

THE ACCESSION OF ARTAXERXES I

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Introduction

This article is principally a reexamination of the source data relevant to the accession date of the Persian king Artaxerxes I, and especially a study of a double-dated papyrus from Egypt that was, until a few years ago, the only known ancient document assigning an approximate date to that event.

The "first year" and, therefore, the other years of his reign have long been known in two calendars. According to Ptolemy's Canon, which is fixed by eclipses, and according to certain double-dated papyri from Egypt (to be discussed below), his year 1 in the Egyptian calendar was the 365-day year beginning on Thoth 1, the Egyptian New Year's Day (that is, December 17), 465 B.C. In the Persian reckoning (in the Babylonian calendar, which was adopted by the Persian kings), his first year was the lunar year beginning in the spring, with Nisanu (Jewish Nisan) 1, approximately April 13, 464,¹ several months later than the Egyptian year.

Postdating and Antedating. This Persian reckoning means that his reign must have begun before Nisan 1, 464, because the Babylonian-Persian method was to *postdate* all reigns. That is, when a new king succeeded to the throne the scribes, who had been dating all kinds of documents by the day and month "in the 21st [or whatever] year of King X," would begin using the new dateline "in the accession year [literally,

¹ The equivalents of Persian dates in this article are taken from the reconstructed calendar tables in Richard A. Parker and Waldo H. Dubberstein, *Babylonian Chronology, 626 B.C.-A.D. 75* (Providence, R. I., 1956), hereinafter abbreviated: *PDBC* (1956).

"beginning of the reign"] of King Y," and would wait until the next New Year's Day to begin dating "in the year 1 of King Y."

Does Ptolemy's Canon, then, similarly indicate that Artaxerxes came to the throne before December 17, the Egyptian New Year of his year 1? No. Detailed checking of the source data has shown that the Canon uses two methods. In its earlier portion, which lists Babylonian and early Persian kings, it uses the postdating method (called by some the "accession-year method"). But in its latter portion, which lists the Seleucids and the Roman emperors, it *antedates* the reigns. That is, it counts as "year 1" the year *in which* a king came to the throne, as if he had been reigning since the first day of the year. By this method, commonly used in Egypt, a scribe would begin dating in the king's "year 1" as soon as he came to the throne, and the first New Year's Day would begin "year 2." ²

If Ptolemy's Canon dated Artaxerxes in this way, it would indicate that he came to the throne after December 17, 465. Since the Canon used both methods, and source data for the later Persian kings are insufficient, the Canon does not help in determining whether Artaxerxes came to the throne before or after Thoth 1. ³

Ancient Documents. Thousands of ancient documents from the period of the Persian Empire written on clay tablets—letters, deeds, contracts, business accounts—have been found, mostly in Babylonia. Many of them carry datelines in the day, month, and year of the king. Thus it is often possible

² On postdating and antedating, see Edwin R. Thiele, *The Mysterious Numbers of the Hebrew Kings* (rev. ed.; Grand Rapids, Mich., 1965), p. 17.

³ Because of this uncertainty, a conclusion had to be held in abeyance in the present author's "A Study of Ptolemy's Treatment of the Babylonian and Persian Regnal Years" (unpublished Master's thesis, S.D.A. Theological Seminary, Andrews University, 1947) as to the method used in Ptolemy's canon to number the regnal years of Artaxerxes I.

to determine, from the month and day of the last tablet in one reign and the first dated in the next, the approximate date of the accession.⁴

But because no contemporary tablets have been found dated in Artaxerxes' accession year or in his father's last year, his accession could formerly be dated only approximately by the only known contemporary dated document, a papyrus from Egypt.⁵

A Double-dated Papyrus. This was one among a number of Jewish papyri written in Aramaic found on the Nile island of Elephantine at Syene (modern Aswan). Jewish soldiers in the Persian army in Egypt lived here in a garrison town with their families, spoke Aramaic, and had their own temple. They dated by their lunar calendar; but on documents they used double dates, in their own lunar calendar and in the Egyptian solar calendar. Many of these papyri can be dated exactly in our calendar because a month and day in the shifting lunar calendar can synchronize with the Egyptian month and day in the fixed 365-day calendar only once in twenty-five years. Thus the papyrus *AP* 6, with a double date, can be fixed to January 2/3, 464. Its double-year date, in the year 21 of Xerxes and the accession year of Artaxerxes, has been interpreted to indicate that Xerxes had died and Artaxerxes had succeeded him very recently, probably in December, 465.⁶

A Tablet Formerly Used. A tablet from Ur, published in 1949 (designated *UET* IV, 193) apparently indicated that Xerxes was still living in late December. Written in the 13th year of Artaxerxes, it was, as described by its editor, a

⁴ See the list of these in *PDBC* (1956), pp. 11-24.

⁵ A. E. Cowley, *Aramaic Papyri of the Fifth Century B.C.* (Oxford, 1923), No. 6, pp. 15-18. This papyrus, hereinafter designated as *AP* 6, was Papyrus B in its initial publication by Sayce and Cowley in 1906.

⁶ So Parker and Dubberstein in their first edition (Chicago, 1942), p. 15. This edition (626 B.C.-A.D. 45), is hereinafter referred to as *PDBC* (1942).

"rearrangement of land parcels," mentioning the "first arrangement: Kislimu [the month of Kislev], 21st year of Xerxes." ⁷ According to this, Xerxes died after the 1st of Kislimu, which began about December 17, 465 (thus, incidentally, coinciding almost exactly with the Egyptian month of Thoth in that year). This seemed at first to settle the question, but not for long.

A Hellenistic Tablet With an Exact Date. By the time Parker and Dubberstein brought out the 1956 edition of their *Babylonian Chronology*, another clay tablet from Babylonia had come to light, an unpublished astronomical text of the Hellenistic period (designated *LBART* No. *1419) mentioning the murder of Xerxes in the month of Abu (Jewish Ab), on the 14th? (or any day from the 14th to the 18th; the number is broken). If the writer of this tablet, about 150 years (or more?) after the event, had correct information, Xerxes died approximately August 4-8, 465. ⁸

In the absence of any contemporary evidence, this has been accepted by Parker and Dubberstein in their 1956 edition, and by others. Figulla, the editor of the above-mentioned Ur tablet, in which he had read "Kislimu, in the year 21 of Xerxes," decided that the partly broken word which he had taken as "Kislimu" must have been something else if Xerxes was dead some months earlier. Actually, the original may have read "Kislimu," but since no one knows what the entire word was, this text is eliminated as evidence.

⁷ H. H. Figulla, ed., *Ur Excavations: Texts*, IV (London, 1949), No. 193, p. 15.

⁸ *Late Babylonian Astronomical and Related Texts*, A. J. Sachs, ed. (Providence, R. I., 1955), No. *1419. This tablet, hereinafter designated *LBART* No. *1419, is merely described briefly, in this volume of Hellenistic texts, as listing certain eclipse dates; for the incidental mention of a date for the death of Xerxes (not mentioned in *LBART*), see *PDBC* (1956), p. 17, citing Sachs. Since this tablet was described in a book issued twelve years ago but still remains unpublished, there is no point in awaiting its publication in order to use it at least tentatively, though it can hardly be evaluated since details of its contents, date, provenience, and general accuracy are not yet available.

Thus we are left with two dated documents: (1) the contemporary papyrus *AP* 6, which has been taken to indicate that the accession was still recent in January; (2) the Hellenistic tablet *LBART* No. *1419, which dates the death of Xerxes five months earlier. Can they be reconciled? An examination of the papyrus and of the historical accounts relating or mentioning the death of Xerxes furnishes clues to a harmonious interpretation. This study, comprising two main parts, will examine first the historical and chronological records, then papyrus *AP* 6.

Ancient Historical Accounts

The Oldest Historical Account. Even earlier than the Hellenistic tablet that dates Xerxes' death is a historical narrative of his murder, produced by Ctesias, a Greek physician at the court of Artaxerxes II (grandson of Artaxerxes I), about 65 years after Xerxes' death. Ctesias lived in Persia, knew the language, and had access to the official archives and to the accounts preserved by the royal family. His *Persica* is extant only in a summary by Photius (9th century A.D.).

Ctesias tells the story as follows: Artabanus, a very powerful courtier, with the aid of an influential palace chamberlain, assassinated Xerxes, then procured the death of Darius, the older son and heir, by accusing him to Artaxerxes, the younger son. Thus Artaxerxes reigned with the support of Artabanus. But later the powerful Artabanus decided to put his young protégé out of the way and take the throne. He made the mistake of enlisting the help of Megabyzus, a brother-in-law of Artaxerxes. When Megabyzus told the king everything—the plot against him, the murder of Xerxes, and the false accusation against Darius—Artaxerxes asserted himself, and Artabanus was put to death. There followed a battle with the partisans of Artabanus in which three of his sons were killed. Then the Bactrians revolted under their satrap,

another Artabanus, but after two battles they submitted.⁹

Later Ancient Writers. Others (here cited in chronological order) mention Xerxes' murder, and several tell essentially the same story as Ctesias, with some differences, mostly on minor points.

Aristotle (4th century B.C.) makes a casual allusion—by way of illustration, not as historical narrative—to the murder of Xerxes by "Artapanes," who feared punishment for having hanged Darius.¹⁰

What may or may not be the next historical statement is the one found on the above-mentioned tablet (*LBART* No. *1419) from the Hellenistic period—late 4th century or possibly even later—which says that Xerxes was killed on Abu 14 (-18?), approximately August 4-8, 465.¹¹ Unfortunately, the date and the text of this tablet are not available since it remains unpublished.

Manetho, an Egyptian priest (3d century B.C.) whose history of Egypt, in Greek, is now lost, included Artabanus among the Persian rulers of Egypt, giving him a seven-month reign. At least he did so if the *Epitome* of his history, compiled soon afterward in the form of king lists, reflects accurately his historical account.¹²

Diodorus of Sicily (late 1st century B.C.) tells the story of the murder of Xerxes by Artabanus, captain of the king's

⁹ Ctesias, *Persica* (Summary by Photius), 29-31 (Brussels, 1947, pp. 33-35). A year or two later came a revolt in Egypt, led by Inarus, in which the Athenians aided the Egyptians, and which lasted about five years (Ctesias, *op. cit.*, 32-36).

¹⁰ Aristotle, *Politics*, v. 8. 14; 1311b, 38 (Loeb ed., pp. 448, 449).

¹¹ A. J. Sachs, cited in *PDBC* (1956), p. 17. This text is listed among the historical sources, not because it presents an account of the event, but because it is not a contemporary dated document but a statement made by a writer a century and a half afterward, if not later.

¹² Manetho, *Aegyptiaca* (*Epitome*), Fragment 70, from Africanus, as preserved by Syncellus (Loeb ed., pp. 174, 175). In footnote 1 (see also facsimile on Pl. III), reference is made to a papyrus fragment of this *Epitome*, a copy from the 5th century A.D., independent of Africanus; this also lists [Arta]banus between Xerxes and Artaxerxes.

bodyguard, who then offered Artaxerxes the help of the guard in punishing Darius whom he accused of having committed the crime. When "he saw his plan was prospering" he decided that the time had come to kill Artaxerxes also. Calling his sons together, he attacked and slightly wounded Artaxerxes, whereupon the latter dealt him a fatal blow, and then "took over the kingship." Diodorus places the death of Xerxes, after a reign of more than 20 years, in the Athenian year of the archonship of Lysitheus (which ran from midsummer 465 to midsummer 464) and in the Roman year (January-December, 465) of the consulship of Lucius Valerius Publicola and Titus Aemilius Mamercus; that is, in the second half of 465. Apparently it was two years later (463/2) that Artaxerxes, "who had just recovered the throne, first of all punished those who had a part in the murder of his father and then organized the affairs of the kingdom to suit his own personal advantage."¹³

Trogus Pompeius, sometimes called Gnaeus Pompeius Trogus (1st century B.C. to 1st century A.D.), gives a similar account, as transmitted in extracts by Justin (3d century A.D.). This narrative says that Artabanus, fearing a struggle for the throne among the nobles, plotted to seize the throne himself. Upon learning of this treachery Artaxerxes, being only a boy, feared Artabanus and his seven sons. He therefore ordered out the troops for review. As Artabanus presented himself the young king asked the commander to exchange corselets with him, since his own was too short. While Artabanus was thus unarmed, Artaxerxes ran him through with a sword and ordered the arrest of the sons.¹⁴

Two other Greek historians mention Artabanus. Nepos

¹³ Diodorus Siculus, xi.69.1-6; xi.71.1 (Loeb ed., IV, 304-307, 308-309). He places the final settlement in the archonship of Tlepolemus and the consulship of Titus Quinctius and Quintus Servilius Structus.

¹⁴ Justinus Frontinus, *History of the World, Extracted from Trogus Pompeius*, xiii.1, in John Selby Watson, trans., *Justin, Cornelius Nepos, and Eutropius* (London, 1876), pp. 37, 38.

(1st century B.C. to 1st century A.D.) merely alludes to Xerxes' murder by Artabanus, "one of his satraps," and Plutarch (2d century A.D.) says that when the exiled Greek general Themistocles came to the Persian court he obtained an audience with the king by applying to Artabanus, the Chiliarch, or commander of a thousand men.¹⁵ Neither of these writers dates the event, but both accept the view of Thucydides (5th century B.C.), who says that Themistocles came to Persia when Artaxerxes "had lately come to the throne," as against the views of others that it was in the reign of Xerxes.¹⁶ Nepos points out that Thucydides was the nearest in time to Themistocles and was from the same city.¹⁷

One other ancient writer mentions the death of Xerxes: Aelian (3d century A.D. or earlier) says merely that he was "murdered at night in bed by his son."¹⁸ In attributing the murder of Xerxes to his son, he agrees with none of the other historians extant. That could be merely the error of a later writer, but it could be possible, though unlikely, that it reflects a variant tradition stemming from the partisans of Artabanus.

Ancient Chronological Works

In addition to the historical narratives, there are several chronological works of the early Christian period that are relevant to the question of Xerxes and Artaxerxes.

¹⁵ Cornelius Nepos, *Lives*, xxi ("Of Kings").1 (in Watson, *op. cit.*, p. 413); Plutarch, *Themistocles*, 27.1-5 (Loeb ed., II, 72-75).

¹⁶ Thucydides, i.137.3 (Loeb ed., I, 232, 233). Plutarch (*loc. cit.*) says that Ephorus, Dinon, Clitarchus, Heracleides, and others hold that it was Xerxes, but he prefers the view of Thucydides and Charon of Lampsacus (the latter contemporary with Themistocles) that it was Artaxerxes because the chronological data agree better with this view. Diodorus holds that it was in the reign of Xerxes (xi.56.5 to 58.3 [Loeb ed., IV, 270-277]).

¹⁷ Nepos, ii ("Themistocles").9 (in Watson, *op. cit.*, p. 321).

¹⁸ Claudius Aelianus, *Varia Historia*, xiii.3 (Leipzig, 1819, p. 194).

Ptolemy, noted Greek-Egyptian astronomer (2d century A.D.), in his Canon of the Kings, already mentioned, gives a scale of Egyptian years (of 365 days, with no leap years) beginning with the year 1 of Nabonassar of Babylon on February 26, 747 B.C. He assigns 21 years to the reign of Xerxes and 41 years to Artaxerxes immediately following.¹⁹ This does not indicate whether he, like the compiler of the *Epitome* of Manetho, regarded the period of Artabanus as a separate reign, for Ptolemy's Canon omits all kings who ruled less than a year. But since the Canon is dated beyond doubt by nineteen eclipses and other astronomical synchronisms, it is certain that in the official Egyptian reckoning Xerxes' year 21 (the year 283 in Ptolemy's Nabonassar Era) began on Thoth 1, December 18, 466 B.C., and that Artaxerxes' year 1 was the Egyptian calendar year beginning with Thoth 1, December 17, 465, and ending with December 16, 464.

Among the Christian chronographers, Julius Africanus (3d century A.D.) and Eusebius (4th century) used Manetho's chronology. They both included Artabanus with a seven-month reign between Xerxes and Artaxerxes, *i.e.*, in the 4th year of the 78th Olympiad (465/4). They also dated Artaxerxes' year 20 in the 4th year of the 83d Olympiad (which makes his year 1 fall in 464/3).²⁰

¹⁹ For Ptolemy's Canon, see Claudius Ptolemaeus, *The Almagest*, R. Catesby Taliaferro, trans. (*Great Books of the Western World*, vol. 16: *Ptolemy, Copernicus, Kepler*), Appendix A, p. 466; for the Greek Text, see Claudius Ptolemaeus, *Mathematike Syntaxis* [*Almagest*], [Nicholas] Halma, trans., I (Paris, 1813), lxx, lxxi. It is also printed in Thiele, *op. cit.*, p. 216. Any year in the Nabonassar Era can be computed from the starting point by years of 365 days only, beginning a day earlier every four years, because of the difference at each leap year.

²⁰ Julius Africanus, *Chronography*, Fragments in *ANF*, VI, 135, 137; also table in Eduard Meyer, *Forschungen zur alten Geschichte*, II (Halle, 1899), 487; Eusebius, *Chronici Canones*, Jerome's Latin version, J. K. Fotheringham, ed. (London, 1923), p. 192; cf. Armenian version, J. B. Aucher, ed. (Venice, 1818), pp. 208, 209.

Evaluation of Ancient Accounts

In evaluating the ancient historical accounts it is clear that the situation portrayed is fairly consistent in the various narratives. Probably Ctesias' story is the nearest we can get to the original—at least as told from Artaxerxes' point of view, which naturally became the official version. The extant summary of Ctesias says nothing of how long Artabanus was in power or how he met his death, though additional details in his original account, now lost, may have been the source for later narratives of Diodorus and Trogus.

Diodorus seems to imply, though he does not say, that the whole upheaval was over immediately; yet he goes on to say that it was two years later that Artaxerxes settled the kingdom. The stories of Ctesias and Trogus, even in their present abridged state, definitely require some interval to allow for the first coup to "prosper" and for the development of the threat of a struggle among the nobles before the inception of the second plot, to put Artaxerxes out of the way. In the nature of the case, the fact that Artabanus did not kill Artaxerxes at first but allowed him to occupy the throne at least in name, and only afterward plotted against him, would indicate that some time must have passed before he felt strong enough to make the attempt to seize the kingship for himself.

Then even after Artaxerxes killed Artabanus he had to fight his way to control. There was at least one battle against the latter's adherents, and there was a revolt in Bactria, possibly representing the claim of his brother Hystaspes. In all, the events could account for much more than seven months.

Yet an actual seven-month reign of Artabanus preceding Artaxerxes' accession does not fit the picture drawn by the historical sources (which, of course, represent mostly the official story from the side of Artaxerxes). Not one of the extant accounts calls Artabanus "king." He is referred to as

“powerful” (Ctesias), “captain of the royal bodyguard” (Diodorus), “chief officer” (Trogus), “satrap” (Nepos), “commander of a thousand men” (Plutarch), while Artaxerxes is called king.

There are no known documents dated in the reign of Artabanus in either Egypt or Babylonia. The king list based on Manetho seems to be the only source for such a reign. It is possible that he could have been recognized in Egypt only, or the attribution could have been an error rising from the fact that Artabanus for a time—and possibly for about seven months—was the real power while the young Artaxerxes was the puppet king.

It may be that the confusion as to whether Themistocles came to the court of Xerxes or of Artaxerxes could be accounted for by supposing that he came during the period of Artabanus’ ascendancy, while Artaxerxes was king but not yet ruling (note Plutarch, as cited above). And this situation may find an echo in the artificial extension of Xerxes’ regnal numbering after his death as attested by papyrus *AP* 6, as will be discussed below.

Use of the Ancient Sources

Before modern archeology furnished contemporary dated documents from ancient times, and when the only authority for chronology was Ptolemy’s Canon and the ancient historians, many writers on Biblical interpretation and chronology in the last three hundred years discussed the chronology of Artaxerxes because of the Biblical mention of his 7th and 20th years. They included Johann Funck (1564), Archbishop Ussher (1650), William Whiston (1702), and Isaac Newton (1728, 1733), as well as numerous 19th-century writers. Several, including Ussher, accepted Thucydides’ identification of Artaxerxes as the king to whom Themistocles went, but accepted a dating of Themistocles that put his visit, and therefore the accession of Artaxerxes, nine or ten years

earlier.²¹ Newton reckoned Artaxerxes' year 1 as beginning in August or September, 464—a regnal year based on several erroneous assumptions: (1) that the Canon, always antedating, placed the death of Xerxes after Thoth 1 (December 17), 465; (2) that Artabanus ruled seven months after that before Artaxerxes' accession; (3) that Artaxerxes came to the throne two or three months after the summer solstice and counted his regnal years in the same manner as the British kings—as beginning always on the date of his accession.²²

Modern historians tell the story by piecing together bits of the various ancient accounts. W. W. Tarn, in the *Cambridge Ancient History* (1927), says that Artabanus reigned seven months and was recognized in Egypt (based apparently on Manetho) and that he defeated Artaxerxes' brother Hystaspes (a recombination of elements from Ctesias and Diodorus?) before Artaxerxes killed him.²³ A. T. Olmstead presents Artaxerxes as eighteen years old (a guess from Trogus); Megabyzus as involved in the original conspiracy; and Hystaspes, Xerxes' other son, as heading the Bactrian revolt and being defeated by Artaxerxes after Artaxerxes killed Artabanus (Diodorus?).²⁴

Most historians disregard Artabanus, largely because the absence of tablets dated to his reign would indicate that he was not recognized in Babylonia. Indeed, when it was believed that the nearest contemporary documents (papyrus *AP* 6 and the Ur tablet *UET* IV, 193) meant that Xerxes was living until near the end of 465, there could be no room for Artabanus

²¹ James Ussher, *Annales Veteris Testamenti* (London, 1650), on Anno Mundi 3531; in the English version, *Annals of the World* (London, 1658), pp. 131, 132.

²² Isaac Newton, *The Chronology of Ancient Kingdoms Amended* (London, 1728), pp. 353-355; *Observations Upon the Prophecies* (London, 1733), pp. 130, 131, 142, 143.

²³ W. W. Tarn, in *Cambridge Ancient History*, VI (New York, 1927), 2.

²⁴ A. T. Olmstead, *History of the Persian Empire* (Chicago, 1948), pp. 289, 290.

as a factor in the chronology. The ancient writers are against his recognition in Persia, though he could have been recognized in Egypt. Yet *AP* 6, written in Egypt—possibly during the period when he was in *de facto* control—ignores him. (However, its dating formula does imply that the transfer of power to Artaxerxes was not immediate and normal, and implies the sort of confused situation pictured in the other ancient sources.)

Contemporary Papyrus AP 6 Examined

Though historical sources furnish an interesting and probably relevant background for understanding the contents of the tablets or papyri, actually the conditions implicit in a contemporary document outweigh those in late copies of worked-over historical narratives. As primary evidence, then, the only known contemporary document, papyrus *AP* 6, must now be examined, and with it must be considered the Hellenistic tablet (*LBART* No. *1419), which places Xerxes' death in Abu 14-18 (August 4-8), 465. Though the evaluation of this tablet must await its publication, it can meanwhile be accepted tentatively as possibly correct and be considered in the light of the contemporary Aramaic papyrus *AP* 6.

Double Date in Two Reigns

The dateline of *AP* 6 reads: "On the 18th of Kislev, that is the [17th] day of Thoth, in year 21, the beginning of the reign when King Artaxerxes sat on his throne."²⁵

Like many other papyri from this Jewish colony in Egypt, it is double-dated in two reckonings, the Egyptian solar

²⁵ Cowley, *op. cit.*, p. 16. Cowley reads the broken day number conjecturally as "7th day of Thoth." But he did not do any calendar computation; that was done later by others. The lunar-solar calendar synchronism is possible only if the Thoth date is read "17th," which is equally possible paleographically; see S. H. Horn and L. H. Wood, "The Fifth-Century Jewish Calendar at Elephantine," *JNES*, XIII (1954), 8, 9, Pl. I.

calendar and the Semitic (either Persian or Jewish) lunar calendar.

It has already been explained that the first part of this dateline, with its synchronism between a solar and a lunar month date, leaves no uncertainty that this represents January 2/3, 464. The remainder of this article will examine the last part of the dateline—the regnal *year* formula: the year 21 (of Xerxes, obviously), and the accession year of Artaxerxes. Does this double dating of the year represent the difference between the Egyptian and Jewish reckonings?

There are two other papyri from Elephantine that furnish examples of such a dating in two regnal years: *AP* 25 and *AP* 28. For example, *AP* 25 equates “Kislev 3, year 8” with “Thoth 12, year 9” in the reign of Darius II. That is, by the 3d of Kislev, the ninth month of the Semitic lunar year, the Egyptian New Year had passed, and this was the 12th of the first month in the new regnal year 9 by Egyptian count.²⁶

But *AP* 6 not only has two regnal year numbers; the two are *in two different reigns*. It does not represent a coregency of Artaxerxes with his father. The historical accounts of Xerxes’ death show that Artaxerxes was not even the crown prince, and did not become king until after the death of his father and his older brother.

There are three possibilities in explaining this unusual dating in two reigns at once: (1) It was a scribal error. (2) It represents, like the two month dates, the difference in reckoning between two calendars, Egyptian and Semitic. (3) It is a double year designation in one calendar.

Was the Double-Year Formula an Error?

Some have thought that this unusual double-reign dating formula was an absent-minded error of the scribe who wrote it. This was plausible when it was believed that Xerxes had only recently died, in late December, for the scribe could

²⁶ Horn and Wood, *op. cit.*, p. 17.

have begun with "year 21" as he had been doing for some time, and on remembering that Artaxerxes was now king, merely added the accession-year formula without correcting the initial error.²⁷ But this was an official document written by a professional scribe; he would be expected to begin over rather than merely to add the correct dating to the erroneous phrase, especially since "in the year 21" stood in the first line of the document. And forgetfulness is not an easy explanation if, as the Hellenistic tablet (*LBART* No. *1419) indicates, the change of kings had not been recent but some five months earlier.

Other Examples of Dating in Two Reigns. But it is not necessary to suppose a mistake, since there are other examples of this unusual type of year formula. In the case of the next regnal transition, after the death of Artaxerxes I, there are three tablets double-dated in two reigns. That was also a period of murders, plots and counterplots, and competing claimants, with the resultant uncertainty of the status quo. This is not the place to go into the problem of exact dates and intervals, but suffice it to say that at the death of Artaxerxes I his son Xerxes II occupied the throne briefly (45 days), then was killed by a half brother Secydianus, or Sogdianus, who was himself killed (after about seven months) by another half brother who reigned as Darius II.²⁸ There are no known tablets recognizing Xerxes II or Sogdianus. Perhaps the length of time assigned to them by the Greek historians was exaggerated.

There are tablets dated to Artaxerxes as late as the 9th month of his year 41 (December, 424), possibly also in the 11th month (February, 423); and there are two dated unequivocally to Darius' accession year in the 11th month. Yet there are two other tablets in the 12th month and one (yet

²⁷ See *PDBC* (1942), p. 16, for this interpretation in a similar case.

²⁸ Manetho, *loc. cit.*; Ctesias, *op. cit.*, 45-48, (Brussels ed., pp. 44-46); cf. Diodorus Siculus, xii.64.1, 71.1 (V, 60, 61, 78, 79); cf. Thucydides, iv.50.3 (II, 298, 299).

unpublished) supposed to be some months earlier—all three double-dated in the last year (of Artaxerxes) and in the accession year of Darius. They appear to reflect an unwillingness to abandon reckoning by Artaxerxes' reign, as if it were still uncertain as to whether the reign of Darius was permanent. It is significant that these tablets and the papyrus *AP* 6, which seem to have the only such double datelines known, come in both cases from periods when the uncertain political situation would provide a reason for such an unusual extension of a king's regnal numbering even beyond the beginning of another reign.

Reign Artificially Extended Into Another Year. There are several other tablets, from an earlier period, that similarly show an abnormal prolongation of regnal dating, and in this case using a ruler's name, not only after his death, but even into a new year, with a new regnal number. This was in another period of upheaval, when Assyria's rule over Babylon ended.

In 627 the last known Babylonian tablet dated in the reign of Kandalanu (who ruled Babylonia under Assyria) was written on the 13th of the 2d month of year 21. Then there were two later ones obviously after his death: one in Marcheswan, or Arahšamnu (the 8th month), dated year 21, not "of Kandalanu," but "*after* Kandalanu"; and the other a year later, Marcheswan 2, *in year 22* "*after* Kandalanu." The intervening year was afterward reckoned an interregnum, after Kandalanu was gone but before Nabopolassar succeeded in fighting his way to independence for Babylonia and in winning the throne; but during that time the old regnal reckoning in Kandalanu's name was continued, even into a new and fictitious "year 22." And a chronicle tablet calls this year "*after* Kandalanu, in the accession year of Nabopolassar." ²⁹

²⁹ D. J. Wiseman, *Chronicles of Chaldaean Kings (626-556 B.C.) in the British Museum* (London, 1961), pp. 89-90. *PDBC* (1956), p. 11,

Nabopolassar had already won recognition as king in at least a part of Babylonia, as attested by tablets dated to his accession year in the 2d and 6th months; but while the fighting and uncertainty lasted, the old reign was carried on artificially until the 8th month, within 24 days of the time when he occupied the throne. For the Babylonian chronicle tablet says that on the 26th of the 8th month (approximately November 23, 626) "Nabopolassar sat upon the throne in Babylon. (This was) the 'beginning of reign' of Nabopolassar." ³⁰

Except for the distinction made by the term "*after Kandalanu*," this reckoning of a year 22, although he had died in year 21, furnishes an exact parallel to the other examples of dating in the name of a king after his death, and after a new king was recognized as ruling.

Since the extension of one king's regnal reckoning beyond his lifetime, into the reign of another king, is attested both before and after the time of papyrus *AP* 6, then its double dateline in the reigns of Xerxes and Artaxerxes is not necessarily a scribal error. Nor is it necessarily a double dating in two calendars, for the tablets just discussed involve only the Babylonian-Persian calendar. Yet, in order to test all the possibilities, the *AP* 6 dateline will be investigated in both alternatives—whether the two year datings are expressed in two calendars, Egyptian and Semitic, or whether both are in one calendar (and if so, which one).

Is the Year Formula Expressed in Two Calendars?

First, suppose that the double year formula of *AP* 6 represents the two calendars in which the month dates (Kislev and Thoth) are expressed. Then obviously either "year 21"

presents this interpretation of a reign extended artificially, citing Wiseman's first (1956) printing.

³⁰ Wiseman, *op. cit.*, p. 51; cf. *PDBC* (1956), p. 11. (This exact date for the accession, not known before, shows that Ptolemy's canon postdated Nabopolassar's reign.)

or "accession year" must be in the Egyptian calendar. Yet a glance at the Egyptian calendar as represented in the horizontal band labeled "Egyptian" on Fig. 1, will show that the heavy arrow representing the papyrus date does not fall in either the year 21 of Xerxes or the accession year of Artaxerxes in the Egyptian calendar. What is wrong?

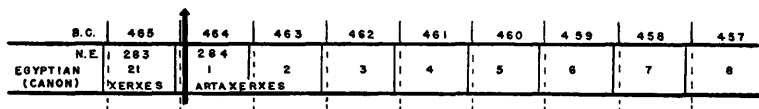


Figure 1. *Artaxerxes in the Egyptian Calendar*

The last regnal year (21) of Xerxes and the early years of Artaxerxes are shown here as reckoned in the Egyptian calendar, compared with the B.C. scale. The Egyptian years, beginning in December in this period, run a little earlier than the B.C. years (shown extended by the broken lines). The N. E. (Nabonassar Era) numbering, derived from Ptolemy's Canon, is indicated for the years 465 and 464. The arrow shows the date of the papyrus *AP* 6 (January 2/3, 464 B.C.).

On the one hand, Xerxes' Egyptian year 21 undoubtedly began on Thoth 1 (December 18), 466, according to the astronomically fixed canon of Ptolemy and a double dated papyrus (*AP* 5) of his year 15; then on the next Thoth 1 (December 17, 465) the year number would have changed to year 22. Yet sixteen days later, on January 2/3, 464, *AP* 6 was still dated in "year 21"!

On the other hand, the Egyptian year 465/4, in which *AP* 6 was written, was officially numbered Artaxerxes' year 1, not his accession year. (This is attested not only by Ptolemy's Canon but also by several double-dated papyri written during Artaxerxes' reign, all of which require year 1 to begin in December, 465 B.C.) If he came to the throne before Thoth 1 (December 17), 465—perhaps the preceding August 4-8, as the Hellenistic tablet (*LBART* No. *1419) indicates—his "beginning of reign" could cover only the rest of that calendar year, and his year 1 would begin on Thoth 1. ³¹

³¹ The common custom of the Egyptians was to "antedate"—to begin dating in "year 1" immediately after the accession and change

If *AP* 6, written as late as Thoth 17, was dated in the accession year in the Egyptian calendar, this would indicate that Artaxerxes was recognized as king in Egypt only *after* Thoth 1 (else this would have been his year 1)³² and before Thoth 17 (else his name would not have been on the dateline at all).

Further, if this was the accession year, then year 1 would not have *begun* until the following Thoth 1, December 17, 464. That would conflict with the official year numbering, also with the tablet that places the death of Xerxes in August 465, unless there was a delay in the recognition of Artaxerxes until after Thoth 1.

Could such a delay be accounted for by supposing it to be during the seven-month reign assigned by Manetho to Artabanus? Yet the interval between the August death date and the January date of *AP* 6 is less than seven months. And an intervening reign of Artabanus would still require

to year 2 at the first New Year's Day. Yet there is some reason to think that they sometimes applied the Persian postdating method to their Persian kings. See Parker, "Persian and Egyptian Chronology," *AJSL*, LVIII (1941), 285-301.

³² The present writer formerly, in the above-mentioned thesis (see note 3), accepted Cowley's designation of *AP* 6 as dated "year 21" in the Semitic calendar and "year 1" in the Egyptian calendar because the date (January 2/3, 464) arrived at by the synchronism *was* in the Egyptian year 1. But it seems necessary to abandon "year 1" in favor of "accession year" for the following reasons: (1) The phrase *rš mlwkt* (*sic.*), "beginning of reign," in *AP* 6 is the exact Aramaic equivalent of the Akkadian accession-year formula *rēš šarrūti* (literally "beginning of reign"), defined as the accession year, the time of reign before the beginning of the first full regnal year; see Riekle Borger, *Babylonisch-Assyrische Lesestücke*, Heft 1 (Rome, 1963), Glossar, p. lxxvi; (2) a completely different phrase is used for "year 1" in Aramaic, "*šnt* 1 (with the king's name)," which is also the exact equivalent of the Akkadian date formula used in Babylonian tablets; and (3) the explanatory but redundant clause translated by Cowley "when King Artaxerxes sat on his throne" can also be translated "when King Artaxerxes seated himself" or "was seated" on his throne, that is, "when he became king" (Horn, Letter to the author, Feb. 15, 1967).

a change in Artaxerxes' year numbering afterward to continue with the later attested numbering. Such a change is unattested by any evidence and seems to be unknown in any other case.

Since the Egyptian year 21 is impossible for *AP* 6, and the accession year is incompatible with known Egyptian data and so unlikely as to be negligible, the logical result is to rule out both as possible Egyptian datings; and therefore to abandon the first alternative—a double (Egyptian-Semitic) year formula—and proceed to the second:

A Double Year Formula in One Calendar

Not Egyptian. If both "year 21" and "accession year of Artaxerxes" in the dateline of *AP* 6 constitute a double year formula in one calendar, then it means that both are designations of the same year—the one that begins as year 21 of Xerxes and ends as the accession year of Artaxerxes. This cannot be an Egyptian-calendar year, since the Egyptian year 21 ended seventeen days before this papyrus was written.

Then it must be a Semitic lunar-calendar date—in either the Persian year (beginning in the spring with the month of Nisanu) or the Jewish civil and regnal year (beginning in the fall with the 7th month, Tishri).

Most Probably Jewish. Papyrus *AP* 6 (an agreement over a disputed piece of land) was written in the name of a Persian for the benefit of his neighbor, designated as a Jew; and the scribe was a Jew, as well as most of the witnesses.³³ Although the lunar calendar synchronism in *AP* 6 could be valid in either the Persian or the Jewish reckoning, it seems logical to conclude that it was a Jewish dating as used in a Jewish community.

That this calendar was Jewish would be expected for several reasons. These Jewish colonists of Elephantine had been there some time before the Persians took over Egypt;³⁴

³³ Cowley, *op. cit.*, pp. 16, 17.

³⁴ *Ibid.*, p. xvi.

hence they would have no reason to adopt the Persian calendar, since they obviously had not adopted the Egyptian calendar outright, or they would not have needed double dating. That their Jewish calendar would have been the same as the regnal reckoning of the Kingdom of Judah, from which they had originated, and of the returned Jews of the contemporary period of Ezra and Nehemiah, seems most likely.

Some writers hold that these Jewish colonists, like the Babylonians and Persians, used a spring-beginning year, while others hold that they employed the Jewish autumn-beginning year. The evidence for the Jewish reckoning by years beginning with Tishri, in the autumn—used in the early Hebrew kingdom, in the Kingdom of Judah, in the restored Jewish community in the time of Ezra and Nehemiah, and in this same Jewish colony in Egypt in a later reign ³⁵—makes it seem a reasonable conclusion that *AP* 6 was dated in the Jewish fall-to-fall year.

However, since opinions differ, the dating of this papyrus will be examined in both Persian and Jewish reckonings.

The 21st Year of Xerxes and the 1st Year of Artaxerxes

It has been explained already that throughout the reigns involved here the regnal-year numbering in the Egyptian calendar is known from the astronomically fixed reckoning of Ptolemy's canon and the synchronisms of several double-dated papyri. It is also known in the Persian calendar from the saros list, based on the 18-year saros cycle. ³⁶

³⁵ Horn and Wood, *op. cit.*, pp. 14-16, 20; Thiele, *op. cit.*, pp. 28-31.

³⁶ The saros list is extant on two clay tablets containing a series of regnal years at eighteen-year intervals based on a Babylonian eclipse cycle (published by J. N. Strassmaier in reports in *ZA*, VII [1892], 200, 201; VIII [1893], 106). Beginning with the 7th year of Nabonidus, this list includes the year 9 of Xerxes and the years 6 and 24 of Artaxerxes.

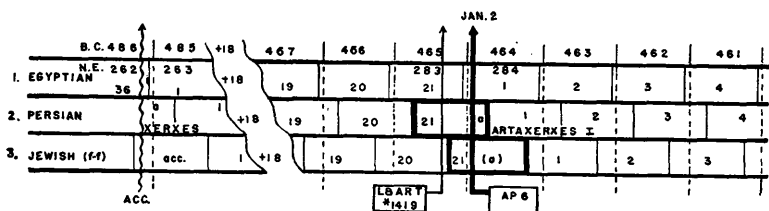


Figure 2. *Xerxes and Artaxerxes in Three Calendars*

The regnal years of Xerxes (shortened in this drawing by an 18-year gap) and the early years of Artaxerxes are shown as reckoned (1) in the Egyptian calendar (with years beginning in December), (2) in the Persian calendar (with years beginning in the spring), and (3) in the Jewish calendar (with years beginning in the autumn), all three aligned against the background of the B.C. years (extended by broken lines). The three vertical arrows represent, from left to right, (1) the accession of Xerxes (some time in November, 486 B.C.), (2) the death of Xerxes as indicated by the tablet *LBART* *1419 (August 4-8, 465 B.C.), and (3) the date of the papyrus *AP* 6 (January 2/3, 464 B.C.).

(1) In the Egyptian calendar (see Fig. 2, first band), the year 21 of Xerxes was 466/5 and the year 1 of Artaxerxes was 465/4, beginning in December.

(2) In the Persian calendar (Fig. 2, second band)—with years beginning with Nisanu 1, in the spring—year 21 of Xerxes was 465/4 (beginning approximately March 25, 465), and the year 1 of Artaxerxes was 464/3 (beginning approximately April 13, 464), several months later than the beginning of the corresponding Egyptian years.

(3) Then in the Jewish calendar the 21st year of Xerxes as reckoned according to the fall-to-fall year can be determined, with equal accuracy, as 465/4; it began with the Jewish New Year, the 1st of Tishri, the 7th month (approximately October 18, 465),³⁷ half a year later than the Persian New Year. (Discussion of the year 1 of Artaxerxes according to this Jewish reckoning will be deferred until after the expla-

³⁷ The equivalents of the Jewish dates are taken from the reconstructed calendar tables of Horn and Wood, but they are approximately the same as those in *PDBC* (1956).

nation of why the 21st year of Xerxes runs later than the Persian year 21.)

Alignment Depends on Accession Date. The alignment of the Persian and Jewish years of Xerxes (or of any postdated reign) depends on whether the Persian or Jewish New Year came first after the accession. This can be explained best with the aid of Fig. 2. Since Xerxes' year 21 in the Persian calendar was 465/4, his year 1 was 485/4, from spring to spring; he must have come to the throne some time before that, since his "accession year" was the part of his reign that preceded his first full calendar year. The date of his accession can be determined as some time in the preceding November, 486, because the latest known tablet dated in his father's last regnal year was in the 7th month, and the first dated in Xerxes' reign was in the 8th month (approximately December 1).³⁸

After his accession in November, 486, the first New Year's Day to arrive would be the Egyptian 1st of Thoth, in December (Fig. 2, band 1);³⁹ the Egyptian year 1 began then, but those of his subjects who used the Babylonian-Persian calendar (band 2) would not begin to date by his year 1 until the next Nisanu 1, in the following spring; and those who used the Jewish fall-to-fall calendar (band 3) would continue to date in the accession year until their New Year's Day came—the next Tishri 1, the 7th month—almost a year after his accession and half a year after the Persian year 1 had begun. (That is why, in some of these papyri, the dateline in two calendars can have two regnal year numbers.)

Thus, throughout his reign, any specific year of Xerxes—from year 1 through year 21—began earliest in the Egyptian calendar, then in the Persian calendar, and last in the Jewish calendar. Then it is demonstrated that the Jewish year 21, reckoned from Tishri 1, must be 465/4. And since year 21

³⁸ *PDBC* (1956), p. 17.

³⁹ For this Egyptian postdating of Xerxes, see note 31.

is equated with the accession year of Artaxerxes, it is obvious that the accession year according to this fall-to-fall reckoning would end in 464 (and consequently the Jewish year 1 would be 464/3).

Since January 2/3, 464, the date of *AP* 6, falls in year 21 and the accession year in both the Persian and the Jewish reckoning (see heavy arrow in Fig. 2), this papyrus date could have been either Persian or Jewish.

But there remains the question: Why would there have been a "year 21" for Xerxes in the Jewish calendar (see Fig. 2, band 3), beginning in October, 465, if Xerxes had already been murdered in the preceding August, in the Jewish year 20? The question of the artificial extension of Xerxes' reign must be answered regardless of whether the date is in the Jewish or the Persian calendar. However, such a practice of extending a regnal year after a king's death—even of beginning a new year number—has been shown to be a normal, if exceptional, practice under certain circumstances, as demonstrated in the Kandalanu-Nabopolassar transition and the Artaxerxes I-Darius II transition.

The Implications of AP 6

The next step, then, will be to examine *AP* 6 to see whether its unusual dating, in either the Jewish or the Persian calendar, can likewise be considered an unusual but normal dating formula in relation to the political situation.

As a help in visualizing the following possibilities in both the Persian and the Jewish calendar, the year in which *AP* 6 was written is marked on Fig. 2 in heavy lines in the second and third bands. In each of these calendars it is the year that began as Xerxes' year 21 and ended as the accession year of Artaxerxes.

Here is what the *AP* 6 dateline itself tells us, as can be seen on Fig. 2: (1) A change of reign was recognized at some time before January 2/3, 464, when this papyrus was written

(heavy arrow), but not earlier than Nisan 1 in the preceding spring (otherwise the papyrus dateline, if in the Persian calendar, would have had "year 1," not "accession year" of Artaxerxes), and scribes in Elephantine began to date their documents in the name of the new king, Artaxerxes; yet (2) they retained the regnal numbering of Xerxes, at least as late as January, as if he were still alive and still reigning; (3) if the death of Xerxes occurred in August, 465, they extended his last year for at least five months longer, (4) continuing year 21 if they were using the Persian calendar or (5) year 20 if they were using the Jewish fall-to-fall calendar, and if the latter, they were so unwilling to drop Xerxes' regnal numbering that on Tishri 1, two months after his death, they even began a fictitious, additional year 21 rather than change to the accession year of Artaxerxes; in that case (6) they did not recognize Artaxerxes' reign until after Tishri 1, 465 (otherwise they would have dated *AP* 6 in year 1, not accession year); (7) if Xerxes' death occurred, not in August, but *after* Tishri 1, in the autumn, the Jewish year 21 would have begun normally, in his lifetime; (8) Artaxerxes may have been recognized immediately, but with reservations, since, (9) in either calendar, year 21 would have been artificially extended after Artaxerxes' accession.

Relation to Historical Situation

What could have been the reasons back of this reluctance to relinquish the old year numbering of Xerxes? Was it unwillingness to recognize the young Artaxerxes as king or uncertainty whether someone else might prevail in the end?

(1) If the unpublished tablet (*LBART* No. *1419) is in error—if Xerxes did not die in August—he could have, as was formerly supposed, lived until December, not long before papyrus *AP* 6 was written. In that case Artaxerxes would have been given immediate recognition, and there would

have been no time for an intervening reign of Artabanus.⁴⁰ Why, then, was the recognition of Artaxerxes qualified by the retention of Xerxes' "year 21"? This would indicate an initial, though possibly brief, uncertainty as to his hold on the throne. Was it the presence of an older brother in Bactria? Or the immediate control by Artabanus?

(2) If the interpretation is not to be built on the supposition of errors in these source documents—then from the combination of these two documents, the tablet and the papyrus, it should be possible to derive an interpretation that is not incompatible with any of the data. The persistence of the regnal dating of a long-dead Xerxes indicates a prolonged period (at least five months) of uncertainty or unwillingness to give unequivocal recognition to the reign of Artaxerxes. If the new king was still so shaky on his throne after five months, there must have been a powerful rival or rivals who threatened his authority.

It is not clear whether his older brother Hystaspes, absent in Bactria, was a menace, but certainly the most powerful man in the kingdom was Artabanus. This was the commander of the royal guard, who, according to the ancient historians, was the most influential of the courtiers, the real power behind the throne, the man who had murdered Xerxes and to whom the young Artaxerxes owed his somewhat precarious occupancy of the throne. Possibly, in Egypt at least, the *de facto* power of Artabanus overshadowed the *de jure* authority of Artaxerxes.

If the dating of *AP* 6 is Persian, the double dating would indicate a prolonged period of uncertainty as to the situation of Artaxerxes. If it was in the Jewish calendar, it would

⁴⁰ Hence the present writer formerly, in the above-mentioned thesis (see note 3), ignored Artabanus as having any place in the chronology. But if August 4-8 is correct for Xerxes' death, then Artabanus' initial control of Artaxerxes may be taken into account as an explanation of the extension of Xerxes' regnal numbering in this papyrus dating; also Ptolemy's Canon, in agreement with tablet and papyrus dating, postdates Artaxerxes' reign.

appear to indicate even more—a gap between the death of Xerxes and the recognition of Artaxerxes. For a scribe using this Jewish calendar could not have *begun* dating in the accession year of Artaxerxes until after Tishri 1, in October, or even later (otherwise *AP* 6 would have been dated “year 21, year 1 of Artaxerxes”).

Did the Elephantine colonists, or all of Egypt, recognize someone else in the interval? Perhaps Artabanus, who was assigned a seven-month reign in Egypt by the Manetho *Epitome*? If so, they must have abandoned him to recognize Artaxerxes sometime between Tishri 1 and January. Even then they did not feel free to abandon the old Xerxes dating, as if the outcome were still not settled.

A reign of Artabanus in Egypt seems a doubtful explanation because it does not fit the historical narratives, because the interval between August and January is less than seven months, because the retention of Xerxes’ year 21 would seem unlikely if another king had been recognized in the interval, and because there is no evidence of Artabanus’ recognition in the Babylonian tablets (though neither is there any known tablet for Xerxes’ last year or Artaxerxes’ accession year). However, since *AP* 6 seems not to be dated in an Egyptian year, it would not be expected to furnish any indication of what the Egyptian regnal formula would have been.

Nor is it necessary to suppose that Artabanus was actually a king. If during seven months, or less, he was dominant as the real ruling power behind the throne, that would account for a situation in which full recognition of the young Artaxerxes was delayed. This divided and delayed recognition finds parallels, as has been shown in the dating formulas of tablets written in other periods of upheaval and confusion, when it was not clear which of the contenders would prevail. In the present case the historical sources corroborate the papyrus in picturing just such a situation of dynastic struggle. Then we may take *AP* 6 as reflecting such an interim

situation, and there is no disagreement between the earlier death date for Xerxes and the dating of this papyrus.

Summary

In summary, then, the evidence of this contemporary papyrus, combined with that of the Hellenistic tablet and viewed against the background of the earliest historical narrative and compared with later accounts, leads to the following conclusions:

(1) There is not necessarily any basic discrepancy between these sources.

(2) A period of uncertainty between Xerxes' death and Artaxerxes' full recognition implied in the papyrus is compatible with the tablet, and the reflection of such a situation in the dating formula is paralleled by other examples in similar periods.

(3) Such an interval of instability agrees with the historical accounts concerning Xerxes, Artabanus, and Artaxerxes.

(4) The use of "year 21" and "accession year," in either Persian or Jewish dating, agrees with the fact that no known Babylonian tablets recognize any other king between Xerxes and Artaxerxes, though a Jewish dating implies a gap before the beginning of Artaxerxes' accession year in Egypt.

(5) The alignment of the regnal years of the same number in the Egyptian and the two Semitic calendars (attested by the synchronisms of Ptolemy's canon, the saros list, double-dated papyri, and dated tablets) follows this order: Egyptian (December), Persian (spring), Jewish (fall), in the reign of Xerxes; likewise in the reign of Artaxerxes the order is: Egyptian, followed by Persian, followed (if *AP* 6 has a Jewish date) by the Jewish.

(6) This alignment makes it clear that the year formula in *AP* 6 does not fit the Egyptian calendar, but is an exceptional but normal double formula in either the Persian or the Jewish calendar.