

Reviews

Ethics and Science. By HENRY MARGENAU. New York: Robert E. Krieger Publishing Co., 1979. 293 pages. \$20.50.

Henry Margenau's monograph, *Ethics and Science*, has recently been reprinted with a new preface. The author's objective, in which he is largely successful, is to develop a scientific perspective concerning the development and operation of ethical principles in human society. The renewed availability of the book is particularly welcome because of the growing interest in a scientific foundation for the field of ethics.

The book provides a lucid and thoughtful analysis of the foundations of knowledge in the fields of ethics and science; this analysis includes the best exposition I have seen of a scientific epistemology for the field of ethics. One of Margenau's most important contributions is the elucidation of a logical process for the validation of ethical precepts, which almost exactly parallels the presently accepted procedures for the validation of scientific theories.

Margenau suggests that ethical precepts must be ultimately evaluated in terms of how well they work for the individual and the society. He shows that this kind of pragmatic test is logically equivalent to the kinds of tests that are applied to scientific theories. However, because ethical principles cannot be evaluated in isolated scientific experiments, their validation is inevitably a slow process which typically spans many generations.

If I had been aware of this work at the time I wrote my book, *The Biological Origin of Human Values* (New York: Basic Books, 1977), it probably would have simplified some of my problems in exposition. Margenau does not, however, anticipate the theory of values as it is developing in the field of decision science.

Because of the "confusions and ambiguities" that he finds in the earlier efforts to systemize value concepts, Margenau elects to describe practical ethical systems simply as a collection of precepts (or imperatives). This approach allows him to develop an epistemology for ethics which deliberately avoids the discussion of any valuative concepts. In retrospect this approach was very wise, since it allowed him to develop a logically consistent epistemology, which is not marred by what could only have been an unsatisfactory treatment of the valuative issues.

It now seems clear that Margenau's epistemology can be extended to incorporate valuative concepts by making use of modern theoretical ideas concerning the role of values in the human decision processes. In decision science, values are simply quantitative criteria that are used to weigh the good aspects versus the bad aspects of alternative courses of action. From this point of view, ethical "values" can be viewed as merely a way of codifying ethical precepts, a way which is more flexible and efficient in defining the precedence among the precepts. For example, if ethical concepts were limited to rigid imperatives, such as "Do not steal" or "Provide well for your family," then the

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provision for tradeoffs between different ethical objectives would require either the specification of a complex set of exceptions, such as "Do not steal unless your family is starving" or else a detailed precedence hierarchy among the ethical precepts. Because the association of values with ethical objectives can be viewed in this way, as an alternative way of codifying ethical precepts, it follows that the same "working methodology of ethics" that Margenau has defined for the validation of "ethical precepts" can also be applied for the validation of "ethical values."

Many of the confusions and ambiguities in value theories that troubled Margenau, can be traced to the prevailing misconception that values must be associated with specific physical objects or actions. In fact the real purpose of values in human behavior is to provide a way of scoring or evaluating the alternative outcomes that are associated with different courses of action. Although it is often convenient to think of things as having values as, for example we intuitively do either in the case of money, or in the case of the chessmen in a game of chess, it is theoretically more accurate to think of the values as just a way of scoring alternative projected outcomes. Thus, the values we ascribe to money are more properly viewed as a way of scoring alternative financial outcomes; and similarly, the values we ascribe to the pieces in a game of chess (where a knight for example is considered to be worth about 2.5 pawns) can be viewed simply as a way of scoring the projected outcomes for alternative moves in the game.

Obviously, in any such formal interpretation of ethical values it is necessary to take into account the variation in the decision context for the different values. For example, some values are guides for personal decisions, some are used in evaluating the behavior of other people, and some are used to evaluate the action of governments and other social institutions. It is also important to take into account the hierarchical relationships among values, in the sense that some are related to ultimate objectives, while others are related to intermediate objectives that constitute a means to some higher-level end.

When Margenau's work is broadened in this way, to include the valuative concepts as well as the rigid imperatives of practical ethics, it seems to offer an up-to-date and logically consistent scientific epistemology for the field of ethics.

GEORGE E. PUGH
President
Decision-Science Applications, Inc.

Belief and Ethics: Essays in Ethics, the Human Sciences, and Ministry in Honor of W. Alvin Pitcher. Edited by W. WIDICK SCHROEDER and GIBSON WINTER. Chicago: Center for the Scientific Study of Religion, 1978. 393 pages. \$16.95.

All of the essays in this *Festschrift* are rewarding. The level of quality and the interest generated by each of the essays is almost uniform throughout. In addition to an important preface by the editors and an irenic introduction by Joseph Kitagawa, which is a warm, human sketch of Alvin Pitcher's "life story," the following twenty-one essays focus on philosophical and theological

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ethics, theology and the human sciences, and ministry in the public sphere. However, the central concern of the volume may be characterized as the ongoing discussion regarding the relation of theory and practice. Three points of this discussion can be highlighted.

The first is the relation of theory and practice in the work of Pitcher. Kitagawa's "Introduction" reviews the honoree's academic life and religious concerns and touches upon how he has dealt with such issues as American business ethics, U.S. foreign policy, racial issues in America, and the energy crisis. However, Kitagawa's statement that the racial issue in America consumed Pitcher's thought for many years "at the expense of his scholarly activities" (p. 12) indicates a difference in understanding of what it means to engage in scholarly activity. Pitcher's work may not always be the kind of scholarship most academics recognize and reward, but it is entirely consistent with his understanding of the wholeness of being human. For Pitcher it is not only appropriate but essential for the scholar concerned with "*koinonia* and social justice" to bring theory and practice into concrete dialog by becoming deeply involved in the pressing social concern upon which he is also rationally reflecting. Kitagawa follows his phrase, "at the expense of his scholarly activities," with a comment from J. Ronald Engel (a contributor to the volume): "it is not for the sake of personal witness alone that Mr. Pitcher has become involved in the Chicago Freedom Movement but for purpose of 'understanding' also. His assumption is that 'those who do not know, write; those who do know, do not.' This kind of knowledge about good action gained from participation in an issue of religious substance in the culture is the kind of knowledge about what must or ought to be done to achieve the social good which the social sciences do not give" (p. 12). This seems to express well Pitcher's self-conscious understanding of what he was and is about but seems to be at variance with Kitagawa's understanding of scholarship. Perhaps Kitagawa meant to say "at the expense of his publishing activities."

Two essays, "The Search for Method in Social Ethics," by Alan B. Anderson, and "The Task of Social Ethics," by George W. Pickering, raise the issue of adequate definitions in relating theory and practice. These two essays are taken together because the positions taken by Anderson and Pickering grew out of their joint study of the civil rights movement in Chicago. They came to see the issue of racism as "a massive . . . denial of our common humanity on an arbitrary basis," that crucial and highly visible basis being "the striking characteristic of all our urban life," namely, "the color line drawn through it" (p. 116-17). Most helpful is their "final formulation of racism" (p. 116) and "the dimensions of this color line" as formulated by Pickering:

(1) Continued or increasing *separation* of the "races" geographically, socially, and institutionally; (2) Continued or increasing *subordination* of black people, Native Americans, Puerto Ricans, Chicanos and others in terms of their access (a) to basic life needs, (b) to high quality public institutions, and (c) to structures for political freedom and power; (3) Continued or increasing *denial of ordinary status* to these groups with the social order and with the culture; (4) Continued or increasing *abasement* and *fear* of non-white life by the dominant white society; (5) Continued or increasing legitimacy for and recourse to *violence* in the making, the keeping and the consequences of the color line; (6) Continued or increasing *capacity to rationalize* these dimensions, their consequences and their claims to a future (p. 224).

Anderson and Pickering ask, "what more basic denial might lie at the heart of them all than the denial of humanity on the basis of color?" And they reply, "from our perspective, the issue of the color line is that specific—and that ultimate. On these grounds, then, of empirical adequacy and interpretative

fruitfulness we find the color line crucial for our inquiry. Thus, racism is the dynamics of the color line, and the color line is the theme of the history of the civil rights movement" (p. 119). Reflecting the influence of Aristotle and Richard McKeon and an operational approach, they continue: "Empirically, we have said that the issue is the color line in the social order. Methodologically, our thesis is that the issue has priority as the ordering principle in social inquiries. In this case, that issue is the color line" (p. 120).

As insightful and cogent as their work is, it has been presented at such length in order to provide a fair context for some questions which arise. Granted that their study focused on racism in the United States, should not some disclaimer have been made as to how or why their understanding of racism exclusively along color lines does not apply to the obvious racism which existed or exists *within* color such as between Nazi Germans and Jews, neo-Nazi Americans and Jews, Soviet communists and Jews, among Indians with their caste system, between certain black African tribes, and possibly between Arabs and Jews if one takes both as being historically Semites? And would not their six dimensions apply almost as well to the current conflict in Northern Ireland between Protestants and Roman Catholics with an appropriate substitution of words naming "religion" instead of "color" as the dividing line? It seems that some dimension other than color exclusively must account for racism and irrelevant discrimination within colors or races. Anderson's and Pickering's own phrase—"massive . . . denial of our common humanity on an arbitrary basis" to which I would add: including some feeling or illusion of superiority—seems more fundamental and inclusive than the color line.

Without doubt "A Theology of Creative Participation" by Gibson Winter, is the major essay in this volume and the most significant contribution to it. It is very important because it addresses itself thoughtfully to the current crisis in theory and practice in theology which has "divorced theology and ethics, thought and practice" (p. 290) and has not really addressed itself to the modern age in the West which "has erased the experiential base of religious faith . . ." (p. 278). Winter's essay suggests a broader context for the total theological task so as to avoid the "increasing polarization of theological styles" (p. 278) as identified by Gustavo Gutiérrez in *A Theology of Liberation* (Maryknoll, N.Y.: Orbis Books, 1973). It responds to the five theological models proposed by David Tracy in chapter 2 of his *Blessed Rage for Order* (New York: Seabury Press, 1975) with the assessment that none is "dealing with either the erosion of original participation which undergirded [the] metaphysics [of these models] nor the emergence of creative participation which is the stuff of modernity" (p. 286).

The further significance of this essay is that it works out of the perspective of hermeneutic ontology originally identified by Pitcher and Winter within the discipline of religious social ethics. (See Alvin Pitcher and Gibson Winter, "Perspectives in Religious Social Ethics," *Journal of Religious Ethics* 5 [Spring 1977]: 69-89, esp. 76-77.) It is also a striking example of the very fruitful and constructive way in which the thinking of Martin Heidegger can be brought to bear appropriately in the theological and religious social ethical realms without being explicitly Heideggerian or without using the Heideggerian language which, unfortunately, is a stumbling block for many.

Combined with the *Festschrift's* central concern, the following list of all the essays, grouped in the book's three main divisions, illustrates the richness of the reflection that Pitcher's work has inspired.

Engaged in philosophical and theological ethics are J. Ronald Engel, "John Dewey's Philosophy of the Common World"; Franklin I. Gamwell, "Ethics,

Metaphysics, and the Naturalistic Fallacy"; Philip Hefner, "Purpose, Belonging, and Evil: Pivots of Meaning"; and Bernard M. Loomer, "The Free and Relational Self."

Carrying on a discussion between theology and the human sciences are James Luther Adams, "God and Economics"; Alan B. Anderson, "The Search for Method in Social Ethics"; Robert Benne, "Search for the Switchman"; Bernard O. Brown, "Culture, Selfhood, and the Process of Interpretation"; Don Browning, "Monistic Dimensions in Humanistic Psychology: A Process Theology in Perspective"; John Fish, "Social Justice and the Serviced Society"; Paul Heyne, "Economics and Ethics: The Problem of Dialogue"; Clark A. Kucheman, "Morality Versus Economic Science in Religious Socialism"; George W. Pickering, "The Task of Social Ethics"; W. Widick Schroeder, "Toward Belief: A Process Perspective on the Social Sciences and on Social Ethics"; Douglas Sturm, "The Meaning of Citizenship: An Exercise in Constructive Political Theory"; and Gibson Winter, "A Theology of Creative Participation."

Finally, examining ministry in the public sphere are Lowell Livezey, "Political Community: An Alternative to War"; Peter J. Paris, "The Moral and Political Significance of the Black Churches in America"; E. Spencer Parsons, "The Personal and Social Dimensions of Abortion"; Robert W. Terry, "White Belief, Moral Reasoning, Self-Interest and Racism"; and Peggy Way, "A Personal Essay: Public Ministries in Memory and Hope—Clarifying the Legacy."

JOHN C. MODSCHIEDLER
Philosophy and Religious Studies
College of DuPage

Nature and Purpose. By JOHN F. HAUGHT. Lanham, Md.: University Press of America, 1980. 127 pages. \$15.75, \$7.75 (paper).

John F. Haught elaborates a teleology of nature strongly influenced by the cosmological views of Alfred North Whitehead. The work is primarily a constructive endeavor so the author neither undertakes a detailed exposition of Whitehead's thought nor contrasts it explicitly with his own thinking. Instead, he uses key notions derived from Whitehead and other emergent evolutionists to develop a suggestive interpretation of nature in which the aim for aesthetic satisfaction and intensity of feeling evoked by a Divine Reality is seen as the purpose of nature and human nature.

Haught develops the broad contours of a process teleology without being burdened by Whitehead's highly technical language. He further considers some religious and theistic implications of a Whiteheadian interpretation of emergent evolution. As he does this, Haught challenges the world view of scientific materialism and critiques the understandings of perception, causation, and matter inherent in scientific materialism. (He does not develop Whitehead's critiques of the Newtonian conceptions of space and time.) These discussions should be especially helpful to persons who have been struggling with scientific materialism but who have not explored contemporary alternatives.

In addition to Whitehead, Haught is informed by the thinking of Charles Hartshorne (he is not cited as frequently as one might expect), John B. Cobb,

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Jr., Charles Birch, Michael Polanyi, Paul Tillich, David R. Griffin, and Teilhard de Chardin.

The text begins with a discussion and critique of dualistic thinking. Using Whitehead's panpsychism Haught seeks to overcome dualism by seeing a basic continuity between the conscious experience of an occasion in the life of a human being and all other occasions. Although conscious human experience is much richer, more intense, and more complex than subhuman experience, Haught suggests the same basic processes are exhibited in all occasions. Drawing on Whitehead's distinction between causal efficacy and presentational immediacy, Haught argues that sense-reception is more fundamental and elemental than sense-perception. The dimension of feelings and the lure for aesthetic satisfaction are primary; the mathematical forms and abstractions employed by scientists are secondary.

Haught interprets the ever-increasing complexity of nature and the multiplicity and hierarchy of societies in nature through the framework of emergent evolution. Although the higher spheres of nature are intimately related to the lower spheres, they are not reducible to them. Thus Haught seeks to refute reductionism and materialism. From a Whiteheadian point of view, Haught probably overstates the inviolability of laws in physics and chemistry and understates the impact of a complex living organism on the behavior of inorganic and some simple biological entities embodied in it.

The emergence of creatures with enhanced capacities for aesthetic sensitivity and intensity of feeling in the course of cosmic evolution leads Haught to the issue of purpose. Following Whitehead's lead, he interprets the purpose of evolution as the evocation of aesthetic value. He uses beauty as a key interpretative notion, and "value entails a synthesis of richness with harmony, complexity with order, novelty with continuity, and intensity with stability" (p. 70). He further states: "Purpose . . . would be the quality of any physical, mental, social, historical or natural process that aims beyond triviality and chaos toward maximizing harmony and intensity. No predetermined goal is required for the evolving emergent cosmos if we understand its purpose in this aesthetic sense. Its aim toward beauty is the teleology of cosmic process" (pp. 71-72).

Higher organisms are aware of the fragile nature of higher experiences and of their perishing. In humans this awareness evokes both anxiety over human mortality and efforts to interpret this experience. Haught sets religious vision in the context of this problem and draws again upon Whiteheadian ideas about God's primordial and consequent natures to suggest the everlastingness of God's reception of that which the world has to offer. He also appeals to the notion of adventure. If new and novel events are to emerge they must contrast with those of the past. In this manner, both order and disorder are manifest in existence. Thoughtfully appropriating ideas from Whitehead and process philosophy, Haught interprets God's function in the universe as a persuasive one and rejects ideas of predestination.

In sum, Haught offers a suggestive and fruitful theistic interpretation of cosmic evolution. He pays attention to the "facts" of evolution, but interprets them in a theistic manner. Current "creationist" controversies in biology may enhance interest in this text, for it provides an alternative which accepts the basic idea of cosmic evolution but challenges interpretations of it extant among some natural and biological scientists.

Our Fragile Brains: A Christian Perspective on Brain Research. By D. GARETH JONES. Downers Grove, Ill.: Inter-Varsity Press, 1980. 288 pages. \$6.95 (paper).

The author is associate professor of anatomy and human biology at the University of Western Australia and a highly motivated orthodox Christian. At the outset I wish to recommend this book to the widest audience—even to neuroscientists! I am grateful for new insights that have been given by the book. The author does not attempt any detailed account of the structure and mode of operation of the human brain but rather he prefers to write in general terms of the brain in his concentration on the whole human person from a biblical perspective. When I consider the wide range of subjects discussed, I can appreciate that the author did not wish to be immersed in the complexities of our present scientific understanding of the brain. His aim is well expressed on the dust cover: “He helps readers see brain research as a challenge that will force Christians to reconsider the doctrines of human nature and of human freedom, dignity and responsibility. He deals specifically with split-brain research, language and consciousness, damaged brains and diseased personalities, brain and behaviour control, malnutrition and brain development, and altered states of consciousness. His goal is to see the human brain from the standpoint of the human person and the person from the standpoint of God’s purposes.”

I think the least satisfactory part of the book is the first chapter which is a rather old-fashioned exposition of the brain—suggesting, for example, the chemical transmitter substances in the brain are “generally either acetylcholine or noradrenaline” (p. 43). However a more significant criticism is that no reference is made to the patterned operation of the cerebral cortex in columns or modules which gives the first insights into the functional performance of the cerebral cortex. At the end of this chapter there are three pages of religious discussions in which Gareth Jones insists that “discussions about [the] brain should not be isolated from discussions about the people who possess those brains or the society in which the people live or their relationships to each other and to God” (p. 46). I feel that the intrusion of religious proscriptions devolving from the danger of brain control is out of place in this chapter. Brains have to be studied scientifically to the limits of neuroscience and this has to be an ongoing enterprise regardless of religious considerations. We religious believers have to seek truth by scientific investigations untrammelled by considerations of whether it appears to be in conflict with some religious belief or that the knowledge may be misapplied. But of course we must resist any misapplication. We are only at the beginning of the understanding of the human brain, which is by far the most complex structure in existence. We cannot imagine what revelations may be forthcoming.

The second chapter on language and consciousness has much to be commended and the author is critical of the more extreme claims made for chimpanzee language. The section with the arresting title “Human Brain and Humanness” is particularly good, being in my opinion one of the best sections of the entire book. In the section on the controversial field of commissurotomy and divided consciousness the only deficiency is in respect to the recent, more sophisticated studies by Roger H. Sperry and Ervan Zaidel. Jones is rightly critical of the more extreme claims of hemispherical differ-

ences and of the efforts to dogmatize with respect to hemispherical dominance in relation to human types.

Chapter 3 deals with damaged brains and diseased personalities, highlighting three remarkable cases: Phineas Gage, H.M. and Zasetky. Four other interesting clinical cases are also described, but unfortunately no references are given. Important questions are raised with respect to the moral responsibility of brain-damaged persons. The end of this chapter is worth quoting: "If my brain is damaged, I may be less responsible, I may have many fewer courses of response open to me; I may be tragically limited; I may not even be aware of my limitations. Nevertheless, I am still a person; I am a being with whom others must contend. That is why brain damage has so many repercussions, not only for those afflicted, but also for society as a whole" (p. 112).

I rank chapter 4 ("Brain Control") as the most controversial chapter. I think Jones is too holistic in his view of the functioning of the human brain; it is the legacy of Karl Lashley. More and more we are recognizing remarkable specificities in the functioning of different regions of the brain. This has long been known for the primary cortical areas for afferent input and efferent output, the speech areas, and the various components of the limbic system including the hippocampus and also for the hypothalamus and the thalamus. Now there is convincing evidence that voluntary movement is initiated in the supplementary motor area. One can predict that the new tomographic techniques will disclose other areas, for example, for calculation, for geometrical construction and appreciation, and for musical appreciation. The author is rightly concerned with psychosurgery, but I think his virtual prohibition is too restrictive. There is good evidence that extreme violence is often associated with seizures in the part of the limbic system called the amygdala. Destruction of this diseased focus by stereotaxic surgery has alleviated the symptoms so that the patient can be restored to a normal existence. I also would refer to the recent case of Gary Gilmour who was executed in Utah a few years ago as a vicious murderer. It is unfortunate that the climate of opinion allowed an execution whereas there could have been an investigation of his amygdala with possible destruction of a diseased focus. In such tragic cases there should be the opportunity to learn more about the control of extreme violence. I predict that in the near future study of patients by depth tomography will reveal the areas of the brain that display hyperactivity that predisposes to extreme violence. Admittedly the history of some crude psychosurgical procedures such as prefrontal leucotomy has given a grave warning; but that is past history, and much more selective lesioning is now practiced. Violent opposition is aroused by the propaganda that psychosurgery can be used by a totalitarian state to inflict "mind control" on all types of social deviants, but this would be a clumsy method in view of the effectiveness of drugs in mind control. I have the impression that Jones has been partly converted by the ethical pretensions of the propagandists. The position will become clearer with more knowledge. There could be no reasonable opposition to the surgical removal of badly damaged areas of the brain, such as has been widely practiced in the control of epilepsy, by Wilder Penfield for example.

Chapter 5 deals with behavior control. The large section on psychotropic drugs provides a good account of a wide range of drugs. Jones is rightly concerned with the widespread taking of psychotropic drugs as a means of escape from the difficulties of the real world. He contrasts this with the Christian perspective. But I want to ask how this can be presented to a generation that has largely lost its religious beliefs. There seems to be no hope that an atheistic society can resist the blandishments offered by psychotropic

drugs. He concludes: "The 'brave new world' is already here, having quietly overtaken us. We face not a few controllers who dispense mood-affecting drugs on an unwilling populace, but a populace that demands the drugs" (p. 166). The chapter finishes with psychological conditioning in the manner advocated by B. F. Skinner. Such therapy can be subtle and efficient with unlimited possibilities of misuse by archpriests of the cult such as Skinner. He concludes that: "The only hope open to us to prevent such misuse and to promote its valuable side is to see others as persons like ourselves. They are not manipulable objects but, like us, have feelings, aspirations, frustrations and hopes. Like us they are people for whom Christ died" (p. 174).

Chapter 6 ("Environmental Influences on the Brain") deals largely with the effects of malnutrition. The trouble is that the experimental data on malnutrition of rats is applied to human beings. Some statements seem dubious—a deficit of around forty percent in some nerve terminals—for which no reference is given. One can agree that severe malnutrition could result in underdeveloped brains, but much more investigation is required. This is also true of the effects of environment on brain development. An enriched environment might be thought of as an excess of television viewing, but I would regard this as an impoverishment. What a child needs is the opportunity to be indulging in all manner of "creative" activities that arise from its imaginative relationship to its environment, and of course the learning and practice of a language is paramount. This chapter finishes with a long section on inequality and human responsibility with many biblical quotations. It is an eloquent appeal for social justice in the name of religion.

Chapter 7 gives a factual statement of all the various practices that relate to what can be generically known as the new consciousness. In attempting to give a fair, unbiased account of this menagerie, Jones seems at times to be condoning the various kinds of "transcendental" practices with their underlying irrationality. But the implication of his text, though not overtly stated, is that these accounts are of one or another form of charlatanism. Also the section on biofeedback needs critical scrutiny—"the biofeedback revolution, which in the minds of some promises cures for all kinds of illnesses as well as bliss-on-demand for the mystically inclined" (p. 213). I am not impressed by the claim that a revolution has been brought about by the demonstration that we can learn to control voluntarily some of the functions of the so-called involuntary or autonomic system. This was demonstrated long ago for salivation by Pavlov, but more intimately each of us exercises this control repeatedly every day as one contracts the smooth muscle of the detrusor to empty one's bladder, and, with appropriate thought, emotional people can shed tears. Evidently the biofeedback devotees are ignorant of simple physiology, eminent though they may be in psychology.

Transcendental meditation (TM) is fully described with its dubious scientific credentials. The alleged beneficial social and health features are said by Maharishi Mahesh Yogi to be brought about by "the formation of facilitated neural pathways which ultimately enable the state of pure consciousness to persist in the presence of waking activity in the state of cosmic consciousness" (p. 226). It sounds like charlatanism to me. I think Jones is too charitable in his evaluation of TM, but he criticizes TM because it is a monistic answer to the depersonalization of modern life with its legacy of secularist materialism, "an answer that conflicts head-on with Christianity in its views of God, of human nature and of redemption" (p. 230), and he proceeds to justify this categorical rejection with which I also agree. Jones concludes this important critical appraisal of TM with a section on individual consciousness and a

concluding summary of the new consciousness. I regard these as aberrancies devoid of rationality, but arising as a reaction to the materialism and secularism of the present Western civilization. As Jones states: "At times Western culture has replaced the rational with 'rationalism,' producing a morass of antisupernaturalism and deification of 'autonomous man.' It is right to reject such rationalism, but to replace it with intuitive 'irrationalism' will produce a system in which the irrational itself is deified" (p. 238), and he concludes with an eloquent call to Christians to lead the way: "Jesus Christ is actually *the way* into what could be called a 'new consciousness,' by virtue of his divine-human status. He demonstrates to us our limited consciousness, then provides us with a means of expanding it through our knowledge of God and through a new life in himself" (p. 240).

In the final chapter ("The Human Brain and the Human Person") I feel that we are entering once more into discourse on problems that are at a rational level. Jones warns at the outset: "A mechanistic description of human beings and the brain may herald the demise of the person—and of the mind" (p. 243). A rejection of the Skinnerian approach to control of the mind leads on to the more subtle *Programs of the Brain* by J. Z. Young. This book is sympathetically reviewed by Jones, but he recognizes that, despite all the spiritual writing, Young eventually reduces all human experiences to the brain's programs, that is, to neural machinery.

There follow sections on mental phenomena and the brain, on contemporary dualism (where Karl Popper and I are on the center of the stage) and on brains and persons (where Donald MacKay is the chief actor). It is not surprising that Jones prefers MacKay's rather indeterminate solution of the mind-brain problem to what he refers to as my "strident dualism." I would only ask that proponents of one or the other hypothesis of the mind-brain problem take full cognizance of our present knowledge of the cerebral cortex; that requirement has not been respected by Jones.

The final section ("Human Dignity and Human Aspirations") illustrates my criticism. As a neuroscientist I must insist that the brain is not holistic in operation. We must be open to an increasing compartmentalization of the brain, yet at the same time have a theory of brain-mind interaction that converts this diversity of performance into a unity of conscious experience. This is the theory of dualism plus interactionism, but Jones feels that "in place of that type of dualism we must contend for the holism of the human person. Each person is a unity describable as a biological-spiritual being, as a body-soul, or as a material-immaterial entity," and he provides biblical support for his belief (p. 271). He seems, however, to be in trouble with the death of the body; nevertheless I agree with his final conclusion: "The human brain, therefore, is to be regarded as a precious aspect of each individual, not because it encompasses all that the individual is, but because it *embodies* what the individual is as a conscious, responsible, moral being. The consequences of brain damage are consequences for the person as a person. . . . Christianity affirms the significance of human beings and the meaning of human existence. In so doing, Christianity affirms the value of our fragile human brains" (p. 277-78).

I have dealt at length with the wide range of fundamental problems discussed in this book, because I think they are most important and Jones has written a unique book that lies at the center of the concept of human personhood that is permeated by a Christian faith. The book is well produced, but

some diagrams are inadequate and in the text there should be referencing to the bibliography that is given for each chapter at the end.

JOHN C. ECCLES
Max Planck Institute
for Biophysical Chemistry
Göttingen, Germany