

4 INTERLUDE ON REASON AND FAITH

Most of what has been said so far can be known by the normal use of human reason; Greek thinkers (e.g., Plato, Aristotle) formulated many of these truths apart from the Jewish Scriptures and before Christianity. Knowledge attainable by reason constitutes our natural knowledge, truths known by the use of our own natural powers. For many modern readers, the approach I have been outlining seems foreign only because it differs from what they have imbibed from modern culture, both everyday and scientific.

Most Westerners have been taught to think about reality only from a materialistic standpoint that assumes no other possible way of rationally approaching the nature of things. This assumption is perhaps the dominant factor in the bifurcation of reality into religious and nonreligious: many people have divided the world in their minds into religious things (going to Church, God, angels, the soul, morality) and nonreligious things (the universe, science, politics, economics, psychology). This division contributes to

For the first, historical, part of this chapter ending at the section titled "Reason and Faith," I wish to express my great thanks to Kenneth J. Howell for advice, guidance, and consultation. For general references for this part of the chapter, see Howell's *God's Two Books*, "Copernicanism and the Bible in Early Modern Science," and "Galileo and the History of Hermeneutics."

the nearly complete breakdown of any use of the intellect in matters deemed religious. Christians sometimes make the same assumptions as materialist people because their minds have been shaped by materialist categories.

Materialists think religion and science are in conflict. Where did this idea of conflict come from? Most importantly, is it true? Most materialists, atheists, and secularists tend to think that someone introducing claims like the ones I made in previous chapters is unnecessarily injecting religion into science. Nothing could be further from the truth. So why would they think this? Part of the answer lies in the time they were educated. In the last quarter of the nineteenth century, a narrative of conflict with regard to the history of science came from leading cultural figures, such as John Henry Draper, Thomas Henry Huxley, and Andrew Dickson White.¹

Clarifying Key Terms

Discussions of science and religion are often marred by imprecise language and inadequate definitions of “science,” “religion,” “theology,” “faith,” and “philosophy.” I indicated in chapter 3 that the definition of intelligence differs radically in its usage in modern science from the way the medieval thinkers understood it. The same can be said for other terms. Representatives of scientism often do not distinguish between religion and theology, a distinction well known to all who have studied theology. The term “religion” derives from the Latin *religio*, cognate of the verb *religare*, “to bind back or again,” and so signifies devotion and piety. One may be very religious with little knowledge of theology. In some worldviews, such as Buddhism, it may not make much sense to distinguish the two, because Buddhism has little theology in the Western, Christian sense. In Christianity, religion must be distinguished from theology because the latter is “faith seeking understanding” (*fides quaerens intellectum*), a phrase that appears in the eleventh-century thinker Anselm, though it has clear antecedents in earlier writers (e.g., Augustine). Traditional Christian theology, then, is the application of human reason to the data of revelation.² Philosophy is

1. See, e.g., Draper, *History of the Conflict*, and White, *History of the Warfare*.

2. Among the many medieval expressions of theology as the application of reason to the data of faith, Thomas Aquinas gave one of the most influential in *STI*, q. 1.

the pursuit of truth and wisdom that Christians adopted from the ancient Greeks, because they perceived it as a help or handmaiden (*ancilla*) to understanding the revelation given by God in nature and in Scripture. In the Middle Ages, philosophy, including natural philosophy, was considered an essential prerequisite to the study of theology. All medieval theologians had immersed themselves in logic, rhetoric, geometry, and astronomy before pursuing theology. Yet the Western medieval thinkers I discuss in this book understood the goal of philosophy to be the discovery of truths that human reason could attain apart from any special act of divine revelation. Many modern people tend to confuse philosophy and theology; for these medieval thinkers, they were distinct.

Theology is related to faith in several ways. Faith has a double meaning in theology. Many moderns think of it only in one of these ways, understandably so because they have unconsciously adopted the assumption that faith is only subjective. This meaning is technically called *fides qua creditur* (the faith by which it is believed) and indicates the subjective faith of an individual. The other meaning important for our purposes is *fides quae creditur* (the faith that is believed) and indicates the objective content of the Christian faith. This content is objective in the sense that it has a meaning and significance apart from what individuals may think or believe. The importance of this distinction between faith as subjective belief and the faith as objective content will become apparent later.

Historically, Christian theology has never imagined that true knowledge comes only through faith. Reason, in its broadest sense, has always held an honored place among the best of Christian thinkers. This confidence in reason is why Christians have been deeply involved in science, sometimes at the forefront of research (e.g., Galileo, Kepler, LeJeune, LeMaitre, Mendel, and Pasteur). These historic figures believed that ~~there were~~ rational foundations for the traditional Christian view of creation, foundations that allowed for all types of bona fide knowledge to be easily grafted into Christian thought. Early Christian thinkers and the medievals who built upon them looked about and found in Greek philosophy (Aristotle, Plato, the Stoics) views compatible with their own. They then developed and perfected those ideas with Christian revelation.

Reason and Faith: A Historical Sketch

From the earliest Christian centuries, many thinkers were confronted with the claims of reason against Christian claims. While some Christians, usually those less educated, rejected reasonable claims out of hand because they perceived them as contradictions to their new faith, moderate and careful thinkers distinguished between bogus and genuine knowledge claims. In the second century, Tertullian of Carthage, in defending the Trinity against Praxeas, spoke of God as a rational being.³ Origen of Alexandria, the foremost biblical scholar of the Greek-speaking Church, valued knowledge from outside the Scriptures. In a letter to Gregory Thaumaturgus, he asked his friend to extract from Greek philosophy what may serve the purposes of Christianity. In that list, he included subjects traditional in Greek education: geometry, music, rhetoric, and astronomy. Origen then introduced a literary theme that would guide Christian thought for centuries to come. He invoked the story of the Exodus (Ex 12) as justification for incorporating pagan knowledge into Christianity: in the same way that the Israelites took the Egyptians' gold and silver when they left Egypt, so Christians should use the gold and silver of their pagan world. While avoiding the trap of pagan idolatry, Christians should not be afraid of knowledge drawn from the culture around them.⁴

The most important Christian thinker in the West by far with regard to reason and faith hailed from north Africa: Aurelius Augustine. Augustine has left us with a legacy that exceeds any other ancient writer. Born in 354, Augustine recounts his first thirty or so years in his famous *Confessions*, a life as varied and mixed as one might imagine that of any ancient scholar. Once ordained the bishop of Hippo Regius, he worked tirelessly in multiple capacities.

3. Tertullian, *Against Praxeas* 5, trans. Kenneth Howell, personal communication, 2017. "Rationalis enim deus, et ratio in ipso prius, et ita ab ipso omnia: quae ratio sensus ipsius est" ("For God is rational and reason is first of all in him and thus everything from him [is rational]: his consciousness is reason").

4. Origen, *Letter to Gregory*: "But I am anxious that you should devote all the strength of your natural good parts to Christianity for your end; and in order to this, I wish to ask you to extract from the philosophy of the Greeks what may serve as a course of study or a preparation for Christianity, and from geometry and astronomy what will serve to explain the sacred Scriptures, in order that all that the sons of the philosophers are wont to say about geometry and music, grammar, rhetoric, and astronomy, as fellow-helpers to philosophy, we may say about philosophy itself, in relation to Christianity."

ities as pastor, teacher, polemicist, and peacemaker. Somehow during such a busy life, Augustine still found time to dictate and write over five million words that survive to this day. His importance for the intellectual history of the West can hardly be exaggerated; no Church Father from the first five centuries of Christianity shaped the Western world as much as Augustine. And it was Augustine who would use the same theme as Origen to establish a positive view of all knowledge for subsequent Christian thinkers.

Augustine drew upon and reinforced two crucial ideas: God is the source of all truth, and therefore no two truths can contradict one another. God created the world and the natural laws that govern it. What God placed in creation would not contradict what he revealed in the Scriptures. There are many passages in his writings that reiterate these two important principles, but perhaps the most famous comes from *De Doctrina Christiana* (*On Christian Teaching*):

If those who are called philosophers, especially the Platonists, have said things which are indeed true and are well accommodated to our faith, they should not be feared; rather, what they have said should be taken from them as from unjust possessors and converted to our use. Just as the Egyptians had not only idols and grave burdens which the people of Israel detested and avoided, so also they had vases and ornaments of gold and silver and clothing which the Israelites took with them secretly when they fled, as if to put them to a better use. They did not do this on their own authority, but at God's commandment, while the Egyptians unwittingly supplied them with things which they themselves did not use well. In the same way, all the teachings of the pagans contain not only simulated and superstitious imaginings and grave burdens of unnecessary labor, which each one of us leaving the society of pagans under the leadership of Christ ought to abominate and avoid, but also liberal disciplines more suited to the uses of truth, and some most useful precepts concerning morals. Even some truths concerning the worship of one God are discovered among them. These are, as it were, their gold and silver, which they did not institute themselves but dug up from certain mines of divine providence . . . he [the Christian] should take this treasure with him for the just use of teaching the gospel. And their clothing, which is made up of those human institutions which are accommodated to human society and necessary to the conduct of life, should be seized and held to be converted to Christian uses.⁵

5. Augustine, *On Christian Doctrine*, 75.

When Augustine speaks of “the liberal disciplines,” he is thinking of some of the same fields of knowledge that Origen had listed (geometry, music, rhetoric). The study of these subjects had been integral to Augustine’s own education as a rhetorician. His writings reveal a man who was a subtle and careful thinker, who never precipitously or too quickly locked on to a solution to a deep problem. He often asked more questions than he answered.

Augustine was intrigued by the creation account in Genesis and tried on at least five occasions to write a definitive commentary on it.⁶ To compare these different accounts makes for fascinating reading as one follows Augustine’s thinking through a problem. Three salient points emerge from Augustine’s wrestlings. (1) His absolute confidence in the Scriptures as the authoritative word of God. He is sure that the biblical authors teach truth. (2) The fallibility of human interpretation of the Bible. When does one interpret Scripture literally? When metaphorically? How does the Bible convey truth in language we might today call mythological? Why does the Bible use so much anthropomorphic language in describing God and his actions? Augustine poses these questions and hundreds more, of which most people in most ages have never thought. His purpose was to distinguish between true and faulty interpretation of the Bible. (3) Truth in the Scriptures and truth from outside Scripture are compatible. If there seems to be a conflict — as there seemed to be in the matter of the motion of the earth centuries later — Augustine is certain that there is some mistake in either the interpretation of the Bible or in the interpretation of nature. At times, he counsels changing one’s interpretation of Scripture in the light of bona fide knowledge of the natural world (i.e., science). Because all truths originate in God, there can be no real contradiction between natural and revealed truths.⁷

Thus Augustine, as the most influential Church Father in the Latin-speaking West, left a twofold legacy of the compatibility of all truth and the value of the liberal arts. Yet, because of his many duties as a bishop, Augustine was never able to work out a curriculum the way that Boethius did. In

6. For an explanation of Augustine’s long engagement with the text of Genesis, see Howell, “Natural Knowledge,” 117–45.

7. Two historical works that expand on this theme are Harrison, *Bible, Protestantism, and the Rise of Natural Science*, and Howell, *God’s Two Books*.

Boethius, we discover the systematic foundations of the medieval curriculum, which honored the seven liberal arts (trivium and quadrivium).

Boethius, born in 480, would become a learned and prominent Roman statesman. He is best known for his *Consolation of Philosophy*, a work written in prison during the last year of his life, before his execution in 524 or 525. This work became immensely popular in the Middle Ages and passed through hundreds of editions after the advent of printing. Speaking fluent Greek, Boethius intended to translate all of Plato's and Aristotle's works into Latin but was thwarted in his efforts, even though he did write numerous works on the seven liberal arts. Many scholars think that it was because of his influence that the liberal arts became so prominent and widespread in medieval education. The trivium (grammar, rhetoric, logic) provided the linguistic foundation for the more advanced quadrivium (arithmetic, geometry, astronomy, music). Each of the latter four subjects was treated in a mathematical and quantitative manner. Thus what we today call science was an integral part of medieval education. The crowning work of these disciplines was natural philosophy, the general study of nature, which served as the foundation for the sciences. All who had become masters in theology, medicine, and law (the three "graduate" disciplines) had the same background in their bachelor of arts degrees: trivium, quadrivium, natural philosophy.

By the high Middle Ages, European intellectuals had understood and adopted the curriculum of the liberal arts (disciplines) that Boethius had articulated. Later, the liberal arts were safely ensconced in the foundations of medieval universities. The founders of these institutions of higher learning believed in a profound, underlying unity to all knowledge. And the idea of a university where all serious fields of knowledge were studied was in turn based on the Christian conviction that all knowledge had its origin in God, who is the supreme truth.

One example of such a study of knowledge is in the early days of the founding of the University of Paris, in the twelfth century. One of the most significant players in this drama was the Victorines, the Canons Regular of St. Augustine at the Abbey of St. Victor in Paris. Among their luminaries was a canon named Hugh, whose famous *Didascalion* showed how all natu-

ral knowledge led ultimately to knowledge of God because the universe was like a book in which God's power could be seen. Hugh of St. Victor wrote, "For the whole sensible world is like a book, as it were, written by the hand of God, that is to say, created by divine power, and each of its creatures are like forms, devised not by human effort, but rather established by the divine will in order to make manifest the wisdom of the invisible things of God."⁸ Hugh's metaphor of nature as a divine book was not his invention. By this time, it was commonly accepted and appealed to by learned men everywhere. This metaphor underlay the work of astronomers in the scientific revolution and served as a powerful motivation for the investigation of the natural world, from Nicholas Copernicus of Frombork and Andreas Vesalius of Brussels to Isaac Newton of Cambridge and John Ray of the soft English countryside. The preceding centuries of Christian involvement with the pursuit of knowledge were not unknown to these men, nor were they simply an isolated fact.

The scientific revolution of the sixteenth and seventeenth centuries proved to be as momentous for the Western world as the voyages of exploration and the Protestant Reformation. Nothing in the modern world today would be what it is had not these three cultural movements shaped our history. In the historiography of these two centuries, one finds inconsistent accounts. The nineteenth-century antagonists of religion set the backward and benighted dogmas of Christianity against the enlightened scientists of the new order. The likes of John Henry Draper and Andrew Dickson White offered a narrative of conflict between dogmatic religion and innovative science. This version of history was enormously influential in the first part of the twentieth century, so much so that one no less than Bertrand Russell adopted the warfare metaphor in his lectures on science and religion.⁹ Highly learned and unusually analytical, Russell naively swallowed the story. There was only one problem: the picture of the warfare of science and religion was overdrawn and distorted. It simply did not fit the facts.

Since the Second World War, research into the scientific revolution has opened up wider and deeper perspectives on this foundational period in the

8. Hugh of St. Victor, *Didascalion*, book 7, chap. 4. The translation comes from Howell, *God's Two Books*, 209.

9. Russell, *Religion and Science*.

history of science. With regard to religion, there were at times questions and potential conflicts between the claims of traditional Christianity and the emerging sciences, but almost all of the greatest thinkers worked within a context established by the medieval framework discussed previously. Not only were the brick-and-mortar structures of the universities the backdrop of research, but also the tradition of disputation within natural philosophy provided the conceptual background for further investigation. We must pass many intricate details of this history to note only some of the more important ideas relevant to our concern.

Religion in general and theology in particular played a motivational role in many of the leading figures of science and its promotion. Two who stand out are the astronomer Johannes Kepler and the statesman Francis Bacon. Bacon's *Great Instauration* included a lengthy prayer for the advancement of knowledge. Part of that prayer is "Wherefore if we labor in Thy works with the sweat of our brows, Thou wilt make us partakers of Thy vision and Thy Sabbath. Humbly we pray that this mind may be steadfast in us, and that through these our hands, and the hands of others to whom Thou shalt give the same spirit, Thou wilt vouchsafe to endow the human family with new mercies."¹⁰

In the same vein, the greatest astronomer of the scientific revolution, Johannes Kepler, paused to offer a prayer for the advancement of the church. In his *Harmony of the World*, Kepler expressed his hope for harmony in the human world as a reflection of the celestial harmonies his science had revealed: "Holy Father, keep us safe in the concord of our love for one another, that we may be one, just as Thou art one with thy Son, our Lord, and with the Holy Spirit, and just as through the sweetest bonds of harmonies Thou hast made all Thy works one; and that from the bringing of Thy people into concord the body of Thy church may be built up in the Earth, as Thou didst erect the heavens themselves out of harmonies."¹¹

These are clear expressions of the religious motivations of early modern scientists, inasmuch as they unhesitatingly voice their sense of the unity of truth in both the natural and the revealed realms. Being motivated by religious faith does not reflect an absence of conflict, but conflicts that did arise

10. Bacon, "Great Instauration," 23.

11. Kepler, *Harmonies of the World*, 58.

did not usually lead to an abandonment of faith or of religion. Johannes Kepler faced serious opposition from his Lutheran coreligionists at times, but his goal of revealing the Trinitarian God in the cosmos remained with him his whole life.¹²

Because conflict and warfare are most clearly seen in the case of Galileo Galilei according to the historiography of the late nineteenth century, some understanding of the historical facts is necessary, because Galileo's encounter with the Roman Catholic hierarchy seems to be an ever fertile ground for those who wish to deliver on their own conceptions of the proper relation between science and religion. Despite the enormous historical literature that one finds on Galileo, there are still many highly educated people who do not know about the basic facts of the case, and few who know how to navigate among varying interpretations. We must distinguish between two separate historical events and, in both cases, labor to understand them from the point of view of the participants, not from the perspective of later history. Many myths have grown up around the Galileo Affair, making it difficult to distinguish between historical reality and later mythical interpolations. What are the facts?

The first event is the condemnation of March 5, 1616, by the Congregation of the Index. Scholars differ over who precipitated this condemnation, but one thing is certain. Galileo's famous *Letter to the Grand Duchess Christina*, written in early 1615, was a central impetus in bringing about the condemnation. None of Galileo's works were mentioned in the text of the condemnation itself, but the official declaration condemned the belief in the motion of the earth as contrary to good philosophical reasoning and to Scripture. The decree condemned a book by a Carmelite named Paolo Foscarini, whose *Letter on the Copernican Opinion* argued that Holy Scripture did not teach anything about the motion of the earth and that therefore the idea of terrestrial motion could not be heretical in theology. It also prohibited Copernicus's *De Revolutionibus* "until corrected."¹³

Galileo's *Letter to the Grand Duchess Christina* has been subject to vari-

12. Howell, *God's Two Books*, 109–35.

13. Among the voluminous scholarship on the Galileo Affair, it is crucial to read the original documents that have been nicely translated in Finocchiaro, *Galileo Affair*. The *Decree of the Index* is found on 148ff. Foscarini's letter has been translated in Blackwell, *Galileo, Bellarmine, and the Bible*, 217ff.

ous interpretations. One of the best is Maurice Finocchiaro's argument that Galileo was not trying to argue for Copernicanism against Scripture or the Church. Rather, Galileo simply wanted the Church to refrain from making any judgment at all on the matter of earth's motion. Galileo's arguments are based on the historical precedent of Augustine and on the long-accepted belief that knowledge of nature and divine revelation could not contradict one another. His reasoning in this *Letter* is a model of clear but subtle argument. It was for this reason that the Church eventually accepted Galileo's approach as well founded. For example, Pope Leo XIII issued an encyclical, *Providentissimus Deus* (November 18 1893), in which he basically endorsed Galileo's approach to the reconciliation of apparent conflicts between the Catholic faith and science. I say "apparent conflicts" because neither Galileo nor the official Church ever believed that there could be true conflicts between the Christian faith and science. Galileo says as much in the *Letter to Christina*. As spelled out above, the prevailing Christian tradition had long before accepted Augustine's guidelines outlined in his *Literal Commentary on Genesis* (*De Genesi ad Litteram*).

In any case, we possess Cardinal Bellarmine's certificate of May 26, 1616, in which he says he informed Galileo of the congregation's decision, endorsed by the pope, and said that the Copernican opinion cannot be "defended or held."¹⁴ All knowledgeable parties of that day, including Galileo, acknowledged that there was no proof for the Copernican system by the standards of proof generally accepted in that day. Galileo willingly followed the cardinal's injunction. He continued to work on arguments for and against the theory, but he did not advocate it, even though he still believed that it was true and that good arguments would be forthcoming.

As Galileo developed arguments for the Copernican system after the condemnation by the Congregation of the Index in 1616, he was greatly encouraged when an old friend of his was elected to the papacy in 1623. Maffeo Barberini mounted the papal chair on August 6, 1623, as Urban VIII. The new pope invited Galileo to visit him, and the two talked as they walked in the Vatican gardens. Supposedly, Urban told Galileo that the 1616 decision was an unfortunate one but that it could not be revoked, or at least that it

14. *Cardinal Bellarmine's Certificate*, dated May 26, 1616, is found in Finocchiaro, *Galileo Affair*, 153.

was not prudent to do so. Urban encouraged Galileo to write a new book on the Copernican system, but he warned him to be careful not to advocate the new theory, only to offer arguments for and against it.

During the next seven or eight years, Galileo wrote the famous *Dialogue on the Two Great World Systems*, which was published in 1632.¹⁵ This book was approved by the censor of Florence (where Galileo lived), but other clerics condemned the book. This is where historical opinion divides. Some thought that Galileo was *not* advocating Copernicanism, only discussing it. Others thought that the book clearly did advocate the new theory. The censors in Rome had enough evidence in their minds to justify calling him before the Inquisition so that he might defend himself against charges of heresy. The proceedings took place in the spring of 1633. The inquisitors asked three evaluators to review the book. The most detailed report was tendered by a learned Jesuit, Melchior Inchofer, who cited many passages from Galileo's *Dialogue* that demonstrated that he taught, defended, and possibly held the Copernican theory as true.¹⁶ Galileo was asked on four separate occasions if he had ever or now held the theory to be true. In these four depositions, he denied holding to the theory after he was ordered not to do so.

In essence, the question at the trial of 1633 was whether Galileo had in fact disobeyed the injunction of 1616. In the end, Galileo was found guilty for disobeying the earlier order. He was eventually placed under house arrest in his villa in Arcetri, just across the river from Florence, for the remainder of his life. He died in 1642 at seventy-eight years of age. He was not hindered in his scientific work, since he published his greatest work of science in 1638, *The Discourse on the Two New Sciences*, and no Church authorities saw this book as a violation of his sentence, showing that they were not against scientific research per se.

The question that most people ask today is whether the Church was right to condemn a scientific theory, and of course we assume without much argument that religious bodies should not interfere with science. But in the seventeenth century, things were not so clearly delineated as today. Furthermore, we must remember that no one, not even Galileo, had any real proof

15. Among the many editions of the *Dialogue* that have been printed, Maurice Finocchiaro has provided one of the best, with commentary: Finocchiaro, *Galileo on the World Systems*.

16. See Inchofer's assessment in Finocchiaro, *Galileo Affair*, 262–70.

for the motion of the earth in 1632. The first experimental confirmation of stellar parallax, the needed proof agreed upon by both sides, did not come until the nineteenth century with Bessel's observations. Thus believing that the earth was motionless was not absurd in the seventeenth century.

Still, there is the question as to whether the Church should have made any determination of this matter at all, no matter whether there was proof or not. Here it is important to see that it was probably Galileo who forced the issue. Some clerics, circa 1613–14, urged Galileo not to enter into scriptural interpretation or the theology of the matter. They said that there would be no problem if he just stuck to the astronomy and the physics. This advice was based on the relative separation of natural philosophy and theology that had existed since the Middle Ages. Galileo's actions seemed to violate this relative separation. Still, many (both Catholics and Protestants) in that day believed that Scripture taught that the earth could not move. Although this was never official Church interpretation, it was a pervasive belief.

The later recognition of the Church's error in this matter is based on two ideas central to Catholic theology. One is that the Church should pronounce on matters of faith and morals (*de fide and moribus*), not on scientific theories. This belief is not new and was not new in Galileo's day. Second, Catholic theology operates on the assumption that no two truths can ever really contradict one another.¹⁷ If something can be shown to be true in science — and for something to be true in science is not a simple matter — the Church says that it is proper to interpret Scripture in a way that accords with that truth. This is essentially what St. Augustine said in the fifth century, and what Cardinal Bellarmine reaffirmed in his famous *Letter to Fr. Paolo Foscarini* in Galileo's day.

In sum, the Galileo case involved a division over a complex question about the motion of the earth, but one that was answerable in principle. Figures like Cardinal Bellarmine and Christopher Clavius believed there was not sufficient proof (physical or astronomical) to conclude that the claim was true. Galileo believed it was at least provable. What all these figures held in common was at least as important as what divided them. They all believed in the Augustinian principle of the compatibility of truth from different sourc-

17. See the section "Reason and Faith" below.

es, specifically from nature and Scripture. While there might be, and indeed was, conflict over specific truth claims, there was no sense of the incompatibility of science and religion.

The first overt claims of incompatibility arose later in the seventeenth century and flourished in the eighteenth century, under the pens of Enlightenment figures such as Diderot, Voltaire, and the Encyclopedists. Even a superficial reading of Enlightenment advocates displays their animus against formal religion. Some of them identified superstition and religious practice, an equivalence never officially countenanced by any major Christian body. With regard to science and its implications for religion, the Enlightenment had little real impact, but it did sow the seeds for attacks of atheists and agnostics in the nineteenth century. Throughout that century, there was a growing belief that matters of religion and creed were subjective, and separate from the objective truths of science. The narrative of conflict and the growth of philosophical materialism tilled the ground for views commonly accepted today. This brief account of the history of reason and faith gives some insight into how we lost the ancient Christian idea of the unity of knowledge and the ultimate compatibility of natural and supernatural knowledge. Nevertheless, in the writings of Thomas Aquinas lies a clear and articulate understanding of how faith and reason complement one another to give a fuller picture of reality.

Reason and Faith

In his *Summa contra Gentiles*, Thomas Aquinas reiterates the teaching of Augustine on the compatibility of reason and faith: "Now the knowledge of the principles that are known to us naturally has been implanted in us by God; for God is the author of our nature. These principles, therefore, are also contained by the divine Wisdom. Hence, whatever is opposed to them is opposed to the divine Wisdom, and cannot come from God. That which we hold by faith as divinely revealed, therefore, cannot be contrary to our natural knowledge."¹⁸ The principles (reasons) of everything are contained in God. God is like giant blueprint for all that is. This blueprint includes

¹⁸ SCG I.7.

that which is known by the natural human powers of reason reflecting on the natural world (natural knowledge) and those things above reason that are given in the tradition of the Church (faith as divinely revealed). Because both come from God, who is the standard for all reality, it is impossible that one could be in conflict with the other, if properly understood. If something is reasonable, it is so because it first comes from God. Proper understanding is the key. Many matters of knowledge can be in apparent conflict because of human error in reason and judgment. This, I maintain, is the real problem between science and faith in our present world: all the legitimate findings of science are interpreted and taught according to the faulty philosophy of materialism, which fundamentally contradicts Christianity.

Thomas teaches three types of knowledge: (1) that which is found through the natural powers of reason (rational knowledge),¹⁹ (2) that which is understood by being given to us (revealed) by a higher power (the prophets, angels, or God),²⁰ and (3) the space where the two overlap, the interpenetration between rational and revealed knowledge.²¹ The light spectrum provides a good analogy to the relation between rational and revealed knowledge. Our eyes can see only a small range of actual light, that is, visible ranges. Below that threshold are the infrared and microwave, and above it are the ultraviolet, x-ray, and gamma ray. Either of these two extremes, such as microwave on the lower end and all on the upper end, is harmful to human eyes because they can bear only a natural range of light intensity. Even a more intense light, such as that of the sun, which is in our visible range but too bright, can damage our eyes. So our sense of sight is hurt not only by extremes beyond its visible range, but also by extremes of intensity within the visible range. The visible range of light is within our natural powers. Other ranges can only be observed by such means as special glasses, visors, telescopes, or indirect inference using such things as autoradiograph film.

Knowledge is much like the light spectrum. Human beings have natural powers of their intellect just as there are natural powers of sight. The natural powers of the intellect can grasp the things of this world made of matter — rocks, minerals, mountains, stars, plants, animals, and humans —

19. *SCG*, I.3.

20. *SCG*, I.5

21. *SCG*, I.4.

as our eyes can perceive the visible range of the light spectrum. These are the direct objects of our mind, and the knowledge of them is called rational. This knowledge comes to us through our sense experience of these objects and our intellects consequently understanding them. Just as our sight needs help to grasp light beyond its natural powers, there are things beyond our mind's power. Everything we experience has its limits, including our own powers of knowing. It stands to reason, then, that there are things beyond our power to know. To know such things, God must reveal them to us, either directly by himself, or through angels, or the prophets. Such knowledge is called revealed knowledge, or revelation. For the Christian, doctrines such as the Trinity, the Incarnation (Jesus Christ is God), and the sacraments fall into this category. The entire corpus of revealed knowledge is the deposit of faith (*depositum fidei*) professed by Christians. This knowledge is not irrational; it is simply above our natural ability to know by ourselves. If revealed knowledge is above reason, it is because it is more intellectual, and hence truer, because God himself is infinite Intellect. And given the Christian and rational idea that God is infinite, or unlimited, why shouldn't there be such knowledge?

Aquinas contends that there are things that are knowable by reason but that are also revealed.²² Such knowable things include that God exists and has certain attributes: that he is Intelligence, Will, Power, and so on ("Ever since the creation of the world, his invisible nature, namely, his eternal power and deity, has been clearly perceived in the things that have been made," Rm 1:20). The possibility of the existence of angels and knowledge of certain of their attributes is another example of this knowledge. Why would some aspects of knowledge be both natural and revealed? Some of these types of knowledge are so lofty, so difficult to attain that many people do not have the time to study and understand them. Therefore God has also revealed them.

Revealed knowledge comes to us in two forms from God though the authority of the Church,²³ first in the written tradition of the Church through Scripture (the "Bible") and second in the oral tradition (popes, councils, and

22. Many of the questions regarding God and his creatures in the first two books of the *Summa contra Gentiles* fall into this category. These two books deal with rational demonstrations.

23. *Catechism of the Catholic Church*, 80–83.

saints) of the Church ("hold to the traditions which you were taught by us, either by word of mouth [oral] or by letter [written]," 2 Thes 2:15). Once revealed, this knowledge can be passed on through our natural learning powers (reading theology or hearing the truths of faith taught), but it can also be directly infused into our intellects by God (a mystical experience).

What, then, is the relationship between reason and faith? Reason provides a preparation for faith. It makes faith reasonable to have.²⁴ Because both material and immaterial beings are created by the same God, some of the principles in material things overlap with those in immaterial things. These are some of the self-evident truths discussed in chapter 2. For example, cause and effect are known by our natural knowing powers in experiencing the natural world, but there is nothing in cause and effect that limits them to material reality. Similar types of knowledge — the true, the good, the one — are called the Transcendentals and allow the mind to pass from material to immaterial reality. These truths perceived in the natural world give us a pedestal to higher things. St. Thomas notes in his *Commentary on Job* that Job disputed with God.²⁵ How can a mere man dispute with God? Thomas notes that Job says, "I know things according to your knowledge." In other words, Job understands that all truth comes from God. In a sense, he is using the truth of God himself to "debate" with God. Because God is the "teacher of all truth," this is in no way disrespectful of God. Thus Thomas states, "the gifts of grace [God's help] are added to nature in such a manner that they do not remove it, but perfect it. So it is with the light of faith that is infused in us gratuitously; it does not destroy the light of natural knowledge with which we are by nature endowed."²⁶ It is by natural knowledge that we come to know the world around us and we learn to think. Revealed knowledge perfects this, teaches us the ultimate Truth, and aids us through grace. Perhaps the best example of this interplay is from the First Letter to John:

That which was from the beginning, which we have heard, which we have looked upon and touched with our hands, concerning the word of life — the life was made manifest, and we saw it, and testify to it, and proclaim to you the eternal life which was with the Father and was made manifest to us — that

24. SCG, I.6–8.

25. Aquinas, *Literal Exposition on Job*, 213–14.

26. Aquinas, *Trinity and the Unicity*, q. II, a. 3.

which we have seen and heard we proclaim also to you, so that you may have fellowship with us; and our fellowship is with the Father and with his Son Jesus Christ. (1 Jn 1:1–3)

The correct use of our natural knowing powers—understanding with our senses and intellect that a man of extraordinary power (Jesus Christ) is present—leads to the acceptance of revealed knowledge that this extraordinary person is God. Natural knowledge, with God's help, properly formed, prepares for an acceptance of the Revealing Authority: God. Faith is not ultimately dependent on reason for its validity, but it is reasonable to have. And the knowledge of faith is not unreasonable, either. Once known, we can apply reason to revelation in the study of theology, as faith seeking understanding (*fides quaerens intellectum*).

All this underscores why it is so important to think correctly about the natural world. This interplay of reason and faith is of paramount importance in learning about our natural world. God has ordered our world and made us humans such that to rise to him, we must use our natural knowledge, aided by God's help, as well as that of grace through faith given by God. The soul or psyche is the seat of the immaterial intellect, and so the correct perception of the natural world is critical. Because we are intellectual beings, a fundamental disjunction occurs if we view faith as irrational. We are not split personalities; we cannot have a life of faith and another of reason that contradicts the former. When faith and reason are viewed as conflicting, one or the other must be relinquished. A false religion would be one that contradicts reason. Or, as a Jewish philosopher once put it, "No one can serve two masters; for either he will either hate the one and love the other, or he will be devoted to the one and despise the other. You cannot serve God and mammon [the world]" (Mt 6:24).

Misunderstandings of the natural world have devastating consequences and are one of the principal grounds for the crises of faith that students experience in the transition to the young adult years. Those conceptions of nature underlie the whole dichotomy of reason and faith in the modern world. Such generic misunderstandings gleaned from how the science books were written and how I was educated, even at grade school levels, underpinned the problems I had when I was younger. Certainly, there were no overt at-

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tacks on faith in the books I was reading nor in the classroom at that age, but the framework presented, how it was presented, and implicit assumptions in the educational system based upon a materialist philosophy were all that was needed to do damage. Small errors in the beginning lead to great ones at the end. Early Christian thinkers, such as Augustine and Boethius, understood such problems along with their effects, and they worked diligently to correct the errors that underlie them. Instead of following these erroneous paths, they gleaned another truth from the best of pagan culture about them, a fundamentally different approach that opened the mind to higher things. To this different cosmology known by reason I now turn.