

# Occasions of experience

Eric Ashby

*The Star Thrower.* By L. Eiseley. Introduction by W. H. Auden. Pp. 319. (Wildwood House: London, 1979.) £5.95.

THIS book is about Nature but it is an unusual book to be reviewed in *Nature*. Its author was a professor of anthropology but the book would score zero in an examination paper in anthropology. It is about Man in the Darwinian scheme of evolution but it is concerned with "the phase beyond the evolutionist's meager concentration upon survival".

Loren Eiseley was a poet who became a professional scientist. The essays and poems in this volume were collected for publication shortly before his death in 1977. They are autobiographical musings written by a deeply sensitive man who never reconciled himself with what he calls the "crystalline and icy objectivity" of the scientific attitude towards Nature. The imagery is vivid and personal; the style ornate and in places opaque. His naturalist's eye observes something—a playful fox cub too young to know fear, a spider keeping its web under surveillance, a fossil bone, a flint arrow head—these ignite his imagination and illuminate Man's relationship with the other living things around him.

The most interesting essays are those on science and humanism. Eiseley is distressed by reductionism. He does not dispute the need to think about living things at the level of atoms and molecules but he asserts that the things worth understanding about Nature cannot be discovered at this level; which of course raises the question: What, then, does he think is worth understanding? He answers this question by drawing the reader away from Darwin to Emerson and Thoreau. It is the numinous in Nature which matters to Eiseley, the attitude which the Germans call *Ehrfurcht*, the eye that sees the whole. "The finest intellect", he writes, "is that which employs an invisible web of gossamer running into the past as well as across the minds of living men and which constantly responds to the vibrations transmitted through these tenuous lines of sympathy".

Eiseley is not the only scientist who recognises the limits of reductionism and the dilemma of a theory of evolution from which the idea of purpose has been excluded. But, for my part, I do not think an appeal to the heady

prose of Emerson or the (sometimes querulous) protestations of Thoreau is likely to clarify these issues. Two essays on Thoreau—by far the best in the book—raise an interesting question, namely: What is the difference between imagination as it is used in science and imagination as it is used in poetry? Unfortunately Eiseley misses the opportunity to discuss this question. Imagination is as important in science as it is in poetry. The difference in the use made of imagination is this: the scientist disciplines imagination to make it comply with observation or experiment; the poet gives imagination free rein to range over whatever imagery his mind can design. Both these uses of imagination are legitimate. But it is confusing to mix the usage, and that—so it seems to me—is what Eiseley frequently does.

*The Star Thrower* has earned eulogies from other reviewers. I confess that I find the book disappointing. I think the reason for my disappointment is the use Eiseley makes of imagination. He uses it as a poet does, displacing (as he says of Emerson) "the sedate white doorstone into nature by something wild and moon-haunted, whether in science or art." In art, yes; Wordsworth, Emerson, Walt Whitman have

put on record vividly the human response to Nature, But in science, moon-haunted descriptions are not satisfactory records of Nature. Eiseley has tried to do something very important: to describe the intricacies of the biosphere as compellingly as Watson and Crick describe the intricacies of the double helix. It is an immensely difficult task and to have tried and failed is in itself creditable. Some poets—Robert Bridges in the *Testament of Beauty*, for instance—have got closer to it. So have some essayists—Lewis Thomas, for instance, in his charmingly allusive *Lives of a Cell*. I think the prize goes to A. N. Whitehead (and Eiseley generously acknowledges this), for he set out, with impeccable logic, the concept of process in evolution in a way which does enable one to think about the biosphere with the clarity Eiseley was seeking. It was Whitehead who linked together what he called "occasions of experience" like bars of music in a sonata. Eiseley's book, too, is a record of occasions of experience. It is not a clear record, but it is the testimony of a sincere and sensitive poet. □

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## Belief in a created Universe

P. E. Hodgson

*The Road of Science and the Ways to God.* By S. L. Jaki. Pp. 478. (Chicago University Press: Chicago; Scottish Academic Press: Edinburgh, 1978.) £9.50.

PROFESSOR JAKI is already well known as an historian of astronomy, with major works on the Milky Way, Olbers' Paradox and the Planetary System. In his *Relevance of Physics* he reviewed the history of physics and its relationship to other disciplines, and in *Science and Creation* (for review, see *Nature* 251, 747, 1974) he showed why science had its only viable birth in seventeenth-century Europe and not in the civilisations of antiquity. In the present volume, containing his Gifford Lectures for 1975 and 1976, he extends this line of thought by showing the deep connection between scientific creativity and natural theology. His thesis is that the belief in a created Universe implies the

epistemology that underlies scientific creativity, so that the road of scientific development and the ways leading the mind from the created world to a knowledge of the Creator are mutually sustaining and inextricably intertwined.

Science first came to maturity when Newton found the middle way between the empiricism of Bacon and the rationalism of Descartes. Newton's mind was dominated by a vision of truth incarnate in nature, a truth that can be revealed by a dynamic interaction between bold speculation and meticulous experimentation. His theory of gravitation was a creation of the mind—a leap beyond sensory data—but because it was a vision rooted in the data provided by nature it could become a vigorous science. Newton's awareness of the created nature of the world implied a recognition of its contingency, and hence the necessity of painstaking experimental work to uncover its secrets. The middle way found by Newton thus transcended empiricism without becoming trapped in a *priorism*.

The reverse side of this thesis is illustrated by detailed discussions of subsequent philosophers including Hume, Locke, Kant, Fichte, Hegel, Schelling, Mill, Comte and Mach. Their admiration of Newton's achievement and their ambitions to extend his