

# *The Teachers' File*

## TOWARD A NEW UNDERSTANDING OF NATURE, REALITY, AND THE SACRED: A SYLLABUS

by James Yerkes

*Abstract.* Adjustments in the understanding of the relation of religion and science since the Enlightenment require new considerations in epistemology and metaphysics. Constructionist theories of knowledge and process theories of metaphysics better provide the new paradigms needed both to preserve and to limit the significance of each field of human understanding. In a course taught at Moravian College, this perspective is applied to the concepts of nature, reality, and the sacred, with a view to showing how we might develop one such paradigm. Key resources for this task are to be found in the work of artist René Magritte; theologians Langdon Gilkey, Arthur Peacocke, and John Haught; philosophers and historians of science Alfred North Whitehead, Timothy Ferris, Ernan Mc Mullin, and Ian Barbour; philosopher of religion Paul Ricoeur; and historians of religion Rudolph Otto and Mircea Eliade. Such a new paradigm calls for an ecologically sensitive religious awareness which is both sacramental and holistic.

*Keywords:* constructionist epistemology; cosmology; creation myths; critical realism; holism; nature as fecund source; nature as orderly system; ontology; revelation; sacramentalism.

---

The course described below was first taught at Moravian College in spring 1997, after its syllabus had been declared a winner in the 1996 Templeton Foundation science-and-religion course competition. The course was offered as an option to satisfy Moravian's Liberal Education Guidelines, which require students to choose one course from the category entitled Contemporary Issues. Registration closed quickly with thirty-six students,

James Yerkes is Professor of Religion and Philosophy at Moravian College, Bethlehem, PA 18018. His e-mail address is joyerkes@fast.net. Permission is hereby granted to reproduce this article for class use, with this note: Reprinted from *Zygon: Journal of Religion and Science*.

[*Zygon*, vol. 33, no. 3 (September 1998).]

© 1998 by the Joint Publication Board of *Zygon*. ISSN 0591-2385

among whom were ten seniors, seven juniors, fifteen sophomores, and four freshmen. There were ten humanities majors, twenty-two science and mathematics majors (of whom biology majors composed the largest group), and four undeclared majors. In spring term 1998, the Moravian College faculty approved the course as a regular department and interdisciplinary curricular offering. Moravian is a loosely church-related liberal arts undergraduate institution with 1,200 day students and 570 evening program students. The course will be offered each spring term and, with help from the dean's office, is assigned the time slot least in conflict with science labs.

In a sense, the course addresses a particular development in American educational and religious culture. Students who go to public schools do not learn about the religious implications of contemporary science because the schools are afraid of the discord that would result. Those same students, if they have serious interest in the Christian church, find that their churches do not discuss the issues either, for the same reason. Roman Catholic students are in a better situation than Protestants because they are usually told in their parochial schools or Confraternity of Christian Doctrine (CCD) classes that there is no incompatibility between religious faith and scientific knowledge, including evolutionary theory. They are not told why, however, and they are not given any intellectual bridges to suggest how the relationship might be compatible. Most Protestant students, likewise, have absolutely no idea how to begin to think about the subject. Either they were taught bald creationist views or the silence remained leaden. This collegiate course has been very successful because it addresses this cultural reality, where students seem to have nowhere to explore the relationship of religion and science without encountering either the oppressiveness or the indifference of religious authority.

Following is the course syllabus, omitting materials pertinent only to the work at Moravian.

#### GOALS

1. To gain a general historical understanding of how "the warfare of science and religion" emerged in the West after the Enlightenment.
2. To identify alternative perspectives by which the relationship of claims to religious knowledge and scientific knowledge have been understood in the twentieth century.
3. To provide an integrated conceptual paradigm that fits the picture of reality which has emerged in the contemporary sciences of cosmology, astronomy, physics, and biology.

4. To propose an understanding of human religious experience which is both compatible with and complementary to contemporary scientific knowledge.
5. To sketch a philosophy of nature that interprets its metaphysical foundations, its physical dynamic, and its religious significance as grounded in the reality of the sacred.

## TEXTS

### REQUIRED

- Ferris, Timothy. 1992. *The Mind's Sky: Human Intelligence in a Cosmic Context*. New York: Bantam Books (paperback). Pp. xi–281.
- Gilkey, Langdon. 1993. *Nature, Reality, and the Sacred: The Nexus of Science and Religion*. Minneapolis: Fortress Press (paperback). Pp. ix–266.
- Haught, John F. 1995. *Science & Religion: From Conflict to Conversation*. Mahwah, N.J.: Paulist Press (paperback). Pp. 1–225.
- Huchingson, James E., ed. 1993. *Religion and the Natural Sciences: The Range of Engagement*. New York: Harcourt Brace Jovanovich (paperback). Pp. ii–422.
- Swimme, Brian, and Thomas Berry. 1992. *The Universe Story: From the Primordial Flaring Forth to the Ecozoic Era*. San Francisco: HarperCollins (paperback). Pp. 1–305.

### RECOMMENDED

- Capra, Fritjof, and David Steindl-Rast. 1990. *Belonging to the Universe: Explorations on the Frontiers of Science and Spirituality*. San Francisco: HarperCollins (paperback). Pp. v–217.
- Hefner, Philip. 1993. *The Human Factor: Evolution, Culture, and Religion*. Minneapolis: Fortress Press (paperback). Pp. ix–315.
- Murphy, Nancey, and George F. R. Ellis. 1996. *On the Moral Nature of the Universe: Theology, Cosmology, and Ethics*. Minneapolis: Fortress Press (paperback). Pp. vi–268.
- Peacocke, Arthur. 1993. *Theology for a Scientific Age: Being and Becoming—Natural, Divine, and Human*. Minneapolis: Fortress Press (paperback).
- Worthing, Mark. 1996. *God, Creation, and Contemporary Physics*. Minneapolis: Fortress Press (paperback). Pp. 1–260.

## SYNOPSIS OF COURSE STRATEGY

I. INTRODUCTION. The course will begin with a discussion of the contemporary situation, where there is a renewed interest in the relationship between religion and science. First, a brief history of the assumed “warfare of science and religion” since the Enlightenment will be reviewed, with a view to correcting some of the exaggerations identified by such scholars as Michael Ruse and Ernan Mc Mullin.

Next will follow a survey of the various options by which the relation between religion and science has been understood, using the four perspectives outlined by both Ian Barbour and John Haught. For the first three sections of this course we will generally adopt the methodological perspective that Barbour calls “dialogue” and Haught calls “contact,” but in the final section of the course we will explore the positive suggestions of Barbour about a “Theology of Integration” and of Haught about a “Theology

of Confirmation.” Both the dialogue and contact perspectives share what can be called the “constructivist” view of human knowledge, which Fritjof Capra suggests is marked by the move from an “objectivist” view of science to an “epistemic” view, that is, a view which, properly qualified, suggests that what we observe is a representative construction of a knower encountering a world reality that is selectively entertained according to the interests of the subject. Gilkey names this a “responding construction.” The position on subject/object relations in knowledge that will be defended in the course is called *critical realism*.

As a thought experiment we will view several slides of paintings by the Belgian surrealist painter René Magritte (1898–1967), including his famous *This Is Not A Pipe* (1929) and the extraordinary *Attempting the Impossible* (1928). Timothy Ferris also helpfully orients his own approach to this epistemological issue in the opening chapter. The point to be made is that all human knowledge is construction—in *both* science and religion—and that, as Immanuel Kant so persuasively argues, knowledge is always a synthesis (construction) of both a priori and a posteriori elements. The mind creates its knowledge the way a painter paints a painting. This approach levels the playing field for the issue of truth claims in both science and religion. Both communities make cognitive claims about realities beyond the human world, as Barbour notes. Critical realism holds that cognitively referential models in religion and science are “neither literal pictures nor useful fictions but limited and inadequate ways of imagining what is not observable” (Barbour 1993, 43). Both communities make tentative ontological claims that require cross-checking of data for coherence, comprehensiveness, and fertility.

II. NATURE AND REALITY. The second section of the course is intended to review the structures of reality as presently understood by the sciences of cosmology/astronomy, physics, and biology. The task will be fundamentally descriptive here, though of course historical issues of both “bad science” and “bad religion” will necessarily be discussed in relation to these scientific disciplines—that is, the way in which certain perspectives in both religion and science since the Enlightenment have failed to recognize the limitations of their judgments within the flow of human cultural history. These limitations will be shown to be both factual and methodological (or specific and hermeneutic), and they carry the lesson of necessary humility about all human attempts to know the final nature of things in the reality we call *nature* or *cosmos*. Readings from Barbour, Peacocke, Huchingson, Ferris, and Haught will help direct our thinking here.

The discussion of cosmology/astronomy will include, but not be limited to, two guest lectures by Joseph Gerencher, Professor of Earth Science and Astronomy, who brings significant scientific media resources to this

task. In addition, we will view the first segment of the splendid three-part BBC series *Soul*, which is titled “Soul of the Universe” (fifty minutes). The topic of Gerencher’s lectures will be “Big Bang Theory and the Anthropic Principle.” The key point here will be to note the relative adequacy of the present consensus in cosmology regarding the Big Bang, but also the peculiarity of our knowledge in relation to the singularity it represents.

The discussion of physics will include, but not be limited to, two guest lectures by Jack Ridge, Professor of Physics. The topic of his lectures will be “Non-Linear Systems and Chaos Theory.” We will also view a second segment of the BBC series *Soul*, titled “Silicon Soul” (fifty minutes). The key here will be to describe the impact of quantum theory on physics as an illustration of the limitations imposed by both the character of the perceiving subject and the peculiar character of the phenomena as dependent on the subject in being known.

The discussion of biology will include, but not be limited to, two guest lectures by Karen Kurvink, Professor of Biology. The topic of her lectures will be “Complexity, Emergence, and the Question of Design.” We will also view the final segment of the BBC series *Soul*, titled “Evolving Soul” (fifty minutes). The key here will be to note the peculiarity of biological evolution as emergent in temporal history—unpredictable, irreversible, and memory dependent—and as a peculiar and subtle interplay of change, law, and directional complexification. The question of design will be oriented by the metaphysical issue of cosmic potentiality, not simply the empirical issue of functional adaptation.

The final segment of this section will include one lecture by Morton Kaplon, Professor of Physics (Emeritus), City College of New York. His topic will be “The Non-Scientific Bases of Science,” and he will deal with three issues: (1) epistemologically, the fact that scientific knowledge as “responding construction” is dependent on cognitive relations to reality other than those generated through the senses and through theoretical reflection, which includes the experience of judgment rooted in the self-awareness of the subject (Bernard J. F. Lonergan, *Insight*, chap. 11); (2) morally, the fact that science as a community of inquirers requires an ethical commitment to truth telling and responsible protocols which experimental science per se neither generates nor sustains; (3) culturally, the fact that a politically and economically stable society—as well as one that sustains humanistic values—is required for science as a social enterprise to flourish.

Within in this segment, Ernan Mc Mullin, Professor of History and Philosophy of Science (Emeritus) at the University of Notre Dame, will informally address the class on the topic, “What Are the Lessons to Be Learned from the History of ‘The Warfare of Science and Religion?’” At

the time of his visit he will also formally address the college community on the topic "Evolutionary Contingency and Cosmic Purpose." Students in the class will be required to attend that lecture, of course.

*Transition.* The goal of the transition section will be to consider some of the structures of being (ontologically) which the natural sciences describe as characterizing the physical world-reality. Attendant to that will be the goal of highlighting both the astonishing progress of these sciences since the Enlightenment and also their increasing awareness of the self-limitation each of them represents in the construction of scientific knowledge about reality. All the sciences presuppose an evolving cosmos whose potency of being and becoming is the ground for all the structures around us that have emerged over the course of about 15 billion years. The astonishment that this provokes raises for many the question which Parmenides framed 2,500 years ago and Martin Heidegger restated in our own century: "Why is there something and not nothing?" Some such awareness can be understood as one of the fundamental sources of human religious concern, a matter which is explored in the next section.

III. RELIGION AND REALITY. If all human knowledge is a construction based on the selective interests of the self's being-in-the-world, then just as science is a focus on interests about the structures and order of the world, outside the self's awareness, as it were, so religion is a focus on interests inside the self, interests about the origin and destiny of the self as a being whose freedom and values are matters of ultimate concern. This is often spoken about as humanity's search for meaning. It is far too simplistic to say science answers issues of *what* and religion issues of *why*. "What is the case?" raises the issue of why the *what* is what it is and not something else or even nothing. And in order to answer *why* existence is what it is, it is necessary to understand exactly what it is so that one will know how to identify a plausible answer. Further, these are not separable questions in lived experience because the same creature who asks What? also seems unable not to ask Why? even if the response to the latter is finally judged by some persons as unanswerable in specifically religious or coherently cognitive terms.

But it is equally important to observe here that the imagination and motivation required to *see* clearly as a scientist may be enhanced by religious interests and commitments which creatively orient, and sometimes dramatically reorient, the self. Moreover, religious concerns and convictions may be enhanced as well as radically qualified by what a scientist faithfully represents about the structures of reality within which the self must make its way in time and space. Of course it is also true that bad science is sometimes used to support bad religion, and bad religion is often used to support bad science. It will be important in this context to try to

specify exactly what criteria constitute good truth claims in both science and religion.

The fundamental goal of this section of the course, however, is to try to characterize accurately the human experience of religion both personally as self-awareness and institutionally as historical community, and thus to explore why science and religion sometimes seem to be at odds. The primary readings for this section will come from Gilkey, Haught, Barbour, and Eliade.

The first segment will employ the phenomenological analysis of religious experience proposed by Rudolf Otto and amplified by Gerardus van der Leeuw, Joachim Wach, and Mircea Eliade. Here the human experience of sacred reality or the numinous is seen to express a sense of the *mysterium tremendum et fascinans*, an experience in which the plenitude of being and power resident in the numinous as the ground of all existence both frightens and fascinates, daunts and delights human self-consciousness. This experience provides the nonrational surplus of meaning which both energizes and transcends the intellectual and moral schemas of particular religious traditions.

This universal sense of the numinous, then, is what produces humanity's various religious traditions in history. If religion as personal experience is religion as revelatory disclosure, then religion as tradition is religion as institutional response. That is to say, religions are institutional responding constructions which take the threefold forms of cult (the aesthetic or liturgical element), creed (the rational or conceptual element), and code (the ethical or discipline element).

Here the issue of religion as a symbolic system arises, as paradigm constructions in symbolic forms of claims to knowledge as revelation. And here the issue of religion as mythical discourse in the modern world arises, with necessary attention to what Gilkey calls "broken myths" in the modern world after the rise of the natural sciences. Although the term *myth* is slippery, it will be employed here to mean the attempt to speak in space/time terms about a reality which is beyond or transcends space/time. Special attention will be devoted here to creation myths, because these narrative forms have provoked some of the sharpest conflict between religious and scientific interpretations of reality.

What will be explored here at the level of religious self-awareness is what Paul Ricoeur characterizes as a "second naïveté," that is, the way in which, after recognizing the incommensurability of a literal reading of creation myths with a modern scientific understanding of the evolutionary origins of the cosmos and human life, it is possible to reencounter these stories as heuristic proposals for interpreting the relationship of all structures of being to sacred reality, as proposals for grounding cosmic meaning and establishing the moral order for human existence. Given this

approach, it is possible to suggest that a modern religious intellectual pilgrimage may lead creatively from naïve enchantment with such stories to serious disenchantment and thence to revelatory reenchantment. This revelatory reenchantment, Ricoeur suggests, is a function of “the grace of imagination” in which “the revealed as such is an opening to existence, a possibility of existence.” Indeed, the mythicopoetic is experienced as “a generative word . . . the surging up of what is possible for man to be” (Ricoeur 1978, 237).

*Transition.* It will be the argument of the next section that a reenchantment with the possibilities of religion in an age of science, especially through broken but restored myths of creation, will depend on a reorientation of our understanding of nature as bearing a revelation of the sacred.

IV. NATURE AND THE SACRED. In order to ask about the possibility of nature as a source of revelation about the sacred, one must first distinguish two different meanings of the word *nature*. What I will call *nature one* is nature as the object of scientific inquiry, nature construed outside the knower. It is consideration of the physical world as a largely orderly system abstracted from the dynamics of becoming—dynamics, one must note, which include both repetitive sequences and emergent spontaneity. *Nature one*, however, is the concept of *nature as orderly system*, reduced to theoretical and mathematical constructs for the purpose of control in order to further human interests and purposes. It is then an abstraction—with great cultural value for many technological reasons—in two senses: it is an abstraction from the ongoing dynamics of the cosmos as the grounding source of all sustained and emergent realities and also an abstraction from the knowing subject whose organizing interests and judgment produce the disciplines of the natural sciences. It is nature as peculiarly *our* cosmos in conceptually theoretical terms.

Next there is *nature two*. It is nature understood as the ultimately mysterious source and ground of all that has had and will have the power to exist and to evolve. The term *mysterious* is appropriate here because it points to a limit of thought and experience—where our reflection reaches a boundary of explanation, not just on the ontic issue of personal meaning but also on the ontological issue of why the structures of our being are subject to fate and contingencies over which we have no ultimate control. Clearly, death is the ultimate fate which no human attempt at ordering contingencies can avoid.

But further, *nature two* is that which grounds and sustains the emergent life of humanity as the rational animal—indeed, the political animal, the aesthetic animal, the religious animal. Here nature includes the human who knows *nature one* as inquiring scientist. This second meaning is *nature as fecund source*, and as such it also breeds a sense of mystery in



the human. For example, is it plausible that a universe without any transcendent intelligence within itself could spawn creatures such as we, who are consumed with the desire to exercise intelligence in trying to know it? Is it plausible that the potency of being that harbors the logically necessary ontological possibility of human emergence and intelligent creatures after the Big Bang is itself a function of pure contingency? It is only in this sense I will suggest that the weak form of the anthropic principle has conceptual significance. We are not talking about proof here. We are simply noting the way plausible explanations in any form present themselves to reflective consciousness. It is this sense of nature as fecund source of all that exists which religious consciousness has universally recognized as a revelation of the sacred, the sacred as the mysterious Ground of Being, to use Paul Tillich's term—the mysterious ground, ultimately, of reason itself.

Given this understanding of *nature two*, we can specify more clearly how what Haught calls the “God religions” understand the full fecund sense of the sacred in nature. Gilkey summarizes the revelatory awareness in the following terms: “God is the unconditioned power to be—yet present in every puff of existence; God is the transcendent ground of freedom—yet creative in each quantum jump as in each human decision; God is the eternal source of order amid novelty, uniting the determined past with the possibilities latent in the open future” (Gilkey 1993, 203). This is a Western way of phrasing the disclosure of the sacred in nature, but conceptual and symbolic analogues are found in nearly every religious tradition.

With proper qualifications, it is possible to suggest heuristically that Eastern religions tend to emphasize the first characterization of the sacred as a transcendence which, while always *beyond*, is yet everywhere and at once present in all things. Archaic, or *primordial* religions, in the third characterization, emphasize the eternal source of order, the “eternal return,” as Eliade puts it, with marginal appreciation of emergent novelty. Western religions, particularly in the monotheistic traditions, emphasize the second characterization of the sacred as the ground of freedom both in nature and also especially in humans, enabling a concept of free moral responsibility within the natural order and within historical passage as culture.

Here the view of the self as emergent spirit in the evolution of the cosmos is crucial in the awareness of *nature two*. It is possible to suggest that what is highest in humanity is deepest in reality—that is, the reality of the cosmos out of which humanity has arisen may plausibly be understood as grounded in the ultimate reality of the sacred. This sacred which we call God, at least in the West, may be characterized as a centered identity self-transcendently capable of making decisions weighted with value concerns. In this sense it is possible to suggest that God is Spirit in a way analogous

to what humanity is as spirit—rational, moral, and purposeful. But God must be seen here as a creative and self-limiting participant within the natural order, not a monarchical dominator. The modern evolutionary worldview requires a significant theological reformulation of the concept of God—especially God's relation to the natural order—in ways that approximate the metaphysical understanding of process philosophy.

Finally, given this new understanding of both science and religion, we must raise the question of how humans can appropriately understand themselves as related to nature and the sacred. Here the issue of ecological responsibility joins and concludes the discussion.

In our relationship to the sacred as disclosed in nature, two special sensitivities will organize our religious awareness: sacramentalism and holism. Nature will be understood to convey to us a richer sense of sacred presence as we participate in and celebrate its rhythms and energies. This is the origin of the sense of thanksgiving which is central to all religious traditions. It also is the source of the sense that these rhythms and energies are wise in their suggestions of prudence for human life and culture. The rhythm of birth and death is significant for humans, especially the concept of death as the dialectical precondition of new life. The sacred both gives and takes life, so the power to be, to exist, is both celebrated as a gift and mourned as a loss in the cycle of nature.

Nature as a communion of beings and not a collection of beings—as Thomas Berry puts it—is the sense that all things which exist are temporally and spatially and causally interdependent. This relationship is both intimate and fragile. The Gaia hypothesis focuses this holistic awareness sharply. This holism means that human emergence as spirit in the cosmos has been made possible by the nurture and novelty of its processes. So the freedom of spirit to think, value, and plan is to be seen as a gift that should be exercised responsibly on behalf of other beings that are not so gifted and thus not so responsible. The paradox or irony here is that as scientifically dominant over nature through technology, we threaten nature. But as dependent on nature, we are ourselves thereby threatened. Nature as cosmos will continue long after we are gone. But the potentialities of the nature of *our* earth world, with living creatures possessing an evolving future of rich complexities of consciousness, will be lost.

And this loss is the loss of the *universe* as an unfolding cosmos which includes and supports us. Here nature witnesses to the need for sacrifice and service for the sake of the whole. The organic cycle of birth and death presents a quasi-moral model here: unless a grain of wheat falls into the ground and dies, it brings forth no fruit; but if it dies, it brings forth much fruit. No pain, no gain, in a cosmos and on a planet where holism means organism, and organism means humans are responsible for the care of the earth and the future of cosmic life in ways that no other creatures

we now know are responsible. This is why a new understanding of nature, reality, and the sacred is ecologically so strategic as an intellectual framework as we move into the twenty-first century.

## REFERENCES

- Barbour, Ian. 1993. *Religion in an Age of Science*. San Francisco: HarperCollins.
- Corey, M. A. 1993. *God and the New Cosmology: The Anthropic Design Argument*. Boston: Rowman and Littlefield.
- Davies, Paul. 1992. *The Mind of God*. New York: Simon and Schuster.
- Dawkins, Richard. 1986. *The Blind Watchmaker*. New York: Norton.
- Eliade, Mircea. 1963. *Myth and Reality*. New York: Harper and Row.
- Ferris, Timothy. 1992. *The Mind's Sky*. New York: Bantam Books.
- \_\_\_\_\_. 1997. *The Whole Shebang: A State of the Universe(s) Report*. New York: Simon and Schuster.
- Gilkey, Langdon. 1985. *Creationism on Trial: Evolution and God at Little Rock*. Minneapolis: Winston Press.
- \_\_\_\_\_. 1993. *Nature, Reality, and the Sacred*. Minneapolis: Fortress Press.
- Haight, John F. 1995. *Science and Religion*. Mahwah, N.J.: Paulist Press.
- Hawking, Stephen. 1988. *A Brief History of Time*. Toronto: Bantam Books.
- Johnson, George. 1995. *Fire in the Mind: Science, Faith, and the Search for Order*. New York: Knopf.
- Kuhn, Thomas. 1970. *The Structure of Scientific Revolutions*. 2d ed. Chicago: Univ. of Chicago Press.
- Loneragan, Bernard J. F. 1978. *Insight*. New York: Harper.
- McFague, Sallie. 1982. *Metaphorical Theology: Models of God in Religious Language*. Philadelphia: Fortress Press.
- Mc Mullin, Ernan. 1988. *Construction and Constraint: The Shaping of Scientific Rationality*. Notre Dame, Ind.: Univ. of Notre Dame Press.
- \_\_\_\_\_, ed. 1985. *Evolution and Creation*. Notre Dame, Ind.: Univ. of Notre Dame Press.
- \_\_\_\_\_, ed. 1992. *The Social Dimensions of Science*. Notre Dame, Ind.: Univ. of Notre Dame Press.
- Murphy, Nancey. 1990. *Theology in the Age of Scientific Reasoning*. Ithaca, N.Y.: Cornell Univ. Press.
- Ogden, Schubert. 1996. *Doing Theology Today*. Valley Forge, Pa.: Trinity Press.
- Otto, Rudolph. 1923. *The Idea of the Holy*. New York: Oxford Univ. Press.
- Peacocke, Arthur. 1993. *Theology for a Scientific Age*. Minneapolis: Fortress Press.
- Polkinghorne, John. 1989. *Science and Providence: God's Interaction with the World*. London: SPCK.
- \_\_\_\_\_. 1991. *Reason and Reality*. Philadelphia: Trinity Press.
- \_\_\_\_\_. 1994. *The Faith of a Physicist*. Princeton, N.J.: Princeton Univ. Press.
- Prigogine, Ilya, and Isabelle Stengers. 1984. *Order out of Chaos*. New York: Bantam Books.
- Ricoeur, Paul. 1967. *The Symbolism of Evil*. Boston: Beacon Press.
- \_\_\_\_\_. 1978. *The Philosophy of Paul Ricoeur: An Anthology of His Work*, ed. Charles E. Reagan and David Stewart. Boston: Beacon Press.
- Rolston, Holmes, III. 1987. *Science and Religion: A Critical Survey*. New York: Random House.
- Ruether, Rosemary Radford. 1992. *Gaia and God: An Ecofeminist Theology of Earth Healing*. San Francisco: HarperCollins.
- Ruse, Michael. 1982. *Darwinism Defended: A Guide to Evolutionary Controversies*. Reading, Mass.: Addison-Wesley.
- \_\_\_\_\_. 1996. *Monad to Man: The Concept of Progress in Evolutionary Biology*. Cambridge: Harvard Univ. Press.
- Schick, Theodore Jr., and Lewis Vaughn. 1995. *How to Think about Weird Things: Critical Thinking for a New Age*. Mountain View, Calif.: Mayfield.

- Searle, John. 1984.     *Mind, Brains, and Science*. Cambridge: Harvard Univ. Press.
- \_\_\_\_\_. 1994.     *The Rediscovery of the Mind*. Cambridge: MIT Press.
- Swimme, Brian, and Thomas Berry. 1992.     *The Universe Story*. San Francisco: Harper-Collins.
- Templeton, John Marks. 1994.     *Evidence of Purpose*. New York: Continuum.
- Weinberg, Steven. 1977.     *The First Three Minutes*. New York: Basic Books.