

structed as a covering of the Minkowskian geometry for the representation of electromagnetic waves and extended particles propagating within inhomogeneous and anisotropic physical media. The complementary isoeuclidean and isoriemannian geometries are also indicated.

Not only is the discussion at this technical level, many of the "articles" read more like abstracts than full expositions, which is exacerbated by a lack of even rudimentary editing. The variety of typefaces is another indication that the contributed pieces were simply bound in book form.

What a shame! One is tantalized by Halton Arp's statement that high-energy X-ray and y-ray observations "require the creation of matter as an ongoing process marked by an initially high intrinsic redshift" (p. 1); and by Napier's that "it is already clear that extragalactic redshifts are indeed strongly quantized along the lines claimed by Tifft and others" (p. 14). One would have liked to read a summary report of the conference, a report accessible to the average serious anomalist, telling of the significance of the issues discussed and the degree to which paradigm shifts are in the offing — as, it seems from the quoted sentences, is genuinely the case in cosmology with respect to the interpretation of red-shifts and all that flows therefrom. Perhaps we can persuade some of the participants to share their insights in some other manner with our society or our journal. In the meantime, we must persuade at least a few libraries to buy this volume so that we can each consult those parts of it that we can understand.

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The Faith of a Physicist — Reflections of a Bottom-Up Thinker (The Gifford Lectures for 1993-4) by John Polkinghorne. Princeton: Princeton University Press, 1994. 211 pp. \$24.95. ISBN 0-691-03620-9.

It has been suggested that religious belief is the greatest scientific anomaly, and that is one reason for reviewing this book in this Journal. Another is that in the review of an anti-evolutionary work, (*Journal of Scientific Exploration*, 6, 186 (1992), I longed instead for "a discourse on the wide range of religious belief that remains plausible in the light of what science has learned about the physical mechanisms of life." The first part of Polkinghorne's book makes an excellent non-sectarian stab at that. The second part of the book then goes further to argue specifically for Christian doctrine, but non-Christians can still gain pleasure and profit from the intellectually impeccable mode of the discourse.

Polkinghorne is a physicist who has also devoted considerable thought to Christian theology. The range of issues and viewpoints he has considered is illustrated by the book's bibliography of some 250 works that includes scien-

tists, theologians, and cultural pundits; such prominent names as David Bohm, Jacob Bronowski, Francis Crick, John Eccles, Stanley Jaki, Hans Kung, A. R. Peacocke, Michael Polanyi, Karl Popper, such well-known titles as *The Anthropropic Cosmological Principle*, *The Tao of Physics*, *The First Three Minutes*.

Polkinghorne presents his argument in cogent, often memorable terms. He begins by demonstrating the absurdity of any simplistic reductionism: "Music is more than vibrations in the air... Faith goes beyond what is logically demonstrable — and what worthwhile view of reality does not? — yet it is capable of rational motivation" (p. 5); "There is a kind of God-shaped hole in many people's lives" (p. 14).

The task of reconciling religion and science is taken up with deep intellectual ambition: "Just as I cannot regard science as merely an instrumentally successful manner of speaking which serves to get things done, so I cannot regard theology as merely concerned with a collection of stories which motivate an attitude to life (p. 8). "I reject a strong sociobiological account of genetically determined human behavior, but there are surely some genetic leashes on which we are held... This [fits] the traditional theological concept of an entail of human sinfulness from which we need deliverance by God's grace" (p. 15).

This book is a far cry from the popular attempts to find in quantum mechanics a justification for superficially Eastern mysticism: "There are very difficult unsolved problems in interpreting quantum theory and assessing its metaphysical significance... I do not think that Eastern thought solves these problems for us. I also suspect that where it has been claimed to do so, it is in fact a Westernized, even Californian, selective version of that thought" (p. 192).

The argument Polkinghorne gives is too intricate and subtle to be readily summarized, but the kernel of it is the attempt to respect both the regularity of physical laws and the activity of a personally intervening deity. One key to such an accommodation is to have the deity restrict direct intervention to those circumstances where genuine choice is available to living things or where contingent rather than fully determined phenomena are concerned; that is reminiscent of, or consistent with, Jung's "synchronicity" — that some coincidences are fraught with meaning — or the concept that interaction between the "material" and consciousness is to be found at the Margins of Reality (R. G. Jahn & B. J. Dunne, Harcourt Brace Jovanovich, 1987).

The devil is in the details, of course, but Polkinghorne does not shy from concrete, specific matters. At the same time, he disclaims any need to explain everything: some things — the hoary theological problem of evil, for instance — can legitimately be left, at least for the nonce, as mysteries. He does not avoid the large problems, though. He suggests, for example, that the Christian hope of tangible resurrection is conceivable: "My understanding of the soul is that it is the almost infinitely complex, dynamic, information-bearing pattern, carried at any instant by the matter of my animated body and continuously developing throughout all the constituent changes of my bodily make-up during the course of my earthly life. That psychosomatic unity is dissolved at death

by the decay of my body, but I believe it is a perfectly coherent hope that the pattern that is me will be remembered by God and its instantiation will be recreated by him when he reconstitutes me in a new environment of his choosing" (p. 163); "In a very crude and inadequate analogy, the software running on our present hardware will be transferred to the hardware of the world to come" (p. 164).

Polkinghorne's book is well worth reading by anyone interested in the eternal problems of consciousness in a material world, of dualism, of how to accommodate science with religion, of how to confound simplistic atheism.

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