

Ptolemy, *Criterion*

How do we make scientific judgments?

- act
- instrument
- agent
- means
- goal

Time-lapse photograph:



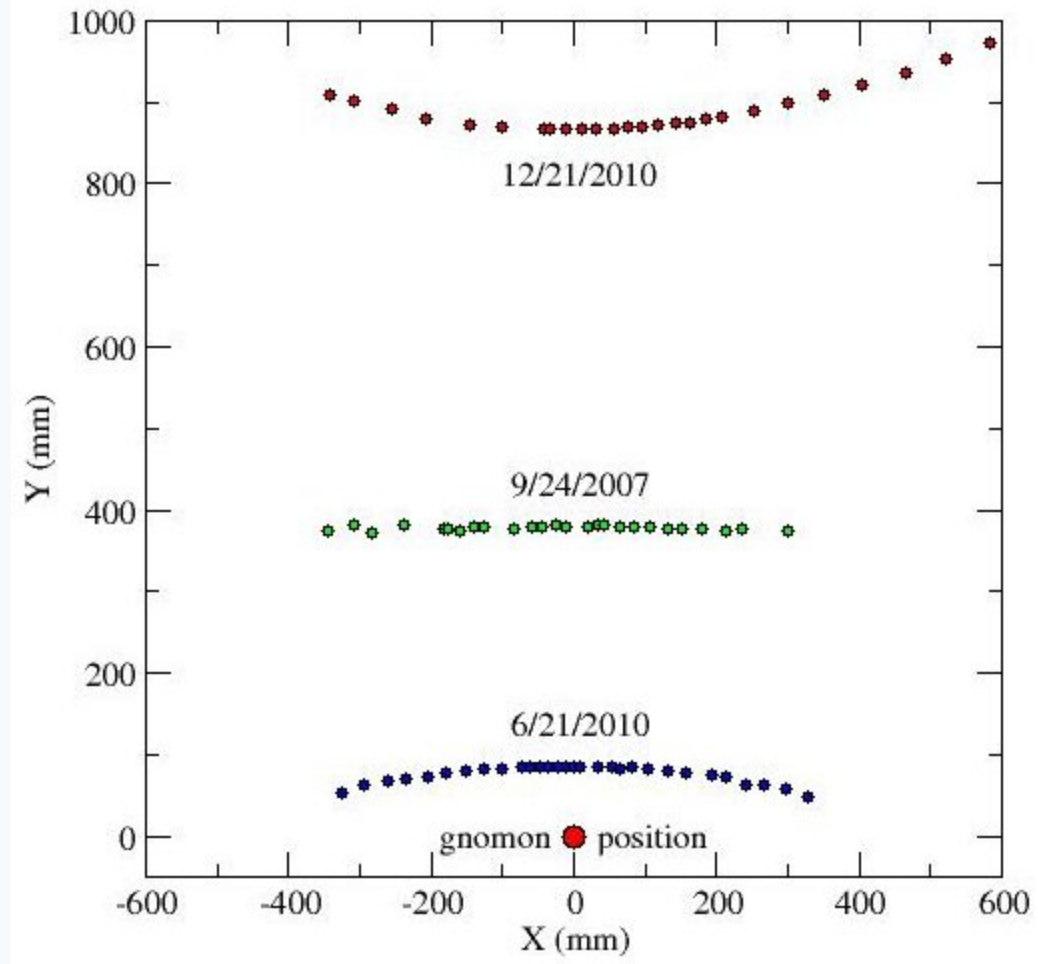
History of gnomon

- Diogenes Laertius, *Lives of the Philosophers* (3rd c. CE): Anaximander discovered the *gnomon*
- Herodotus 2.109 (5th c BCE): the Greeks learned the use of the *gnomon* from the Babylonians

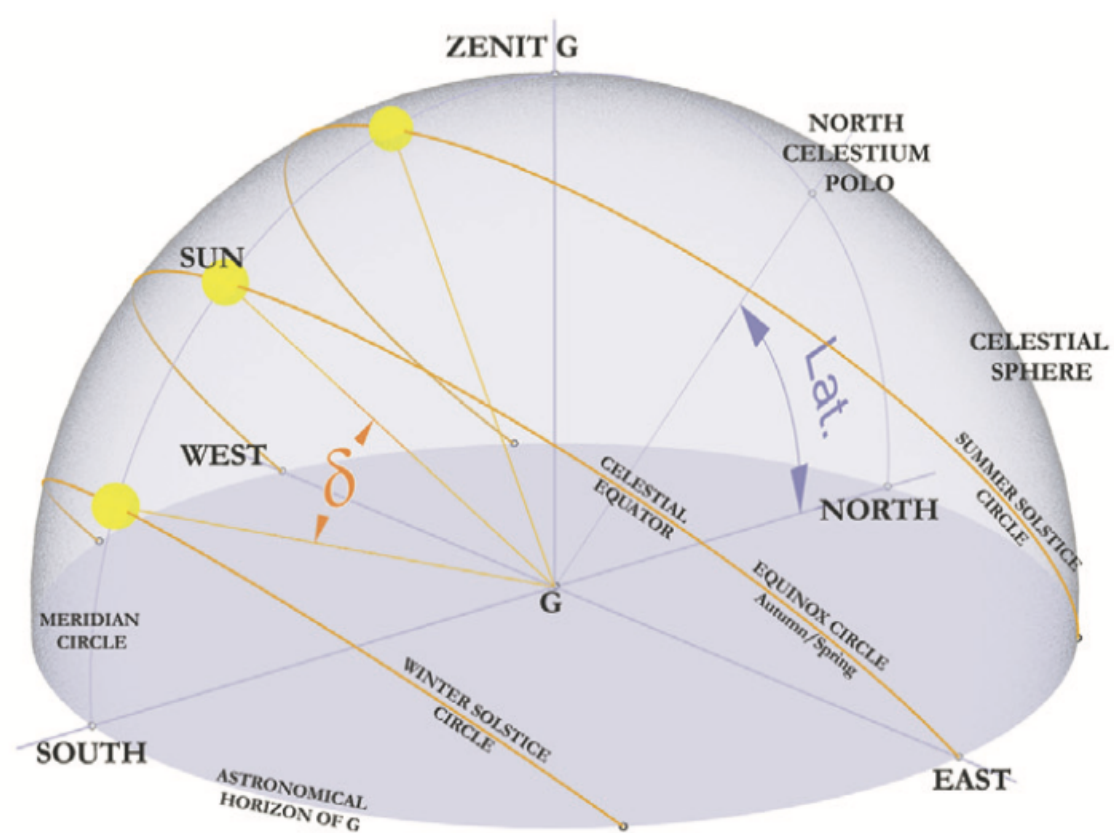
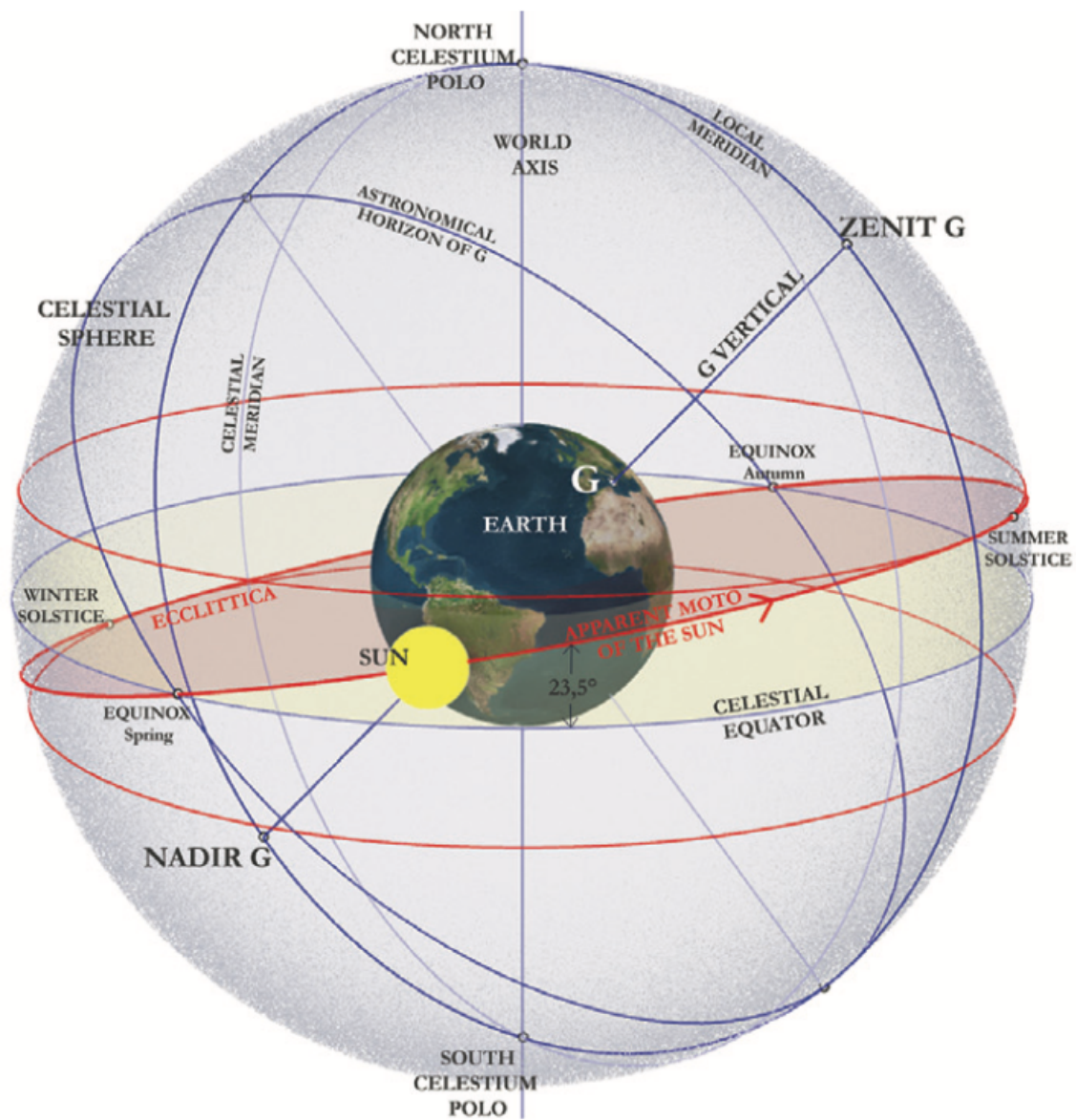
Etymologically: "the judge" or "decider"

(Also defined in Euclid, *Elements of Geometry* book 2...)

Shadow plots:







Horizon line

- viewer's *latitude*

Longitude?

- cannot be inferred from a single observation!

Clock time vs. sun time

- "local hours" = $1/12$ of daylight
- "equal hours" = $1/24$ of a day

Sundials?

Make your own on pinterest:



Calendars?

- Progress from solstice to equinox?

Context

- Observation->Theory->Model
- Same instrument for measurement/observation and prediction

Tuesday

- Euclid vs. Archimedes, *The Method* : proof vs. data exploration

