

# Faith and Science: Models of Reality as Sources of Conflict

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It is my proposal to demonstrate that almost all of the apparent conflicts between science and faith arise from *models of reality* and not from reality itself. Such conflicts may be resolved by reexamining the models of reality we hold that are based on obsolete information.

The Church Fathers should perhaps be given credit for possessing such integrity and intelligence that, had they had access to the technology and information at hand in our century, they would have been able to restructure their understanding of the history, geography, and nature of the earth and the universe. The holy Fathers were open to the learning and experience of the world around them and utilized that learning themselves. There is every reason to surmise that they would utilize our own contemporary exploration and ability to reshape many of their own models of reality.

The reshaping of our models of reality does not contravene our basic dogmatic understandings about God as creator and redeemer. In fact, the discoveries of the past century only open us up to greater wonder at the beauty of the universe and at its fragility. This wonder can also open to us a greater appreciation for the presence of God and his role in sustaining our universe. We need not limit the role and plan of God by the bound-

aries of our own finite understanding and wisdom, but can open up our minds to the beauty, the vastness, the fragility, and the dimensionality of the universe, as a way of expanding our relationship with God in faith and love. When we cling to rigid and frozen models of reality, particularly those based in literalist understandings of Scripture and in non-dogmatic statements of the holy Fathers about science and history, we deprive ourselves of reality itself. We close ourselves off from a more full discovery of God's presence, even though he is "everywhere present and fills all things."

Modern physics and cosmology have become "superstar" subjects. There is, however, an admirable and dignified modesty among physicists who acknowledge that they offer us only *models* of reality, rather than reality itself. When Niels Bohr said that "the purpose of science is not to know the essence of nature, but to discover what can be known about nature," he reminded us that science is a method of exploration, not the final arbiter of facts and understanding. Science is not an alternative to revelation.

This same dignified modesty is expressed in the Orthodox Christian concept of apophatic theology. Apophatic theology acknowledges that doctrinal and poetic formulations are secondary worlds, models. They are more or

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less adequate in giving words and concepts to our encounter with ultimate reality. Since no one can know or comprehend the essence of God, even the dogma of the Trinity must be understood as a secondary world: a conceptual framework of enormous importance and clarity that is the best we can do in the framing of language for the experience of the ineffable—but, nevertheless, a model of reality.<sup>1</sup> When we assume that we have a concrete definition of the Divine, we step onto the path of those who built the Tower of Babel. We will examine later the problems created in Western Scholastic theology when philosophical theologians attempted to present such models as facts which were legally definable, adequate, and comprehensible by reason.

The modesty of science was expressed by physicist Werner Heisenberg when he said that we have no framework for correlating the mathematical symbols of quantum physics with concepts in everyday language, nor can we satisfactorily discuss atoms in normal language. The evidence upon which scientific exploration builds models of reality can only be expressed symbolically by a mathematical formalism, which might be the closest one can come to expressing a metaphor for the great mysteries it encounters but does not resolve.

In order to understand the essence of this discussion better, let us first explain the meaning of *models of reality*. Perhaps the best way to do this is to look at history's most famous clash between models of reality. In the year 1500, the prevailing model of the universe in the West was neat, tidy, dogmatic—and completely wrong. It was generally believed that the earth was located at the center of a harmonious system of concentric circles.

These diaphanous crystal rings were delineated by the heavenly bodies that revolved in perfectly circular orbits around the earth. The sun rotated around the earth, as did everything else in the universe. There could be no essential change within the region of the harmonious spheres. The greatest of the philosophers and the teachings of the Church agreed: Earth did not move. The sun rose and set as it orbited the earth. This system was not thought to be a model of reality. It was held to be reality itself—a reality so concrete that it could be a dogma of faith.

Then, however, an insignificant science-oriented monk somewhere in north central Europe had the temerity to offer a radical revision to this venerable model. Not only is the earth not stationary, he asserted—not only does it, like the other planets, rotate around the sun—but their orbits are not perfect circles. Father Nicholas Copernicus had the good fortune to live beyond the reach of the Inquisition, but his writings were received with outrage and suppressed. When Galileo pointed his crude telescope toward the heavens, however, the old model of cosmic reality was doomed. Not only was Copernicus generally correct, but even his challenge to the accepted understanding was just the beginning. His model was more accurate but by no means complete. The conflict that arose from the clash of the two models of reality was enormous. It had already cost the life of Giordano Bruno, and came close to claiming the life of Galileo.

Let us carry our example a step further. Copernicus and Galileo, too, gave us only models of reality. In fact, the sun is not stationary either, nor is it at the center of the universe. It races through space at an enormous speed, in one of the tentacles of a massive spiral galaxy, which itself is hurtling outward from some unknown point

<sup>1</sup> See Gregory of Nyssa, *That There Are Not Three Gods*.

to an unknown destination. This also is a model of reality, which may eventually be augmented by yet more discoveries.

This historical example demonstrates my thesis that models of reality, and not reality per se, are the sources of the apparent conflicts between Christianity and modern science. Lest scientists judge too harshly, let us recall that the great physicist Ludwig Boltzmann was driven to suicide, in 1906, at least in part by the ridicule he endured from other scientists for espousing atomic theory. Atomic theory strongly contradicted the model of reality held by most physicists of his day.

How does the massive amount of new information we have today square with models of reality shaped by an antique understanding of relevant sections of Scripture? How we might resolve the conflicts—sometimes bitter conflicts—between scientific models of reality based on this new information, and those drawn from a simplistic reading of the Bible? (Here we are speaking of those subjects where science and religion may overlap. There is a range of subjects on which there is no such overlapping. For example, science can say nothing about the Holy Trinity or about Christ's resurrection or his ascension.)

### **Metaphor and Simple Stories**

Simple stories told for simple people are often unconcerned with scientific facts or chronological accuracy. Sophisticated psychology is often contained in narratives that appear naive on the surface. Even in stories that appear simple, the meaning conveyed may be complex and surprising in its depth. Metaphor, which is very rich in older languages, conveys meaning through interlocking imagery. It has a fluidity that can convey textures of

meaning that a more concrete language cannot. Metaphor also contains an internal dissonance that warns one not to take it literally. At the very least, literalizing a simple narrative story or a metaphor creates a false model of reality. In relation to Scripture and theology, when we literalize a metaphor, we engage in idolatry.

Let us look at the creation narrative in the book of Genesis, for example. The details and processes of the creation of the universe, our solar system, and our earth are extremely complex. Indeed, these matters are so complex and difficult to comprehend that the best scientific minds in history with the finest technology are only now unfolding the details, though with difficulty. Why would Scripture attempt to explain all this vast complexity—so complex in many details that it exceeds human language and requires mathematical formulae to express—to a wandering tribe of Hebrews who were not yet literate? Instead the narrative presents a simple story, but one filled with meaning and revelation. Moses had to come down from Sinai with the Ten Commandments; it would have been of no value for him to have returned with the periodic table of the elements.

It is not surprising that ancient peoples formed a model of reality based on a more or less literal interpretation of the Genesis narrative. What is astonishing is that anyone in the twentieth or twenty-first century would hold a model of reality that is so clearly incorrect. The first tragedy is that such a disproven model of reality causes the actual meaning of the story to be lost. The second is that it sets up an unnecessary conflict between religion and science, which undermines the faith of many who desire to believe.

The creation narrative, from the beginning up to the time of the holy proph-

ets Sarah and Abraham, condenses an enormous time and a vast prehistoric oral tradition into a simple narrative. This entire narrative is about meaning, not historical or scientific detail. We must remember that we derive our theology from meaning, not from supposed facts. Facts do not constitute truth even when they are accurate. Only meaning can provide a basis of truth, and both the meaning in Scripture and the truth of that meaning are revealed to us by the Holy Spirit. The same might be said of science. The Danish astronomer Tycho Brahe (1546–1601) was a careful, encyclopedic recorder of observed facts, but still held an erroneous model of cosmology. His facts were of little value until his assistant, Johannes Kepler (1571–1630), interpreted them after Brahe's death. Only when the facts were given meaning did they become valuable for knowledge and understanding.

Truth is founded on meaning, while models of reality are based on supposed facts. Or rather, models of reality are derived from a presupposition of the accuracy of a given set of what appear, at least on the surface, to be facts—but are really the suppositions of a given era. For Orthodox Christians, spiritual and theological truth is derived from meaning illumined by grace. Revelation, in the Christian sense, is also about meaning: it is a way of integrating meaning into the events of life. It too must be illumined by divine grace. If there is, therefore, any claim to immutable truth, it is to be found in spiritual experience rather than in rationalistic reflection on a given set of surmised facts. Models of reality, based on supposition about a given era's "facts," are malleable and subject to revision when the information that informed them is disproven or displaced by subsequent discoveries.

This is where the crisis arises for fundamentalism and for scholastic-based

western theology in general. Fundamentalist interpretations of Scripture consist in models of reality based on supposed facts, with little comprehension of meaning and a cavalier disregard for the nature of narrative and metaphor. It is these models of reality which many religious thinkers bring into conflict with the models of reality generated by physics and other fields of science and medicine.

## **Axial II**

The German psychiatrist and existential philosopher Karl Jaspers adopted the expression "Axial Age" to describe some of the greatest philosophical developments in the ancient world. Between about 800 and 400 B.C., an enormous paradigm shift in human thought took place. The transformation moved slowly at first, and then accelerated in a great flowering of philosophy and systematic ethics. This era began at about the time the Prophet Isaiah was illuminating the revelation of God in Israel. Religion in Persia had just been revolutionized by the Avestan prophet Zoroaster. In the ensuing centuries, Confucianism developed a new system of ethics in China and the Milesian Greeks began to speculate about the nature of being. During this period, too, the Buddha began to explore the problem of human suffering. The great thinkers of this age began to consider the actual meaning of myths and taboos, and to transpose them into systems of ethical and moral meaning.

This process had, in fact, begun with the great lawgivers of history who attempted to systematise human experience into the structure of civil society, binding it together with legislation that took account of the purpose of myths and taboos. It was during this era that the quest for an understanding of the roots of good and evil advanced a general moral philosophy. It was evident

that people could keep any set of laws to the letter and still do evil things to others. Law was not the solution; it remained only a mechanism for controlling and mitigating behavior within a civil society. Neither the moral concepts nor the legal concepts developed were by any means universal.

During this great axial period, theology began its long journey of development. Philosophy was focused on cause and effect, permanence and change, the place of man in the cosmos. Later it devoted great energy to the question of how we learn and know. The paradigm shift of this first axial period consisted in a movement away from unexplained myth and into the realm of philosophy, which speculated about the nature of things and, in particular, the nature of being. Philosophy and theology developed as part of the same stream. Within it, myth was converted into a systematic concept of ethics and social morality. Philosophers, both secular and religious, became the dominant practitioners leading structural changes in government and in concepts of humanity, the world, and the universe.

I believe that we are in the midst of a second great axial period. It appears to me that a major paradigm shift is underway, one that began in the 1600s but gathered its real force at the beginning of the twentieth century. This shift has been motivated, in some small way, by the fact that the question of *what we know* is overpowering the question of *how we learn and know*. This dynamic axial shift has picked up enormous speed, especially with relation to the brain, since the advent of the computer age. The abstraction of the intellect and the old preoccupation with a metaphysical dualism of mind and brain hardly seem tenable or significant in our present era. Reality at all levels and in every dimension is a mystery. I do

not suggest that the world of our sensual experience is not reality, but that it is only the surface of reality. This surface can be penetrated only with great effort, either spiritual or scientific, over time. The more deeply we penetrate through the surface of perceived reality, however, the greater the mystery becomes.

This mystery is reflected in quantum physics and also in Orthodox Christian theological experience. They are complementary. Orthodox theology can be informed by modern science, and science can be illumined by Christian spiritual experience. Such an exchange can be accomplished only when we clearly maintain the understanding that science is a method of exploration, not a dogmatic system, and is not pursued in the manner of a religion or “spirituality.” Likewise, Orthodox theology is not a system for interpreting the physical history and properties of the cosmos but a means of the transformation of the human person, an avenue of the revelation of redemption, and a framework for life and experience.

What shapes my idea that we are in a second axial period is the major shift in the paradigms of philosophical and religious thought in the present era, beginning with the last decade of the nineteenth century.<sup>2</sup> Scientists, and physicists in particular, have gradually replaced philosophers as the architects of the grid through which we view humanity in relation to the world, the universe, and each other. This shift has clearly touched all areas of human thought and reasoning. Just as the lofty theories of philosophers slowly “trickled down” to the most common levels of society, reshaping human thought, so the abstractions of scientists have been trickling down to every human level, reshaping, over the past four or five centuries, every aspect of thought,

<sup>2</sup> Philosopher Robert Solomon spoke of a second axial period beginning in the 1700s. I would date its beginnings to the 1600s. However, in my view, we see the paradigm shift mostly clearly in the early 20th century, with the acceptance of atomic theory, the birth of quantum physics, and the emergence of evolutionary biology.

including theological and religious concerns. In the twentieth century and in the present, technology, which is something of a parasite on science, has had an even greater impact on the shaping of the human mind. Still, at the root of the making of the post-modern mind, both quantum physics and evolutionary biology have been seminal. This great paradigm shift constitutes what I see as the second great axial period.

From an Orthodox Christian point of view, if we are to continue to witness the faith of Jesus Christ effectively, we must respond to this axial shift. At a time when the scholastic system in religious thought has been exposed for its emptiness as a spiritual and theological cul-de-sac, a deep spiritual void and hunger has been created in man by the age of technology, with both its benefits and its tendencies to dehumanize. The equally blind alley of “spirituality without religion” offers no answers; it cannot separate itself from the spirit of the age and its bondage to ultimate hopelessness. Orthodox Christianity stands in a position to have a vital, existential encounter with the paradigm shift of the present axial period, to give form to the void and fullness in place of emptiness. It has the content and the spiritual power to carry man beyond mere spirituality and into a profound spiritual life, in the grace of the Holy Spirit, which is not in conflict with this new grid of understanding but complementary to it. I believe Orthodoxy alone can sail easily upon the sea of our unfolding understanding of the

universe, of the origins of humankind, and of the mysteries of the quantum world. In order to do this effectively, however, we must wean ourselves away from the bondage of scholasticism into which so many have fallen. We must return to the great existential revelation of the faith clearly enunciated by the holy Fathers, and in particular by the great hesychastic theologians who synthesized our understanding of our true relationship with God and the universe.

If we, as theologians and teachers of the faith, cannot address the new paradigms of the axial period in which we live in a meaningful and open way, we will be frozen in obsolete and meaningless models of reality, which we must forever set in militant opposition to every scientific discovery and every potential opening to deeper understanding. If we fall prey to such arrogance, we will be unable to respond at all to the spiritual needs and aspirations of mankind, we will be unable to sustain the Gospel, and we will be able to speak only to the most superstitious and religiously credulous elements in our societies. The younger generation will have been betrayed by us as we betray the Gospel and the faith with a blind, reactionary religiosity rather than an openness to new understanding and a grasp of the infinitude of the Orthodox Christian revelation.

Orthodox Christianity is not the arbiter of “facts,” but the healer of humanity, the source of meaning, the path to authenticity of life, and the doorway to eternity — to immortality. ✽



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