

Reviews

AN EVOLUTIONIST'S ETHICS

The Lives of a Cell: Notes of a Biology Watcher. By LEWIS THOMAS. New York: Viking Press, 1974. 153 pages. \$6.95.

New Theology No. 10. Edited by MARTIN E. MARTY and DEAN G. PEERMAN. New York: Macmillan Co., 1973. 215 pages. \$1.95 (paper).

The evolution of human knowledge assures the work of theologians and moral philosophers is never done. If this view needs support, it gets it from a study of two new books, one by a thoughtful and articulate biologist, the other a stimulating collection of essays devoted to ethical and theological issues arising from new discoveries in biology.

The Lives of a Cell has already won for Lewis Thomas exceptionally glowing reviews and a National Book Award; all of the praise is richly deserved. While some biologists might take exception to an occasional conclusion too hastily or prematurely drawn from results of biological research, no one would deny the graceful literary quality of the book and the clarity of exposition of its major theme. It is precisely the development of this theme, which is the evolution of the symbiotic associations we call organisms, that provides much food for ethical and theological thought, although Thomas rarely speaks of morals and, unless I am mistaken, never mentions God. The biologist's view of the unity of nature is based on the interdependence of its parts. So far as living things themselves are concerned, they are now recognized as symbiotic associations of parts that were once organisms themselves. As cells are to the multicellular plant or animal, so submicroscopic molecular aggregates, called organelles, are to cells. Be they mitochondria or chloroplasts, organelles contain evidence of having been independent organisms at a time before true-nucleated ("eukaryotic") cells appeared on the evolutionary scene. It takes but a gentle stretch of the imagination to envisage the existence in preorganellar days of the molecules that now comprise organelles. Similarly, we see animal and human societies as communities that emerged from the increasing interdependence of what were once separate multicellular organisms. Indeed, biologists have come to see in nature a hierarchy of living beings, at each increasing level of which organisms arise by the fusion and integration of organisms at lower levels of organization. At any level of organization, there is, moreover, a variety of beings; far from chaotic, however, the variety consists of variations on recognizable themes, bespeaking origins from common sources. This hierarchy of variety differs from the old "chain of being" in its mode of evolution. The appropriate metaphor for the ancient chain of being is that of a ladder or one-way stretch of railroad track, which represents essentially a single path: a beginning, a direction, and an end or goal. The

metaphor for the modern concept of the hierarchy of life is more difficult to formulate, for what we witness are but the specific realizations of a wide variety of potentialities. More is possible at any given time than will actually be realized, and what actually comes to exist is the outcome not of some preordained schedule but of a process in which both existing structures and "chance" occurrences play their roles.

But it is not the living being alone that is a symbiotic association; with the nonliving part of the universe, too, life joins in community. Ecology has shown us how much life depends on its nonliving environment and how much the latter in turn depends upon the activity and evolution of life. The universe is to be treated as a community of interrelated entities, and human organisms that run counter to that community on the short term are in jeopardy in the long. Thomas writes cogently of cities and nations as "sick" when they fail to recognize that they are not autonomous, that they, too, are parts of a larger whole. The city that dumps garbage without heed in its lakes and rivers, the nation that seeks only for itself, must pay a costly price some day.

The actual, specific being we recognize as an organism is, then, but an improbable occurrence and a fragile entity at that. Far from being autonomous, its life depends on others, both living and nonliving. Nor is the life of the specific individual eternal; death, or nonlife, comes to every individual, every "self," however much life in a generic sense may continue. With the capacity of living things to produce new organisms with new identities, life with a capital *L* appears to cheat death. But life continues only at the price of individual deaths: The constraints imposed by the "environment" of organisms makes death inevitable and evolution possible, for it is from the competition of various "selves" for limited environmental resources that new forms of life emerge.

In the evolutionary emergence of organisms of increasing level of organization, communication is essential for the coordination of the parts on which the unified, integrated being depends. Communication is, of course, achieved in different ways at the subcellular, cellular, and supracellular levels of organization: How molecules communicate differs from how cells communicate. At the societal level of organization, moreover, modes of communication have varied in separately evolving groups. In insect societies, for example, communication is achieved through a genetically programmed repertoire of signals and responses by the component members of the group. The behavioral patterns of social insects are relatively fixed and, in this respect, manifest the specificity and precision of other forms of biological communication from the recognition of antigens by antibodies to the aggregation of similar cell types during development of multicellular organisms. Lacking such precision is the language on which communication in human societies depends, but the very ambiguity and openness of human language give it the capacity for evolution. Language evolves as does the product of language, human culture. Indeed, openness is the condition of evolution; it is the absence of end, the opposite of completion or fixation. Science is best understood as part of cultural evolution, for it, too, operates when options are open and surprise is possible. Science is fallible in the sense of being subject to conceptual change; the progress of science is unpredictable precisely because the possibility of novel discoveries is never precluded. As a matter of practical policy, then, planning the scientific enterprise must have its limits: When it

becomes too rigid and closes options, the pursuit of knowledge is inhibited.

So much for Thomas's picture of man and nature, a picture, by the way, which is far from original but a sometimes poetic and always eloquent rendition of the interpretation biologists have come to share. But where in this evolutionary panorama is there a place for God and the spirit? And how can the evolutionary view of the world provide man with precepts for guiding his conscious participation in the very evolution he has come to perceive?

These are the questions that the contributors to *New Theology No. 10* have undertaken to consider. By and large, they do not quarrel with the main features of Thomas's picture of man and nature. Robert T. Osborn points out, however, that in this picture the creativity in nature is not man's alone. Osborn recognizes culture and science as products of human creativity, but he sees that creativity as a consequence of a special relationship of God to man. God is, after all, the ultimate creator, the maker of both nature and man. This article of faith poses no difficulty for scientists, who might, however, express it in a different manner. For scientists, too, must begin their work by taking something on faith, and that is the doctrine of order, which postulates a reality external to man and characterizable by certain regular structures and reproducible processes. Without such belief in regularity and reproducibility, scientists could hardly get to know anything about an external reality. But religion cannot rest with this simple equivalence between the doctrine of God as creator and the doctrine of order. As Osborn puts it, God is for man, and it is part of God's creative project that man creates by humanizing nature. By the humanization of nature, Osborn means something more benign than dominion. He means "the preservation and conservation of the world, its discovery and renewal for the good of men, and its transformation by the artistic vision and creative beautification." But this notion finds no corresponding concept in evolutionary theory. There is nothing in what we know of evolution that compels us to view man as a special project under some kind of special protection or the object of some special concern. It is true that man is unique in his conscious participation in evolution and in his creation of knowledge which in turn affects evolution. But there is nothing to make us suppose that man's humanization of nature is the goal or end of evolution or, for that matter, that science can have any goal at all in the sense of being completable.

In the confrontation of evolutionary science and theology, therefore, a small crack (or should I say "niche"?) may be left for God, but His image will hardly satisfy the new theologians. This point is reinforced by Wolfhart Pannenberg's essay. Pannenberg provides an interesting historical account of the concept of spirit in human thought and asks whether the concept is still required for an understanding of the evolution of life. "Spirit" began as an "immaterial giver of life," subsequently became associated with the Christian concepts of grace and charity in Man, and gradually became equated with the "inner light" in the human mind. The concept of spirit has returned to something resembling its original state in the thought of both Tillich and Teilhard. While for Tillich there is a divine spirit distinct from human spirit, for Teilhard spirit becomes "radial energy" that at once moves evolution and directs it toward the final goal. Pannenberg stops short of accepting Teilhard's view of a teleological guidance of the evolutionary process but finds something of value in Teilhard's distinction between the organism and the environment: Life transcends itself by creating new life. Pannenberg

accepts this thought and argues further that the reflective consciousness of man is the particular mode of human self-transcendence: Man is most creative when he self-consciously transcends himself. Self-transcendence then becomes the clue to the phenomenon of spirit, for, according to Pannenberg, self-transcendence cannot be adequately explained on the basis of the autonomous activity of organisms, and for Pannenberg this is spirit. For biologists, on the other hand, the proposition that organisms cannot alone reproduce and evolve will come as no shock inasmuch as biologists already regard the environment of organisms as part of the evolutionary system. But to equate the "spirit" with "something outside of organisms essential for their evolution" leaves little, if anything, of earlier concepts of spirit. We may still legitimately ask whether we *need* the concept of spirit for an adequate account of life.

Goals and ends come most forcefully into play in the moral question of criteria for governing human decisions and judging human actions. The greater part of *New Theology No. 10* is devoted to this moral question in the light of our evolutionary knowledge. If we knew what the end of evolution was, either we could allow it to happen by itself (a form of fatalism) or we could cooperate in bringing about the inevitable. Such cooperation might in fact be regarded as the ultimate morality. But what do we know of the end of evolution or, indeed, of man's status, if any, at the end? That some Christians claim a knowledge of that end is made quite clear in two essays by women on the role of women. The essays, interestingly enough, take quite divergent positions, stemming as they do from quite different views of the end of human evolution. (Such divergences are not infrequent within this collection of essays and help make it the stimulating book it is.) Sister M. Romanus Penrose takes her point of departure from Teilhard, for whom the end is the universalization of love. As characterized by Penrose, universal love transcends all the limited forms of human love, which in being personal and sexual is divisive of that total community in which love is finally to be expressed. To cooperate in bringing about this limitless, spiritual (as opposed to carnal) love, celibacy and a sublimated sexual sense become a way of the future. Women consecrated to virginity are then a symbol of what will be and serve as catalysts for that perfect end. It goes without saying, and Penrose does not mention it, that evolution would really come to an end, at least for humans, if human reproduction were brought to a halt. A danger of unrestrained celibacy might very well be its preventing the goal of evolution from being reached. A quite different point of view is taken by Daphne Nash, who appears to be at once a Marxist, an activist in the Women's Liberation Movement in England, and a Christian. For Nash Christian marriage should be transformed into an activity symbolic of the Kingdom, that creative community which does not yet exist. The characteristics of that Kingdom are nevertheless somehow known to Nash. They include nonpossessive love, freedom in interpersonal relationships, and continuity through reproduction. Hence sex, far from being eschewed, is a vital part of Christian marriage, but monogamy in the form of the nuclear family is to be replaced by the building of a community based not upon the domination of one class or race or sex by another but upon nonpossessive love. For the sake of biological continuity, there is, of course, much to be said for Nash's view of the Christian community and one would be foolish to ridicule it, but we may rightfully wonder whether her preferred concept of marriage is dictated as much by her knowledge of the Kingdom as by her

revolt against what she experiences as the wrongs in monogamous marriage.

If we lack knowledge of evolution's goals or ends, what then can be the source of rules and criteria for judging human conduct? The gravity and difficulty of the problem are revealed in Richard A. McCormick's review of the moral literature relating to genetic medicine (the human control of human heredity). McCormick claims to discern in that literature three principal ways of dealing with the issues: a pragmatic approach, a search for absolute ethical principles, and a mediating approach.

The pragmatic approach is typified by Joseph Fletcher's writings, which argue for a practical consequentialism. Among alternatives we should choose that course of action that offers "an optimum or maximum of desirable consequences." McCormick shows this new form of the "greatest good for the greatest number" policy to be the acme of question begging. When the question is posed of what is best in human or most humane, Fletcher appears to argue that "the more rationally contrived and deliberate anything is, the more human it is." Such a criterion would, of course, readily justify doing anything so long as one had the power to do it and could be the basis for accepting man's creating technically whatever scientific knowledge provided the means for creating. Such a criterion basically ignores the subjugation of human power to humane purposes, and, insofar as Fletcher's work is faithfully represented by McCormick, it deserves the demolition it gets.

McCormick examines next the work of Paul Ramsey and Leon Kass in whom he finds a great deal in common. Both are committed to absolute guidelines for human action, and McCormick clearly finds them the most attractive of contemporary discussants of the moral problems in genetic knowledge. While for me Kass is not always successful in finding the ethical absolutes for which he is searching, he can often skillfully demonstrate the failure of specific criteria to serve as universal guides for ethical action, that is, at all times and under all conditions. What can be said in Ramsey's favor is that he will not be satisfied with this negative approach but tries to formulate rules that can serve as absolute guides.

New Theology No. 10 offers us a sample of Ramsey's thought, an essay in which he develops his moral position against in vitro fertilization of human eggs and against cloning of human individuals. The argument is interesting. Ramsey actually finds two ethical grounds against both in vitro fertilization and cloning. In the first place, he regards it as the essence of humanity that the act of human procreation be coupled with human love. To separate procreation from love is depersonalizing and dehumanizing and stresses the manufacture of human beings as opposed to human affection. Second, it is inhuman to risk doing harm to a human being without its consent. Since it is impossible to guarantee the absence of harm done by the technical procedures involved in either in vitro fertilization or cloning, and since it is impossible to obtain the consent of the yet unborn or even to presume the consent of an unknown personality, the inhumanity of these technical schemes for human reproduction is established. I am afraid I can take neither of Ramsey's principles for the absolutes they are supposed to be. He ignores, it seems to me, that the coupling of sex and procreation is an evolutionary arrangement which has served well to assure genetic recombination in the very process by which new organisms are made. This coupling is not unique to humans and is facultative rather than obligatory in many forms of life that can reproduce asexually or sexually according to conditions. Be that as it may, it is entirely

conceivable that love and procreation ought to be uncoupled, that sexual love ought to be the expression of profound affection between two human beings independently of their intent to procreate, that love toward a child ought to flow from adults regardless of whether that child was the product of their own sexual act, that indeed the Christian community of which many contemporary moralists are writing requires this quality of unpossessive love. Nor can I take any more seriously Ramsey's injunction on the grounds of failure to obtain consent from the unborn. There is no guarantee against harm to the unborn in any act of procreation, natural or artificial, and consent of the unborn to be born is never attainable even by loving parents in normal sexual embrace.

There is something overwrought in Ramsey's arguments, even though they receive an "A" for attitude from McCormick. I do not wish to imply that either *in vitro* fertilization or cloning is thereby justifiable. I can find grounds against cloning, at least at present, in the possible dangers of genetic homogeneity within human populations. Yet I am concerned about the search for absolutes. McCormick faults Ramsey primarily for failing to indicate the source of his principles. With regard to the inviolability of the coupling of procreation and sexual love, we have a right to know, McCormick seems to suggest, whether God intended the inseparability and told us so, or whether the separation of sexual love and reproduction would dehumanize us and for that reason God joined them. Such ethical criticism is apt to be less sympathetic to the mediating approach of moralists like James Gustafson and Charles Curran who employ "a methodology midway between the rather structureless utilitarian calculus of Fletcher and the Ramsey-Kass insistence on the absolute immorality of some means. . . ."

Gustafson, for example, seeks "to bring our decisions under objective scrutiny if our moral policies are to remain truly human." At the same time he suggests that "moral reasoning is neither as fixed and rational as Ramsey would sometimes lead us to believe, nor as shapeless and arbitrary as Fletcher's writings suggest." As for me, I am at home with this mediator, for his position approaches my own view that ethics are man made and not divine and that ethics are themselves the evolving products of human evolution. In saying this, I am not subscribing to the sort of relativistic ethics by which one can always find the moral position for doing anything one pleases. This game I call *ad hoc* ethics, for in it one always discards the ethics one is given and, from scratch, arranges the ethical argument for a policy already selected on some other grounds. Rather, I claim, with Alasdair MacIntyre, that ethics have a history: At any given time in his evolution, man's world and his perception of it call for an appropriate ethics; man makes decisions and acts upon the basis of these ethics, expecting certain outcomes; some of the expectations are in fact fulfilled, but because of the incompleteness of man's knowledge many unpredicted events occur and changes come to pass which he had not expected to confront; the questions of what is good change their specific form in the course of evolution, but so long as there are humans capable of knowing and obliged to choose, on the basis of such knowledge, among alternative courses of action, moral values will exist to aid in the choices. In this view, ethics are neither as fixed and eternal as absolutists would have them nor as malleable and plastic as the relativists believe.

It is comforting to discover, therefore, that such a mediating approach has found its way among Catholic theologians. In a remarkable essay setting forth

arguments for "The Freedom to Die," Daniel Maguire has the following cogent points to make: "To say that something is morally right or wrong in all possible circumstances implies a divine knowledge of all possible circumstances and their moral meaning. To say that something is universally good or bad regardless of circumstances is non-sense, for it is to say that something is *really* good or bad regardless of the *reality-constituting* circumstances." And again: "Good ethics is based on reality, and makes real distinctions where there are real differences." While these points are made by Maguire to question the absolute unconditionality of the principle of inviolability of innocent human life, they continue to make sense in a broader context.

The hope of finding in the picture of evolution an ethics to guide man has its own inherent dangers. There have been many attempts since Darwin to discover such an evolutionary ethics, and the work of the late Julian Huxley will be remembered in this regard. Huxley saw progress in increasing complexity since it was a feature of evolution, but it is dubious to suppose that, for man, it is useful to argue that good consists in following discerned evolutionary trends. According to Huxley's view of progress, for example, one might be tempted to urge steps toward a more highly integrated social organism, the supposed next step in evolution. Yet how is tightened social integration to be achieved without losing the liberties of individual human expression with which such traditional goods as art and science have been associated? Two contributors to *New Theology No. 10* take a new tack in the relating of evolution to ethics.

For William Vrasdonk man's creativity is a good, and man's ability to "improve" his genetic structure is good. Improvement for Vrasdonk takes the form of increasing options: Closing pathways is sinful, openness is good. This view obviously has its origins in the "openness" of evolution: Change occurs only when alternatives are available. It does not follow that organisms must change; the slow evolution of *Limulus*, the horseshoe crab of our Atlantic shores, tells us as much, and yet *Limulus* is apparently well adapted to its ecological niche. Nevertheless, it is probably true that species populations insufficiently heterogeneous in genetic composition may be incapable of adapting to environmental change; the failure is recorded as extinction. Capacity to change, freedom in this evolutionary sense, is therefore a condition of continuity.

In José Delgado's essay on shaping the behavior of man, the same theme is struck. Delgado sees nothing sinister in modifying the brain of man, recognizing that the chemical and electrical manipulation of the brain's response to external signals cannot by itself shape the human mind (although his language is occasionally confusing in this respect): "The brain per se with all its genetic determination is not sufficient for the development of mind." External information such as is provided by culture contributes to that development: "We do not really own, or have we invented, our frames of reference. They are simply borrowed from culture, although we may modify them by a process of intelligent feedback." Delgado agrees with Skinner in seeking to design culture with a human purpose (do we have some other choice?), but he differs from Skinner in urging that "in cultural design, individual freedom should not be played down, but up." Presumably freedom is desirable because it involves choice, and choice implies openness, opportunity for change, evolution.

We come close, in such arguments, to viewing openness as the ultimate

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good. Yet further reflection raises the question whether unlimited openness is possible for the individual agent. While it is true that choice depends upon alternatives, the act of choosing itself closes options. An individual cannot remain in a state of suspended choice forever; he must act. Indeed, biological development of the individual organism consists in the gradual elimination of options, the progressive reduction of available pathways. What happens to a man and what he does with his life influences, perhaps in a small but nevertheless in a real way, the nature of the world around him. It is for others to contend with the collective human alterations previously imposed upon the world.

Could one argue, finally, that success in evolution is measured in survival and that the measure is still being taken of the survivability of that species which consists, *ne plus ultra*, of rational, morally conscious contributors to the shape of the world? James Sullivan reminds us, however, what survival of the human species costs in individual lives. To be human means precisely that one has a conception of the good life. Events may occur, out of control of the individual, that are repugnant in the light of that conception. When an individual is constrained to commit or condone actions that are morally repugnant, he may have no recourse but death. The example of Dietrich Bonhoeffer, the Christian martyr under Nazi rule, is set before us. The meaning of humanity may very well be the tolerance of life within moral bounds. In this light humanity appears as an extraordinarily fragile experiment in evolution. Conscious of its fragility, each of us may become more actively concerned with its survival.

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The World System: Models, Norms, Applications. Edited by ERVIN LASZLO. New York: George Braziller, Inc., 1973. 215 pages. \$7.95.

A book is called timely if it responds creatively to the urgent, focal issues of society. Given the recent shortages in critical areas such as oil, the famine in Africa, and the prediction of increasing worldwide shortages well into the next century, a book that speaks to the essential crises and offers important working methods for their resolution must be encouraged to a literate and concerned public for that reason alone.

The World System, edited by Ervin Laszlo, is such a book. The issue at stake in this collection of essays is the practical, theoretical, and philosophical significance of Jay Forrester's projective computer model of a global system. The world system model attempts to determine the complex relationships displayed among a number of primary factors operating in human society. These dynamic relationships are extrapolated into the relatively near future as a means of mapping the state of things in a predictive way. If the drift of the Forrester model is accurate, then the human species is racing down the turnpike toward difficult times indeed.

Is Forrester's model adequate for its global task? Can the systems method not only serve as an early warning indicator but also offer guidelines for

avoiding the dire economic and ecological predicament we face? Indeed, what are the methodological and philosophical assumptions of this approach in itself?

These are the kinds of questions addressed by the authors of *World System*. Accordingly, Laszlo orchestrates the various papers into two movements. Part 1 deals with a critique of the model in its dual role as an indicator of impending strife and as a potential avenue for solving the very problems it portends. In their papers, Laszlo and Margaret Mead offer fertile suggestions regarding these functions. The remaining articles of this first section by A. M. Taylor and R. A. Falk concentrate on the application of the systems paradigm to international politics.

Part 2 includes responses that carry the discussion beyond the areas of applications and consequences into the abstract realm of philosophical implications. Henryk Skolimowski attends to the exceedingly important problems of the place of norms in any system basing itself on mechanistic premises. Albert Wilson and Hakan Tornbohn deal with the contribution of systems thought to an adequate process of inquiry, especially in the sciences. Finally, Ralph W. Burhoe suggests that the survival values of the world system may draw upon the symbol of God in religion in the instrumental role as a motivating force in society. *World System* concludes with a brief response from Forrester himself.

The consensus of the contributors to this book is that this approach in principle is a valid way of reading reality, even corporate human reality, but only if one is lucid about the hazards involved and the intrinsic limitation of any model selected. World models are prophetic in that they force upon our attention the earliest hints of impending global calamities, thereby providing opportunity for a change of course—a repentance of humankind's profligate behavior toward the natural and social orders. The model reflects reality as a description of the "isness" of the present and future situation.

However, the systems approach to a solution of the crises it predicts and describes is another matter indeed. Can this perspective offer guidelines for a fitting response to the crisis, guidelines that are not biased toward a certain implicit and subtle reading of human nature? The systems approach lends itself all too easily to conservative measures that can dampen change and recommend the maintenance of the status quo. This may, in turn, be employed to dampen demands for universal social justice and to subordinate individual moral decisions to the overriding norm of the survival of the system.

From the "isness" of the world systems taken as a descriptive model of global dynamics, an inevitable "oughtness" of appropriate response is generated. Prediction generates prescription. The question of the adequacy of this built-in oughtness must not be left exclusively to computer analysis or to descriptive science itself. Here it seems necessary to broaden the inquiry to include the perspectives and responses of theologians and ethicists.

Indeed, in our estimate, the most pressing theological issue at stake in the art and craft of systems modelling is the persistent stress laid on a functional understanding of the status of values and norms. Value concerns serve as variables in the system itself to be taken and manipulated alongside all other variables, physical and economic, for the purpose of defining parameters of systems survival.

The old means-ends debate in ethics remains with us but in the new wine-

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skins of a different grammar. Do values gain meaning and significance insofar as they contribute to the sheer survival of the system, or must they be considered on their intrinsic merits? What is meant by the supreme value of survival? How do we evaluate the relative worth of different kinds of survival?

The contributors to *World System* are not naive about these concerns. A serious reading of their rich and incisive suggestions could provide the professional theologian as well as the layperson with the fertile insight necessary to build a theology of systems based on a theology of hope.

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Meaning and Method: Prolegomena to a Scientific Philosophy of Religion and a Scientific Theology. By ANDERS NYGREN. Philadelphia: Fortress Press, 1972. 412 pages. \$12.95.

It is in the midst of the growing method mania and quest for more solid theological foundations that Anders Nygren's important work on philosophy of religion and scientific theology appears. Although he calls this work a prolegomenon, Nygren's final destination is the answer to the question, What is the scientific character of theology? En route to this goal, he stops off to answer the questions, What is philosophy? and What is philosophy of religion?

Nygren defines science as "objective argumentation," and, according to this definition, philosophy is scientific (pp. 67, 121, 219). In fact, there are three kinds of science: empirical, axiomatic or rational, and philosophical. These three sciences have three corresponding forms of argumentation and testing procedure which may be interdependent in practice but ought to be distinguished in principle (p. 179). Empirical judgments, which characterize the natural sciences, are confirmed through testing their relation to a given factual reality. This form of argumentation is the process of verification wherein the judgment is tested in terms of its correspondence to the empirical data (pp. 107-17, 179 ff.).

Axiomatic judgments, the type found in logic and mathematics, cannot be verified through comparison with anything given; for what an axiomatic proposition states is not anything given—it holds independently of experience. Nygren regards Euclid's geometry as a model of axiomatic argumentation wherein a whole series of geometrical propositions and theorems can be derived from the basic axioms through pure logical deduction. Axioms come in systems, and an axiom can be rationally proved or disproved by examining its coherence with the other axioms and its consistency with the primary nonprovable axiom which serves as the self-evident foundation of the axiomatic system. The form of argumentation which confirms the correctness of an axiomatic proposition, then, is justification, wherein the judgment is tested for its coherence with other propositions in the axiomatic system (pp. 105-7, 179 ff.). Nygren points out further that, although logic and mathematics can represent axiomatic argumentation completely untouched by anything empirical, we cannot say of any empirical science that it is purely empirical. All

experimentation in the natural sciences must also employ an element of axiomatic argumentation. An experiment is not merely a casual observation but a logically organized observation in accordance with a prearranged plan (pp. 115 ff.).

Philosophy is scientific because it, too, employs objective argumentation (pp. 121, 219 ff.). Philosophy is concerned with the meaning of propositions, whether empirical or axiomatic, and its form of argumentation is validation. In this sense, philosophy has a priority over the other sciences because philosophy has to do with the presuppositions that determine the meaning of the propositions of the other sciences: "We must go as it were 'behind' the individual proposition and by exhibiting its presuppositions clarify its meaning. . . . The individual sciences deal with what is *expressed* in a judgment, while philosophy deals with what is *presupposed* by it" (p. 183). With this framework, Nygren defines the task of philosophy as the analysis of meaning and validity, and the method by which this task must be carried out is that of the logical analysis of the basic presuppositions we consciously or unconsciously make in the various sciences and indeed in all experience (pp. 160 ff., 215, 299).

To analyze the meaning of a statement, one must examine the context which is presupposed by that statement. Meaning is always dependent upon context. And "not only does the meaning of a particular statement depend on the immediate context of which it is a part, but this context itself derives its meaning from the total context of which it too is part" (p. 228). However, there is no one total or ultimate context of all contexts for Nygren because to say that would be to set forth a metaphysical proposition; and philosophy is defined as scientific analysis, not metaphysics (pp. 51, 160). Rather, Nygren says there are many ultimate or "autonomous" contexts of meaning, contiguous with one another, just as there is a multiplicity of language games in the opinion of the later Wittgenstein, after whom Nygren formulates his notion of context (pp. 251, 268 ff.). Examples of linguistic contexts given by Nygren are scientific, ethical, aesthetic, and religious contexts, and for statements to be understood with their proper meaning they must be understood within their appropriate context. Autonomous contexts are not to be confused with one another; so scientific philosophy picks up an additional duty, namely, to provide a "clearing house for contexts of meaning" just to prevent such confusion (pp. 287 ff.).

With this three-hundred-page preliminary, Nygren is now ready to define philosophy of religion as the analysis of the religious context of meaning: "The philosophy of religion is the logical analysis of the fundamental presuppositions in the area of religion" (p. 300). It asks about the rules that govern religious language in general, thereby clarifying the meaning of religious questions. However, the philosophy of religion only clarifies the meaning of religious questions; it does not answer them. That task is left to theology. To do this, theology appeals for its context to the individual religious traditions as they have appeared in human history. A Christian systematic theology, for example, takes on the job of searching through its religious tradition in order to uncover the one fundamental motif which contextually determines the meaning of all religious statements made within the tradition. The philosophy of religion provides the categorical questions, and theology in turn responds with historical answers (pp. 360 ff.).

Systematic theology, like other disciplines which seek to understand and

explain or clarify their subject matters, can be considered scientific insofar as it adheres to Nygren's criterion of what constitutes science, namely, objective argumentation: "By continually testing the fundamental motif in relation to the factual material, theology has the possibility of strictly objective argumentation, and it is this above all that gives to a theology that works systematically 'the sure progress of a science' " (p. 12).

How does Nygren deal with the apparent problem created when Christian theologians make absolute claims about the distinctiveness of Christianity? He answers by appealing to the historical facts of the Christian tradition. He says that the fundamental motif is self-evident; therefore, it is in principle available to any scientific investigator and not limited to just the privileged receivers of some specially revealed *gnosis*. Christian theology is simply the systematic reflection upon the facts of Christian history: "What is uniquely distinctive about Christianity is discovered by going to Christianity itself and observing its history. There, in the struggle of the Christian fundamental motif, the distinctive character of Christianity is revealed. In this way systematic theology obtains the firm, objective starting point that it needs" (p. 376).

The fundamental motif of Christianity as revealed in its history, Nygren says, is the agape motif, that is, the faith that God is love, and because of his love he seeks out fellowship with man (p. 374). It would follow that the job of scientific theology, which is scientific because it uses objective argumentation, is to "understand and elucidate" this fundamental Christian motif (p. 371). But, we should note, it is definitely not the job of theology to ask, "Is it true?" (p. 348). There are many theologies elucidating the fundamental motifs of Buddhism, Hinduism, and Taoism as well (p. 362). They are not to be confused with one another, nor is one to take precedence over another; all are autonomous contexts of meaning. But then neither is the truth of religious claims the concern of philosophy of religion, philosophy of aesthetics, philosophy of science, or any other philosophy. Evidently, the foundational question regarding the truth of theological claims has no systematic place in Nygren's presentation. This brings us to some other related problems.

Nygren goes to great lengths to stress that his scientific philosophy is not under any circumstances to be confused with metaphysics; "metaphysics *posits* presuppositions, scientific philosophy *analyzes* presuppositions" (p. 192). But the presuppositions that Nygren believes philosophy is especially concerned with are "logically necessary fundamental presuppositions" (pp. 205 ff.). These are the most basic or ultimate presuppositions "that are determinative of the meaning of a proposition" (p. 183) but that are not themselves subject to propositional verification or falsification because they are self-evident. We may not be aware of these fundamental presuppositions when we rely on them, so it is the task of scientific philosophy to search after them and point them out. In this sense, analysis of presuppositions is concerned not with the "negative task of detecting and refuting false ideas . . . but with the positive task of seeking to establish valid principles" (p. 217). Establishing valid principles sounds strangely akin to positing them, so are we really that far away from metaphysics after all?

Nygren might respond to this suggestion by referring us back to the plurality of autonomous contexts, each with its own ultimate presuppositions (pp. 270 ff.). To speak of presuppositions as meaningful only within one context among many contexts is supposedly to avoid the universalizing tendencies of metaphysical postulates. But is the statement that there is finally only a plural-

ity of contexts of meaning, and no single overarching context of meaning, not itself a postulate that requires a universal context to have meaning? It sounds like it presupposes a context of all contexts, and either to establish or to deny this would put us back again into metaphysics. Why is "metaphysics" such a bad word anyway?

The importance of Nygren's book is that it introduces into the present discussion one more voice liberated from the supranaturalism that so inhibited neoorthodox theology from participating in dialogue with the other scientific disciplines. The neoorthodoxy which dominated theology for much of the twentieth century seemed to retreat from conversation with other scholarly disciplines, claiming that God's work in the real world can be seen only by those who have the "eyes of faith." But, in defining science as objective argumentation and in claiming that theology is thereby scientific, Nygren is making an attempt to restore the integrity of theology by risking its challenge in open scientific discussion. Here he is joining other postneoorthodox theologians, most notably Schubert Ogden and Wolfhart Pannenberg, who have taken seriously the present theological responsibility referred to by Langdon Gilkey when he wrote, "No useful distinction for the purposes of theological method can be made between a theological starting point relevant for the Church and one relevant for the world" (*Naming the Whirlwind: The Renewal of God-Language* [New York: Bobbs-Merrill Co., 1969], p. 23).

However, I believe there is a weakness in Nygren's argument—a weakness which he shares with Gilkey but which is avoided by Ogden and Pannenberg—that is, he shies away from the question, Is it true? Rather than argue for the truth of the Christian claim, Nygren seems to have sidestepped it by labeling the fundamental motif a self-evident fact of Christian history. Perhaps the problem is still that for secular man today it is not as self-evident as Nygren believes. Faith is basically trust in the God of love, and insofar as faith reflects upon that in which it trusts there is a deep concern for truth. Faith asks, Is the object of my trust genuinely trustworthy? This, too, I believe, is a question theology must tackle.

Meaning and Method is written in a clear, definitive, and tightly argued style, and it will make a most valuable contribution to the present discussion of method and foundational theology.

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