



The Scientific Revolution: Its Classical and Christian History

with Dr. Ted Davis

Lecture 21: Newton, Gravitation, and God

Outline:

Newton, Gravitation, and God

- In his student days, Newton devoted much study to the cosmological ideas of René Descartes, which presented the Solar System as a vortex of tiny particles of matter, all swirling around a center—the Sun. The vortex carried larger pieces of matter, such as planets, around the Sun. There were no attractive forces; objects were forced to move in great circles by the fact that the universe was a plenum, full of matter everywhere with no empty spaces between the pieces of matter.
- A few years later, when he returned home to ride out the plague, Newton thought hard about the cause of motion in the heavens. Whether or not he was inspired by a falling apple, he came to think in terms of attractive forces operating between all pieces of matter in the universe, both on Earth and in the heavens. He developed that idea more fully many years later, after a visit from Edmund Halley in 1684.
- Newton’s Law of Universal Gravitation: Two bodies exert gravitational forces on each other, where the direction of the force on either body is toward the center of mass of the other body.
- The Mechanical Universe video clip (Timestamp: 18:24 – 32:00)
- The first edition of *Principia* (1687) mentions “the Scriptures” only once, in a discussion of time, space, and motion, and no specific verses are cited. The word “God” is also found in just one place, when Newton says that God put the planets at different distances from the Sun, such that each receives a different amount of light and heat. This is what we now call a “fine-tuning” argument in natural theology. In the second (1713) and third (1726) editions, however, the sentence about God was reworded with passive verbs and “God” disappeared.
- However, Newton added to the second and third editions an essay called “General Scholium,” in which he talked extensively about God and cited the Bible often. He portrays God as the designer and active governor of the world, which is God’s “dominion.” “And thus much concerning God, to discourse of whom from the appearances of things does certainly belong to Natural Philosophy.”