



Figure 126. Comparison of the medieval and the ancient solutions

Here (as in the case of star occultations) we also have the periodicity in the lunar eclipses. The existence of the second (ancient) solution is explained by the approximate periodicity in the evolution of the configuration consisting of sun, earth, and moon. This period is equal to several hundreds years. But the periodicity has only approximate character and it follows that the second (ancient) solution is considerably worse than the first (medieval) one.

#### 4. The Chronology of the Almagest

According to our dating of the star occultations by the planets, the era of Nabonassar in the Almagest starts in 470–490 A.D. More precisely, the exact dates for this starting point, obtained on the basis of different star occultations and on the basis of different versions related to the 11-year disagreement in the internal chronology of the Almagest, are as follows: 447 A.D., 481 A.D., 483 A.D., 486 A.D.

The dating on the basis of the collection of lunar eclipses in the Almagest gives 465 A.D. as the first year of Nabonassar. What can we say about the accuracy of this value? The comparison of the time configuration of the eclipses in the Almagest with the real time configuration, discussed above, shows that the global chronology of the Almagest contains some errors (displacements), which have the same value as for the case of star occultations (the maximum chronological displacement is equal to 11 years). Consequently, the typical accuracy of the relative positions of the basic points for the different eras (their initial points) in the Almagest is 10–15 years.

The agreement between our datings resulting from star occultations and lunar eclipses is ideal. They both lead to the same interval, i.e., 460–490 A.D., which is supposed to contain the beginning of the era of Nabonassar.

Now we can reconstruct the global chronology of the Almagest. In the Almagest, Ptolemy mentions the dates (in terms of the era of Nabonassar) of the following events from the history of Assyria, Egypt, Rome: