

Reading Assignment 2: The Problem of the Planets

ASSIGNED READING T. S. Kuhn. *The Copernican revolution: Planetary astronomy in the development of Western thought*. Harvard University Press, 1957, Chapter 2.

DUE DATE Please bring a typed, hardcopy of your answers to class on Tuesday, January 9th, 2017.

TECHNICAL REQUIREMENTS Answer questions two, three, five, seven, and ten below. Together, your answers should not be longer than a single typed page. Remember to provide page numbers indicating which passages you are paraphrasing. For the remaining optional questions, please write down the page numbers on which Kuhn addresses the question.

- QUESTIONS**
1. What astronomical phenomenon provided “the oldest of calendar units”? In light of your answer to the previous question, explain one reason Kuhn asserts, “Unlike the moon . . . , the remaining five planets appear as mere points of lights in the heavens.”
 2. What were the first difficult technical problems encountered by ancient astronomy?
 3. What is retrograde motion? According to Kuhn, is explaining retrograde motion part of the “real” problem of planets that sparked the Copernican revolution?
 4. To the naked eye, how do the apparent motions of Venus and Mercury, on one hand, differ from those of Mars, Saturn, and Jupiter?
 5. In no more than a paragraph, explain how Eudoxus’s theory explained retrograde motion of the planets. Why was Eudoxus’s theory important for the acceptance of Aristotelean cosmology?
 6. What advantage did the theory of epicycles and deferents have over Eudoxus’s theory?
 7. How does Kuhn distinguish between major and minor epicycles? Did Copernicus’ theory do away with all epicycles?
 8. What is an “equant?” Did Copernicus’s theory do away with equants?
 9. According to Kuhn, what was Ptolemy’s primary contribution to astronomy?
 10. According to Kuhn, what is the “logical outline” of a scientific revolution, and why is it too simple?

REFERENCES [1] T. S. Kuhn. *The Copernican revolution: Planetary astronomy in the development of Western thought*. Harvard University Press, 1957.