

Reviews

Science and Theology: An Introduction. By JOHN POLKINGHORNE. London: SPCK Press, and Minneapolis: Fortress Press, 1998. 144 pages. £10.99; \$19.00 (paper).

John Polkinghorne is well known to many *Zygon* readers as a leading figure relating theology to physics, embodying both fields in his thought as well as his person. He is now a theologian, having been for many years at Queens' College, Cambridge, and was earlier a professor of mathematical physics at the same university. He has contributed steadily and productively to the study of the relation between the two fields in such works as *The Quantum World* (Princeton: Princeton Univ. Press, 1985), *Quarks, Chaos and Christianity* (London: SPCK, 1994), *The Faith of a Physicist* (Princeton Univ. Press, 1994), and *Science and Creation* (SPCK, 1988).

Why this new book? Polkinghorne begins by claiming, "There has not been a textbook available" (p. 1). Welcome though his book is, this opening statement seems strange. Ian Barbour's *Issues in Science and Religion* (San Francisco: Harper and Row, 1966) was in print as a text for nearly thirty years, updated by his Gifford lectures, *Religion in an Age of Science* (San Francisco: HarperCollins, 1990); that was revised and expanded precisely to make it more textbook-like, his *Religion and Science: Historical and Contemporary Issues* (HarperCollins, 1997) replacing his *Issues*. My own *Science and Religion: A Critical Survey* (1987) was published by the textbook section of Random House, was bought by McGraw Hill as a text, and is now in print by Harcourt Brace as a text.

If one narrowly defines *text* to mean "written to be a text and nothing but a text," not intended to be read outside the classroom, then Polkinghorne's remark is true, because these books do have larger audiences in mind as well. Or he might reply that this is science and theology, not science and religion, with some justification. The book originated as a course taught to theological students at General Theological Seminary. Fortunately, one suspects that Polkinghorne wants a larger audience. So *Zygon* readers will find here an extremely accessible introduction to contemporary thought about how theology and science can congenially relate.

The progressive argument begins with general considerations: the nature of science and the nature of theology, brought to focus historically in Galileo and Darwin. The argument then moves to the contemporary scientific account of the universe, cosmology. Next Polkinghorne considers the human person as standing at the crossroads of science and theology. The deepest puzzle is not so much the universe that one is looking at as the mind, the self, that one is looking at the universe with, a person who evolved out of nature and who now stands in embodied nature, able critically to reflect over the whole. (We worry below that there

seems to be a chapter missing; one is moving from physics to psychology, with insufficient attention to biology.)

Polkinghorne next addresses the question of God and of a natural theology, or, if one prefers, a theology of nature, "the implications of a world found to be the carrier of value" (p. 2). If there is such a God, how does God interact with this world described by science? Is this generally in, with, and under the world setup, as a deist might affirm, or more particularly in the events of natural and world history? Polkinghorne then concentrates on Christian belief: Christ and his resurrection, the Trinity, and a destiny beyond death. He then asks where and how other world religions can fit into this picture. His final analysis is of ethical issues that arise from scientific discoveries.

The concluding pages are surprisingly ecological for a physicist. As a result of what humans have learned in their science and have become capable of in their technology, they have an increasing obligation to care for their planet Earth: "There is an ethical duty of care due to the life-sustaining systems of Earth, a necessary respect for the integrity of nature. . . . The Earth's resources are not there to be grasped for our present satisfaction, heedless of the needs of others present or future, because the Earth itself is not ours but God's" (pp. 132–33). Science and theology join in biological conservation (as scientists would put it), in care for creation (as theologians would put it).

Polkinghorne's explanations can be models of clarity, on often difficult topics, and this is especially true when he is dealing with physics. An example is his account of the significance of so-called chaos theory, really an account of hypersensitive systems, where a very small difference in initial conditions makes a very large difference in later outcome. In predicting the direction of travel of an air molecule in a room full of air a small fraction of a second later, "a serious error in prediction will be made in our problem if one has failed to take into account the effect of an electron (the smallest particle of matter) on the other side of the observable universe (about as far away as you can get) interacting with the air in the room through its gravitational effect (the weakest of the forces of nature)." "The behaviour of chaotic systems soon comes to seem to depend upon a fineness of detail at the level of Heisenberg uncertainty and below." Polkinghorne concludes "that chaos theory should encourage belief in a more subtle and supple physical reality than the clockwork world of Newton" (pp. 42–43).

The book would have been improved with a chapter on evolutionary biology. Polkinghorne does address biological reductionism (Dawkins and his "selfish genes," p. 53), or randomness in evolutionary history (pp. 77–78), but always rather briefly and in such summary overview that skeptical biologists will be left wondering whether he has heard their misgivings. "The insights of biology are too metaphysically ambiguous to afford the kind of hints of the divine found in fundamental physics, but they are nevertheless capable of being incorporated into a theistic setting. . . . The universe is not God's puppet theatre in which a predetermined script is being inexorably enacted, but it is the arena of improvisation in which creation is allowed 'to make itself,' to discover and realize its potentiality through the shuffling explorations of possibility. The costliness and blind alleys of evolution are the necessary price to be paid for this open, exploratory creation" (pp. 78–79).

This introduction covers a lot of ground. The price for this is that the typically one- or two-page treatments of positions canvassed seem almost more the abstracts of promised arguments than argument in any detail. The various mind-body positions are summarized each in a few paragraphs; this provides what Polkinghorne intends, a general introduction. Despite a few critical remarks, this does not provide any opportunity for in-depth analysis.

One novel suggestion here is that progress might be made with the question of plural world faiths if each faith were brought into dialogue with science. The faiths have commonalities, but the main problem is their dissonance; they do clash with one another. The leading options are exclusivism (other faiths in error), pluralism (leading faiths all viable), and inclusivism (other faiths are “anonymously” Christian). None of these options has proved satisfactory.

Why not, asks Polkinghorne, bring each faith to test for its capacity to accommodate and to critique science? See what Hindu and Buddhist have to say about cosmic evolutionary history and then ask whether *maya* (illusion) and *dukkha* (suffering) are as plausible as evolutionary theism and creation. See what Taoism or Confucianism has to say about the anthropic principle and the fine-tuned universe and compare this with monotheistic original creation. See what Judaism or Islam has to say about the human mind with its mathematical abilities and the astonishing effectiveness of mathematics in analyzing the physical world. See what they do with quantum thought and Heisenberg’s uncertainty principle. Then continue the interfaith conversation. This is a tantalizing suggestion, too briefly put here (one and a half pages).

One thing is proved here: Polkinghorne’s response in a recent debate with another physicist, Steven Weinberg, who claimed that science and religion are inevitably at odds with each other. Polkinghorne replied, “You don’t have to commit intellectual suicide to be a believer” (quoted in *Chronicle of Higher Education*, 30 April 1999, A17).

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