



Aristotle

(384-322 BCE)

Aristotle is probably the greatest philosopher of western history.

A student of Plato, there is little he didn't write or talk about.

Aristotle's logic, physics, metaphysics and cosmology would come to dominate western thought for the 1900 years after his death (with the sometimes competing strand of Platonism.)

*Nicomachean
Ethics*

What is the highest good?

Aristotle rejects the Platonic idea of the “form of the Good” (and the “Forms” in general, for that matter) for various reasons.

Eudaimonia

What is the ultimate *end* (the “that for the sake of which”) of our actions?

Aristotle thinks that it is clearly *happiness* (that is *eudaimonia* which means something more like- “human flourishing” or “human well-being”), because we choose it *for itself*, and not for the sake of something else.

How is this
acquired?
The *virtues*

The virtues are a *disposition to act*.

They are developed by engaging in processes which contain the virtues inherent in them (farming might teach me patience, for example.)

Virtues lie in between two vices which represent a lack or an excess in each case.

Example: *Courage*

A firefighter relies on their *training* to know when they must act despite danger. - and courage lies in between *cowardice* (a deficiency) and *foolhardiness* (an excess.) Courage cannot be *taught*. It must be developed.



Is Virtue *Sufficient*?

Don't we also need some external goods to be happy?

After all, I could be totally virtuous, but if a series of terrible misfortunes befall me, I won't be happy.

Aristotle agrees that a good life perhaps requires a bit of luck, but the virtuous person (who lives a life of *acting virtuously*) will not be easily miserable, but will be stable and fixed.



The Importance of *Motion*

For Aristotle, perhaps everything can be seen as a motion.

For example, if I take music lessons, I am *becoming musical*, or *moving from* being **potentially** musical to **actually** musical.



Aristotelian *Substances*

A *substance*, for Aristotle, is kind of a composite (technically, it is a *hylomorphism*) of **matter** and a form or **nature**.

For example, a human substance is composed of the matter that makes it up, but also this matter needs to be “arranged” in a certain way, such that it forms a *rational animal*.



Aristotle's Elements

Aristotle's four elements are composed of two pairs of contraries- dry/moist and cold/hot

Earth: Dry and Cold

Water: Moist and Cold

Air: Moist and Hot

Fire: Dry and Hot

The elements



Plus ... A “First Element”

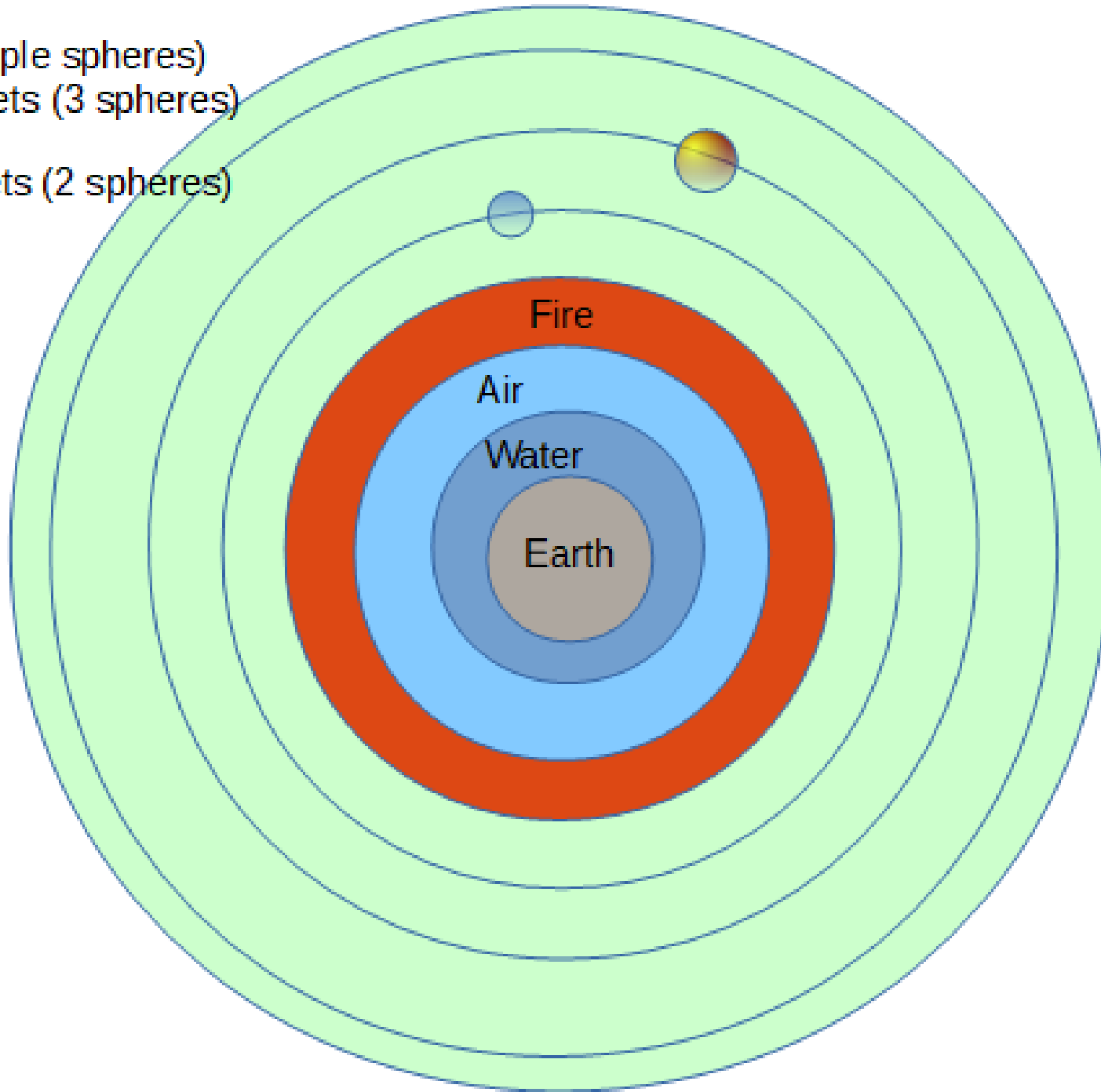
To these *terrestrial elements*, a “First Element” (which is called *aether* by later commentators) is added, which accounts for the “heavenly bodies” - the Sun, Moon, stars, etc.

The aether forms “celestial spheres” (of which there are about 50) on which the planets, Sun, moon, etc. all rotate around the Earth.

If there were no movement, the terrestrial elements would be like the celestial ones-- cocentric spheres:

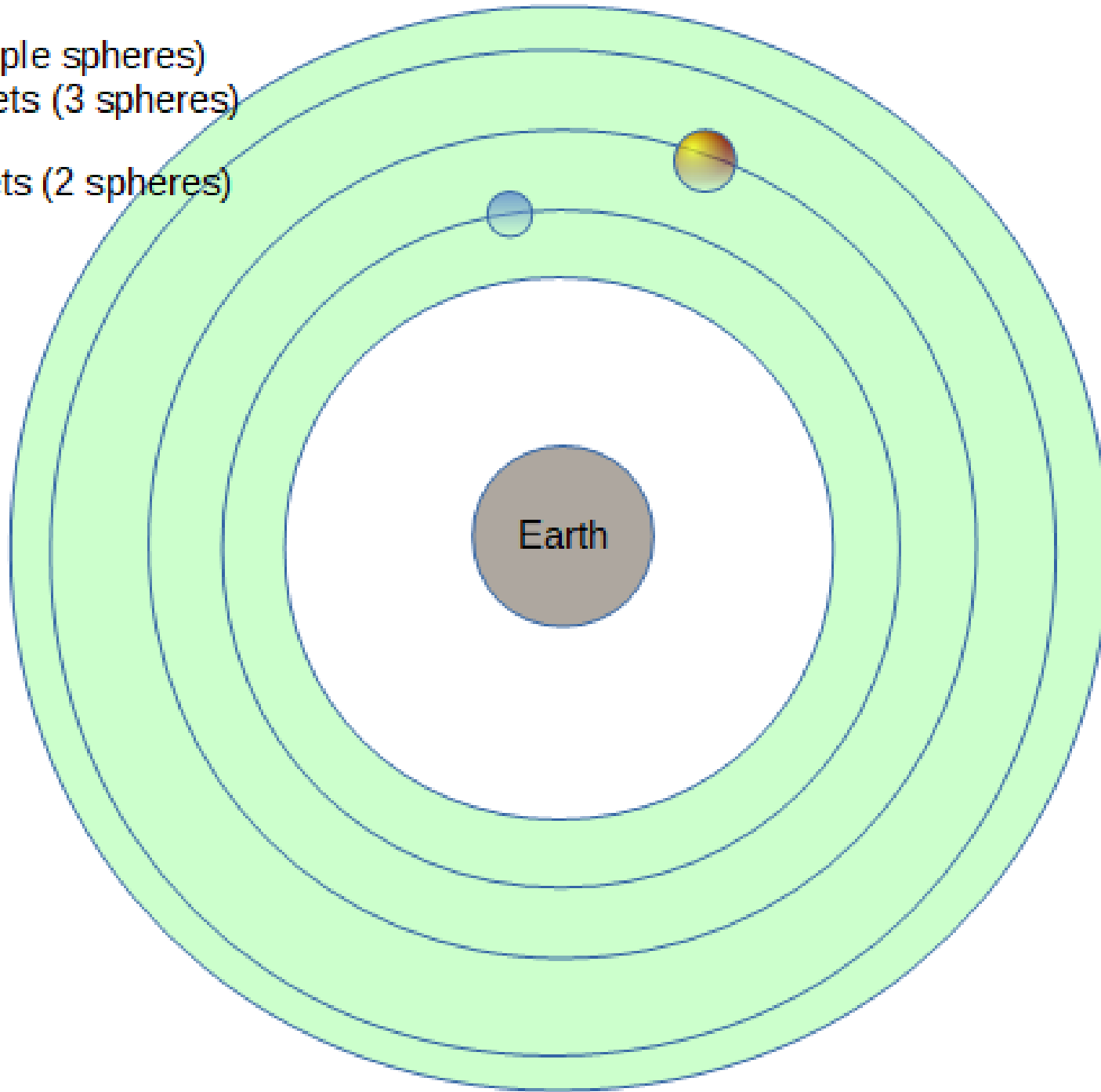
Aristotle's Cosmos

- Stars (multiple spheres)
- Outer Planets (3 spheres)
- Sun
- Inner Planets (2 spheres)
- Moon

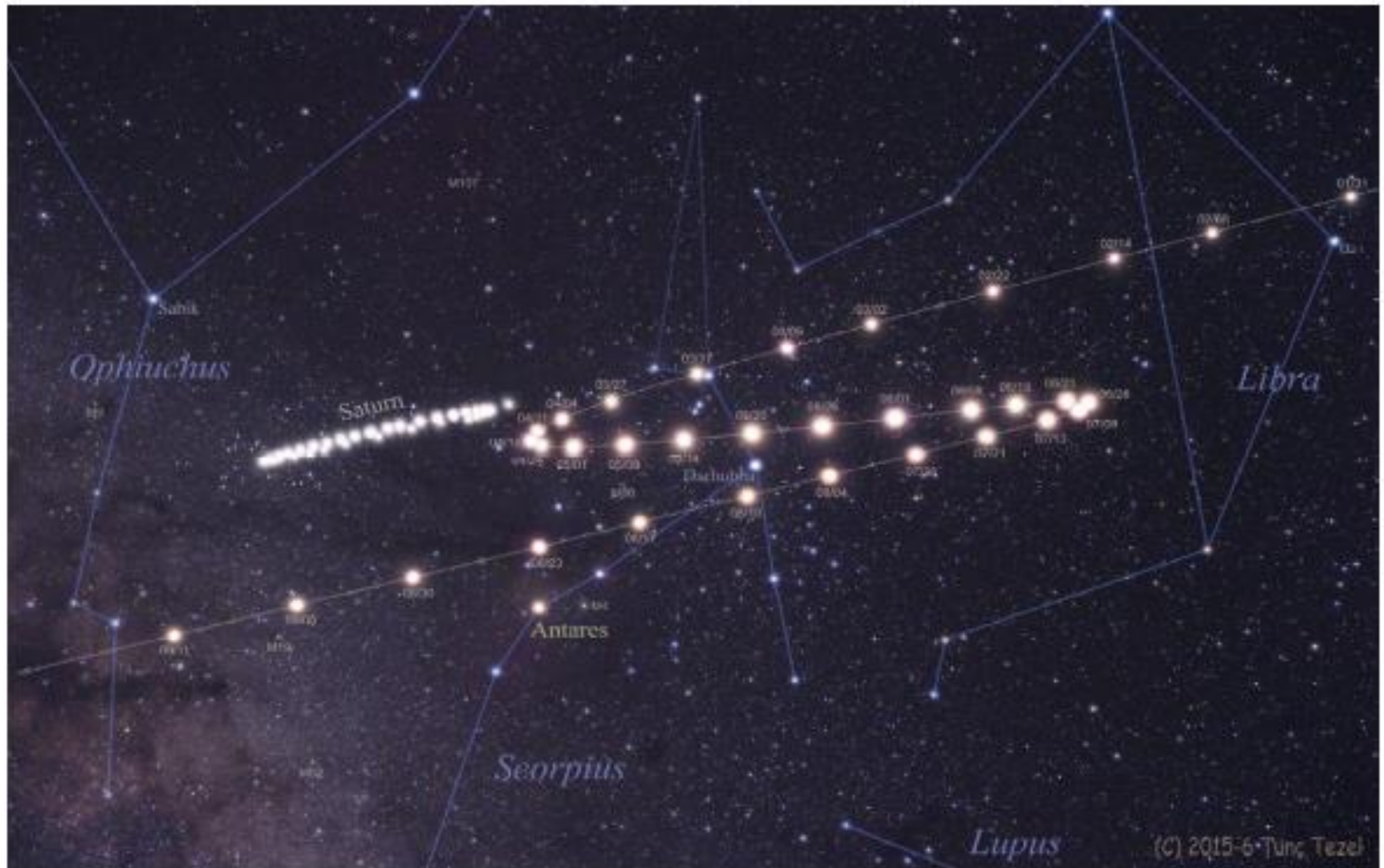


Aristotle's Cosmos

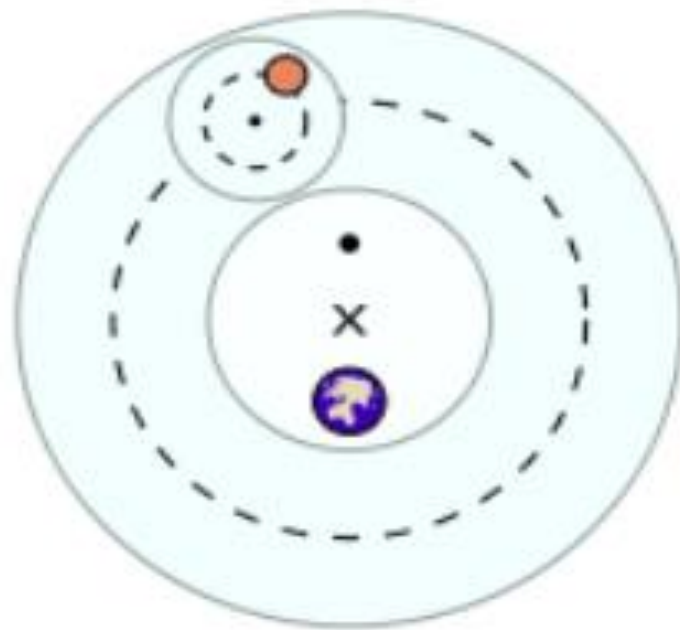
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Problem- Retrograde Motion



Solution: Epicycles

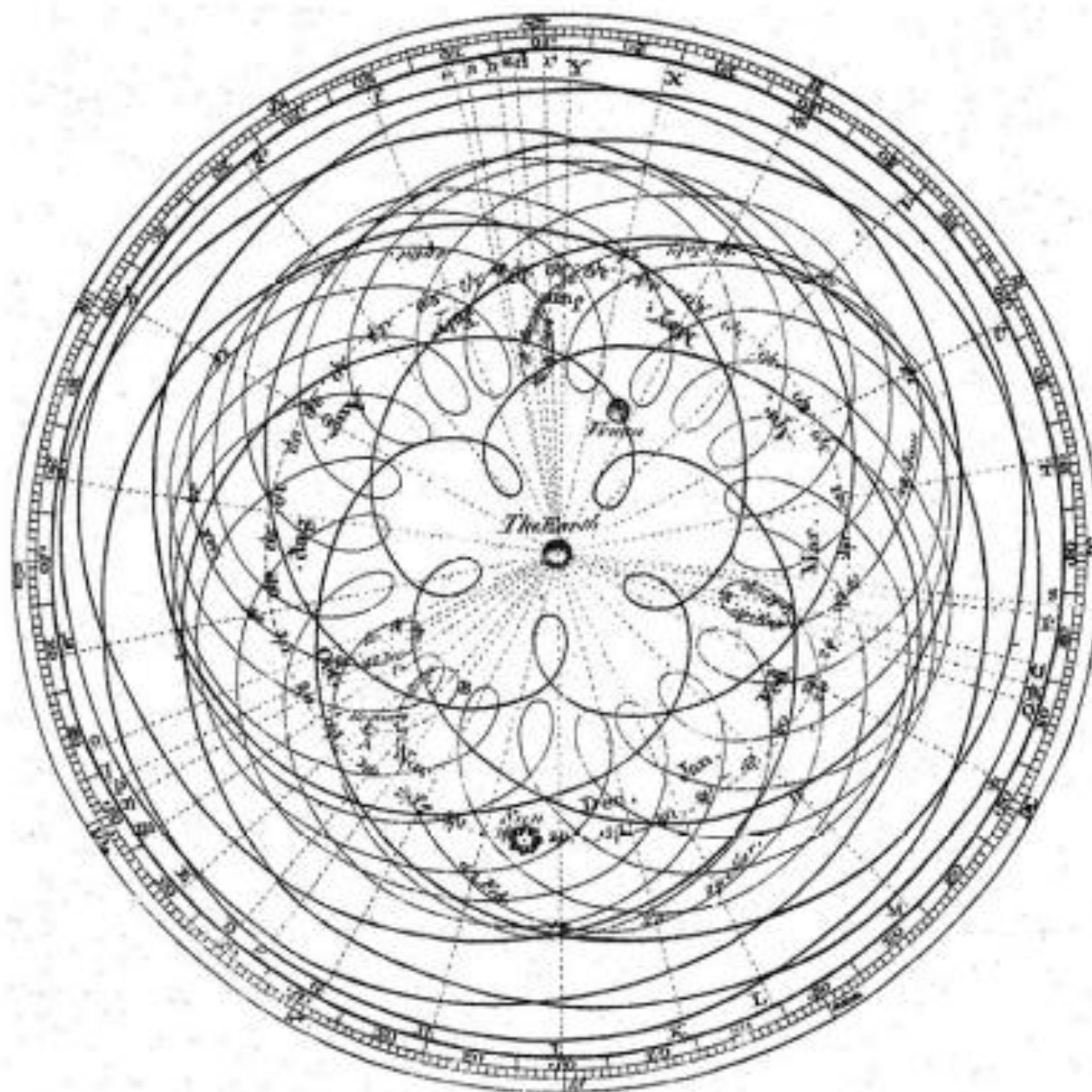




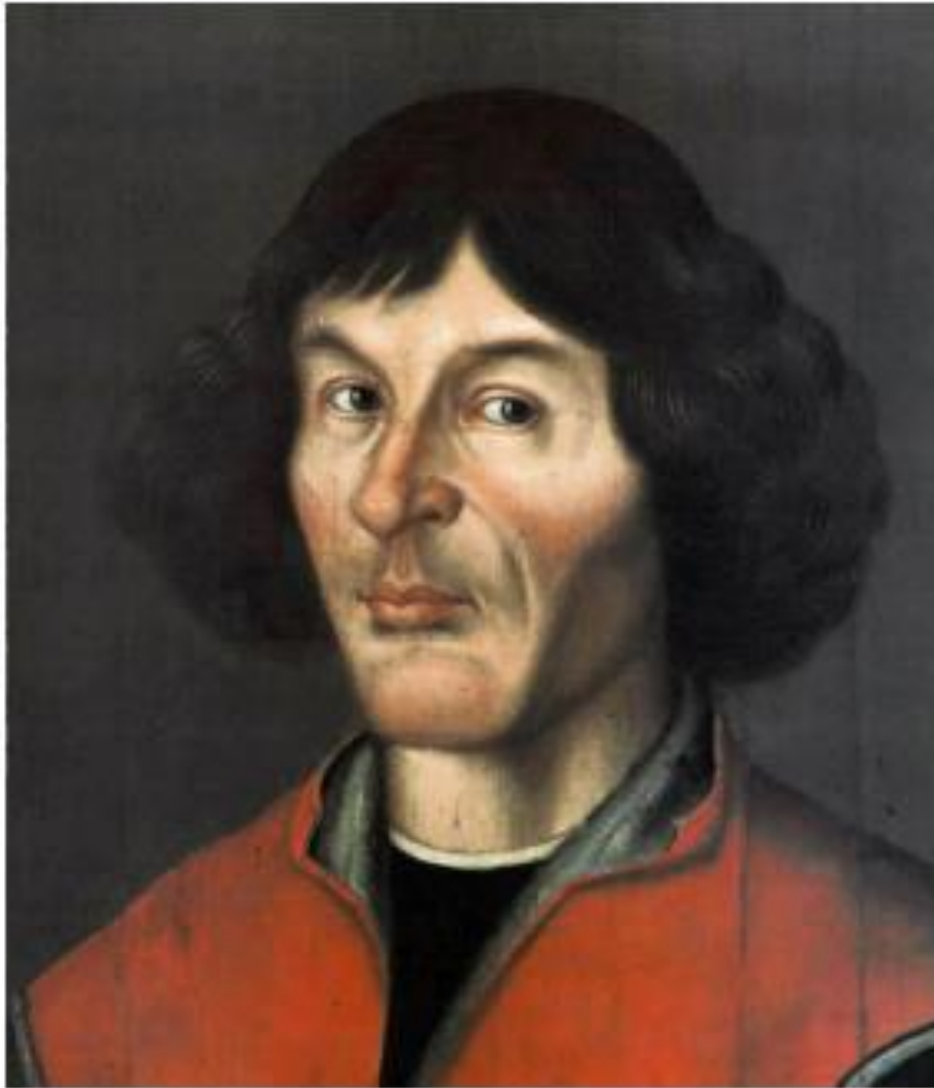
Ptolemy (100-170 CE)

- A complete system of epicycles was put together by Ptolemy. This would be the basis of the west's understanding of the cosmos for the next 1200 years.

Geocentrism



Nicolaus Copernicus (1473-1543)



Publishes *On the Revolution of the Heavenly Spheres* in 1543.

In it, he proposes a *heliocentric* cosmology (although he still uses circular orbits.)

Galileo Galilei (1564-1642)



Defends heliocentrism against geocentrism in *Dialogue Concerning the Two Chief World Systems* (1632).

Accused of heresy by the Roman Catholic church.



Discussion Question

Why do you think people believed in a geocentric cosmology before Copernicus?

