CHAPTER 15

AND, YET IT MOVES

WHAT IS TRUTH?

Is there anything on which everyone can agree? That’s the trouble with ‘truth.’ Everyone seeks it, and controversy occurs when it’s found. Can there be contradictory truths? If something is believed to be true, can it be replaced by a new truth? Is there anything that is an absolute truth unaffected by any changing conditions? Are controversies about truth arguments about relative truths, that is, ones that are so subject to certain circumstances and constraints? No one likes to be shown as wrong, but a seeker of truth must be willing to accept that possibility. Intelligent people worthy of the designation must be prepared to be shown they are wrong. Can there be progress without genuine objectivity? Are there any absolute truths? Perhaps, but there is a great deal more relative truths that should be reexamined. Throughout the history of the world, thinking outside the box has been a dangerous undertaking.

THE PROBLEM

Can you believe your eyes? Can you listen unbiasedly to an explanation, learn from an experiment, and accept something new? How do you advance a new truth? Can experiments demonstrating new findings convince unbelievers? Can they be led to draw the same conclusion as the demonstrator? Would it matter? This entry is about Galileo, who suffered from questioning authority by advancing the heliocentric theory, which holds that the Earth moves around the Sun and not the geocentric theory that has it the other way around.

Have you ever experienced the supposed motion of the Earth? If the Earth moves shouldn’t there be a different sky every night while it rockets through space? Does moving from the geocentric theory to the heliocentric one diminish the importance of the Earth and its inhabitants? Why might civil and religious authorities feel threatened by this new belief? What would it take to convince you that the heliocentric theory is correct? What were the circumstances at the time the geocentric theory was considered the absolute truth? Did the proponents of the geocentric theory base their findings on experimentation and instruments? Were these merely inadequate to the task?

MEET THE PROBLEM SOLVER

Once the most respected scientist in Europe, the now 70-years old, ill and nearly blind Italian mathematician and astronomer Galileo sits in prison. He is clothed as
a penitent, awaiting a trial; He had been summoned to present himself to the Holy Office in Rome. Pope Urban VIII, once his friend and patron, insisted that the old man, weak and ill, make the two-hundred-mile wintertime journey to Rome. If not he would be arrested and taken there in chains. The old man vacillated between hope and despair. He still supposed that his honesty and faith could save him, and he looked forward to defending his adherence to the heliocentric theory. It would not matter. He did not understand that this was not the real issue.\footnote{1}

The inquisitors had the task of rooting out heresy, which threatened the official thinking of the Church, and to punish those found guilty. The crippled old man had every reason to be frightened. If convicted, his punishment could be death. His apprehension was apparent in his appearance. His hair and beard are unkempt and in need of a trim. His eyes are weary and veiled. His jaw is slack. He no longer can stand erect and walking any distance is painful. The fire had gone out of his belly.

On April 12, 1633, Galileo is deposed by Father Firenzuola, the Commissary-General of the Inquisition.\footnote{2} He is reminded that at a meeting he had with Cardinal Bellarmine, acting as the Pope’s agent, he was admonished not to “hold, teach or write about the heliocentric theory of the Universe.”\footnote{3} On June 22, he is led to the convent of Minerva. The Commissary informed him that the outcome was a foregone conclusion – guilty – and the only matter left was to decide his punishment.\footnote{4} “Cardinal Francesco Barberini, a moderating influence on the panel of ten judges deciding Galileo’s fate, persuaded the Commissary to meet with Galileo and convince him to admit error in return for a more lenient sentence.”\footnote{5} In a letter not discovered until 1833, Firenzuola described his April 27 discussion with Galileo:

I entered into discourse with Galileo yesterday afternoon, and after many arguments and rejoinders had passed between us, by God’s grace, I attained my object, for I brought him to a full sense of his error, so that he clearly recognized that he had erred and had gone too far in his book.\footnote{6}

The judgment was in some sense lenient. He would be required to recant, finish out his life in prison, and to recite the seven penitential psalms every week. His hopes crushed completely; he could do no more than fall on his knees and read the abjuration prepared for him.

I, Galileo, son of the late Vincenzo Galilei, Florentine, aged seventy years, arraigned personally before this tribunal, and kneeling before you, Most Eminent and Reverend Lord Cardinals, Inquisitors-General against heretical depravity throughout the entire Christian commonwealth, having before my eyes and touching with my hands, the Holy Gospels, swear that I have always believed, do believe, and by God’s help will in the future believe, all that is held, preached, and taught by the Holy Catholic and Apostolic Church. But whereas – after an injunction had been judicially intimated to me by this Holy Office, to the effect that I must altogether abandon the false opinion that the Sun is the center of the world and immovable and that the Earth is not the center