

Reviews

Wholeness and the Implicate Order. By DAVID BOHM. London: Routledge and Kegan Paul, 1980. 224 pages. \$25.00

With the advent of general relativity theory and quantum theory the classical foundations of physics were shattered. Since the early decades of this century, physicists have searched for new theoretical foundations that would provide a common base reconciling these two theories. David Bohm, professor of theoretical physics at Birkbeck College, London, develops in this book a proposal which he hopes can overcome the impasse in the quest for a unified theory. While his focus concerns the theoretical foundations of physics, his proposal has far reaching philosophical and cosmological implications.

Professor Bohm is concerned primarily with the thematic content of contemporary physics. Presently the thematic content of general relativity theory is incompatible with that of quantum theory. According to the first "continuity, strict causality (or determinism) and locality" are required; however, according to the second "non-continuity, non-causality and non-locality" are required (p. 176). Rather than focusing attention on their apparent incompatibilities, Bohm suggests that we examine the underlying similarities of these two theories in order to discover a new notion of order in which both are special cases. Both theories challenge the classical mechanistic order which emphasized discrete, independently existing particles, and both suggest that the universe in its macrocosmic and microcosmic dimensions displays an organismic order of undivided wholeness. Bohm terms this new order the "implicate order."

The old notions of order at the foundations of the mechanistic world view of classical physics used Cartesian coordinates to specify the distinct spatial and temporal locations of individual particles of matter. The implicate order describes the world as an interpenetrating web or network of relationships embedded in a unified whole. The particles or things of ordinary experience are understood as merely abstractions pointing to interrelated and interpenetrating subtotalities. They are subsistences rather than discrete substances. Professor Bohm suggests holography as a useful image to capture the meaning of the implicate order. In a hologram information concerning the whole object is enfolded or implicated in each part of the hologram. The implicate order is "considered as a process of enfoldment and unfoldment in a higher-dimensional space" (p. 189). Matter is like wave crests in the ocean or whirlpools in a flowing river which emerge as relatively stable patterns that depend upon the undifferentiated water for their existence.

Professor Bohm's insight into the process of scientific discovery is one of the most interesting features of the book. In a manner reminiscent of Michael Polanyi, Bohm argues that our general notions of order interact with the structure of our language and logic, thereby guiding the way in which we think about the world. This in turn shapes the way physicists approach

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theoretical problems. The implicate order, which describes the world as an undivided wholeness, requires a verb-oriented language and an event logic. The barriers confronted in contemporary physics are not merely a function of the limitations of experimental apparatus but, more importantly, of the limitations of the old ways of thinking about the world. Radically new ways of thinking, such as Bohm's proposal of the implicate order, are needed in order to overcome the inconsistencies in contemporary physics.

Bohm is highly successful in presenting his proposal of the implicate order in a manner that speaks to a general audience. Only one chapter, written originally for publication in *Foundations of Physics*, demands some background in physics and mathematics. Bohm has a flair for creating new words which capture the character of the implicate order, and he is particularly skillful in finding simple examples or thought experiments which unlock the key ideas of his new world view.

While the major focus of the book concerns the theoretical foundations of physics, Bohm touches upon the broader cosmological implications of the implicate order. Perhaps the most significant contribution of the book for readers of *Zygon* rests in Bohm's discussion of the relationship between matter and consciousness. Challenging the mechanistic model, the implicate order recovers some of the features of Aristotle's organic model with its affirmation of formal and final causes in addition to efficient and material causes. Bohm's general approach is highly compatible with Whiteheadian process philosophy and general systems theory. For Bohm, consciousness and matter are both grounded in the implicate order. The one enfolds or is implicate in the other in mutual interdependence. He proposes that "the more comprehensive, deeper, and more inward actuality is neither mind nor body but rather a yet higher-dimensional actuality, which is their common ground and which is of a nature beyond both" (p. 209).

While the implicate order may provide the unitary foundation for both consciousness and matter, Bohm does not develop in much detail the differences between them. Perhaps future books will explore the wider implications of Bohm's cosmology. He indicates that consciousness involves freedom, novelty, and creativity, and he suggests that "creative inception of new content" is projected from the multidimensional ground of the implicate order (p. 212). However, Bohm does not adequately develop how properties of a subtotaity such as consciousness are related to or limited by the laws and properties of the higher-dimensional actuality which is the implicate order. Do the distinctive properties of consciousness emerge out of similar characteristics inherent in the implicate order or do new properties evolve through the character of the subtotalities?

My most serious question concerning the implicate order is the scientific grounding of Bohm's proposal. A search for new foundations of physics and the ensuing cosmological implications takes place at the horizons of science. Bohm defends a theory of "hidden variables" to overcome some of the limitations of quantum theory. However, the approach through hidden variables is a minority position, rejected by the majority of physicists. Clearly, the implicate order is related to the theory of hidden variables in that there is an underlying order (presently hidden) which accounts for the indeterminism in quantum theory. Is the viability of Bohm's proposal a function of the adequacy or success of hidden variables? On the one hand, the answer is no, for the general outline of the implicate order is consistent with alternative thematic approaches in quantum theory, such as developed in bootstrap quantum theory popularized by Fritjof Capra in the *Tao of Physics*. On the other hand,

Bohm's proposal should sensitize us to the dangers of too quickly endorsing the thematic content of a scientific theory, when the verdict of the adequacy of the theory has not been delivered.

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Conscience: Development and Self-Transcendence. By WALTER CONN. Birmingham, Alabama: Religious Education Press, 1981. 230 pages. \$11.95 (paper).

What is conscience? Is it the unconscious superego, a vague sense of guilt, a faculty, a power, a specific act? Walter Conn argues as the central thesis of his book, that conscience involves all the human subject's conscious operations insofar as they are oriented toward authentic, responsible decision in accord with reasonable judgment. In this sense, "a person does not have, but *is* a conscience" (p. 204).

Like Immanuel Kant in his *Foundations of the Metaphysics of Morals* and *Critique of Practical Reason* Conn seeks to disclose the "conditions for the possibility" of moral consciousness itself. Unlike Kant, however, Conn's self-avowed goal is an extension of a "revised *Critique of Pure Reason* into the realm of ethics" (p. 27). His strategy is to develop a model of the consciously acting self in which true objectivity is realized insofar as the human subject is authentically self-transcending. Conn's aim is to overcome the so-called hiatus between the "is" and the "ought" by demonstrating that there is operative in the human subject a single, dynamic, transcendental desire or orientation which manifests itself in successively higher levels of conscious functioning as an intending of the intelligible, the true, the real, and the good (p. 214). In this holistic model conscience is revealed as an exigence for consistency between one's knowing and one's doing, and the so-called gap between the "is" and the "ought" is concretely overcome in the unified performance of the human subject at diverse levels of interdependent, interrelated levels of conscious activity.

The author utilizes Bernard Lonergan's transcendental method for critically grounding his dynamic, holistic approach to conscience as "self-transcending subjectivity" (p. 202). But he first seeks to establish a concrete context for his foundational argument by engaging in a lengthy analysis of the work of three developmental psychologists: Jean Piaget, Erik Erikson and Lawrence Kohlberg. He places Piaget's general theory of cognitive development and Kohlberg's theory of the development of moral judgment within the lifecycle framework of Erikson's eight psychosocial stages to show positive stage by stage correlations among these three developmental models. Conn's aim is to demonstrate in as cogent a manner as possible that "self-transcendence can be *discovered* as a criterion in the work of Erikson, Piaget, and Kohlberg" (p. 34).

The two central chapters of the book focus on the role of self-transcendence in developmental psychology (pp. 34-112) and in Lonergan (pp. 113-201). The introductory and concluding chapters are quite brief and deal respectively with a contemporary discussion of the status of conscience in theological

ethics (pp. 1-33) and the implications for ethical style and reflections of the theory of conscience as self-transcending subjectivity (pp.202-216).

Walter Conn makes a good case for his thesis that there is at least an implicit criterion of self-transcendence operative in the developmental psychologies of Piaget, Erikson, and Kohlberg. In analyzing the sequence of stages involved in the models of the three psychologists Conn shows that each stage in the diverse models qualitatively transcends its predecessors. More importantly, he demonstrates that the sequential development of stages is normative and that the task or orientation of each stage in the models is properly defined in terms of the subject's inner exigency to move beyond or transcend the narrow confines of constricted egocentricity.

Concretely, the author shows that central to Piaget's model of cognitive development is the view that egocentricity is the absence of self-perception and objectivity and that it is through a dialectical process of decentering—moving from sensorimotor and symbolic operations to more complex logical activities—that the human subject gradually realizes self-knowledge and objectivity. In similar fashion, Conn argues that the key to development in Erikson's model is an engagement in a series of psychosocial tasks whose successful outcome results in the acquisition of strengths which are true moral virtues. These dynamic strengths are defined in terms of the power they give the individual for self-transcending expressions of hope, fidelity, love, care, and wisdom. Finally, Conn shows without difficulty that Kohlberg's stages involve a normative development from an initial, naive, egocentric instrumentalism through a morality of conventional approval to a stage of principled conscience where the subject chooses in the light of critical cognitive appraisal and evaluation of the moral issues in question.

Conn's creative disclosure of the movement toward self-transcendence implicitly operative in the developmental models of Piaget, Erikson, and Kohlberg provides the concrete context for an equally creative explication of Lonergan's philosophical-theological model of self-transcending subjectivity as the constitutive ground of authentic moral consciousness.

In discussing Lonergan's model of self-transcending subjectivity Conn cautions the reader that Lonergan's basic method is one of "self-appropriation" and that consequently "one may read about it, but for persuasive results, one must engage in it" (p. 114). The author also stresses that he is limiting his consideration of Lonergan's thought to those aspects of it which are relevant to foundational ethical analysis, focusing on the nature of moral consciousness or conscience.

Conn contends that it is the "good conscience," the conscience of the intellectually, morally and religiously converted individual which reveals the primary, basic, and normative meaning of conscience. Moreover, Conn urges that the ideal paradigm of conscience is revealed in the individual who has undergone a "critical" moral conversion (p. 190). The author derives his basic models of moral and religious conversion from Lonergan. But he introduces a distinction which is at most implicit in Lonergan's thought when he distinguishes between an "uncritical" and a "critical" moral conversion.

For readers not familiar with Bernard Lonergan's thought it may prove helpful to sketch in summary fashion his basic understanding of three fundamental conversion processes, namely, the intellectual, the moral and the religious. This sketch will provide a base for entering into some reflections on Conn's creative use of these central notions of Lonergan.

Intellectual conversion—an expression coined by Lonergan—involves a personally verified understanding of what one is doing when one is knowing. It is a process of “self-appropriation” in which a person attends to his or her conscious experience of the stages involved in the knowing process, receives insight into the nature of the experienced stages, and verifies that his or her understanding is correct. Lonergan refers to this process as cognitive self-transcendence.

Moral conversion—real self-transcendence—involves in simplest terms a decision to act responsibly and to be governed in one’s ethical activities by the criterion of what is truly good instead of what merely satisfies one’s immediate needs for self-gratification.

Religious conversion—complete self-transcendence—is the gift of being in love with God in an unconditioned fashion. It is God’s work whereby His love is poured into the human heart by the Holy Spirit (Rom. 5:5).

Conn argues that the deepest meaning of moral conversion and conscience is disclosed in the individual who chooses what is truly good not simply because parents, school, church or peers recommend it, but because he or she decides for himself or herself that a given value or course of action is truly good and worthwhile. Conn refers to the first type of moral choice as uncritical moral conversion and to the latter as critical.

Because Conn holds that moral conversion involves a consistency between knowing and doing—an overcoming of the “is” and the “ought” gap—he argues that there is also operative in the critically morally-converted individual at least an implicit intellectual conversion whereby the person tacitly recognizes that he or she reaches truth, being, and value through the exercise of reasonable and responsible judgments of fact and value. A fully critical intellectual conversion, however, is not a necessary existential condition for the occurrence of critical moral conversion. Religious conversion, however, is an essential condition for the occurrence in a person of uncritical or critical moral conversion.

The overarching theme of Conn’s book is that conscience in the most developed and proper sense is neither a faculty, the superego, nor a specific act but rather the person existing as an intellectually, morally, and religiously self-transcending subject. As Conn succinctly puts it: “Quite simply, conscience is the fullest expression of the personal subject’s fundamental exigence for full self-transcendence” (p. 208).

Dr. Conn’s book is lucid in style, ecumenical in orientation and highly stimulating. It is scholarly and original. The author handles the intricacies of the models of Piaget, Erikson and Kohlberg very well and accurately presents the sophisticated views of Bernard Lonergan. But most importantly, Conn uses his primary sources in a highly creative way to come up with a model of conscience as self-transcending subjectivity which is strikingly comprehensive and convincing.

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The Morality of Scarcity: Limited Resources and Social Policy. Edited by WILLIAM M. FINNIN, JR. and GERALD ALONZO SMITH. Baton Rouge: Louisiana State University Press, 1979. 136 pages. \$10.95.

This is a valuable collection of essays written from a perspective which the editors call neo-Malthusian because of their concern over the effect of limited resources upon human life.

Kenneth E. Boulding advocates a "realistic theory of social dynamics" which does not take preferences for granted. Rejecting cultural relativism, he argues that values are neither "random nor arbitrary" and that a recognition of errors in values is necessary. The relevant factors are to be found in the effects of human action on the world, the landscape and species, now and in the future. The ethically significant processes are ecological interaction and evolution, and dialectical processes of struggle and conflict in society.

Garrett Hardin views foreign aid as a kind of intervention which has often been harmful. Efforts to feed the hungry have encouraged populations to exceed the carrying capacity of some areas. A global approach cannot work in the absence of any global authority. To encourage each country to be self-reliant is the best ecological policy, and in the long run the most humane policy.

Herman E. Daly argues that an "impossibility theorem" based on the laws of thermodynamics, the fixed flow of solar energy, ecosystem interdependence, the supply and location of minerals, and economic factors shows that the number of "person years" which can be lived in an industrial lifestyle is limited. We face questions of apportioning these limited "person years" among nations, social classes, races, generations, and individuals. Daly argues for a frugal lifestyle and population control, which would allow more lives in the future and be less harmful to subhuman life. Facing the difficult questions of allocation forces us to deal with significant philosophical, religious, and value questions and challenges us to grow ethically and spiritually.

Robert F. Chandler, Jr. argues that the race between population and food production will be lost unless there is a reduced birthrate or an increased deathrate. Food yields can, he holds, be increased if governments invest heavily in irrigation, fertilizer, market roads, and education. He expects world population to become constant by the end of the twenty-first or middle of the twenty-second century with a population above 15 billion. Constant population will be achieved earlier through education and planning or later through famine, disease and war. Unfortunately, Chandler does not consider the environmental impact of increases in irrigation, roads, and use of fertilizer.

Harmon L. Smith writes about the lack of medical care for the economically deprived and disadvantaged, which he considers an ethical failure. He relates this problem to "the notion that health care should be a monopoly of the medical profession" and to conflicts between physician autonomy and patient participation, and between professionalism and a personal relationship between patient and physician.

John C. Bennett shows the difficulties of approaching foreign policy from a moral standpoint and points out important moral considerations. He opposes efforts to prevent revolutionary changes to achieve economic justice and the favoring of governments receptive to U.S. business. He would promote individual rights without self-righteous preaching or favoring of rightist nations. Stress on individual freedom should not overshadow the need to reduce

tension between nuclear powers. Morality requires limits to means employed in pursuit of foreign policy objectives.

Donald W. Shriver, Jr. argues that institutions deserve to survive in our society to the extent that they serve the general public interest. He uses the land-grant university as a model, though not a perfect one, since it served the large landowner more than the poor farmer. He advocates interdisciplinary exploration with input from government, universities, business, and the church.

Gerald Alonzo Smith surveys Malthusian thought among biologists, geologists, and economists. The greatest value of his article is his report of the work of economists who rejected the main-line economic approach of present value maximization and the assumption that all wants are equally justified. He relates clearly the connection between economic theory and resource conservation.

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Environmental Ethics. By K. S. SHRADER-FRECHETTE. Pacific Grove, Ca.: Boxwood Press, 1981. 358 pages. \$9.95 (paper).

Questions in environmental ethics run parallel to and often intersect basic issues in the dialogue between science and religion, and *Zygon* readers will welcome the appearance of this new anthology. All the main issues in this new field of ethics are covered here—the need for a new, environmental ethic, the rights of future generations, the rights of natural objects, the rights of animals, the right to a liveable environment, the environment versus the economy, the environment versus the poor, issues in population growth, pesticides, and nuclear power.

Kristin Shrader-Frechette has anthologized and introduced 25 selections, perhaps not always the best summaries that could have been chosen from the now rapidly growing literature, but they are good beginner's pieces. She herself writes about one-third of the pieces she anthologizes, and proves quite vigorous in the debate. Her selections from others are, on the whole, better at raising questions than at supplying plausible answers and sometimes better at ballooning problems than at supplying a careful analysis even of the problems. The selections are a bit miscellaneous, partly because the authors come from diverse fields, partly because they handle large and uncharted issues. She has some tendency to set up, in a first reading, an opponent on the other side, then to give us, in the second reading, "the truth" from Shrader-Frechette or her chosen spokesman. But the selections are provocative, organized around the right themes, and everything is easily readable.

A principle point that comes home on every page is how many value issues nowadays are intermixed through and through with scientific and technological matters, requiring great skill at both value judgments and scientific judgments, skill first at separating and then at mixing the two. Pro and con, the data and predictions are always being used in the service of a value judgment, and facts and forecasts often take on the color of a governing value set. One is always deciding whom to trust. A still deeper impression is how much in what

first seem to be plain, practical environmental matters turns out to touch faith axioms about the relationship of humans to the natural world. Beneath the ethics, there usually lie roots in religious and metaphysical questions.

In this review I will feature samples of theoretical issues involved, with lesser attention to the applied side, although in this anthology the latter side is perhaps better developed than the former.

In an opening account of "theoretical frameworks," Douglas H. Strong and Elizabeth S. Rosenfield ask, "Ethics or Expediency: An Environmental Question"? They believe that "the route to general acceptance of an environmental ethic will actually be by way of the much deplored concept of 'self-interest'" (p. 12). They have in mind self-interest on the part of the human group (which they do not distinguish well from individual human self-interest) and conclude that "an environmental ethic will simply add a duty not to cause harm to the land." Further, "this duty toward the land could in fact be considered as simply another duty toward society." In one sense, "the good of the earth will come first," but at bottom this is instrumental to human welfare (p. 13)! What really comes first is self-interested human society acting expediently. But the authors repent a bit from their anthropocentric self-interest in a last footnote. "An environmental ethic that is accepted and complied with because it appeals to one's self-interest is not, admittedly, on an altogether sound footing. Such a view continues in part the erroneous concept of one's separateness from nature. . . . Our hope is that ultimately people will recognize and accept the right of other species to exist simply for their own sake and not because people need them" (p. 15). Their position has a practical twist, but it can hardly be said to be theoretically clear.

Shrader-Frechette too has a way of softening what first look like hard answers. She believes that a primary (or biocentric) ethic, which recognizes intrinsic values in nature, combined with a secondary (or anthropocentric) ethic, which regards nature as instrumental to human interests, would be morally superior to a merely secondary ethic, provided that we can join the two. "What is clearly the case is that both a primary and a secondary type of environmental ethic would provide a greater protection to nature than would a secondary ethic alone" (p. 18). Nevertheless, she retreats both theoretically and practically to the old humanistic ethics. "What I have shown is that there is a strong rational foundation for using existing utilitarian and egalitarian theories to safeguard the environment. Utilitarian doctrines clearly protect the interests of future generations and egalitarian schemes prohibit any environmental hazards against which persons cannot be assured equal protection. . . . It is not clear that a new ethic is needed to protect purely human interests in the environment" (p. 23).

But that much is a foregone conclusion. Of course a humanistic ethic, suitably revised for application to ecological concerns, will protect *purely human interests*; that is its premise. The whole point of a newer ethic is to question whether there are not nonhuman integrities in nature that are also morally commendable. Shrader-Frechette then continues, "however, a 'new ethic' may be needed if there are purely environmental interests separate from, or not capable of being included under, ecosystemic factors affecting human interests" (p. 23). That amounts only to a definition of a new, naturalistic ethic.

Later, when Shrader-Frechette comes more directly to address the question whether natural objects have rights, she affirms that they do, or ought to, and we move to a deeper sort of environmental ethic. Here her argument is stimulating, although it does not advance much beyond that of Christopher

Stone, on whom she builds. She is not in this discussion as alert as one needs to be at separating out the relevant levels of environmental integrity—sentient animals, lower animals, plants, landforms, ecosystems, communities—and rather tends to lump everything together indiscriminately as “the environment,” or “natural objects,” and hence to speak too generically of the “rights of nature.”

Shrader-Frechette is opposed to the “cowboy ethic,” a name she gives, rather oversimply, to what is usually called the dominion thesis—the view, jointly held by most utilitarians and in the Judeo-Christian West, that humans have a right and duty to use the earth ever more masterfully as a resource. She is not really against a sort of dominion, however, for she goes on to advocate the spaceship earth model as a dominant metaphor. Humans are the earth pilots attending to the welfare of their ship. This metaphor is deservedly provocative, an especially good one for rejecting Garrett Hardin’s lifeboat ethics. Here she is a most effective critic of Hardin. But as a master metaphor, the spaceship earth is not organic enough for a self-composing ecosystem, for what I might call an ecosymphony. In using it, all talk of moral concern for nature can vanish; we are only concerned about keeping in shape this ship upon which we ride. We want a balanced energy budget and good conservation. The limitations to the spaceship metaphor are its mechanical and instrumental connotations, which Shrader-Frechette only partly recognizes (p. 46-47). The form of earth’s carriage is more that of a womb than that of a spaceship.

Walter C. Wagner believes that we have no obligations to future generations, none at least for posterity’s sake, but nevertheless we ourselves now will be “more dynamic, self-actualizing, mentally healthy, goal-directed, organized and integrated people” with a “futurity concern” (p. 66). So we provide for the future disguisedly to help ourselves, an answer he finds “frustratingly inadequate” (p. 62). Amen! This sounds like advising parents to have children instrumentally for the parents’ own self-actualizing. There is truth here but it could much better have been called a need for self-transcending concern. A clearer analysis would recognize the classical moral paradox, rather than naively trying to regard everything as sublimated egoism. The point Wagner misses is that what counts as our self-interest is reconsidered in switching from present gratification to futurity concern. It is a different form of self-actualization to move from consumption now to conservation for progeny. One generation’s self-love is not so much actualized as is one generation’s self-love deployed over a wider reference class. In so doing it is transformed quite as much as it matures.

At this point we can look back and see that Strong, Rosenfield, and even Shrader-Frechette cannot get this adequately conceptualized. When our humanistic self-interest moves out into deeper environmental concerns, it is fulfilled if you like, but only to become transformed into a very different sort of self-interest, one that takes its bearings from the community, both that of the surrounding biosphere and the intergenerational past, present, and future. The metamorphosed self-realization may not be pure altruism but neither is it the old self-love. Such interactions are the thorniest issues in environmental ethics, ones that make it an exciting new field, and they have yet to be adequately analyzed.

There are a number of now classical articles here—Peter Singer’s provocative advocacy of animal liberation from the *New York Review of Books*, Michael Fox’s careful reply, Garrett Hardin’s influential “Tragedy of the Commons,” Daniel Callahan’s thoughtful “Ethics and Population Limitation,”

and William Blackstone's groundbreaking "Ecology and Rights." I need not comment on these, as they have been much discussed elsewhere. But it is quite useful to have them gathered here. A rewarding surprise, for this reader at least, was an excellent and meaty article by Richard B. Stewart on "Paradoxes of Liberty, Integrity, and Fraternity," originally in *Environmental Law*. Though needlessly tough here and there, this analysis gives much revealing insight into the value tradeoffs which we meet in environmental conflicts, often unprecedented and not fully recognized for what they are. A result is that environmental decisions are likely to prove more bitter than we suspect. Not only do the contesting parties want different things; we as a nation want contradictory things unawares.

E. C. Pasour, Jr., in an article on "Austerity, Waste, and Need," still trusts heavily in the invisible hand of the market as the most effective regulator of resources. In free-market pricing no "tragedy of the commons" can happen. He thinks that moral appeals for less consumptive lifestyles (as made here by Andrew Larkin) are likely to be ineffective and counterproductive, since they slow down resource development. He also celebrates our personal freedom in deciding to buy how much of what we need. "The question of what goods and services each of us consumes is a matter that must be answered by each of us as individuals" (p. 168). For an economist, he seems unusually blind to the fact that in an advertising age people's tastes in consumption are manufactured, quite as much as the goods that are supplied to them, for example, in fashions. Larkin, however, clearly sees this point (p. 214). Nor does Pasour notice how market pricing of scarce but necessary goods (as with heat and energy) favors the rich and hurts the poor.

An especially strong point which Shrader-Frechette makes repeatedly in several contexts is that a straightforward utilitarian ethic, especially one that is hung onto dollars, is unreliable. One cannot just maximize the good, balancing benefits against cost, damage, or risk. One has to consider the equity with which goods and losses are distributed, whether risks and losses are voluntary or involuntary, and whether the goods produced are trivial, optional, or essential. She is especially effective here in her analyses of the uses of pesticides and of nuclear power.

Despite the large volume of environmental literature, good texts and readers are still too scarce. That is to be lamented in a field which has both high theoretical interest and practical urgency. Shrader-Frechette's contribution is, at present, one of the best available. It has already been used with good success at my own university.

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