

Science and Philosophy

The optimism of the twelfth century and search for order gained its fullest expression in the work of scholars who sought to reconcile ancient philosophy with Christian faith. The new style of learning represented by figures such as Peter Abelard (1079-1142), whose *Sic et Non (Yes and No)* (1122-1123) laid side by side conflicting opinions of authorities on 156 subjects, promoted a new faith in human reason. While Abelard shied away from stating which of the opposing opinions were correct, later scholars did not. In this venture, thinkers relied on new translations of ancient, non-Christian texts, such as Gerard of Cremona's 1175 translation of a major astronomical work by the ancient writer Ptolemy (c. 90- c. 168). Above all, they relied on the works of Aristotle. Western Europe was familiar with Boethius's (c. 480-524/5) commentary on Aristotle from the late Roman period, but new translations and commentaries on the philosopher's writings on logic, zoology, metaphysics, politics, and poetics introduced from the Arabic world transformed European learning. In Aristotelian thought, ideas do not exist separately from the material world. What exists has causes. Causes are known through sensory experience. Since man is rational, some scholars became convinced that the world could be understood by exercising reason—the very attribute that set humans apart from the rest of creation. In their attempt to harmonize all areas of knowledge, westerners were indebted to two Muslim scholars. The first was Avicenna of Persia (980-1037) who sought to show the unity of truth through his commentaries on Aristotle, Plato, and the Qur'an. The second was Averroës who was born in Muslim Spain and whose defense of reason and commentaries on Aristotle were translated into Latin and were widely known throughout the West. These translations were from Arabic. In the thirteenth century, William of Morbeke (1215-1286) provided translations of Aristotle directly from the original Greek.

The growing belief and attempt to show that the world could be understood, and its mathematical dimensions measured and classified into Aristotelian categories through deductive reasoning, exposed a tension between reason and faith. Not everyone believed ultimate truth came from reason. After all, man was imperfect because of original sin, despite his reasoning capacity. Furthermore, an idea such as God created the world from nothing, a core belief in the Judeo-Christian tradition, was incompatible with Aristotelian logic. For these thinkers, ultimate truth derived from revelation, or mystical experience. In other words, only God was omnipotent, and it was through closer union with God that humans discovered, or rather were shown, truth. When reason conflicted with religious doctrine, the Catholic Church tried to censor it, as they did in 1210 when they banned students in Paris from reading certain Aristotelian texts. However, reason and logic could also be used to justify and explain faith. Furthermore, what reason could not uncover satisfactorily, faith could. The reconciliation of reason and faith is best represented by the work of the Dominican teacher of theology, Thomas Aquinas. Born to a Neapolitan noble family, Thomas Aquinas (c. 1225-1274) was a theologian and philosopher, or a *scholastica*, who had a profound belief in the harmony of worldly and divine truth and order. Using the categories of Aristotle to show that the

Bible and ancient philosophy could be reconciled through deductive reasoning, he compiled a summary of theology and philosophy, *Summa Theologica* (1273). In this massive work, Aquinas posed questions about human experience and the nature of the divine. He laid out all the implication of each question, or their component parts, analyzed each implication, provided the correct answer to the question as derived through reason, and then refuted all those opinions that opposed his answer.

The method of logical argumentation, or dialectic, Aquinas employed in his *Summa Theologica* became the key tool for the approach to learning in the universities, referred to as scholasticism. Other summaries showing how human knowledge and faith harmonized followed. Dialectic was also used in other areas of study. In the late eleventh century, a copy of *Corpus Juris Civilis* (*Body of Civil Law*)—a compendium of Roman law commissioned by Emperor Justinian (c. 482-565)—was discovered in Pisa. Secular rulers were especially keen to show how Roman law justified and gave order to their authority. In 1140, the Benedictine monk Gratian extended this to canon law, or the law of the Catholic Church, using deductive reasoning to reveal the principles behind the laws of the popes, reconciling seeming contradictions among laws as well as with Church doctrine.