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Faith, Reason & Science:
The View from the Catholic Tradition

Harvard biologist Stephen Jay Gould tells the revealing story of his discussion with a group of Italian and French Jesuit scientists at a meeting of the Pontifical Academy of Sciences in 1984 at the Vatican.¹ Over lunch, the good fathers asked Gould to comment on all the news coming out of America about the challenge to evolution from “scientific creationism” and the theory of evolution being “in some kind of trouble.” Could this really be true, asked one Jesuit, “and if so, what could such trouble be?” The Jesuits made it clear that they saw no obvious doctrinal conflict between the Catholic faith and evolution and they agreed that the evidence for evolution seemed satisfactory. Thus, their concern about the controversy raging across the Atlantic—they wanted to be sure that they had not missed something important.

No doubt this story is revealing of the differing concerns of Catholic Europe and Protestant America. Certainly the theory of evolution has never evoked the level of reaction among Catholics as it has among many Protestants. Yet if this discussion is revealing of such differences, the lesson Gould drew from this discussion is even more revealing. It is revealing in its firm assertion of one of the most deeply rooted notions in our modern culture—a notion, I would like to suggest, that is contrary to the Catholic tradition, Gould’s interpretation notwithstanding.

Merely Apparent Tradition

Before I explain this, let us look at Gould's response to those Jesuit priests at that Vatican meeting. Here is what Gould had to say to them:

Evolution has encountered no intellectual trouble; no new arguments have been offered. Creationism is a homegrown phenomenon of American sociocultural history—a splinter movement . . . of Protestant fundamentalists who believe that every word of the Bible must be literally true, whatever such a claim might mean.

Notice how Gould characterizes the creationist critique of evolution. First, it is not an intellectual critique, for it has not put evolutionary theory in any *intellectual* trouble. He does not say it has failed to put evolutionary theory in *any* trouble—clearly he believes that the creationists have put it in “cultural” and, perhaps, in political trouble. Thus, Gould holds that this is not a scientific issue and emphasizes this by claiming that “no new arguments have been offered.” Second, Gould apparently believes that those who make this critique—“Protestant fundamentalists” as he terms them—have made some kind of basic error and their misguided critique of evolution results from this fundamental error.

Gould reports that all of his new Jesuit friends left satisfied and that was himself bemused by his role as a “Jewish agnostic . . . reassuring a group of Catholic priests that evolution remained both true and entirely consistent with religious belief.” Gould might have added that he was “pleased,” for I think he was. Nonetheless, Gould's report is most ironic, for it is grounded in precisely that deeply rooted notion in our modern culture that I have just suggested is contrary to the Catholic tradition. Making it clear that he rejoiced in his newfound Catholic allies in the culture wars, Gould goes on to point out that true Catholics, right-thinking Catholics, have always had the correct idea about the proper relationship between faith and science.

Indeed, he cites quite favorably the work of two popes in defense of his claim. Yet Gould's conception of how faith and science ought to be understood with respect to each other is much less Catholic than he thinks. I only have Gould's own report on the reaction of his Jesuit interlocutors, so I am not sure just how accurate his assessment of their approval is. I am somewhat more certain that he has misunderstood the papal documents he cites in his defense. I am most certain that the lesson Gould drew from his Vatican discussion is not one to be found in the Catholic Intellectual Tradition. This leads me to the conclusion that Gould shares much less of the Catholic understanding of faith and reason than he believes he does.

Now, by "Catholic Intellectual Tradition" I do not simply mean intellectual activity that in one way or another is associated with Catholic institutions. Scholars working in Catholic universities and Catholic learned societies and members of Catholic parishes have held and do hold a variety of views on the relation of faith and reason. Rather, I mean here something more specific: namely, that historical tradition of philosophical and scientific research that has served as the intellectual articulation of orthodox Christian doctrine and, in the west, has been supported and encouraged by the Church of Rome. In other words, I am speaking of the intellectual tradition that began with the ancient Church Fathers back in Roman times, continued with the scholastic theologians of the medieval universities, and continues among their modern followers. Of course, there has not been, nor is there now, unanimity of viewpoint within this tradition, but there is some degree of agreement on the faith-reason issue that is part of what makes this tradition an historically identifiable tradition. Thus, it is not that Gould is wrong that there is a recognizable Catholic view on the relationship of faith and science, it is just that his account of it is in error.

A Tale of Two Magisteria

So, just what is Gould's fundamental conception of faith and science that I claim is contrary to the Catholic tradition? It is a conception with which most of you are familiar, for I suspect that most of you share it: it is the view that religion and science belong to separate categories of human experience and human cognition; it is the view that religious belief and scientific reasoning are essentially different; faith belongs to one aspect of our lives and reason to another. Gould puts the idea like this: some hold that there is a conflict between religion and science, as though they are giving different answers to the same questions. In reality, there is no conflict because religion and science are not addressing the same issues—the teachings of faith are not the same as the teachings of science. Religion and science are distinct magisteria, distinct teaching authorities, each having its proper domain of professional expertise. The domain of science is “the empirical constitution of the universe” and the domain of religion is “the search for proper ethical values and the spiritual meaning of our lives.” Science tells us the *facts about reality*: what exists and how it operates. Faith tells us *how to live with this reality*: how to act toward what exists and the best attitude to have toward its operation.

This is to state the position in very broad terms indeed, yet one can get a pretty good idea of where Gould is going with this. Generally, he wants to tell us—or on his view, remind us—that science is an account of the facts about the universe and scientific research is the means by which we learn these facts, whereas religion does not tell us what the facts are, but tells us what is valuable and worthy. Both science and religion deal with truth, but different truths, for there are, on this view, two kinds of truth: factual truth and ethical truth. Now, I say that Gould wants to *remind* us of this, rather than *tell* us this, because he holds that we already know this and live it, more or less. In this he is certainly correct in the sense that such a view of faith and science is

a commonplace in our contemporary American culture. After all, how many people do you know believe that science is about objective fact whereas religion is just a matter of personal opinion. Many today, for example, would urge us to refrain from imposing our religious views on others, but few would say this about scientific views—after all, the facts are the facts, right? Consider, for example, the organization Doctors Without Borders. Few modern Americans have any problem with physicians of this altruistic group attempting to convince the local tribal healer that his traditional remedy may be doing more harm than good. It is a matter of science and there is a clear right and wrong when it comes to science. Yet how many modern Americans are just a bit uncomfortable with the missionary who attempts to convince the tribe to abandon their traditional religious beliefs in favor of Christianity? It is only a matter of religion about which there is no clear right and wrong and, therefore, it should not be imposed on others.

I label Gould's view with the general term "fideism." Strictly speaking, "fideism" is the view that religious belief is based on faith alone—that is, religiously believing is a sort of pure assent made by the will alone. While this is not exactly what Gould is explicitly claiming, it amounts to essentially the same idea. This is because the only way to understand religious belief to be like this is in contrast to scientific belief which is based on sufficient reason—that is, scientifically believing is not simply wanting to assent, it is assenting on the foundation of evidence, sound argument, and so on. Science is a matter of intellect and not of will alone. Thus, fideism strictly defined implies the separation of faith and reason and, therefore, Gould's notion that science and religion are, as he puts it, non-overlapping *magisteria*—separate teaching authorities with non-overlapping domains of expertise. It is this general sort of fideism that is the deeply rooted modern notion that is contrary to the Catholic tradition.

Before we look at the traditional Catholic alternative to fideism, we would do well to attempt restating with more precision the basic idea behind Gould's non-overlapping *magisteria*. The fideist essentially sees the matter like this: *science* is rational, public, and verifiable while *religious faith* is essentially nonrational, private, and unverifiable. This puts the issue on a more philosophical level. Even this more precise statement, however, needs further explanation.

Medieval philosophers articulated a principle, known since the time of the ancient Greeks, upon which all scientific knowledge depends: *Ex nihilo nihil fit*. Roughly translated, the Latin says that you cannot get something from nothing or, more philosophical-sounding, there is an explanation for everything. Now, this is not to say that we *actually know* the explanation for everything, for obviously if we did we would not have to do scientific research. Rather, the principle simply says that there is an explanation to know—that is, that the universe is intelligible—and it implies that, if we do our research carefully and diligently enough, we may come to possess that explanation. So, science is rational in the sense that it seeks reasons, explanations for the way things are and nothing is accepted without good reason.

Being a matter of rational explanation of reality, science is public—that is, scientific knowledge is not simply a matter of what we want to be the case or what we would find emotionally satisfying. Desires and emotions are personal in the sense that each person has his own: I cannot feel your emotion and you cannot feel mine, I cannot have your desire, you cannot have mine. Rational explanations, however, can be shared in the sense that I can come—with sufficient education, effort, insight, etc.—to understand what you understand. Thus, science is not simply a matter of personal opinion, but has an objective element that makes it public rather than private.

Because it is public rational explanation of reality, science is verifiable—that is, scientific knowledge is established and confirmed by showing the reasons on which it is grounded. Just as nothing is accepted as true scientific knowledge unless there are good reasons, so good reasons verify all true scientific knowledge. Such verification is open to anyone who is in the right position to attain it, whether it be by observation, sound argument, experimentation, or some other rational means. Therefore, a teaching of science is rational (accepted on the basis of sufficient reasons), public (accessible to anyone who can understand the reasons), and verifiable (confirmable for anyone by demonstrating the reasons).

To the eminently rational enterprise called “science” Gould contrasts religion. Essentially, religious beliefs are *non*-rational—that is, they are not based on sufficient reasons. Now, notice that I did not say that religious belief is *irrational*—that is, that no rational person would be religious and reason plays no role in religion. This is certainly *not* Gould’s position. Yet, he does hold the view that, when it comes right down to it, religious beliefs cannot be rationally established—they cannot be proven. Now, religious teachings do have a certain logic, they must hang together as a consistent system and clearly some logically imply others. The foundational beliefs, however, are not provable. The test for their acceptability is not evidence or rationally sound principles, but certain basic beliefs that are accepted without doubt, accepted on the basis of faith alone.

Given that religious beliefs are non-rational in this way, they are also private. They certainly can be shared through communication, but the non-rational assent that constitutes faith must be made by the person himself as an act of pure will. Because I cannot will for you and you cannot will for me, we each must personally assent to the teachings of the faith. When it comes right down to the question of “Do you believe?” the answer cannot be other than

personal—we each must believe for ourselves. Moreover, given the personal nature of faith, its contents cannot be rationally verified. The test of a religious belief is ultimately not some set of evidence, experimental results, or rigorous argument. It is, rather, the strength of belief determined by the private act of will—one’s personal commitment.

The upshot of Gould’s fideist separation of faith and reason, science and religion, is a twofold distinction between teaching authorities. The first is the distinction in the content of science and religion. Science is about the facts and what can be known about reality. Religion, on the other hand, is about our attitudes and values, what strikes us as important and sacred about reality. Closely related to this distinction is the distinction between the rational, shared nature of science and the non-rational, personal nature of religion. Both, according to Gould, are equally good, both are necessary for a full and rich human life. Yet they are quite different and right-thinking people acknowledge the clear and strict difference between faith and reason.

Brains at the Church Door

The attraction of Gould’s view is that it acknowledges the good of both science and religion while removing the seeds of conflict. We can avoid all those difficult and uncomfortable questions about the compatibility of faith and reason, religion and science. It is all compatible, provided we see things aright. We can have our science and our religion too. Science with its rationally satisfying explanation of reality can be fully ours without the necessity of our becoming crass materialists, cold unemotional rationalists, or heartless insensitive prigs. Because science and religion are separate aspects of our lives, we do not have to choose between being rational and being good, between being rigorously critical in judgment and being

respectfully awed in attitude. Best of all, we are insulated from rational criticism when we indulge our urge to pay respects to something higher than ourselves and something more important than our own desires. In short, we do not, as the saying goes, have to check our brains at the church door.

Or do we? While it is certainly true that Gould's view removes any basis for conflict between faith and reason, it does so at a cost. But what cost? Does not Gould fideistic separatism leave everything within science and religion just the same? The two magisteria still each have the same authority and content, do they not? Well, not quite. Remember, Gould argued that the reason that many *think* faith is in conflict with reason is that they misunderstand the content of the faith. They think that religious belief is about facts—that the religious magisterium makes factual claims about reality. This, Gould holds, is wrong. Religion does not make claims about what is and why, it only makes claims about what is good and important based on personal evaluations. The reason why faith is not in competition with reason, according to Gould, is that faith has no factual content and if we think it does, we are mistaken. Does this view, however, do justice to faith? Is religious belief non-factual like this? Does the church teach nothing about what is and is not factually true? Is religious belief really devoid of any factual content?

Answers to such questions must, at the very least, acknowledge the *apparent* factual content of religious faith. Both the linguistic form and the interpretation of the religious magisterium certainly invites the view that factual claims are being made in religious doctrine. The way in which religious people behave seems to be on the basis of facts accepted on the basis of religious authority. A brief survey of the contents of the teachings of the Catholic Church certainly bears this out. The Church teaches that God (the ultimate perfect being) exists, that he

created all there is, that he is perfectly good, that he is three distinct persons yet one unified substance, that he is incarnate in Christ, and so on. These all *seem* to be factual claims. Thus, if Gould wants to say that they are only *apparently* factual claims, then the burden of proof is on him and he has a good deal of philosophical footwork to do. In the absence of a consistent and satisfying philosophical account to the contrary, however, the most reasonable judgment is that the contents of the faith are factual and that religious people entertain factual beliefs about reality on the basis of religious teaching.

In addition to this *prima facie* case for the factual content of religious teaching, we have the considered judgments of religious intellectuals to consider. Those religious traditions that have intellectual traditions historically associated with them have generally interpreted religious teachings as factual. This is especially true of theistic traditions and most certainly true of orthodox Christianity, including the Catholic tradition. Now, modern thinkers such as Gould might claim that such thinkers of the past are simply wrong and misunderstood the nature of religion. Indeed, Gould might point out that such traditional views of religion have their roots in earlier periods of history before the age of modern science and that their thinking was, therefore, “pre-scientific.” Yet this dismissive judgment of pre-modern intellectuals is not obviously sound. Indeed, there is good reason to challenge such a view. At the very least, the *apparent* philosophical sophistication of ancient thinkers places the burden of proof on the modern fideist.

Is the reason why we do not have to check our brains at the church door that religion makes no factual claims and, therefore, cannot be in conflict with the factual claims of science, as Gould suggests? Or is there another way in which we can have our science and our religion too? Is it possible that we can be committed religious people holding factual religious beliefs and, at the same time, fully respect the great contributions the natural sciences have made to

human knowledge without danger of inconsistency? In short, is there a viable alternative to modern secularism and the rejection of religion that avoids Gould's strict compartmentalization of faith and science?

The Catholic Alternative

As the title of my talk suggests, there is an alternative to Gould's separatism which drives a wedge between faith and reason. There is an alternative to the fideism common to our age that irrevocably places religious belief outside the pale of rational scrutiny. Moreover, this alternative is not the idiosyncratic theorizing of some fringe group nor the runoff of some isolated backwater of intellectual history. It is, rather, the mainstream intellectual tradition of the Catholic Church that I have already mentioned—the tradition of the early Church Fathers, medieval scholastics, and modern neo-scholastics—what is well-termed the “Catholic Intellectual Tradition.” St. Thomas Aquinas will serve for us this evening as spokesman for this tradition. The reason for this focus on the thought of St. Thomas is not that there were no other significant contributors to this tradition. Hardly. There certainly were many. Rather, it is for two reasons: first, St. Thomas was one of the great synthesizers of intellectual history: he knew well the work of the Church Fathers and the pagan Greek philosophers and brilliantly integrated their thought into a holistic view of reality that faithfully represents the whole tradition; second, St. Thomas was also one of the most original thinkers of intellectual history: his insights into the teachings of the faith and science were and remain so valuable that he continues to have intellectual followers today. After all, it was not just a whim that prompted Pope Leo XIII one hundred years ago to declare St. Thomas patron of Catholic education and scholarship.

So, what is St. Thomas' alternative to Gould's fideistic separatism? Interestingly, the answer to this question concerns Thomas' understanding of science as much as it does his understanding of faith. This will come as a surprise to many today, for Thomas is one of those early thinkers whose scientific notions are commonly today thought to be so superceded as to be almost completely invalid. Many today would agree that St. Thomas may still have something valid to say about the faith, but virtually nothing helpful about science. Well, it is certainly true that, standing as he did at the beginning of the history of experimental science, Thomas did not have the extensive scientific knowledge of nature that we do today. Much research has been done since his day and we know of things he could not even have begun to articulate. This, of course, can be said of *any* thinker at *any* period of history. Yet, while Thomas obviously did not have anything approaching the scientific knowledge we have today, he did have a great respect for scientific research and a clear conception of the nature of science. Thus, I will begin with St. Thomas' views on human scientific knowledge and this will bring us around to his understanding of religious belief in a way that will provide an alternative to Gould's separationist understanding of faith and reason.

The Science of Science

I recall as a graduate student reading with great pleasure a book by the eminent historian of science David C. Lindberg entitled *The Beginnings of Western Science*.² In this book he traces the origins of modern experimental research in ancient and medieval science. As much as I learned from Professor Lindberg's fine study, I could not help but be amused by his apparent discomfort regarding the topic of his first chapter. As a responsible historian, Lindberg begins in this chapter with the task of defining science—after all, if one is going to write the early history of

science, one needs to have a pretty rigorous idea of the historical phenomenon one is writing about. Immediately, however, Lindberg is confronted with a difficult problem, for he finds that there is no general consensus among historians and philosophers of science about what science is. In fact, he considers no fewer than eight distinct definitions only to conclude that each of them is either woefully incomplete or down-right inconsistent with scientific practice. Ironically, he fails to consider the conception of science that was dominant during the period of history his book studies. This is the understanding of science first articulated by the ancient Greek philosopher Aristotle and developed and applied to the faith-reason problem by St. Thomas Aquinas.

So, what precisely, according to St. Thomas, is science? Science is a human activity--the activity of attaining knowledge of reality, especially knowledge of the causes of things.³ Human beings engage in this activity in virtue of their capacity for it, which is called "intellect." Science, then, is human intellectual activity. Because there are many different things to know, there are many different sciences, each science being distinguished by its object of study. For example, reality includes both living and non-living things and, therefore, there is both life science and science of non-living things. Moreover, each of these general categories of reality includes distinct types of things. The world of living things, for example, contains both sensory living things (animals) and non-sensory living things (plants). It follows that the life sciences are distinguished by their proper objects of study: the science that studies sensory life is animal science (zoology) and the science that studies non-sensory life is plant science (botany). These sciences, in turn, can be broken down even further into their various branches, again according to the proper object of study in each case.

Thus, there are as many distinct sciences as there are distinct objects of study. One might think, then, that there are as many sciences as there are individual beings in reality, but this is not so. The reason is that individuals are not, strictly speaking, known but only sensed. When we have visual experience of a particular animal, for example, we do not know from the visual experience alone what it is. It is only when we add to our visual experience the intellectual judgement that the particular object that is seen here and now is an animal of a certain species, that we know what we are looking at. Knowing that ol'Bessy is a holstein cow involves more than just eye-balling Bessy in the barnyard; it also involves knowing what a holstein cow is and something about the attributes that go with being such a species of cow. Therefore, knowledge is always of kinds (species, universals) and the various kinds of things are the objects of the various sciences.

Two Orders of Science, Please

Because there are many different kinds of things, then, there are many different sciences. How are these various sciences related to each other? The relationship can be understood in two different ways: according to the order of learning and according to the order of being—that is, the order in which human researchers come to know things and the order existing among those things which human researchers study. The order of learning is the order of human experience and, therefore, it is a good place to begin.

Science, as has been said, is an act of the human intellect. The intellect, however, must act on something--some raw material. This raw material is provided by sense experience. Because of this, the proper object of the intellect is what appears in sense experience. The

objects of sense experience are the individuals of the changeable physical world, so the primary objects of the human intellect are the various types of physical things undergoing change. St. Thomas called this the *ens mobile* which means “being that changes.”

Once human beings have developed their basic intellectual capabilities through the study of logic and mathematics, the first objects that they come to know are the physical objects of the sensible world. The general name for the science that studies these objects is “natural science.” Natural science, of course, can be subdivided into many branches according to the many different kinds of physical objects there are to know. Thus, we have physics (= the general study of change and motion), chemistry (= the study of the most basic material components of the physical world), mineralogy (= the study of non-living physical beings), biology (= the study of living physical beings), and so on. Each of these natural sciences, and their many sub-branches, are a study of physical being according to one of the ways in which physical being exists.

Human beings themselves are part of the physical world and so they can also be the object of scientific study. The study of human animal nature is a branch of biology (study of the basic material parts of human nature) and of psychology (study of the behavioral elements of human nature). Because human beings have intellectual capacity, and so can act knowingly and freely, there must be additional ways of studying human nature. These are the ethical sciences of moral philosophy, economics, and political science.

The most general, and therefore last in the order of learning, is metaphysics which studies being simply as being. This science is first in the order of being, because it deals with being in the most basic and most general way. Yet it is farthest from our sense experience, because we never actually experience being in this very general way, but only as being of this or that kind. This is why it is last in the order of learning.

Now, if all being were of the physical changeable kind, then natural science would be first in the order of being. St. Thomas puts it like this: “If the physical universe were all that exists, then natural science would be the most fundamental science.” The scientific study of the physical world, however, reveals that it could not be the way it is unless there existed something that is not part of the physical world and at the same time the cause of the physical world. This non-physical something is the Uncaused Cause of the physical world—the Ultimate Cause of all causes. The existence of this being is demonstrated in the most abstract part of physics (natural science) by showing the contingency of the physical universe and its absolute dependence on a cause that is not part of the universe. Thus, we know that there must be at least one other science besides all the various branches of natural (physical) science. This is a science of divine being (non-physical being). The traditional name for this divine science is theology and the object of its study is the nature of divine being—as far as this can be understood by human beings.

Having established the existence of the objects of both natural and divine science, however, it can be seen that there must be one more science. If natural science studies physical being and theological science studies divine being, neither of these two sciences by itself covers all of being. Thus, there is a science of being, not as physical or divine, but as *either* physical or non-physical. This is the general science of being as being which is called “metaphysics.”

The following chart provides a general sketch of the order of the sciences according to the order of learning, beginning with the most basic and familiar in human experience proceeding to the most abstract and furthest from direct human experience. Notice that there is an order of coming to know from the sciences listed at the top of the chart to those listed further down; that is, the sciences listed at the top of the chart provide the foundation of those listed next. So, our knowledge of the non-living and living things of our immediate experience are the

prerequisite for knowing the laws of physical being in general (physics) and this knowledge, in turn, is the prerequisite for knowing about divine being, and all of this scientific knowledge is the prerequisite for knowing about being as being (metaphysics).

The Sciences According to the Order of Learning

<i>Object of Study</i>	<i>Science</i>
non-living physical being	mineralogy, geology, etc.
living physical being	biology
physical being in general	physics
non-physical (divine) being	theology
being in general	metaphysics

The next chart provides another general sketch of the order of the sciences, this time according to the order of being, beginning with the most abstract and remote from human experience and proceeding to the most familiar and least remote in human experience. Notice that there is a causal relationship among the beings listed: those listed toward the top of the chart are the cause of the being of the next. So, divine being produces physical being. (In reading this chart one must keep in mind that the object of the science of metaphysics, being as being, really does not exist in this way--being only exists as this or that kind of being; there is no such reality as being that is not either physical being or non-physical being. This means, of course, that the highest type of being is divine being which is the cause of all other beings.)

The Sciences According to the Order of Being

<i>Type of Being</i>	<i>Science</i>
being in general	metaphysics
non-physical (divine) being	theology
physical being in general	physics
living physical being	biology
non-living physical being	mineralogy, geology, etc.

The First Shall Be Last and the Last First

Notice that in the order of learning--which is, remember, the way in which we attain knowledge of reality--natural science is the most common and primary application of human intellectual (rational) capabilities. What human beings can know first and best is the physical world. Indeed, St. Thomas holds that the human intellect is primarily ordered to knowing those changeable physical beings which are so much a part of daily human life. From this it follows that knowledge of divine being begins with and depends on the kind of knowledge we get from the natural sciences. So, even though the physical objects of scientific research are not the highest form of being in reality, natural science is the most fundamental form of knowing in the human order of learning.

Notice also that research in natural science is conducted without any necessary assumptions about divine being. Indeed, direct reference to divine being enters into the order of learning only at the most general and abstract point of investigation in the sciences of physical nature; namely, that part in which the scientist investigates the conditions for the being of the

physical universe as a whole. Therefore, understanding the relation of religious belief to human science in terms of the order of learning preserves the autonomy of human reason when applied to the study of physical nature. In other words, the scientist cannot answer questions about the explanation of specific physical phenomena by simply saying “God did it.” It is not that God didn’t do it, it is that the way God does it is by creating nature all at once as a whole, by making the whole physical system with all its internal operations be real. The internal operations themselves must be understood in terms of the *way* the universe is, not *that* it is. God is the explanation for why there is something (a universe) rather than nothing. To say that God is the reason why the rain falls or the flowers grow or the sun shines is simply to say that God created a universe where such things happen. It is not to say that God “reaches into” his universe and precipitates rain through the atmosphere, pushes flowers out of the ground or fuses hydrogen nuclei releasing light and heat energy into the planetary system.

This is an important point, because much of the current debate concerning faith and reason derives from the concern of natural scientists that theology might be pursued in such a way that it “encroaches” on scientific research. Clearly, Gould was so concerned. The order of learning shows that this is a legitimate concern, for the proper object of theology is distinct from that of the natural sciences. Research in the natural sciences is autonomous with respect to theology in that it can be pursued without theological knowledge.

At the same time, the order of learning shows that theology is as much a science as are the sciences of physical being; that is, the religious beliefs which theology investigates and articulates as knowledge are no less rational and objective than are the beliefs about the physical world investigated and established in the natural sciences. This is because the same intellectual capacity which allows for human knowledge of the objects of the natural sciences is also that by

which human beings know the object of theology. Therefore, understanding the relation of religious belief to human science in terms of the order of learning preserves the rationality of religious belief.

This, too, is an important point, because a common assumption of contemporary culture is that, unlike the natural sciences, theology does not result in knowledge, but only belief; that is, scientific research is a rational activity whereas religion is some sort of non-rational act of will—a leap of faith. The order of learning shows that theology, no less than the natural sciences, yields knowledge and that this theological knowledge builds on and extends knowledge of the physical world. It cannot, then, be different in kind (belief and not truly knowledge), for then it could not arise out of the conclusions of physics nor be the object of intellectual activity. Field zoology differs from particle physics in subject matter and method and yet both are sciences, both are knowing reality. In the same way, theology differs from natural science in subject and method and yet shares with it scientific status—natural science and theology are both rational knowledge of reality. “Scientific” is not an honorific reserved for the study of certain subjects. It is, rather, descriptive, identifying our precise and rigorous knowledge of reality. If reality can be known to include more than the natural world, then the scope of science ranges over more than the natural world.

A Tale of Two Theologies

At one point in his many discussions of faith and reason,⁴ St. Thomas raises the question of whether there can be a science of divine realities. In defending an affirmative answer to this question, he explains that there are two kinds of science concerning God. One kind is based directly on our human way of knowing whereby our knowledge of the natural world leads us to

knowledge of God, as we have already seen. In our scientific study of the material universe we come to know it as contingent and dependent on an absolute cause that is not itself part of the universe, a divine creator. Our physical research cannot, of course, tell us much about what such a creator is like, but it can tell us that he must exist, for otherwise the universe would not exist. The other kind of science of divine realities is based on the way such realities are known in themselves and we human knowers cannot perfectly have this kind of knowledge in our earthly life. Yet, says Thomas, we can here and now possess a likeness of such knowledge by sharing in the knowledge God has of himself. This happens when we assent to and are faithful to the knowledge that God himself implants in us. It is a rational acceptance of the truth on the basis of God's authority similar to the way in which a physicist, who did not himself discover the mathematical truths he uses in his research, accepts them on the authority of the mathematician.

Now, both ways of knowing divine realities are rational enterprises and both are similar to our natural sciences in their cognitive foundations. Both divine science and natural science are empirical, being based on human experience of nature or, where such experience is not available, on appropriate trustworthy authority. Indeed, the only difference between our knowledge of God and of nature is that it is in principle impossible for us to obtain complete knowledge of how God is in himself whereas it is at least in principle possible for us to know how nature is in herself. The reason for this difference concerns, not the separation of faith and reason, but the radical difference between the objects of divine and natural science—one is uncreated and the other is created. Nonetheless, we can come to learn much about the Creator from our study of nature and such knowledge is certainly empirical and rational. Moreover, both sciences concern what is factually true of reality.

On the view of St. Thomas, then, the distinction between faith and reason, religious knowledge and scientific knowledge is certainly not the strict and radical difference urged by Gould. In fact, having faith is a way of being reasonable, for we faithfully accept what God reveals to us because we know that his authority is impeccable, just as the scientist accepts the work of predecessors and collaborators known to be trustworthy. Exercising our reason involves being faithful, for it is rational to accept God's authority for the truth, just as it is rational for us to accept our precise observations, rigorous calculations, and well-reasoned scientific conclusions.

Faithful Reason

Notice that St. Thomas and Gould are in agreement that faith and reason, religion and science are not in conflict, but for radically different reasons. Gould's way of avoiding conflict was to make faith and science about entirely separate domains of reality, each concerned with articulating and teaching different truths. For St. Thomas, such separationism makes no sense. Reality is the way things are and truth is the intelligibility of reality which is articulated in science. Good science and true religion are not in conflict because they articulate and teach the same reality. There cannot be two truths, because there is just one reality. If there were two truths, as Gould suggests, then the articulation of reality would be inconsistent and, therefore, unintelligible. From the traditional Catholic point of view, then, Gould destroys both religion and science in attempting to save them. By confining each to its own domain of truth, neither has anything to do with reality; both become unintelligible and useless.

Fortunately, Gould's fideistic and separationist understanding of faith and reason is not the only alternative to secularism. St. Thomas Aquinas provides us with a way to understand faith and science as integrated into our human lives as rational beings—the lives for which God

created us. Both science and faith concern the same factual reality: the reality of creation and its creator. Both science and faith arise out of the same human capacity for knowing factual reality: the human intellect. Both science and faith are addressing the same questions: What is real? Why does it exist and work the way it does? How and why is it good? Distinct sciences rationally study their proper objects, but these objects are all part of the same reality. What is valuable and spiritually meaningful is the truth and the truth is what is known when we scientifically know the facts about reality.

In his address to the scientists delivered at that Vatican meeting attended by Gould, Pope John Paul II reminded his audience that they are well aware that every science presupposes the authority of a higher science just as biologists presuppose the work of chemists and chemists that of physicists. In an analogous way, natural scientists know that

the search for truth, even when it concerns the finite reality of the universe or of human nature, is never-ending, but always points beyond to something higher than the immediate object of study, to the questions which give access to Mystery.⁵

It is the Ultimate Mystery, St. Thomas tells us, that is the final object of our intellectual activity and to which we are called to be faithful.

1. Gould tells this story as the introduction to his now famous article “Nonoverlapping Magisteria,” *Natural History* 106 (1997):16-24. My account of Gould’s NOMA proposal is based on this article as well as his book *Rock of Ages: Science and Religion in the Fullness of Life* (New York: Ballantine Books, 1999).

2. University of Chicago Press, 1992; the discussion of the definition of science is in the opening section of chapter one “Science and Its Origins,” 1-4.

3. St. Thomas discusses the nature and order of the sciences in several texts; see, for example, *In Physica Aristotelis* I, lect. 1 and *In De Trinitate Boethii*, QQ. 5-6.

4. *In De Trinitate Boethii*, Q. 2, art. 2.

5. *L’Osservatore Romano* (9-10 June 1997): 12; see also *Fides et Ratio*, §106.