This is the reason why Ptolemy quoted the phase from the ancient text without any comments. A more advanced theory of the moon's motion allowing to calculate the phase of lunar eclipses was created only in the 19th century A.D.

3) The date of the eclipse and the time of the "middle of the eclipse". These data are the result of Ptolemy's calculations (he mentioned this). Consequently, these "calculated data" are not of any interest for an independent dating problem.

4) The place of the observation of the eclipse. Note that any lunar eclipse is visible from half of the earth's globe. Hence, the indication of the place is not of serious significance.

Thus, only the data of 1) and 2) are really important for the dating problem, because Ptolemy did not calculate these data and simply extracted them from the ancient documents.

Hence, we use the following data:

1) the year of the eclipse in terms of some chronological era (the beginning of which we assume to be unknown, but we calculate it after the solution of the dating problem);

2) the phase of the eclipse.

Table 2

The table of the Almagest's lunar eclipses.

1)	[327, p. 123, book IV.6]	2)	[327, p. 123 book IV.6]
3)	[327, p. 123, book IV.6]	4)	[327, p. 172, book V.14]
5)	[327, p. 172, book V.14]	6)	[327, p. 137, book IV.9]
7)	[327, p. 136, book IV.9]	8)	[327, p. 140, book IV.11]
9)	[327, p. 140, book IV.11]	10)	[327, p. 141, book IV.11]
11)	[327, p. 141, book IV.11]	12)	[327, p. 142, book IV.11]
13)	[327, p. 142, book IV.11]	14)	[327, p. 196, book VI.4]
15)	[327, p. 80, book III.1]	16)	[327, p. 196, book VI.4]
17)	[327, p. 80, book III.1]	18)	[327, p. 136, book IV.9]
19)	[327, p. 129, book IV.6]	20)	[327, p. 129, book IV.6]
21)	[327, p. 129, book IV.6]		

Let us recall that the phase of an eclipse is equal to the maximal part of the diameter of the moon which is shadowed; this part is measured in units equal to 1/12 of this diameter. For supertotal eclipses, we need to calculate the length of the earth's shadow which is crossed by the moon. The total eclipse starts from 12 units (all eclipses with a phase more than 12 units are total). Ptolemy does not mention the phase for 3 eclipses out of 21. But at each point of the earth's surface, one can observe at least one lunar eclipse a year (with some phase). Consequently, a mention of these eclipses without their phases does not bear any real astronomical information. Thus, we are forced to exclude these three eclipses and finally work