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On the Consistency of the Wandering Year
as Backbone of Egyptian Chronology

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or solar year. On the other hand, the earth's rotation around its own axis effects the equally tangible alternation of night and day. The number expressing the approximate relationship between these two manifest phenomena is 365, since the earth revolves on its own axis about 365 times in the time it takes to revolve once around the sun. The human intellect sooner or later simply had to observe this numerical relationship and adopt a time division lasting 365 days. To Egypt, however, goes the credit for having been first.⁵

But 365 is only the integer closest to the actual number of days in a solar year, the number of terrestrial revolutions in a solar year being 365 plus about a quarter.⁶ However, since time divisions larger than the day need to be based on a number of full days in order to be practical, 365 became the chosen number.

From its discrepancy with the solar year, the ancient Egyptian year derives its most characteristic feature. Since it is shorter by about a quarter of a day, it falls behind in relation to the solar year and the seasons by about this same amount of time every four years. This means that a given day, for example New Year's Day, which at a given time fell in summer, would slowly recede into spring, then winter, fall, and again to summer, returning to the same point after about 365×4 or 1460 julian years. This motion in relation to the solar year is commonly described as wandering, hence the term "wandering year."

Our modern year is still the same as the ancient Egyptian year except for the intercalated or inserted days. As the wandering of the 365 day year is caused by the fact that it is shorter than the solar day, adding a day occasionally, while not giving any individual year the exact length of the solar year, can keep the man-made calendar years roughly, though continuously, on

1. Definitions

1.1 *Wandering Year*

The Egyptian wandering year (Latin *annus vagus*) is a year uniformly 365 days long and wandering backwards slowly in relation to the natural seasons because it is about a quarter day shorter than the solar year.

The 365 day year as we know it is an Egyptian invention. It results from the relation between two prominent natural phenomena. On the one hand, the earth's journey around the sun and the inclination of its axis to the plane defined by this journey's path produce the tangible phenomenon of the cycle of seasons

³ For the debate on second millennium Egyptian chronology in which Winfried Barta, Detlef Franke, Wolfgang Helck, Erik Hornung, Rolf Krauss, Christian Leitz, Ulrich Luft, G. W. van Oosterhout, and Jürgen von Beckerath have participated, see the bibliographies in Luft 1992 and the survey article Ward 1992. See now also Bietak 1992, Henne 1992, Krauss 1993 and 1994, Rose 1994, Spalinger 1992 and 1994, and von Beckerath 1993a and 1993b.

The absolute consistency of the Egyptian wandering year is not challenged in any of these works.

⁴ An abridged version of this paper was presented at the ARCE meeting held at the University of Toronto in April 1994.

⁵ According to Neugebauer (1938), the yearly rhythm of the Nile served as a catalyst in attaining this abstraction; to others, it is the heliacal rising of Sirius in July.

⁶ The difference between sidereal and tropical year plays no role here. The tropical year is the time it takes the earth to return to the same point on its path around the sun. The sidereal year is the time it takes the earth to return to the same point in relation to a given star.

track with the solar year. Inserting days involves the intervention of human authority as inspired by insight into the cause of the year's wandering. Three individuals are on record as having been able to muster the required influence, resulting in the creation of two calendars still in use today. All three are well-known citizens of Rome: Julius Caesar, Augustus, and Pope Gregory XIII. The efforts of Caesar and Gregory in 46 B.C.E. (with a correction under Augustus) and 1582 C.E. resulted in the modern julian-gregorian calendar used worldwide. An intervention by Augustus in 30 B.C.E. resulted in another intercalated Alexandrian year; there will be occasion to mention this year, still in use today in the Coptic liturgical calendar, again below. The question that will occupy us below is whether Caesar, Augustus, and Gregory were the only reformers.

1.2 Axiom of Consistency

The axiom of consistency holds that no calendar adjustments, that is, additions or subtractions of days, were made in the Egyptian wandering year throughout Egyptian history.

Though "consistent" is the time-honored term, "untouched" or "unperturbed" may be preferable. It can hardly be doubted that the civil year always wandered and that it always did so at the same pace, that is, consistently, in relation to the solar year. Calendrical adjustments do not change the pace of the wandering motion itself as long as the length of the 365 day year as basic unit of measurement is not altered. Adjustments do not as much produce inconsistency as leaps or displacements in the relation between wandering year and solar year.