

SCIENCE, BELIEF, AND FACING THE FUTURE

by *Joseph Caggiano*

The grim prospects and slim hope held out by Robert L. Heilbroner for the human future are an invitation to pessimism, if not despair. Overpopulation, political confrontation, and social dislocation resulting from environmental constraints on industrial activity comprise a litany of terrors making for an "oppressive anticipation of the future."¹ It is not surprising that, numbed by Heilbroner's vision of industrial disaster, some among his readers will resign themselves to the fate he depicts, making peace with themselves and their God while awaiting the collapse. Nor is it surprising that others will resist his conclusions by either rejecting his premises or invoking the ability of men to change the course of events once informed of the dangers lying ahead. In this paper I endorse neither resignation nor resistance but seek to inquire how religious knowledge can be brought to bear on the place of science in the scenario.

Heilbroner's vision is one which commands the attention of anyone who is uneasy with the world at present and in prospect as it has been shaped by the imperatives of industrialism. Yet, for those concerned with science, the vision is especially burdensome, for Heilbroner identifies science and technology as the "driving forces of our age" which hold a special position "behind and within all of the particular dangers" for the human prospect.² Of the four horsemen of Heilbroner's apocalypse, science and technology have been described as the "rider who urges on the other three."³ Science and, more clearly, technology have in this view built and fueled the engines whose workings cloud the future. Yet Heilbroner's charges are not part of some antisience broadside. Rather, the dark prospects engendered are the product of a flaw not in the scientific perception of reality but in the social mechanisms which control the conditions and consequences of that perception. Thus, in his opinion, scientists were

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“powerless to have prevented any of the adverse consequences of scientific knowledge. The control of such matters lies in financial and industrial circles, not scientific.”⁴

Whether or not one would endorse so blanket an absolution, as soon as the practice of science is embedded in a social context one is faced with characterizing the values and motivations which both fashion that context and mediate between it and science. Where the context is modern industrial society, East or West, it suffices to say that among such values and motivations those encompassed in religion are conspicuous by their absence. The burden of proof is upon those who dispute this claim, for surely our uneasy world of increasing foreboding has not been brought about by adherence to religious strictures. Heilbroner himself is quoted as asserting that the absence of religion is “the sapping force of Western industrial civilization.”⁵ Acknowledging this absence is not necessarily to call for religious revival as the saving basis to avert the worst prospects of the future. It does, however, demand that one at least consider how and whether religion can be effectively related to the technologized science preeminent among the forces driving us toward that future.

A dissection of the internal workings and external relations of science is not necessary in arriving at Heilbroner’s scenario. Rather than making a procedural analysis of how it happened, Heilbroner calls our attention to the fact that the progress of technologized science has occasioned an “extended and growing crisis induced by the advent of a command over natural processes and forces that far exceeds the reach of our present mechanisms of social control.”⁶ Of course, for a wide spectrum of critics, both “countercultural” and otherwise, it is exactly the workings and epistemology of science *as* science which must be focused upon if one is to speak of alienation, disquiet, and foreboding in the modern world. Surely, for participants in this symposium there is much that is legitimate in the scientific view of the world. I assume that one of the warrants of that legitimacy is, precisely, accountability—both philosophical and practical—to the world in which science is practiced. Religious or moral questions become involved as one seeks to understand better that accountability.

If technologized science is regarded as being at least *primus inter pares* among the factors shaping the modern world, a widespread opinion of the present as well as Heilbroner’s vision of the future would charge that science with not having done a satisfactory job. In the same regard, what should be said of religion? On the one hand, one could say, with Heilbroner, that it is the absence of religion which has worked to debilitating effect in industrial civilization. On the other hand, Theodore Roszak finds that Western religions have been

not only historically evident but responsible for the modern malaise by their conditioning man to the alienation from nature out of which sprang science and, eventually, the twentieth century.⁷ In either view the effect of religion has been deleterious to modern man's physical circumstances and world view, to say nothing of his soul. Both views are compatible with the conclusion that, by default of religion or evolution from it, scientific beliefs are those which "command the prime aura of reality"⁸ for the modern world.

If religious knowledge has thus been most conspicuous by its ineffectiveness in facilitating the development of a humane and hopeful world, the task now becomes that of rehabilitating religious wisdom to a position of effective responsibility. If the dominant fact of the present is the driving force of science and industrialized technology, this rehabilitation can be achieved only by credibly relating religion to that force.

NEW IDIOM OF INQUIRY FOR RELATING RELIGION TO SCIENCE

At least until recently the success of science and its technologies has given them epistemic and social status such that religious knowledge has been devalued insofar as it does not correspond to the scientific model of verifiable validity. Religion has borne the burden of making its knowledge legitimate by making it credible in the light of the currently persuasive scientific models of factuality and truth. The explanatory models of religion have thus been under pressure to conform as best as possible to those of science. To the extent they have failed to conform, religious knowledge has been relegated to the status of "faith," misunderstood to be something "probable or improbable [affirmed] in spite of the insufficiency of its theoretical substantiation."⁹ Scientific knowledge has thus been central; religious knowledge, peripheral.

Disillusionment with the scientific world view and alienation from the society with which it is associated are, however, motifs which threaten this centrality. When coupled with the authoritarian politics of environmental adjustment envisioned by Heilbroner, such sentiments raise the prospect of a loss of esteem for science, of confidence in its technologies, and finally of that tolerance for free inquiry which is the *sine qua non* of scientific knowledge. While one can assess variously the likelihood of this dark vision's being realized, Heilbroner, of course, finds it likely enough and considers that the "ethos of 'science' . . . would play a much reduced role"¹⁰ in the postindustrial world. Countercultural critics would recommend this reduction be brought about not merely *before* the cataclysm but so as to prevent it entirely. This recommendation notwithstanding, it remains that in the cata-

strophic view of the future the pressure on religious knowledge to accommodate itself to scientific models is effectively eliminated. Religion, as authoritative statement and ethical stricture, is given a place of dubious honor as the agent binding together society on the ashes of industrialism and its science.

Thus one strategy for restoring religion to a socially responsible role is simply to await the "dethronement" of science as truth-serving paradigm providing valid information about reality. Granted that the practice of science and technology as now understood cannot be continued indefinitely, one can await the cessation of science and its discrediting as epistemological and motivational model. Religion may in this case act to inhibit scientific inquiry and technological implementation and eventually to displace science as the provider of beliefs about reality. This course is neither reconciliation nor integration of the varieties of knowledge, for it misinterprets religious knowledge and reasserts the adversary relationship between it and the scientific.

The alternative course sets religion a formidable task of coming to terms with technologized science so as to establish the credibility of religious belief on terms respected by science and, this being done, to moderate in a humane way the scientific model of factuality. The establishing of credibility is complicated by the disparity between science and religion both as to their criteria of valid knowledge and as to the ethical import of that knowledge which is explicit in one but not the other.

Involved here is the problem of establishing relevance between "concepts or beliefs taken from quite different populations of ideas."¹¹ One way of establishing both the intellectual respectability and relevance of religious knowledge vis-à-vis science is to adopt scientific forms of argument in elucidating (1) the fact of religious belief, (2) its function, (3) the biophysical correlates of religious expression, and (4) the desirability of religious knowledge. In this way one treats religious phenomena in much the same way as phenomena in physics, with hope, however, that either the technological or the transcendent value of religion becomes persuasively apparent so as to foster esteem for it.

A successful analysis of religion in this way may serve at best to show that religious knowledge is the most desirable—because most effective—instrument for formulating and transmitting indispensable values and ethical orientation. Certainly, given the prospect of a calamitous future, it is urgently appropriate that religious perspectives be brought to bear to correct the motivations and beliefs on which are based the human actions engendering that future. However, the claim that religious technology should be the technique of

choice in coping with the future cannot rest solely on the grounds that it is this technique which is the most efficient. Along this path one can envision a kind of systems theology presided over by religious technocrats modeling the dynamics of belief. Indeed, Jay Forrester has already spoken of the relation of church and society as a process which calls for "integrating the long-term dynamics of the ethical value structure into the socioeconomic-technical models that are coming into existence. . . . The various social subsystems should be inter-related, including the dynamics of goal and value creation."¹²

Such a program might well represent a complete integration of religious knowledge with that of the other social sciences at least. Assimilated into a structure of scientific argument, the appeal of religion then follows on grounds of its efficiency in fostering whatever state of equilibrium is deemed desirable. The study of religion thus described accepts the methodology and rules of evidence characteristic of science in investigating both the propositional content of religious knowledge and the behavior to which that content is related. Success in this regard may be judged by the extent to which the critics of religion are persuaded that its content is not vacuous and the behavior expressing that content not pernicious. This latter is an opinion which finds recent expression, for example, in Jacques Monod's regarding all religion as a form of charade testifying to the "efforts of mankind desperately denying its own contingency."¹³

The notion of contingency raises the matter of those ultimate judgments about human values, meaning, and place in the universe which have traditionally been the concerns of religion. One can speak of the social "efficiency" of one or another of these sets of judgments in seeking to make religion both credible and motivational in the modern world. Further, it is the biological and psychosocial underpinnings of these judgments which must be accessible in any estimation of the status of religious knowledge offered for the assessment of science. Yet religious wisdom involves by its nature a determination, if not prescription, of values. Science, while guided by the norms of method, has explicitly disclaimed any contribution to a knowledge of ultimate values. Thus Steven Weinberg has said that by a commitment to the discipline of science one of the lessons we have been taught is that "the laws of nature are as impersonal and free of human values as the rules of arithmetic. . . . Nowhere do we see human value or human meaning."¹⁴ Unlike Monod, however, Weinberg has no enthusiasm for this conclusion. Rather, he says, "We didn't want it to come out this way, but it did."¹⁵

We here face the question of whether the scientific study of religion, by applying the methods of physics and biology, can arrive at a

knowledge of values where a scientific study of physics and biology has not. The credibility of religious knowledge would be established at a stroke if it could be demonstrated that the "normatively empty character of the universe"¹⁶ is an illusion. If, however, the formalism of scientific argument is powerless to discover an ultimate basis for ethical preference, the integration of science with religion as the body of knowledge whose discourse *is* appropriate for such discovery demands the fashioning of an idiom of inquiry which can translate between the scientific and the religious. Whereas cross-cultural intellectual structures and concepts are here up for reappraisal, the situation is one where "we are . . . compelled to dig behind all purely formal, single-valued criteria of 'correctness' or 'validity,' and bring to light the underlying comparisons from which those criteria derive their own current relevance and justification."¹⁷

This is a prescription which applies to any effort of translation between the religious and the scientific realms of discourse. It requires that one take theoretical concepts of religion ("transcendence," "purposiveness," "responsibility," "salvation") and orient them to those of the sciences ("contingency," "randomness," "entropy," "causality"). Beyond the difficulty of choosing concepts which can be related one to another is that of deciding the ground rules of intelligibility in the first place. Heretofore, when relating the concepts of religion to those of science, the rules of discourse have been weighted in favor of science as "man's most effective way of augmenting valid information."¹⁸ As this validity comes increasingly into question (to say nothing of Heilbroner's prospect that it will disappear entirely), the opportunity grows for reconciliation of religious and scientific knowledge. One may expect to encounter dogmatism on both sides. Here Stephen Toulmin's view is apposite that rationality be recognized not "as a character of particular systems of propositions or concepts . . . [but] in terms of the procedures by which men change from one set of concepts and beliefs to another."¹⁹

Religion and science have at least in common that their adherents, being ultimately concerned with a vision of truth, comprise communities of faith. Any idiom of discourse between them must begin with this fact. But, in Paul Tillich's words, the "criterion of the truth of faith . . . is that it implies an element of self-negation. That [language of faith] is most adequate which expresses not only the ultimate but also its own lack of ultimacy."²⁰ Because it is in the light of the transcendent that a lack of ultimacy becomes evident, the symbols which are the language of scientific faith are inadequate, for "scientists . . . can no longer consciously relate symbol to transcendent experience."²¹ Further, while commitment to the practice of science is

itself an ethical matter, the justification of that commitment has become increasingly utilitarian. This is particularly so as science has come to be a matter of contracted knowledge underwritten by government, industry, and the public expectation of ultimately sharing in the fruits of that knowledge.

The values underlying such notions as objectivity, explanation, and control around which science is organized have, moreover, lost their unquestioned aura of special sanction by nature only to be seen as philosophically contingent and socially relative. Thus both the ethic and the epistemology of science have been opened to question such that scientists are in the unenviable position of being unable to express convincingly either the ultimacy of their concerns themselves or the relation of those concerns to anything ultimate. Edward Shils, not at all a member of the counterculture, points to this situation in saying that for "most scientists today . . . [an] acceptance of the religious understanding of the world lacks conviction. . . . On the whole, scientists nowadays are lacking in the ability to feel that their scientific work has transcendent significance."²² These circumstances virtually cry out for a religious response not repugnant to scientific convictions. This response can be simply utilitarian only if religion has itself suffered a corrosion of faith and loss of vision similar to that which has befallen science.

UNITARY ENDEAVOR FOR SCIENCE AND RELIGION

The current sense of malaise among scientists can be regarded as a product of the circumstances which pave the way toward Heilbroner's future with the irony that science itself has done much to bring about those circumstances. As to the industrial society in which science has been practiced, the failure of religious sources of ethical inspiration has been accompanied by the failure of industrialism itself in furnishing values satisfying to the human spirit.²³ While religion has been an inadequate technology of values, there has emerged no effective substitute for it. The motifs of production, efficiency, and acquisition which characterize industrial life have, of course, been motivational. But their increasing assumption of a life-threatening character augurs a crisis of reevaluation even for those who have thus far been comfortable with such motives. The ranks of those already failed by religion and materialism are then likely to be further swelled by these belated arrivals. Further, insofar as science has provided the portrait of reality in the light of which industrialized materialism has flourished, disillusionment and skepticism with the latter will impugn the credibility of the former.

Decrease in the credibility of scientific knowledge need not lead to

an increase in the credibility of religion. This is particularly the case if one considers that religious explanations have felt themselves pressed to the greatest accommodation possible with those of science. If the scientific model of inquiry and explanation becomes for whatever reason increasingly discredited in the future, will not religion to the extent that it mimics science share in that discrediting? It would have the flavor of a divine joke, were churches to hitch their wagons to a falling star of science.

Of course, this is only a cautionary note to the effect that, as religion and science face the future, religious knowledge must determine and preserve whatever it regards as its uniqueness. The inability of religion to have motivated behavior leading to a more humanely tolerable world than that in which we find ourselves can be laid to its perceived estrangement from the (scientific) faith which laid down the conditions of reality. One might sketch a chain of events in which Western religions alienated us from nature and spawned science, science alienated us from religion, and now reality alienates us from the science which fostered it. Monod speaks of the ancient covenant between nature and man as having been smashed by the truths of science. Heilbroner offers the prospect that the covenant between man and science will suffer the same fate. What truth is to supplant it? Heilbroner suggests the religion of ritual and myth. One struggles against this outcome and seeks the resources of imagination and insight by which there would be no supplanting at all but rather a rehabilitation of the religious and the scientific in each other's eyes so that they might fashion a prospect brighter than Heilbroner's.

A hobbled science, both as precursor and victim of future catastrophe, is no more pleasing a sight than the crippled religion of recent times. In the approach of Heilbroner's future it will be science that stands in need of a warrant of value and viability under the new conditions. We face the prospect that science must be religiously informed if it is to be practiced at all. Here, as much as in any utilitarian ethical response, lies the challenge to religion: that it demonstrate that in speaking of the "knowledge of the verifiable and the intuition of the inexpressible"²⁴ one speaks not of science on the one hand and religion on the other but of the unitary human endeavor alone adequate for the future.

One may disagree with details of Heilbroner's extrapolation from present trends to future realities while accepting that the drift of events does augur a period of profound reorientation to new social demands and environmental limitations. Both science and religion have the capacity to respond as technologies in this transition: the former to forestall the point at which industrial society exhausts the

planet's physical capacity to maintain that society; the latter to moderate the acquisitive materialism and shortsightedness which are the characteristic ethic of industrialism. Technical fixes, however, whether to the physical world or to morality, do not fulfill the visionary promise of either science or religion. The perception of reality on which Heilbroner's prospects are based has gone awry. It harbors the seeds of destruction, both of itself and of those who cling too long to it. Religion must recapture a vision which it shares with science if it is to substitute salvation for destruction.

NOTES

1. Robert L. Heilbroner, *An Inquiry into the Human Prospect* (New York: W. W. Norton & Co., 1974), p. 14.
2. *Ibid.*, p. 56.
3. Nicholas Wade, "Robert L. Heilbroner: Portrait of a World without Science," *Science* 185 (1974): 598.
4. *Ibid.*, p. 599.
5. *Ibid.*
6. Heilbroner, p. 57.
7. Theodore Roszak, *Where the Wasteland Ends* (New York: Anchor Books, 1973), chap. 4.
8. R. W. B., "Editorial," *Zygon* 9 (1974): 6.
9. Paul Tillich, *Dynamics of Faith* (New York: Harper & Row, 1958), p. 31.
10. As quoted by Wade, p. 598. Heilbroner suggests that science could not be practiced because the curiosity on which it is based would be incompatible with the religious "tradition and ritual" of surviving societies.
11. Stephen Toulmin, *Human Understanding* (Princeton, N.J.: Princeton University Press, 1972), 1:492.
12. Jay W. Forrester, "Churches at the Transition between Growth and World Equilibrium," *Zygon* 7 (1972): 167.
13. Jacques Monod, *Chance and Necessity*, trans. Austryn Wainhouse (New York: Vintage Books, 1972), p. 44.
14. Steven Weinberg, "Reflections of a Working Scientist," *Daedalus* (Summer 1974), p. 43.
15. *Ibid.*
16. Marc J. Roberts, "On the Nature and Condition of Social Science," *Daedalus* (Summer 1974), p. 55.
17. Toulmin, pp. 487-88.
18. R. W. B. (n. 8 above), p. 4.
19. Toulmin, p. 478.
20. Tillich, p. 97.
21. Roszak, p. 336. Among others, such ideas as lawfulness, order, causality, and objectivity serve as science's symbols of faith.
22. Edward Shils, "Faith, Utility, and Legitimacy of Science," *Daedalus* (Summer 1974), p. 11.
23. Heilbroner speaks of "civilizational malaise" (see Heilbroner, pp. 21-23).
24. A beautiful phrase of Raymond Aron's in the essay, "Max Weber and Michael Polanyi," in *The Logic of Personal Knowledge: Essays Presented to Michael Polanyi*, ed. Marjorie Grene (London: Routledge & Kegan Paul, 1961), p. 99.