

BOOK REVIEWS

THE UNCONSCIOUS QUANTUM: METAPHYSICS IN MODERN PHYSICS AND COSMOLOGY
by Victor J. Stenger. Prometheus Books, New York, 1995. 322 pp. incl.
index. £28.00.

Quantum mechanics is the most successful scientific theory of all time, with numerous far-reaching applications in fields such as chemistry, optics, laser technology, computing, nuclear physics and cosmology, to name but a few. Yet until about twenty years ago the word 'quantum' was largely unknown to the general public. Then came a host of popular or semi-popular books on the subject, leading eventually to its appropriation by the devotees of eastern religions and the various 'New Age' cults. Today, expressions such as 'quantum leap' are bandied about by all sorts of people who have little idea of what they are talking about, and who prefer to wallow in a morass of woolly thinking and fine-sounding terminology without ever submitting themselves to the scientific requirements of careful definition and factual accuracy.

Victor Stenger quite rightly deplores this abuse of scientific language and discovery. He inveighs heavily against the various forms of what he calls 'mysticism', and points out that most of the cults are, in fact, intensely self-centred in their concerns. In this respect, they are the exact opposite of the oriental religions from which they claim to take their origin (p.292) :—

Quantum consciousness is a grossly misapplied version of ancient Hindu and Buddhist philosophy, which were based on the notion that only by the complete rejection of self can one find inner peace in this world of suffering and hopelessness. Far from rejecting the self, New Age holism puts it on a pedestal and proposes that it be worshiped.

The point is well made. Certainly it seems to me that, over the past thirty years or so, self-gratification in one form or another has become the main obsession of Western civilization. Many of the newer cults, including some of the recent manifestations of Christianity, seem to feed on this obsession with self. However, although Stenger gives a clear definition of 'holism' (pp.132 et seq.), he never explains precisely what he means by 'mystical' and 'mysticism', terms which he uses repeatedly throughout the book. Sometimes he seems to be using these terms merely as insult-words: any interpretation of reality with which he happens to disagree is labelled 'mystical', even though it may have been put forward on strictly scientific grounds by physicists as eminent as Einstein, Bohm or Penrose.

Much of this book consists of a straightforward exposition of the concepts which underlie present-day quantum mechanics. In this respect it is excellent. Professor Stenger is obviously a very fine physicist and, if the clarity of his exposition is anything to go by, a fine teacher as well. Step by step he takes us through a string of thorny topics, including the Heisenberg uncertainty principle, complementarity, the Copenhagen interpretation, hidden variable theories, the two-slit experiment, and the thought-experiment known as the Schrödinger's Cat paradox. Although tangential to the main theme of the book, there are also interesting reflections on chaos theory and the so-called

anthropic principle. Particularly interesting is Stenger's claim to have solved the Einstein-Podolsky-Rosen 'paradox' by displaying the experimental set-up in a time-reversed framework (pp.150-153). In this he draws heavily on the work of Costa de Beauregard (1987), though he omits to inform us that the latter envisages psi phenomena as among the predictable consequences of quantum mechanical theorising.

The book is so well written and contains so much that is of profound interest and importance that it is disappointing to have to report that it also falls far short of scientific objectivity. When he is operating within his own field Stenger is excellent, but when he strays into other fields he falls into the very same trap of which he accuses others, namely that of "... rationalizing their already-existing presumptions of truth" (p.129). He is rightly very critical of those who "... use scientific argument not as a spade to probe for unknown answers to deep questions but as a brush to lay down a veneer of respectability over answers they have already determined". Why, then, does he do the same thing himself?

Take, for example, his sweeping statement on page 214: "We can be as certain of evolution as we are that the earth is round". Stenger does not say which of the several possible theories of evolution he is affirming here, but we will let that pass. The fact remains that I can test the hypothesis of global circularity at any time I wish, simply by boarding an aeroplane; I cannot directly test the theory of evolution, since it refers to events in the remote past. In fact, there have been numerous criticisms of, and modifications to, the orthodox neo-Darwinian theory during the past forty years, and the matter is by no means a closed issue (cf. De Beer, 1971; Brooks & Shaw, 1973; Kerkut, 1960; Moorhead & Kaplan, 1967). No doubt *some* form of evolutionary hypothesis will provide the best explanation we can have of the development of life on this planet, but it is absurd to put such a hypothesis on the same logical footing as an observed fact such as the rotundity of the earth. Stenger's intemperate language no doubt stems from the irritation felt by many American scientists at the activities of the 'lunatic fringe' of Biblical Creationists, but it does little to enhance his reputation as a rational thinker.

Stenger is even more intemperate and, I think, unscientific when he deals with parapsychology, a topic which occupies several pages of the book. He regards the fact that ESP effects do not appear to be attenuated over distance as evidence for the non-existence of ESP itself (p.27). He omits to mention that several researchers *have* found substantial declines with distance (Gibson, 1937; Osis, 1956; Rhine & Pratt, 1954; Turner, 1965). In any case, Stenger's argument is about as logical as saying that because I happen to receive a radio transmission from New York with greater clarity than I receive one from Paris, therefore there is no such thing as radio.

Stenger quotes with approval the conclusion of the 1987 report by the National Research Council of the U.S. Academy of Sciences, to the effect that after a century and a half of research "the best scientific evidence does not justify the conclusion that ESP... exists". He fails to tell us that the report was written by two members of the Executive Committee of CSICOP, Ray Hyman and James Alcock, without the participation of any parapsychologist or even any neutral person. It is hardly to be regarded as an objective

assessment of the situation, therefore (cf. Eysenck & Sargent, 1993, for a fuller discussion of this matter).

Professor Stenger is clearly a very religious man. His religion is materialism of the old-fashioned mechanist-reductionist kind, and he is clearly determined to sustain that view of the world come hell and high water. His stance is stated plainly enough near the beginning of the book (p. 18):—

Whether we like it or not, the most economical conclusion to be drawn from the complete library of scientific data is that we are material beings composed of atoms and molecules, ordered by the largely chance processes of self-organization and evolution to become capable of the complex behavior associated with the notions of life and mind.

It is important to realize that this is a religious, not a scientific, standpoint. Furthermore, it can only be sustained by ignoring a large part of the available data, since the "complete library" contains many things which do not fit in with a materialist interpretation. This is why the behaviourists found it necessary to deny the existence of consciousness, purpose, free-will and other mental characteristics; they cannot be reconciled with materialist dogma. Similarly, Stenger seeks for excuses to avoid facing up to the facts of parapsychology, which are also clearly incompatible with the materialist-reductionist world-view.

No doubt Stenger would deny all this, and would claim that he is being truly scientific in his rejection of parapsychology. But the hallmark of the true scientist is that he is willing to "sit down before the facts as a little child", as T. H. Huxley put it. Frankly, I cannot see how any truly impartial and rational person who has taken the trouble to examine the vast mass of evidence now available can possibly assert that psi does not exist. Hans Eysenck, who surely has no religious axe to grind and who is renowned for his tough-minded and critical attitude towards all kinds of research, summed up the position as he saw it as long ago as 1957 (pp. 131-132):—

Unless there is a gigantic conspiracy involving some thirty University departments all over the world, and several hundred highly respected scientists in various fields, many of them originally hostile to the claims of the psychical researchers, the only conclusion the unbiased observer can come to must be that there does exist a small number of people who obtain knowledge existing either in other people's minds, or in the outer world, by means as yet unknown to science.

Since those words were written the evidence has increased at least a hundred-fold, and has included data from dream laboratories, ganzfeld experiments, hypnotic experiments, experiments in meditational states and experiments with random event generators. Newer mathematical techniques have included ranking methods, analysis of variance and meta-analysis. Throughout all these changes, in many different laboratories and at the hands of countless different experimenters, psi phenomena have continued to manifest themselves. Yet as the researchers continually refine their techniques, so dogmatic sceptics such as Professor Stenger continually shift their ground, so that both parties become involved in an endless circular chase which has neither winners nor losers. Way back in the 1960s the sceptics were saying that if only parapsychologists would use a totally adequate and fraudproof device for generating targets and recording guesses, and if such a device were to give clearly significant results,

then they would have to accept the reality of psi (cf. Hansel, 1966). A few years later Helmut Schmidt did exactly that, producing unquestionably significant results with his quantum-mechanical RNG. Yet as far as I know, not a single sceptic changed his mind. Instead, the criticism shifted to the issue of 'repeatability'. Despite the fact that numerous independent workers have reported significant results with Schmidt-type machines, sceptics still declare that parapsychological findings are 'unrepeatable'.

Stenger's variant on this particular criticism is bizarre, to put it mildly. He admits that "hundreds of ESP experiments have been reported" (mostly statistically significant, although of course he doesn't say that), but he decides to ignore all of them except those reported by Schmidt and Jahn. These two sets of experiments were, of course, done in different laboratories and used different subjects, different experimenters, and different testing equipment. Both provided clear evidence of extra-sensorial information transfer. Stenger is clearly uneasy about this evidence, but he has to find some way of discounting it. He writes (pp.29-30):—

Still, the two sets of experiments do not agree quantitatively, and so cannot claim to independently replicate each other. In fact, you could even argue that since they quantitatively disagree, they thereby disconfirm each other. Schmidt reports that of the order of one percent of his hits are above expectations, while the PEAR result is approximately one-tenth of a percent high.

On this basis, you might as well say that there is no such thing as intelligence, since IQ tests conducted on different people in different places by different experimenters lead to different scores. The fact that sceptics have to resort to such feeble arguments to bolster up their case is surely a measure of the strength of the case for psi, as established by parapsychological experimentation.

There is much in this book with which I am in whole-hearted agreement, as I suspect most parapsychologists will be. Like Professor Stenger, I deplore the mushroom growth of irrational cults and 'isms' which has occurred in recent years, particularly when such cults are associated with 'therapies' which have never been submitted to any kind of systematic test. Such cults have relieved thousands of people of their hard-earned cash, and in some cases their sanity. I entirely agree that it is the duty of a responsible scientist to speak out against such perversions. However, this is best achieved by making people aware of scientific standards of evidence, the use of objective methods of testing, double-blind procedures, and so on. It will not be achieved by trying to impose upon them a dogmatic materialism which decides what the outcome of an experiment must be before it has even been attempted. True science, including parapsychology, must be humble. As Jacob Bronowski pointed out, the one lesson we can all learn from quantum mechanics is that there is no such thing as absolute truth, for all truth is provisional.

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AFTER LIFE: IN SEARCH OF COSMIC CONSCIOUSNESS by David Darling. Fourth Estate, London, 1995. xxvi + 193 pp. £7.99.

Survival research presupposes the existence of discrete conscious selves, and also presupposes that consciousness and self are not solely the direct product of a nervous system that will cease functioning at death. Ideas about consciousness are currently undergoing radical reassessment in science, and in considering some of the trends, Darling's book could be useful in shaking up thinking in psychical research through decoupling concepts about brain, consciousness, self and survival.

David Darling is billed as holding a degree in physics and a Ph.D. in astronomy, and is now a freelance science writer. In his latest book, main themes are introduced in a prefatory chapter: "As much as we believe anything, we believe that we have a unique, personal 'self', an inner 'I', that must be preserved at all cost." (pp. xviii-xix). Yet "the message from the front line of brain research could hardly be more bleak . . . What is the point of holding out hope of being able to think and remain conscious when the brain is dead, if we can't even do it in the depths of sleep?" (p. xiv). At the same time science shows death to be universal: "there could not be a you, and there could not be a viable universe, without death—the death of stars and the death of succeeding generations of organic life" (p. xxv). This notwithstanding, there is "a growing sense that a merger between the highest teachings of science, religion and mysticism is long overdue—a grand synthesis that will finally help us solve the greatest mystery in the universe" (p. xxvi).

These contradictory trends in current thinking are investigated more closely in the following chapters. Self-awareness is a principal line of study. Darling considers a sense of self to have been elaborated in tandem with the elaboration of language (Shankara was saying this some 1200 years ago), and "when self-awareness *did* finally arrive it inevitably led to the quest for the survival of self after death" (p.20). The history of this quest is briefly traced to the