can do with the assistance of modern astronomy. Only then should we examine carefully Phlegon's vivid (and dated) account of a solar eclipse, and suggest an even earlier source as a contemporary witness to it.

If that eclipse took place within the chronological limits of "the fifteenth year of Tiberius", it may explain why Luke's Gospel utilizes that regnal year to "anchor" the beginning of the public careers of Jesus and John. With *Luke* 3:1 more firmly anchored in time, we may be able to better determine which of two "favorable dates" for the crucifixion of Jesus seems more likely.

Lastly we must consider Luke's account of a "Passover eclipse" --not just as "Christian tradition" but as an example of a *topos* of Mediterranean thought. In that context the annular solar eclipse of spring, A.D. 49, the total solar eclipse of spring, A.D. 59, and the annular eclipse of late winter, A.D. 80 will be additional (and hitherto overlooked) factors.

Let us begin with D. Justin Schove's *Chronology of Eclipses and Comets, A.D. 1-1000* (13), which provides historians with some basic astronomical information. On pp. 6-7 Schove discusses in some detail the ancient source material for what he designates as "the 'crucifixion' solar eclipse in Asia Minor" in A.D. 29. Recently, I reiterated that this total solar eclipse (14) is to be associated with Luke's phrase "the sun having been eclipsed," his explanation for the strange darkness at the time of the crucifixion of Jesus.

There is no need to review in detail the evidence for, or the alleged significance of, the partial *lunar* eclipse (briefly visible in the eastern Mediterranean) at sunset on 3 April 33.(15) This is

¹³ The Boydell Press, Suffolk (U.K.) and Dover, NH (U.S.A.) 1984.

¹⁴ H.I. MacAdam, "Gethsemane, Gabbatha, Golgotha: The Arrest, Trials and Execution of Jesus of Nazareth", *IBS* 17 (1995) 148-176 at 154-5, utilizing Brown, *Death of the Messiah* II: 1041.

¹⁵ C.J. Humphreys and W.G. Waddington, "Dating the Crucifixion," *Nature* 306 (1983) 743-46; *idem*, "Astronomy and the Date of the Crucifixion" in

judiciously dispensed with by Schove in the *Addenda to Chronology of Eclipses and Comets* (p. 327). That should have served notice to the authors of several recent attempts to resuscitate their "lunar eclipse" theory more for the sake of publicity than for the benefit of science or scholarship.⁽¹⁶⁾

But for all the attention Schove devotes to the *history* of the 29 eclipse, he offers only a cryptic account of where we might look for more scientific detail about its nature, its duration, and the extent of its passage. Most disappointing of all, Schove fails to include a map of the regions through which the shadow of the moon passed (a feature also lacking in his discussions of the eclipses of 49,59 and 80). The maps illustrating this article should rectify those omissions.

Regarding the solar eclipse of 29 Schove notes only that it "... was total or nearly so in Bithynia [now north central Turkey] about 11 a.m."⁽¹⁷⁾ Elsewhere he defines a total solar eclipse thus:

Jerry Vardaman (ed.), *Chronos, Kairos, Christos* (Eisenbrauns, 1989) 165-181; *idem*, "The Jewish Calendar, a Lunar Eclipse, and the Date of Christ's Crucifixion", *Tyndale Bulletin* 43 (1992) 331-51.

¹⁶ While Humphreys and Waddington might not have seen Schove's comments, they certainly were aware of the skepticism about their reasoning expressed by Roger T. Beckwith, "Cautionary Notes on the Use of Calendars and Astronomy to Determine the Chronology of the Passion." This appeared in Vardaman, *Chronos*, 183-205, immediately following their own contribution. Cf. Brown, *Death of the Messiah* 1376 n. 54.

A similar partial lunar (i.e "blood moon") eclipse retailed by Humphreys and Waddington occurred on Friday 3 April 1996 at sunset, visible throughout the northeastern U.S.A. It was underwhelming and insignificant to see even with the benefit of advance knowledge and reasonably clear skies. Coincidentally it was the beginning of the Passover that year (*and* the commencement of the Sabbath that week), both factors common to the partial lunar eclipse of 3 April 33 that was visible at Jerusalem.

Neither the modern nor the ancient lunar eclipse was worthy of attention in and of itself. It was the simultaneous occurrence of Passover and Sabbath at the time of those two eclipses that make them remarkable.

¹⁷ *Chronology* 6. Schove includes no maps of his own for charting the eclipses of the first century A.D. He relies instead on those created by other

Totality occurs where the dark cone of the Moon's shadow reaches the ground. As this cone is only just long enough [to reach any point on the earth's surface], the diameter of the terrestrial region affected is never greater than about 270 km [162 miles] at any one moment.

Moreover, the Earth rotates from west to east and the shadow races eastwards, varying slightly to north or south because of the Moon's own movements; at the equator the speed of this dark shadow is about 365 m/sec.

Among primitive peoples this is a path of panic. The eclipse recorded by Livy in Rome in 188 BC was seen several hours later by the Chinese, and as records of the comet of 190 B.C. are found in the same sources we have a striking confirmation of chronology ...

The total phase seldom lasts more than five and never more than eight minutes, but the time seems like hours to any witness who does not understand what has happened ...

Long before totality commences, Venus is usually visible, but during totality [several other] planets and a few stars may be seen ... Total eclipses are rare; at any one place the average is three times in a millennium.⁽¹⁸⁾

astronomers and scientists, notably Stephenson. Ironically, there is no map to accompany the commentary on the A.D. 29 eclipse in F.R. Stephenson's *Historical Eclipses and Earth's Rotation* (Cambridge, University Press, 1997) 359-60. See my review of that volume in *IBS* 20 (1998) 92-96. See my Fig. 1 for a general map of the eastern Mediterranean.

¹⁸ Schove, *Chronology* x-xi. The emphasis in the last statement is mine. On the duration of totality, see also Philip S. Harrington's statement: "Totality during the solar eclipse of 25 June 2150 will last 7 minutes, 14 seconds, longer than any total solar eclipse since the ninth century A.D." (*Eclipse! The What, Where, When, Why & How Guide to Watching Solar & Lunar Eclipses* [New York, John Wiley & Sons, Inc., 1997]10).

There are additional factors not mentioned by Schove. One is the effect of even a brief daytime darkness upon the earth:

A total eclipse of the sun is a much more spectacular phenomenon than is often realized, very much more mysterious and impressive, for example, than atmospheric obscurations of the sun. As the sun is eclipsed, the temperature falls appreciably, the appearance of dew has even been recorded, birds and animals behave strangely ... and so awesome is the sudden blackness, especially if it is unforeseen, that people stop what they are doing and minutes seem like hours.⁽¹⁹⁾

R.E. Brown, *Death of the Messiah* II 1040 maintains that "[T]he maximum length of an attested full solar eclipse [is] seven minutes and forty seconds, considerably less than the three hours posited by the Synoptic Gospels." One page later is an equally misleading assertion: "A solar eclipse, lasting 1 1/2 minutes, took place in parts of Greece, Asia Minor, and Syria on Nov. 24, A.D. 29."

The latter must be based on the statement of Sawyer, *Eclipse* 127: "For observers near the centre of the belt of totality, the eclipse [of A.D. 29] lasted for 1 1/2 minutes at about 11:15 in the morning ..." Sawyer is clear that only the duration of totality is brief, not the complete eclipse phenomenon, *which from beginning to end is about one full hour.*

Worth remembering also (contra the first statement by Brown, above) is that there is no tradition of a three-hour eclipse in the Synoptics; Mark and Matthew mention only a "darkness" (*skotos*) but it is Luke alone who specifies an eclipse as the cause of that darkness.

Another factor in eclipse observance is the distance covered by the circle of the moon's shadow as it traverses a path across the earth from west to east (or, less often, from southwest to northeast):

¹⁹ John F.A. Sawyer, "Why is a Solar Eclipse Mentioned in the Passion Narrative (Luke XXIII. 44-5)", *JTS* 23 (1972) 126.

What makes the spectacle so rare is that the sizes of the sun and the moon in the sky are almost identical, and as a result the conical shadow cast by the moon barely reaches the surface of the earth. The path of totality may be some 1,500 kilometers [about 900 miles] long, sweeping across as much as 140 degrees of longitude ...⁽²⁰⁾

For the eclipse of A.D. 29, the path of totality was from west to east across central Anatolia/Turkey (for that area, see Fig. 1), reaching the vicinity of Antioch-on-the Orontes in Syria somewhat later, perhaps 11:15 or 11:30 a.m.⁽²¹⁾ It would have been shortly after the noon hour before the sun once again was fully visible.

Three other solar eclipses of the first century A.D. are as worthy of our attention, those of 20 May A.D. 49, 30 April A.D. 59, and 10 March A.D. 80. Those of A.D. 49 and 80 were annular eclipses and therefore not as spectacular as their total counterparts, but *nevertheless would have been visible* throughout the Antioch region.

Before we discuss the tracks or paths of the annular eclipses across the eastern Mediterranean, it would be useful to illustrate what that term means. Schove describes annular eclipses occurring

... when the Moon is a little farther away from the Earth than usual; this happens because the moon's orbit

²⁰ Stephenson, "Historical Eclipses" 170.

²¹ See my Figure 2. The full arc of this eclipse runs from the southern tip of Norway southeastward across central Europe, then northern Turkey, then through the Persian Gulf and on to Central Asia. See H. Mucke & J. Meeus, *Canon der Sonnenfinsternisse: -20003 bis + 2526* (Wien, 1983) 739 and Theodor R. von Oppolzer, *Canon der Finsternisse* (Wien, 1887; reprint, with an English translation by Owen Gingerich, New York, 1962) Chart # 60.

Sawyer, "Solar Eclipse" 127 is incorrect in stating that "... this was the only total eclipse of the sun observable in the area during the first century A.D." My paper will demonstrate otherwise.

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round the Earth is slightly elliptical. The name comes from the Latin word annulus, a ring, for at place in the central belt, instead of the blackness of a total eclipse, a brilliant ring of light surrounds the darkened disc of the Moon. (Chronology, xi; xv)

The intensity of darkness can vary from that of a near-total solar eclipse, to hardly noticeable, depending on the relative size of the moon's disc as it crosses the sun. The annular solar eclipse of A.D. 49 is not recorded in any written source now known. Schove (*Chronology*, 11) describes its path as simply "over the Nile Delta, Western Syria, Northern Euphrates, Caucasus and Caspian."⁽²²⁾

That track is more clearly detailed in Figs. 1 & 2, which show that the city and territory of Antioch, where "the disciples were first called Christians" (*Acts* 11:26), were in whatever shadow was cast. The fact that this eclipse has gone unrecorded might indicate that it failed to attract any interest, but we cannot be certain:

Because the blinding photosphere is never fully covered by the moon, the chromosphere, corona and prominences [all features of the solar atmosphere] usually remain hidden from view. Instead, viewers see a strange celestial "doughnut" in place of the sun. Though they do not attract the wide following of total solar eclipses, annulars are still spectacular in their own right. (Eclipse!, p. 10)

The annular eclipse of 10 March A.D. 80 is likewise unrecorded (see Figs. 1 & 2). It would have occurred at or about the time most NT scholars believe *Luke/Acts* took their present form. Here is what Schove (*Chronology*, 19) has to say:

The track of annularity for starting at sunrise in NW Africa, traversing the Middle East, to a noon point in Central

²² For the track of annularity see also Mucke & Meeus, *Canon* 741 and Oppolzer, *Canon Chart* # 61.

Asia, and ending at sunset at Siberia. [More specifically the track of this eclipse] runs from Algeria via Libya, just north of the Nile Delta, Syria and Mesopotamia to the Caspian. The true path thus traversed the south-eastern parts of the Roman Empire during the morning, but we have encountered no ... record of this eclipse, which occurred during the short reign of Titus (A.D. 79-81).⁽²³⁾

The track of this eclipse once again included Syrian Antioch, the fourth time in fifty-one years that the city experienced this mysterious and terrifying phenomenon. The early March date may be the reason it went unrecorded. Clouds and/or rain would lessen the full, dramatic visual impact, but they would serve to increase the degree of darkness--which at Antioch would have occurred near noon.

The A.D. 29 eclipse was not mentioned by Pliny the Elder (who would have been a child when it occurred), or by any other *major* source of the first century. Cornelius Tacitus' *Annales* may well have included a note on the 29 eclipse; a huge gap in the text (almost all of Book V) occurs where events between spring, 29 and autumn, 31 were noted. Tacitus (c. 55 - c.117) was intensely, even superstitiously, interested in celestial or cosmic events.

The eclipse of 30 April A.D. 59 was seen and described by the Elder Pliny (*HN* 2.70), and was subsequently alluded to in Tacitus (*Annales* 14.12). Later historians "coordinated" that eclipse with the assassination of Agrippina, mother of Nero, toward the end of March A.D. 59. We will see below that this association of eclipses with notable deaths was a common literary feature in antiquity.

It was a total eclipse for areas of North Africa and portions of the Middle East (Figs. 1 & 2). Its path of totality intersected the paths of the 29 and 49 eclipses in one specific place, the city of Antioch-on-the-Orontes. Not only might the 30 April 59 eclipse have reminded whoever composed *Luke* 3.1 of the total eclipse at the

²³ For the track of this eclipse see Oppolzer/Gingerich, *Canon*, Chart #62; Mucke & Meeus, *Canon*, 743.

beginning of the ministries of John and Jesus, but it may well have served as a model (because of the season, i.e. just after Passover that year) for the "crucifixion eclipse" at *Luke 23:45*.⁽²⁴⁾

If the eclipse of A.D. 29 occurred too early in Pliny's life (he was born in A.D. 23) to leave an impression, it was recalled vividly by the Greek chronicler Phlegon. The region of Caria in southwestern Anatolia was home to Phlegon, perhaps born there or later resident there in the Greek city of Tralles.

During or just after the reign of Hadrian (117-138) Phlegon compiled his since-lost work *Olympiades*. That was a chronicle of important events in quadrennial "units," beginning with 776 B.C. (the traditional date for the first Olympic games) and continued through to his own era.

Of Phlegon's great work we have only fragments preserved by later writers. The unit of time in one Olympiad was computed from 1 July through 30 June for four successive years, and events noted were designated as having occurred in "Year X of the Y Olympiad." As labored as this may seem, it is a simple chronological system.

Phlegon's reference to the eclipse of 29 occurred in Book XIII (or possibly Book XIV) of his *Olympiades*, where he is quoted later in some detail as recording that

In year 4 of the 202nd Olympiad there was a great eclipse of the sun, never before experienced, and it became night in the sixth hour [noon] of the day, so that stars were seen in the sky.⁽²⁵⁾

²⁴ See Schove, *Chronology* 11-13 and my Figs 1 & 2. The full arc of this eclipse began in northwestern Columbia, then moved eastward across the central Atlantic, then across Morocco and Algeria and on to Cyprus, then through Syria, Iraq and Iran and into Afghanistan. See Oppolzer/Gingerich, *Canon Chart* # 61; Mucke & Meeus, *Canon* 741.

²⁵ The later sources (Origen; Eusebius/Jerome *inter alia*) which draw upon Phlegon's *Olympiades* are conveniently collected in Felix Jacoby, *Die Fragmente der Griechischen Historiker* (Leiden, 1962) Zweiter Teil B #257 Frag. 16 p. 1165. My translation is based on the Greek text of Ioannes

Note that Phlegon's description is of *a total solar eclipse*, not an *annular* (described above) or a *partial* eclipse during which a portion of the sun remains visible and no stars or planets are visible. That is clear from Phlegon's exact choice of words in the phrase *ἔκλειψις μεγίστη*, "a *great* (or a *major*) eclipse". Partial eclipses (the least spectacular category) are described by Schove, *Chronology* xv.

Phlegon apparently associated the year of the eclipse with an earthquake (the region not specified). That seismic event was then amplified by Eusebius into specific damage affecting the region of Bithynia and the city of Nicaea. Since both region and city are in northwestern Asia Minor (near Caria and Tralles, home to Phlegon), there may be some historical substance to Eusebius' report.

We know from other sources using historical chronologies based on Olympiads that such systems are accurate; we can check the dates in question against independent sources. Ironically, it is the date of the eclipse in question, November A.D. 29, that casts doubt upon Phlegon's credibility as an accurate chronicler of this event.⁽²⁶⁾

Philoponos, *De Opificio Mundi* (*On the Creator of the World*), which is reproduced by Jacoby. Philoponos wrote during the reign of Justinian. For the sake of completeness I have reproduced all the Phlegon excerpts given by Jacoby in an appendix to this article. One may profit from the commentary on these sources in Brown, *Death of the Messiah* 1041-42. Identifying Phlegon's eclipse with that of A.D. 29 began with Johannes Kepler, *Eclogae Chronicae* (1615) 126 (cited in Schove, *Chronology* 7).

²⁶. Samuels, *Greek and Roman Chronology*, devotes an entire section of his chapter on Greek Chronography to "Olympiad Reckoning" (see pp. 189-94), with examples of sources at p. 189 note 3; 190 note 4.

For a concise summary of what is known of Phlegon's life and his publications, see Wilhelm Christ, *Geschichte der Griechischen Literatur* (München, 1890) pp. 564-5. Among the known writings are *Περὶ Θαυμασίων* (*On Wonders*) and *Περὶ Μακροβίων* (*On Longevity*). He also produced a "travel-guide" to the city of Rome. Almost all that he wrote is lost. A table of Olympic years (coordinated with years on both the Roman [i.e. A.U.C.] and Gregorian calendars) is set out in E.J. Bickerman, *Chronology of the Ancient World*, second, revised edition (London & New York, Thames & Hudson, 1980) 115-24. Olympiad 202 (A.D. 29/30-32/33) appears on p. 120.

Phlegon's *date* for the eclipse is problematical because "year 4 of the 202nd Olympiad" corresponds on our calendar to 1 July A.D. 32 through 30 June A.D. 33. Such a computation gives false comfort to those who favor the 3 April A.D. 33 date for the crucifixion of Jesus of Nazareth⁽²⁷⁾. On the basis that Phlegon's date of Olympiad 202, Year 4 for that eclipse is to be trusted, Eusebius (*Chronicon*) and related sources selected *anno Tiberii XVIII* (A.D. 32/33) as the year in which the crucifixion of Jesus occurred.

This is a circular (and, as we'll see, incorrect) argument without any independent evidence to support it. It has been noted (Samuels, *Greek and Roman Chronology*, 190) that Eusebius equated, at *Praeparatio Evangelicum* 10.9, the "fifteenth year of Tiberius" with "year 4 of the 201st Olympiad" (i.e. 1 July A.D. 28 - 30 June A.D. 29). In that instance Eusebius was more accurate, though only inadvertently so, by counting backward four years from the date he had established for the crucifixion, based on Phlegon's chronology.

But there was *no solar eclipse* in A.D. 32/33 or any other year proximate in time except that of A.D. 29. Either Phlegon erred, or he "invented" an eclipse that never occurred, or something else is amiss. With those possibilities in mind, we may try to make sense of Phlegon's dating. The *Appendix* to this article will be essential for the discussion that follows, and to that the interested reader should turn.

It is possible that, through the process of copying by hand, the text of Phlegon has become corrupt, common in texts containing numerals or using abbreviations to denote a number in written form. Perhaps the designation for the Olympiad was miscopied and Phlegon had written "in year 4 of the 201st Olympiad." That would make the year in question 1 July A.D. 28 through 30 June A.D. 29.

But to read it that way creates two enormous problems. One is that in the text that we have, *entire words*--not numerals--are used

²⁷ See (e.g.) Paul L. Maier, "The Date of the Nativity and the Chronology of Jesus' Life" in Vardaman, *Chronos*, 126. Origen, in *Contra Celsum* 2.33, observed that Phlegon reported a solar eclipse that occurred during the reign of Tiberius (Origen doesn't specify a year); on this see Brown, *Death of the Messiah* 1039-1040.

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to designate which Olympiad is meant. Any change would mean a major emendation of the Greek text, always a desperate option.

The second difficulty is that a year ending on 30 June A.D. 29 couldn't incorporate the eclipse of 24 November 29. Movement of the Olympiad date (i.e. quadrennial unit) forward in time (to the 203rd Olympiad or later) would be even less credible.⁽²⁸⁾

A much simpler solution is at hand if we accept "the 202nd Olympiad" as correct, and ask instead which *year* of the Olympic quadrennial cycle Phlegon intended. Philoponos' excerpt contains a clue: the *numerical* designation *delta* (Δ), i.e. "4." The smallest of emendations will produce the letter *alpha* (A), which reduces the number intended to "1".

If Phlegon (or a source he used) wrote that the great eclipse took place "in year 1 of the 202nd Olympiad" (1 July A.D. 29 to 30 June A.D. 30), that is accurate according to modern calculations. Phlegon's date for that eclipse is then in agreement with ours.

In the *apparatus* to the *FHG* texts reproduced in the Appendix to this article, Jacoby suggests that the *delta* in the Philoponos excerpt might be an abbreviation for the word *deuteros*, i.e. the "second" year of the 202nd Olympiad (= 1 July 30 to 30 June 31).

I am not inclined to agree, partly because the use of such an abbreviation is uncommon, partly because it introduces a *numerical expression* where only a number is called for, but most importantly because the date clearly obviates any identification with the A.D. 29 eclipse.

Stephenson, *Historical Eclipses* 360 nearly found the solution proposed here. He recognized that A.D. 29/30 fell within

²⁸ Schove (*Chronology* 7) notes one attempt to emend "the 202nd Olympiad" to "the 212th Olympiad" and equate it with the solar eclipse of 20 March A.D. 71 (mentioned by Pliny, *NH* 2.57). Even if the emendation is accepted, that eclipse was *annular* and not total, and its path of totality was northward from the center of Africa, through Libya to Greece and on through the Balkans to the Danube (Schove, *Chronology* 16). On both counts (geography and category) the A.D. 71 solar eclipse doesn't relate to Phlegon's description.

"the *first* year of the 202nd Olympiad." What he didn't realize was that the slightly emended (*alpha* for *delta*) text of Phlegon would produce an exact agreement of date.

Neither from the fragments of the *Olympiades* that survive, nor from anything known about Phlegon, can we ascertain his source with any certainty. One possibility is Thallus, a chronicler whose dates are conjectural but who has been identified with a certain "Thallus the Samaritan" known to Josephus (*Ant.* 18.6.4).

Josephus places him in the mid-first century A.D. In the early third century, Julius Africanus refers to a Thallus in a passage of his *Chronicon*. That reference, which was excerpted by the Byzantine scholar George Syncellus, is to the darkness at the crucifixion of Jesus:

Thallus, in Book III of his Historia, calls this darkness an eclipse of the sun, which seems to me incorrect.(29)

Long ago Maurice Goguel, acknowledging the research of several classical and biblical scholars (i.e. Müller, Schürer, Christ and Eisler), argued persuasively for the identification of Thallus the minor historian with Josephus' first-century Samaritan, a freedman of Tiberius "... who lent a large sum of money to Agrippa before the latter became King of Judaea [in A.D. 41]."(30)

²⁹. For the full text in which that passage occurs, see Jacoby, *FHG* II B #256 Frag 1 (p. 1157), which is reproduced (with several other references to Thallus) in my Appendix. Julius Africanus' skepticism is based on his knowledge that an eclipse of the sun at Passover is impossible, an argument that goes back at least to Origen (on that see Brown, *Death of the Messiah*, 1040 and note # 17 and the sources cited there).

³⁰. For the date of Thallus and the importance of his very early reference to an eclipse "in the fifteenth year of Tiberius," see Maurice Goguel, *Jesus and the Origins of Christianity, Volume I: Prolegomena to the Life of Jesus* (Harper, 1960 [based on the 1933 translation of the French original]) 91-93. The quote is at p. 93.

Julius Africanus was concerned that the *miraculous* quality of the crucifixion darkness had been explained away by a pagan. What the passage reveals is that Thallus knew of a solar eclipse which occurred about the time of Jesus' death, and that he (Thallus) was an eyewitness to that celestial event.

Goguel's contribution was to demonstrate that the testimony of Thallus is especially significant for the history of Christianity prior to the Gospels. If Thallus offered a natural explanation for a theological phenomenon, then he must have been aware of an early Christian tradition of some mysterious darkness associated with the crucifixion. For Thallus, as for Luke, the darkness was an eclipse.

If Thallus did produce his *Historia* c. A.D. 50 with a passage relevant to the darkness at the death of Jesus, there is as yet no earlier non-Christian testimony to such a tradition. If Thallus is not Phlegon's source for the eclipse of A.D. 29, he is at the very least an independent witness to that event.

Is it possible that Luke's chronology is also based on the date of the A.D. 29 eclipse? Early church tradition holds that Luke, the travel-companion of Paul and purported author of *Acts* as well as the Gospel that bears his name, was a native of Syria or Asia Minor.

Two of the famous "we"-passages of *Acts* have been adduced as evidence. In one it is Antioch-on-the-Orontes as the setting, and in the other it is Troas in Asia Minor. This is not much on which to argue for the provenance of either *Luke* or *Acts*, but regardless of where "Luke" lived or traveled it "... is not unreasonable to suggest that the author of *Luke* xxiii. 44-ff. saw the eclipse of A.D. 29."³¹)

This historical eclipse, and then its counterparts of 20, 30 and 51 years later, were visible throughout the eastern region of the

³¹. Sawyer, "Eclipse" 127. In Taylor Caldwell's novel *Dear and Glorious Physician* (New York, Doubleday, 1959) 420 Luke becomes an eyewitness to a strange darkness (at Athens). There is a long and garbled footnote reference to Phlegon of Tralles on that page. See also Jim Bishop, *The Day Christ Died* (New York, Harper & Brothers, 1957) 299 and note (from which Caldwell seems to have borrowed the reference to Phlegon). Neither writer seems aware of the historical eclipse of A.D. 29 and the fact that Phlegon's Olympiad date for it did not agree.

Mediterranean. Those of 29 and 59--total eclipses at or near noon on the day they occurred--lent themselves to becoming Luke's "natural" models for the "super-natural" eclipse with which he gave deep theological import to the mid-day crucifixion narrative.

In all three synoptic Gospels the execution of Jesus occurs simultaneously with a "darkness that covered the earth". Only in Luke's account is that darkness "explained" as an eclipse of the sun precisely at a time (at or near Passover) that a solar eclipse is impossible. But that does not make the narrative of Luke unique in terms of the common literary conventions of the time.

The association of eclipses (solar or lunar) and comets with the birth or death of notable persons goes back to remotest times and was never more popular than the first century A.D. Schove (32) notes a number of cases where the actual date of a solar or lunar eclipse has been moved forward or backward a few months or even a few *years* to make it coincide with the death-date of an important historical figure.(33)

Whoever wrote *Luke* 3.1 was a witness to the solar eclipse of 29, or if not at least believed that this eclipse occurred during the year in which John the Baptist and Jesus began the public phase of their lives--which in both cases led to their executions. It is more likely

32. Schove, *Chronology* 5-6 (the solar eclipse of 15 February A.D. 17 backdated to the death of Augustus in A.D. 14); *Chronology* 11- 12 (solar eclipse of 30 April A.D. 59 backdated to coincide with the death of Agrippina in late March of that year; *Chronology* 20 (the solar eclipse of 21 March A.D. 98 backdated to coincide with the death of Nerva in late January A.D. 98).

33. It is therefore impossible to accept the argument that Luke's phrase *τοῦ ἡλίου ἐκλιπόντος* should be translated as a "failure of the sun" (i.e. just a darkness) and not taken as a reference to an eclipse. Such is the theme of Frank J. Matera, "The Death of Jesus According to Luke: A Question of Sources", *CBQ* 47 (1985) 470; 472. Matera has convinced himself that Luke's theology alone, and not his memory of actual events, produced the phrase as a parallel to *Joel* 2:28-33, and therefore that "... one need not have recourse to the eclipse interpretation" (473). Matera also seems unaware of the solar eclipses of A.D. 49, 59 and 80.

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that Luke's choice of "the fifteenth year of Tiberius" as the specific chronological marker for that event was based on a correlation with the eclipse, and not the reverse.

If that is the case, we may by inclusive reckoning assume that the year in question must fall either between 25 November 28 and 24 November 29, or between 24 November 29 and 23 November 30. The term "inclusive reckoning" means that the day the eclipse occurred must be either the outer or inner limit of the year involved. Precisely *how* Luke learned of the correlation between the 29 eclipse and the commencement of the careers of John and Jesus remains unknown.

In Luke's calculations the eclipse year included some part of, or all of, "the fifteenth year of Tiberius." If we then correlate Phlegon's date of "year 1 of the 202nd Olympiad," Luke's "fifteenth year of Tiberius," and the astronomically exact date (year, month, day, hour) of the 24 November 29 eclipse, we achieve what I term a "chronological triangulation."

However the calendar year is calculated, some portions of both the year 28 and the year 29 are indicated. If John the Baptist and Jesus appeared as public figures in the late fall (Nov/Dec) of 28, or the early winter (Jan/Feb) of 29, the chronology of *Luke* 3:1-2 demands that it coincide with some portion of Tiberius' fifteenth year. That would still permit a reasonable duration for a "shorter" ministry of Jesus, according to the earlier of the two dates most probable for the crucifixion: 7 April A.D. 30.

A ministry lasting from very late A.D 28 through early April of A.D. 30 (*a maximum* of eighteen months, including two Passovers) has an abbreviated aspect attractive to some scholars, especially those favoring the schematic scenario in the *Gospel of Mark*:

[I]t is one thing to say that Mark's presentation of the ministry can be fitted into one year and does not demand more than one year; that is true. It is quite another thing to say that Mark's presentation demands that Jesus' ministry last only one year and therefore excludes a multiyear ministry; that is not true. Obviously, it is still quite another

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*thing to move from Mark's literary presentation to a decision
about historicity.*(34)

But not all are convinced, especially those who favor the more extended period of Jesus' ministry implicit in the *Gospel of John*. If that "longer" ministry is indeed correct, its onset could have occurred as late as the autumn (Oct/Nov) of A.D. 29. Whatever the exact moment, Luke's chronology *demand*s that the beginning of the ministries of John and of Jesus coincide with Tiberius' fifteenth regnal year--however Luke calculated "the fifteenth year."

Jesus' ministry would then last *a minimum* of forty-four months (including four or even five Passovers), concluding with the later of the two dates most probable for the crucifixion: Friday 3 April A.D. 33. Supporters of these alternative chronological parameters for the ministry turn to *John* 20:30 and its insistence that Jesus said and did far more than that Gospel relates:

Even were there the possibility of synchronization [with the three Synoptic accounts], however, a theory of a two-or three-year ministry as a framework for describing Jesus' activities ignores the problem created by the purpose for which the Fourth Gospel was written ... There is no reason why one cannot postulate a four or five-year ministry.(35)

It is necessary to choose between a ministry of "shorter" or "longer" duration, based on the Passovers of either A.D. 30 or 33 only if those two years, and no other, satisfy the requirement that the

³⁴ Meier, *A Marginal Jew* I 414 note 15. I am reminded of Darley's comment in the first volume of *The Alexandria Quartet*: "What I most need to do is to record experiences, not in the order in which they took place--for that is history--but in the order in which they first became significant for me." Lawrence Durrell, *Justine* (Pocket Books, 1961) 102.

³⁵ R.E. Brown, *The Gospel According to John* Volume I (New York, Doubleday & Co., 1966), Introduction p. L.

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14th of Nisan (the "Day of Preparation" for Passover, the onset of the full moon) in the year of the crucifixion fell on a Friday.

Goguel⁽³⁶⁾ accepted that Jesus died on the eve of a Passover, but was unconvinced that the day of Jesus' death was also the eve of a sabbath, or that the Christian tradition of the resurrection occurring on a Sunday was beyond doubt. He was extremely skeptical that the complexities in reckoning the Jewish lunar calendar could ever establish with certainty whether the 14th fell on a Friday in *any* year between A.D. 26-36.

Goguel therefore abandoned the restrictions of choice between A.D. 30 and 33, a decision perhaps worthy of further consideration. Nevertheless for most biblical scholars and ancient historians that vexed question is still unanswered, and likely to remain unresolved until some as yet unknown source of information comes to light. But lack of new data has never been a deterrent to scholarly debate.

This discussion will not resolve that issue. But if one *must* make a choice between 7 April A.D. 30 and 3 April A.D. 33 for the crucifixion, the earlier of the two (in my opinion) is more likely to be correct. I have argued that Luke's datum of "the fifteenth year of Tiberius" isn't a guess or an approximation. It is a date fixed by that rare and awesome spectacle, a total solar eclipse. Those of the 24th November A.D. 29, 20th May A.D. 49, 30th April A.D. 59 and 10th March A.D. 80 may have been witnessed by Luke or his source. That of 29 may have been seen and recorded by the obscure historian Thallus, and by the author of a source (perhaps Thallus' *Historia*, perhaps some other account) utilized by the second-century A.D. chronicler Phlegon of Tralles.

All of these solar eclipses were visible to residents of the eastern Mediterranean. The full, dramatic impact of the two total solar eclipses cannot be known for certain because of the weather on each of those days. Clouds or rain would lessen visual impact. But even if the progression of the moon's disc across the disc of the sun

³⁶ *Jesus and the Origins of Christianity* 226-228.

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could not be seen in detail, the intensity of the darkness would not be diminished.

Militating against cloudy weather for the eclipse of 29 is the excerpted description (see above) by Phlegon: not only does he note that "it became night in the sixth hour [12 noon] of the day", but he adds the significant detail "*that stars were seen in the sky.*" That can only mean that the eclipse occurred on a cloudless day.

There is no reason to think that Phlegon or his source (or for that matter, his excerptor) embroidered that account. There is also no reason to doubt the details of Pliny the Elder's account of the eclipse of A.D. 59, witnessed by him at Rome--and by the military commander Corbulo hundreds of miles away in Armenia.

Phlegon's report attests that near noon on 24 November A.D. 29 a total solar eclipse occurred during optimal weather conditions: a clear midday sky was transformed (briefly) into a clear twilight sky. The path of the darkest shadow of that eclipse traversed the length of Asia Minor and brought a premature nightfall to Antioch.

Perhaps it wouldn't be overly conjectural to suggest that one or more of the seven men who are mentioned at *Luke* 3:1-2 (including Tiberius himself, then in self-imposed "retirement" on Capri), were witness to what was a remarkable and precisely dateable event. It is also possible that the eclipse was seen by John the Baptist and Jesus of Nazareth. The author/editor of *Luke* 3:1-2 may have been another eyewitness.⁽³⁷⁾

Three more time in the next fifty-one years, in the city of Syrian Antioch, the same phenomenon was repeated: twice (49 and

³⁷ Luke's "superimposing" a solar eclipse at the crucifixion is perhaps best understood in its modern manifestation. During the filming (in Italy) of portions of the Hollywood epic "Barabbas," director Richard Fleischer learned that a total solar eclipse, with its path of totality across southern Europe, would occur near noon on 15 February 1961. He immediately arranged the crucifixion scene to include it. The finished film preserves that spectacular eclipse from just before the few minutes of its totality until just after, which included a pronounced "coronal" effect surrounding the disk of the sun. The full, dramatic impact comes through only on a large screen. "Barabbas" was released late in 1961.

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80) as an annular (ringed) solar eclipse, and again as another total solar eclipse in A.D. 59. All of them, I suggest, attracted and/or reinforced the cosmic awareness/imagination of the author of *Luke* 23:44-45. The narrative we now have points in that direction.

It remains to assess the precision of *Luke* 3:1 in the light of other chronological references in *Luke-Acts*. It is difficult indeed to defend the historical accuracy of the author of *Luke* 2:1-2, who miscalculated by a decade the "census of Quirinius", or the author of *Acts* 5:36 who refers to the bandit-magician Theudas as a figure of the past rather than of the future.

But even if these two references were not anachronistic, they would be less precise than the specific regnal year of Tiberius in *Luke* 3:1-2. Luke does provide us two other dates (via comparative chronology) for important events in the missionary career of Paul. One is Paul's hearing before the proconsul Gallio (*Acts* 18:12-17) at Corinth (fixed by epigraphy at A.D. 51/52); the other is Paul's hearing before the procurator Festus (*Acts* 25:6-12) at Caesarea (exact year uncertain, but probably A.D. 59/60).

But those two specific dates are incidental; neither should be equated with the clearly-delineated synchronology at *Luke* 3:1 where

Luke goes out of his way to name an exact year, which is not his usual method in chronological references. Hence it is not amiss to ask whether his statements can make our general knowledge of the time frame of Jesus' ministry more precise.(38)

We mustn't lose sight of the fact that the *Gospel of Luke* and the *Acts of the Apostles* are composite documents.(39) Though they

³⁸ Meier, *A Marginal Jew* I 412 note 9.

³⁹ The complexity of the origin and development of the gospels in the first century alone, to say nothing of the transmission process of those documents in the centuries thereafter, may be illustrated in detail by the example of Mark. See Marion L. Soards' essay "The Question of a Premarkan Passion Narrative," Appendix IX in Brown, *Death of the Messiah* 1492-1524. This should be required reading for every ancient historian and classical scholar

may have originated within the same community, and though they may have been shaped in part by the same redactor, each is manifestly and demonstrably a literary tapestry: the fusion of oral tradition, written sources, and an editorial concern that human history can be understood best within a framework of divine providence.

There is no parallel to the absolute chronology of *Luke* 3:1 within Mark or Matthew, but there is just such a specific datum in the *Gospel of John*. During Jesus' first recorded encounter with the Jewish religious authorities in Jerusalem (*John* 2:13-21), he uses the metaphor of destroying and rebuilding "the temple" within three days, provoking the sarcastic response: "This temple has stood for forty-six years, and you could reconstruct it in three days?"⁽⁴⁰⁾

Paul L. Maier⁽⁴¹⁾ argues persuasively that this mocking retort refers to a construction completed at a fixed time in the past, and not to an ongoing project. Given 18/17 B.C. as the completion-date of the sanctuary, as recorded by Josephus (*Antiquities* 15.420-1), the "forty-six years" of *John* 2:20 bring us to the Passover of A.D. 29 or 30.

Why didn't the author of *John* 2.20 give an *approximate* number of years, such as fifty? Unless we believe his source derived from ear-witness testimony, there must be some reason for the precision of the number given. Once again the solar eclipse of 24 November 29 may be the solution: the forty-sixth year since the

coming to grips with the New Testament. Brown's *Introduction to the New Testament* (N.Y., Doubleday, 1997), while not intended for a scholarly audience, also gives a concise account of this gradual and complicated process. On *Luke*, see INT 262-67; on *Acts* see INT 316-319.

⁴⁰ How to understand the aorist *οικοδομηθη* has produced as many semantic arguments as any part of speech in the NT. The Vulgate's *aedificatum est* doesn't help us. Even if we had the Aramaic behind the Greek, we still might not be certain how to translate it.

⁴¹ P. Maier, "Sejanus, Pilate and the Date of the Crucifixion", *Church History* 37 (1968) 4-5; for the same argument in abbreviated form see his "The Date of the Nativity and the Chronology of Jesus' Life" (in Vardaman, *Chronos*, 123).

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temple *naos* was finished coincides exactly with the year of the great eclipse.

If that is so, then we may be more specific about the date of *John* 2:20. As John Meier notes

...[M]ost critics hold that John or his tradition has purposely moved the [temple] cleansing back to the beginning of the ministry for theological or literary purposes (e.g., to place the whole ministry under the shadow of Jesus' death and resurrection, or to make room for the raising of Lazarus as the immediate cause of the plot to execute Jesus).(42)

The logic of "cause and effect" regarding Jesus' execution by the Roman authorities argues strongly for just that conclusion: a disturbance in the temple precinct in the days just before Passover would be troublesome to both the religious *and* civil powers. Jesus' arrest followed by "trials" resulting in his execution in the final hours before the feast are the order of events in all four gospels. Without this confrontation centering on the temple, the subsequent events described in the passion narratives make no sense.

Another such transposition, this one regarding the baptism of Jesus, has been identified recently by Joel Marcus.⁽⁴³⁾ He contends that *Luke* 10:18 ("I saw Satan falling like lightning from heaven"), which is attributed to Jesus, is a "stray" *logion* that fits best as an apocalyptic vision connected to Jesus' baptism. It was displaced because, Marcus reasons, within that developing Christian tradition "... the fall of Satan gives way to the descent of the Spirit ..." ("Vision" 521) as the main theological thrust of the baptism-event.

⁴² Meier, *A Marginal Jew* I 381 and note 39. That is also the view of Brown, *Gospel of John* II 118: "[T]he story of Lazarus, which is probably a late addition to John's sequence, has become in John the chief motive for Jesus' arrest, displacing all the other factors that contributed to the tragedy."

⁴³ "Jesus' Baptismal Vision", *New Testament Studies* 41 (1995) 512-21.

For John the death and resuscitation of Lazarus (*John* 11-12) displace the cleansing of the Temple as the fulcrum upon which turn events of the Passion, i.e. the death and revival of a close friend foreshadows the death and resurrection of Jesus. The confrontation between Jesus and the Jerusalem authorities became displaced by an emphasis on the Jews' hostile reaction to Jesus as a miracle-worker and popular charismatic.

The Passover of *John* 2:20 then, is the last--*not* the first--Passover of Jesus' ministry. If the calculation proposed above is correct, i.e. that John linked the forty-sixth year since Herod's temple (the *ναός* or sanctuary portion) "was built" (*οικοδομηθήν*) to Jesus' sharply antagonistic encounter with Jerusalem's priesthood, the choice of "46 years" (and not, "45" or "47") coincides exactly with the A.D. 29 solar eclipse, and with the date of *Luke* 3:1.⁽⁴⁴⁾

The Jewish year was reckoned from Nisan to Nisan, i.e. from the onset of one spring equinox through to the next, so that a year extending from spring 29 to spring 30 would include the eclipse of 24 November 29 within its significant events.

Johannine chronology follows the Jewish calendar, especially for those events occurring within Jerusalem. On that basis, and by using the evidence of *John* 2:20 in conjunction with *Luke* 3:1--with the dates of both of those events relative to the A.D. 29 eclipse--the death of Jesus may be fixed on the eve of Passover in A.D. 30, rather than on the eve of the corresponding Passover in A.D. 33.

That choice of date can never be *proved* correct until we have new evidence from outside the New Testament. But in spite of that, I hope I have established, through the discussion above, that the solar eclipse of 24 November A.D. 29 is the "Archimidean point" of NT chronology so much a desideratum to Bishop Neill and others. It is not meant to be a fulcrum from which we can "shake the world."

⁴⁴ More circumspect is Meier, *A Marginal Jew*, 382: "Granted all the question marks that a study of *John* 2:20 unearths, my opinion is that we cannot use [that event] to fix an exact date for the first Passover of Jesus' ministry. At best, we can say that *John* 2:20 fits in well with a ministry of Jesus that occurred somewhere around the years A.D. 27-30."

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Postscript

It remains to ask: if there was no solar eclipse during Jesus' execution, is there any explanation for the Christian tradition of "darkness at noon" other than the dramatic license of the author of *Mark*? As I noted above, Thallus the Samaritan (like Luke) would not accept it as a "supernatural" occurrence. Natural phenomena of all kinds have been suggested, but none of them has quite the dramatic precision as that which Maurice Goguel shared in his discussion of that very topic seventy years ago:

My former pupil, André Parrot, has kindly sent me the following note: "On Friday, the fifteenth of April, 1927, [Western Christian] Good-Friday, we observed at Jerusalem an atmospherical phenomenon which illustrated for us the mention of the darkness on the day of the Crucifixion. The sky, which since the preceding Saturday had been blue and clear ... suddenly became covered with heavy clouds, after a night which had been perfectly clear, on the morning of the fifteenth (Good Friday) about ten o'clock. Without becoming actual 'darkness' the clouds, which remained [almost] motionless, spread a kind of curtain which lasted so long that [at the time] we might almost say that it had hastened the sunset and close of the day. The day was very hot; in fact, it was absolutely oppressive. With only a slight modification the sky remained [obscured] throughout Saturday and did not clear until about eleven o'clock at night. The next morning (Easter Sunday) the sun rose in a cloudless sky. These natural manifestations which so unexpectedly formed such a symbolic setting for the events of the Christian year, have been noted very objectively. The cause is easy to see. It was due to the action of the east wind (khamsin), which can darken the whole atmosphere and cause literally a kind of 'darkness' compared with the [otherwise] dazzling light of an Eastern sky. (Jesus, II 542 note 2)

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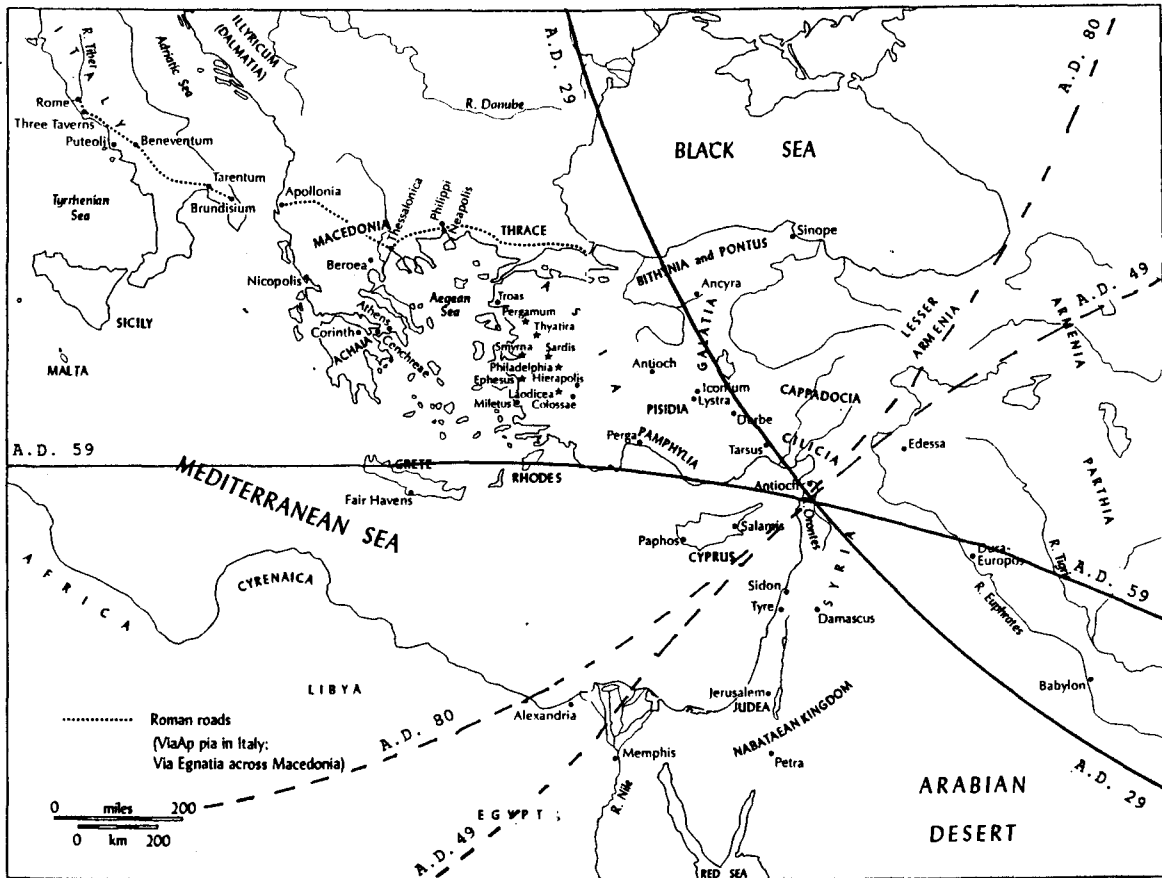


Figure 1: Map of the Eastern Mediterranean showing the approximate tracks of the four eclipses mentioned in this article. Map adapted (with permission) from Raymond E. Brown, An Introduction to the New Testament (New York, Doubleday, 1997).

Eastern Mediterranean Solar Eclipses of the First Century A.D.

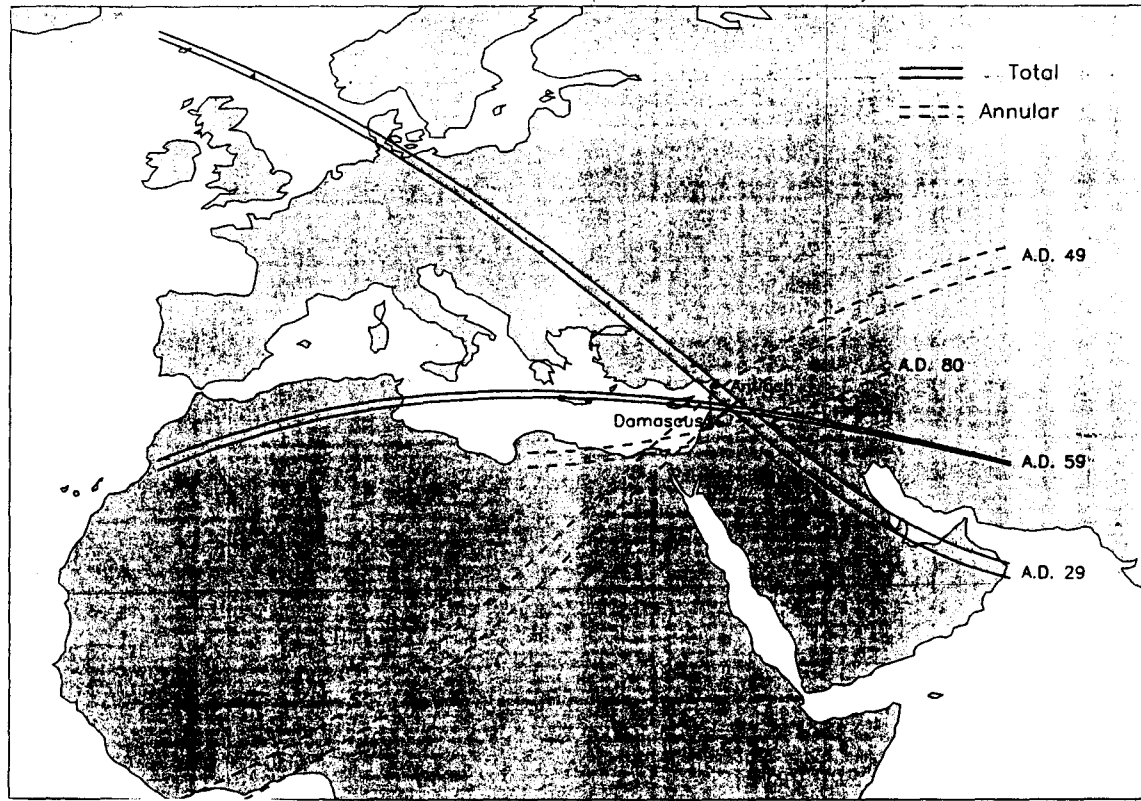


Figure 2: Computer-generated map of the Eastern Mediterranean showing actual paths of the four solar eclipses noted in my Fig 1. Data coordinates for this map supplied by Prof. F. Richard Stephenson, University of Durham, UK Map created by Dr. Zaven Arzoumanian and Dr. Jeffrey E. Moersch, Cornell University, USA.

Phlegon of Tralles and Thallus of Samaria

Testimonia Excerpted from

Felix Jacoby, *Die Fragmente der Griechischen Historiker* (Leiden, E.J. Brill, 1962) Zweiter Teil B, Nr. 106-261 Pt. J.

257. PHLEGON V. TRALLES F 18-18 (ΟΛΥΜΠΙΑΕΣ) 1166

II

- 16 (14-15) a) EUSEB. HIER. ol. 202; 29/32* (SYNKELL. 614, 12; MALAL. 240, 17; CHRON. PASCH. 412, 7; 417, 9): *Iesus Christus secundum prophetias quae de eo fuerant praelocutae ad passionem venit anno Tiberii, XVIII, quo tempore etiam in aliis ethnicorum commentariis (256 F 1) haec ad verbum scripta reperimus 'solis facta defectio, Bithynia terras motu concussa, et in urbe Nicaea aedes plurimae corruerunt', quae omnia his congruunt quae in passione Salvatoris acciderant. scribit vero super his et Flego, qui olympiadarum egregius supputator est, in XIII libro ita dicens: 'quarto autem anno CCII olympiadis (32/33) magna et excellens inter omnes quae ante eam acciderant defectio solis facta; dies hora sexta ita in tenebrosam noctem versus. ut stellae in caelo visae sint terraeque motus in Bithynia Nicaea[n] urbis multas aedes subverterit.'* haec supra dictus vir.
- b) AFRIKAN-SYKELL. 610, 12: (Thallos 256 F 1) *Φλέγων Ιστορει επί Τιβερίου Καίσαρος ἐν πανσελήνῳ ἔκλειψεν ἥλιου γηγόνοναι τελείαν ἀπὸ ὥρας ἕκτης μέχρις ἐνάτης, ὄηλον ὡς ταύτην.*
- c) PHILOPON. De opif. mund. II 21 p. 99, 6 Reichardt: *τούτου δὲ τοῦ σκότους καὶ Φλέγων ἐν ταῖς Ὀλυμπιάδων ἐμνήσθη. λέγει γὰρ ὅτι τῷ δευτέρῳ ἔτει τῆς διακοσιοστῆς δευτέρας ὀλυμπιάδος ἐγένετο ἥλιου ἔκλειψις μεγίστη τῶν οὐκ ἐγνωσμένων πρότερον, καὶ νῦν ὥραι ἕκτη τῆς ἡμέρας ἐγένετο, ὥστε καὶ ἀστέρας ἐν οὐρανῷ φανῆναι. οὗ δὲ τῆς ἐν τῷ σταυρῷ τοῦ διαπύτου Χριστοῦ γενομένης τοῦ ἡλλου ἔκλειψως καὶ οὐχ ἑτέρας ἐμνήσθη καὶ Φλέγων, πρῶτον μὲν ἐκ τοῦ λέγειν μὴ ἐγνώσθαι τὴν τοιαύτην ἔκλειψιν τοῖς πρότερον χρόνοις ἐστὶ ὄηλον καὶ ἀπ' αὐτῆς δὲ τῆς περὶ Τιβερίου Καίσαρος ἱστορίας δεικνύται. βασιλεύειν μὲν γὰρ αὐτὸν φησὶν ὁ Φλέγων τῷ δευτέρῳ ἔτει τῆς ἑκατοστῆς ἐνετηριοστῆς (δγδδῆς) ὀλυμπιάδος, τὴν δὲ ἔκλειψιν γηγόνοναι ἐν τῷ τετάρτῳ ἔτει τῆς διακοσιοστῆς δευτέρας ὀλυμπιάδος*
- d) ORIGEN. c. Cels. II 33 (II 59): *περὶ δὲ τῆς ἐπὶ Τιβερίου Καίσαρος ἔκλειψως, οὗ βασιλεύοντος καὶ ὁ Ἰησοῦς οὐκ ἐκείνην ἔκλειψεν, καὶ περὶ τῶν μεγάλων τότε γενομένων σεισμῶν τῆς γῆς ἀνεγράφη καὶ Φλέγων ἐν τῷ τρισκαιδεκάτῳ ἢ τῷ τεσσαρεσκαδεκάτῳ ὀλμῳ ἐν Χρονικῶν.*
- e) — II 14: *Φλέγων μὲντοι ἐν τρισκαιδεκάτῳ ἢ τεσσαρεσκαδεκάτῳ ὀλμῳ τῶν Χρονικῶν καὶ τὴν περὶ τινῶν μελλόντων πρόγνῳσιν ἔδωκε τῷ Χριστῷ, συγχυθεὶς ἐν τοῖς περὶ Πέτρον ὡς περὶ τοῦ Ἰησοῦ, καὶ ἑμαρτύρησεν ὅτι κατὰ τὰ εἰρημένα ὑπ' αὐτοῦ τὰ λεγόμενα ἀπήνησε.*

2 ol. 202 Hier B 202, 3 Hier 202, 4 Arm 8 Phlegon der über die olympiaden als solche an und für sich im dreizehnten erstert Olm Φλέγων ὁ τῆς ὀλυμπιάδος Synk Φλέγων ὁ Ἀθηναῖος Mal 9 quarto: τῷ ὀκτωκαιδεκάτῳ ἔτει τῆς βασιλείας Τιβερίου Καίσαρος Mal 10 CCII: der zweihundert und dritten Arm 18 Nicaeas Synk Chron Pasch Nikaia Arm 18 ὄηλον Goar ὄηλον Synk 18 ὁ Nauck δευτέρῳ Phil

2 AFRICAN.-EUSEB. PE X 10 p. 489 A: οἱ τε τὰ Σύρια Κόστωρ καὶ Θάλλος
(a. F 5).

3 TERTULLIAN. Apol. 19, 5—6: *reueranda antiquissimarum etiam gentium
archiua, Aegyptiorum Chaldaeorum Phoenicum; advocandi municipes eorum,
5 per quos notitia subministrata est, aliqui Manethon Aegyptius (III) et Berousus
Chaldaeus (III), sed et Hieromus Phoenix Tyri rex (III); sectatores quoque
ipsorum Mendesium Ptolemaeus (III) et Menander Ephesius (III) et Demetrius
Phalereus (228 F 52) et rex Iuba (III) et Apion (III) et Thallus et qui istos aut
probat aut revincit Iudaeus Iosephus*

10

F

ΙΣΤΟΡΙΑΙ $\overline{A-G}$. \overline{F}

1 I (8) AFRICAN.-SYNKELL. p. 609, 21 Bonn.: καθ' ὅλου τοῦ κόσμου
σκότος ἐπέγητο φοβερώτατον, σεισμῶι τε αἱ πέτραι διερρήγγοντο καὶ τὰ πολλὰ
15 Ἰουδαίας καὶ τῆς λοιπῆς γῆς κατερρίφθη. τοῦτο τὸ σκότος ἐκλείψιν τοῦ ἡλίου
θάλλος ἀποκαλεῖ ἐν τρίτῃ τῶν Ἱστοριῶν· ὡς ἐμοὶ δοκεῖ, ἀλόγως. Ἐβραῖοι
γὰρ ἄγνοοι τὸ πᾶσα κατὰ σελήνην ἰδ., πρὸ δὲ μιᾶς τοῦ πᾶσα τὰ περὶ τὸν Σωτήρα
συμβαίνει. ἐκλείψις δὲ ἡλίου σελήνης ὑπελθούσης τὸν ἡλίον γίνεται· ἀδόνατον δὲ
ἐν ἄλλοι χρόνωι, πλὴν ἐν τῷ μεταξὺ μιᾶς καὶ τῆς πρὸ αὐτῆς κατὰ τὴν σφόδρον
20 αὐτὴν ἀποθῆναι. πῶς οὖν ἐκλείψις νομισθεῖται κατὰ διήμερον σχεδὸν διαρκούσης
τῆς σελήνης ἡλίωι; ἔστω δὴ, συναρπαζέτω τοὺς πολλοὺς τὸ γεγενημένον καὶ τὸ
κοσμικὸν τέρας ἡλίου ἐκλείψις ὑπονοεῖσθω ἐν τῇ κατὰ τὴν ὄψιν. Φλέγων (257 F 16)
ιστορεῖ ἐπὶ Τιβερίου Καίσαρος ἐν πανσελήνωι ἐκλείψιν ἡλίου γεγονέναι . . . τίς δ'
ἢ κοινωνία σεισμῶι καὶ ἐκλείψει, πέτραις ὀρηγνόμεναις καὶ ἀναστῆσαι νεκρῶν τοσαύτη
25 τε κινήσει κοσμηκῆι;

OHNE BUCHTITTEL.

2 (2) THEOPHIL. ad Autol. III 29: καὶ γὰρ Βῆλου τοῦ Ἀσσυρίων
βασιλεύσαντος καὶ Κρόνου τοῦ Τιτᾶνος θάλλος μέμνηται, φάσκων τὸν Βῆλον
πεπολεμηκέναι σὺν τοῖς Τιτᾶσι πρὸς τὸν Δία καὶ τοὺς σὺν αὐτῷ θεοὺς
30 λεγομένους, ἔνθα φησὶν· «καὶ Ὁγγος ἠττηθεὶς ἔφυγεν εἰς
Ταρτησσόν, τότε μὲν τῆς χώρας ἐκείνης Ἀκτῆς κληθείσης,
νῦν δὲ Ἀττικῆς προσαγορευομένης, ἧς Ὁγγος τότε ἤρξε.»
καὶ τὰς λοιπὰς δὲ χώρας καὶ πόλεις, ἀπ' ὧν τὰς προσωνυμίας ἔσχον, οὐκ
ἀναγκαῖον ἠγοῦμεθα καταλέγειν.

35 3 (2) — — III 29 (LACTANT. Div. Inst. I 23, 2): κατὰ γὰρ τὴν
θάλλου ἱστορίαν ὁ Βῆλος προγενέστερος εὐρίσκειται τοῦ Ἰλιακοῦ πολέμου
ἔτει τκρ.

14 ἐπέγητο Dindorf ἐπέγητο vulg ἐπεγενετο Soaliger 28 τοῦ Τιτᾶνος θάλλος
edd τοῦ τιτανοθάλλος V 80 Ὁγγος Niebuhr ὁ γόγος V καὶ Κρόνος ἡ. ἔ. εἰς
T., Ὁγγός δὲ εἰς τὴν κτλ. CMueller Ταρτησσόν, τότε μὲν τ. χ. ἔ. (Ταρτάρου λεγο-
μένης, ὁσαπερ) Ἀκτῆς Niebuhr 38 Ὁγγος Meursius ὁ γόγος V