

Reading Assignment 1: The Ancient Two-Sphere Universe

ASSIGNED READING T. S. Kuhn. *The Copernican revolution: Planetary astronomy in the development of Western thought*. Harvard University Press, 1957, Chapter 1.

DUE DATE Please bring a typed, hardcopy of your answers to class on Thursday, January 5th, 2017.

TECHNICAL REQUIREMENTS Answer questions three, five, six (part b), and seven 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. According to Kuhn, how did Copernicus’s theory contribute to the “intellectual ferment known as the scientific revolution?”
 2. What “function” of cosmologies does Kuhn claim is unique to “our own Western civilization?”
 3. During each day, there is some point at which the shadow cast by a sundial is shortest. Although there is some seasonal variation, the shadow cast by a sundial at this time always points in roughly the same direction. How can the behavior of a sundial be used to define the following terms: (1) noon, (2) solar day, (3) equinox, (4) solstice, and (5) year?
 4. What distinguishes the north star from other stars in the night sky?
 5. In no more than a paragraph, explain how one can locate the sun on a star map.
 6. In no more than two sentences each, explain
 - a. What Kuhn means by “conceptual economy” and how the two-sphere system provided conceptual economy.
 - b. Why conceptual economy does not require *believing*’ the two-system accurately describes the universe.
 7. Describe some key features of Leucippus and Democritus’s cosmology, and pick one feature of the cosmology that is in tension with everyday observations.
 8. In no more than a paragraph, briefly explain Kuhn’s assertion, “It is not hard to realize why the ancients believed in the two-sphere system. The problem is to explain why the conception was given up.”

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