IV. The Renaissance and the Reformation

met several times between 1545 and 1563. Among the reforms that resulted from this meeting of cardinals and the pope were the following:

• Many of the theological teachings of Luther and Calvin, such as predestination, were explicitly rejected.
• The Protestant principle that faith should be based wholly on the scriptures—“sola scriptura”—was rejected. The Catholic Church reaffirmed the value of the Bible but insisted that tradition and scholarly work were also important.
• The practice of selling indulgences was banned.
• Higher educational standards for priests were established.
• Moral standards for the clergy were reiterated.
• The authority of the papacy was reaffirmed.
• Various doctrines about the Bible, the sacraments, transubstantiation (the Roman Catholic doctrine that the bread and wine in the Eucharist changes into the body and blood of Christ) and the Mass were affirmed and clarified.

The administrative structure and doctrines of the Roman Catholic Church as they are today are, in large part, the result of the reforms decreed by this council.

Another lasting effect of the Counter Reformation was the founding of a new monastic order, the Society of Jesus, better known as the Jesuits, by a Spanish priest, St. Ignatius Loyola (1491–1556). The Jesuits took on the role of soldiers of the Church. Jesuits took the lead in reinvigorating the education of priests and of intellectual inquiry. Fearless Jesuits sailed to the New World to convert Native Americans. Jesuit scholars played a leading role at the Council of Trent.

Copernicus and Galileo: Scientific Questioning

While many of the scientific theories of the ancient Greeks and Romans stood the test of time—such as Galen’s belief that the arteries carried blood and not air—some theories were not grounded in demonstrable facts. As scientists, philosophers, and mathematicians of the Renaissance attempted to test and prove these older theories using new scientific and mathematical tools, many of the theories were disproved and discarded. However, whether all the planets and the sun revolved around Earth or Earth revolved around the sun became a heated controversy during the Renaissance.

Until the 1500s, the most influential theory on the movement of the planets was that of Ptolemy, a Greco-Egyptian mathematician, astronomer, and geographer who lived in the 100s CE. He claimed that Earth was stationary and at the center of the universe, and that all the planets and the stars revolved around it. This view was generally accepted by Christians because it put Earth, God’s “greatest creation,” at the center of the universe, which was considered unmoving and perfect, and also because it seemed to accurately describe what we see in the skies every day: when the sun “rises” and “sets” each day, it certainly seems like the sun is moving and Earth is standing still.

Even before astronomical telescopes were invented, Nicolaus Copernicus used mathematics to try to prove or disprove the Ptolemaic theory. Copernicus, a Polish astronomer, could not prove the truth of Ptolemy’s theory. In fact, Copernicus argued that the geocentric theory (which held that Earth was at the
center) was actually less likely than the heliocentric theory (which held that the sun was at the center). At the request of Pope Clement VII, he published his findings in 1543, but his book raised little controversy.

Some 50 years after Copernicus published his findings, in 1609, the Italian inventor Galileo heard about a telescope that had been invented in the Netherlands. Galileo built a telescope of his own and began to study the heavens. He quickly made a series of important discoveries. He discovered that the surface of the moon was not flat but pockmarked with craters. He also observed that there were many more stars in the sky than could be seen with the naked eye. Finally, he observed several of the moons of Jupiter and noticed that these moons appeared to be orbiting Jupiter. If that were true, then it must mean that not everything in the universe was going around Earth. Eventually, Galileo came to the same conclusion as Copernicus: the sun, not Earth, was at the center of the universe.

In 1632, Galileo published a book in support of the heliocentric theory. Copernicus had previously written in support of the heliocentric theory, but he had been moderate in his claims. Galileo was bolder. Although his book was written in the form of a dialogue, in which each speaker gets a chance to state his case, he gave the strongest arguments to the spokesman for the heliocentric views, and he put some of the then-pope’s own views into the mouth of the book’s most rigid geocentric believer. Also, his book appeared at a time when Europe was involved in religious wars between Protestants and Catholics. At this time, the Catholic Church was very sensitive to any questioning of its authority, having been stung by the questioning of Luther and other Protestants. For all of these reasons, Galileo’s book created an uproar among other scholars and the Church’s hierarchy for questioning both the ancients’ view of the world and, seemingly, the Church’s teachings. Galileo insisted his ideas were not necessarily in conflict with religious truth. He said his work investigated “how the heavens go,” whereas the Church taught “how to go to heaven.” He was summoned before the Inquisition, a Roman Catholic court organized to detect and defeat heretical ideas, and told to recant his views or be punished. He chose to recant. Supposedly, as he left the court after having recanted, Galileo murmured to himself, “But it [Earth] does move.”

The discoveries of Copernicus and Galileo were early episodes in what would later be called the scientific revolution. Beginning in the 1600s, those interested in understanding how nature worked set about the careful observation and study of natural laws, including those that governed human development and activity. Rather than simply accepting what Aristotle and other ancient writers had deduced the Bible said, scientists gathered data, established hypotheses, performed experiments to test their suppositions, and drew conclusions. Then they repeated the process to verify their conclusions. In the years following the discoveries of Copernicus and Galileo, important discoveries were made in various fields, including botany, physics, optics, and medicine. The work of Copernicus, Galileo, and other scientists of the time continues to be carried on and advanced by modern scientists.