

## **Apollonian Parameters of Orbital Theory**

**Obliquity of the ecliptic**

**Longitude and latitude**

**Sidereal period**

**Synodic period**

**Longitude of apogee (or aphelion)**

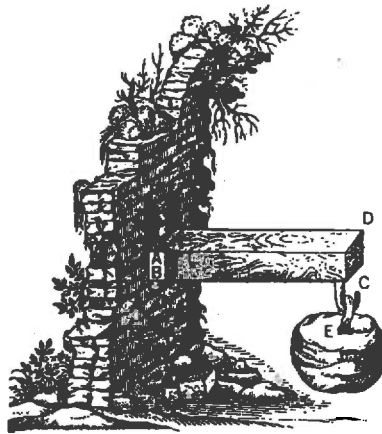
**Eccentricity**

**Radius ratio** (of two circles involved in retrograde motion)

*Each of these was (1) linked to specific observable phenomena; (2) measurable; (3) assigned a physical significance (that underwent revision from Ptolemy to Copernicus to Kepler, while preserving, at least to high approximation, key propositions involving them)*

# Galileo's First New Science

## Strength of Materials



**What parameters govern fracture? Obviously some combination of dimensions of the beam and applied load (i.e. weight), but what combination?**

**Our answer: *stress* (1820s) and *stress intensity* (1920s)**