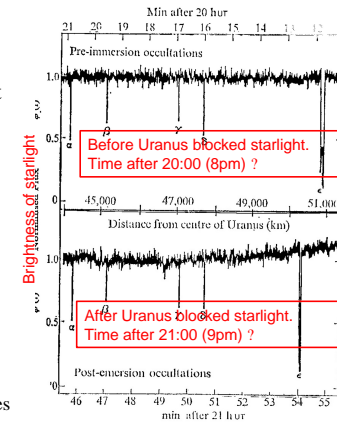


## The Birth of Science

- An example of scientific practice—Observations of Uranus
- Study of the motion of the planets by Copernicus, Brahe & Kepler led to Newton's laws of the motion of all bodies
  - All of physics and astronomy follow Newton's path
  - All other sciences follow the same practice: detailed observations of a restricted case? interpretation? general understanding that applies to many cases or that leads to more questions to study

## Occultation of a star by Uranus

- Occultation (Uranus passes in front of a bright star) of 10 March 1977
  - Very rare. Many groups observed occultation to study the atmosphere of Uranus
  - Discovered something unexpected
- Scientific practice
  - Collect clues
  - What is a model that explains some clues? Brainstorm
  - Test model against all clues



## Copernican Revolution: questions on reading assignment

1. Retrograde or normal motion of a planet concerns
  - a. whether it rises in the east or west
  - b. its motion with respect to the stars behind it.
2. Ptolemy (200AD) believed
  - a. The earth moved around the sun once a year
  - b. The sun moved around the earth once a year
  - c. The earth moved around the sun once a day
  - d. The sun moved around the earth once a day
3. We now know... (Use same answers as in #2.)