Reviews

Yoking Science and Religion: The Life and Thought of Ralph Wendell Burhoe. By DAVID R. BREED. Chicago: Zygon Books, 1992. 148 pages. $12.95 (paper).

"For me, the quest for a scientific understanding of the fundamental processes of the physical world and the quest for a theological understanding of how all things are related to God have always been the same quest." This programmatic insight, central to David R. Breed's understanding of the relationship between science and theology, led him to study the life and thought of Ralph Wendell Burhoe. Burhoe's work in fact addresses similar questions with great sophistication. The work culminated in Breed's 1988 doctoral dissertation, "Toward a Credible Faith in an Age of Science: The Life and Work of Ralph Wendell Burhoe." The book reviewed here is based on that dissertation and was published, chapter by chapter, in *Zygon: Journal of Religion and Science.* It is the first attempt to cope with the ideas R.W. Burhoe developed during a lifetime, and it is a fruitful effort.

"Yoking Science and Religion": According to *Webster's Ninth New Collegiate Dictionary,* a yoke is a "wooden bar or frame by which two draft animals (as oxen) are joined at the heads or necks for working together." Of course, science and theology are no oxen. Some could argue that to yoke two separate animals means to resort to force. Others might admire the harmony of yokefellows working together. Breed belongs to the second category, with some reservations. In his book he tries to see how Burhoe yokes science and religion so that they pull in the same direction, walking close together, remaining separate while bridged with a certain structure. We will have to decide whether or not Burhoe resorts to force to accomplish his yoking.

Breed chose to write in narrative form so as to show the tight connections between the circumstances of Burhoe's life and the development of his ideas. He marks important periods very clearly, not only describing them but also evaluating their role in Burhoe's development.

Burhoe's intellectually formative period began when he entered Harvard in 1928. According to Breed, one central concern soon emerged for Burhoe: to preserve the credibility of traditional religious wisdom and personal religious experience in the face of a scientific worldview that threatened to displace religious belief with a more "reliable" truth. Burhoe's two attempts to prepare for the ministry at Andover-Newton Theological School, however, indicate that it was doubtful that any traditional religious group was ready to hear Burhoe's view: that traditional religion could be made more credible by translating its concepts into the conceptual scheme of modern science. Such religion, Burhoe believed, would offer hope for salvation—i.e., for meaning and direction in life. Subsequently, Burhoe worked as secretary to the director of Blue Hill Meteorological

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Observatory, where he became acquainted with the scientific method and also with many scientists.

The year 1947 marked an important transition in the life of Burhoe, when he became an executive officer of the American Academy of Arts and Sciences. Within this community Burhoe began to articulate his interpretation of religion, testing it through dialogue with secular intellectuals.

Breed also discusses several other important relationships. Burhoe's philosophy of science was highly influenced by Philipp Frank and the Institute for the Unity of Science, which grew out of the work of the Vienna Circle. The universal language of the sciences championed by this group was, Burhoe believed, the language in which religious doctrine should be reformulated. In addition, Burhoe became involved with the Society for the Scientific Study of Religion (SSSR), of which he was a founder. Burhoe believed that the consideration of all fields of scholarship should augment the SSSR's focus on sociology and psychology, with a unique role for the natural sciences. Within the Academy itself, Burhoe helped to establish the Committee on Science and Values. This group of scientists shared his concern about religion and science, although they considered religion (if at all) in the context of the larger problem of human values. Through committee connections Burhoe became involved in conferences on the "Coming Great Church" at Star Island, New Hampshire, in the early 1950s. These conferences, in turn, led to the establishment of the Institute on Religion in an Age of Science (IRAS), a group that envisioned a scientific theology as a way to salvation in an age of science. Thus, Breed shows the close connections among Burhoe, the Academy, and the IRAS community. To them Burhoe sought to relate his developing scientific theology, and from them he received new ideas and concepts with which he expanded his basic ideas. According to Breed, these connections help to explain the highly generalized concepts Burhoe developed.

When the American Unitarian Association and the Universalist Church of America merged to form the new Unitarian Universalist Association, Burhoe played an important role through work on the commission, "Theology and the Frontiers of Learning." As Breed shows a central problem within the liberal tradition was the "dogma" that prohibited dogmas. Burhoe, in contrast, was convinced both of the necessity of doctrine and also that doctrinal consensus could be attained without sacrifice of freedom. He proposed that the way in which scientific doctrine had been developed could serve as a model for liberal tradition. Thus, his vision had an impact on the denomination through his work in the commission. On the other hand, the theological climate of the denomination formed the context in which Burhoe continued to develop his vision.

When Burhoe was offered the leadership of the Theology and Science Program at Meadville Theological School in Chicago, which formed part of the "New Design for Theological Education," he left the rich interdisciplinary milieu of the Academy to seize this opportunity to work full-time developing his postulate. In addition, the unrealized expansion of the IRAS program could be achieved at Meadville: the establishment of a Center for Advanced Study of Theology and the Sciences (CASTS) and, in cooperation with IRAS, of a new journal, *Zygon: Journal of Religion and Science.*

Besides showing step-by-step development within Burhoe's thought, Breed also works to describe the shape of Burhoe's theology at the time he came to Meadville. Breed shows that Burhoe was deeply rooted philosophically in positivism and theologically in the Judeo-Christian tradition. He characterizes Burhoe's theology as a Lakatosian research program because of its openness to the growing body of scientifically established knowledge. Without such classifications one runs the risk of misinterpreting Burhoe.

As a starting point, Breed focuses on the problem of salvation. To achieve salvation, Burhoe believed, there must be a new kind of natural theology based on the contemporary sciences, with life as its datum and the infinite whole, one, or God as its object. Methodologically, Burhoe built an analogy between two dialectics: that of theology with theories and models of science, and that of scientific theories with the data of experience and observation. Thus theology is in principle connected to empirical experience, and God is identified with and translated into nature. In this way Burhoe seeks to articulate a scientific monism in order to avoid a science-theology dualism; his aim is primarily theological.

This "snapshot" provides the reader with a comprehensive survey of Burhoe's ideas. On the other hand, the survey of Burhoe's theology, its structure and main dimensions (values, thermodynamics, evolution of religion, concept of soul, God, enculturation, and freedom) in the last chapter lacks coherence and is very sketchy. Nevertheless, Breed in this chapter succeeds in describing Burhoe's contribution to the understanding of altruism. Burhoe asserts that religion is the cultural agent that makes possible the extension of altruism beyond genetic kin. Religions are the value-transmitting cores of culture and contribute to the survival of the biocultural group. To be credible today, religious beliefs must be reformulated in scientific terms in order to encourage globally shared values, which are necessary for survival in an age of science. To my mind, this theory is a central feature of Burhoe's thought, but unfortunately Breed does not mark its pivotal character.

Aside from this, Breed does provide the reader with a general introduction to Burhoe's way of developing his ideas. Burhoe has never written a final draft of his vision; he has always been open to new insights that help him proceed in articulating his vision. In this respect, I must point out the care with which Breed has chosen and described a selection of Burhoe's main papers. These discussions are all illuminating.

Let me now focus on Breed's critical reflections on Burhoe. According to Breed, who generally is in favor of Burhoe's approach, Burhoe can be criticized for not paying enough attention to the structure of the bridge he models between science and theology. Although R.W. Sperry, in his foreword, explicitly agrees with Burhoe's strategy of staying clear of embroilments in the underlying philosophical issues, Breed faults Burhoe for lack of critical reflection on his roots: the program set forth in the rationale of later positivism. Unfortunately, Breed does not develop that critique, even though Burhoe's approach as a whole depends on this position. Probably, evolutionary epistemology could help today to clarify the issues. Rather, presupposing the acceptance of the bridge, Breed sees danger only in the possible dismissal of other methodologies as having little relevance. Though this critique may be justified, Breed does

not describe other methodologies in order to show their strengths (and weaknesses) in comparison with Burhoe's approach.

Furthermore, because the interiorization of religion is so effective, Breed wonders whether an interpretation of religion in objective scientific terms is alone sufficient to bring about a revitalization of religion. But—as Breed himself realizes—this does not count against Burhoe. Burhoe addresses his approach primarily to highly intellectual scientists and theologians, among whom religion usually has to pass the test of reason. In this way, Burhoe has restored theology to the arena of public discourse.

The book in general would have gained a lot if Breed had developed his reflections on Burhoe in detail at the end of the book—though it is not easy to draw on Burhoe's ideas systematically because of their openness to change. In addition, after having read the preface, I had expected at least a few sentences on how Breed himself would like to connect science and theology. Unfortunately, such material can only be found in the dissertation that underlies this book. In the final chapter of this original version there is an analysis of Burhoe's scientific theology. Here Breed develops his criticism at full length in conjunction with other concepts, especially those of process theology, which to my mind is a speculative but nevertheless important approach to issues of science and theology. In comparison with process theology, Burhoe as I understand him sticks to reality and concepts of reality developed in science and theology much more directly. In the dissertation, Breed also discusses Burhoe's God concept. According to Breed, Burhoe's God is of the pre-Christian era. Breed misses the God of love, the personal God, in Burhoe's vision. If Breed had taken into account the centrality of altruism within Burhoe's approach, he may have realized that Burhoe's theory is highly connectible with Christian religion and theology, where altruism plays a central role. To my mind, this is an important aspect of Burhoe's work which requires further discussion.

Nevertheless the book is very much worth reading. Breed clearly shows that Burhoe does not resort to force in linking science and theology but takes concepts from each. In this process Burhoe employs two criteria: the criterion of religious (or theological) relevance, and that of scientific connectibility. As a result, science and theology are in fact connected so as to pull the yoke in the direction of human salvation. I do not share Breed's fear that theology thus becomes vulnerable to changes in scientific theories. Burhoe's scientific theology is a dynamic one that must be developed in light of the changing scientific theories. For me the question of method is much more important than that of theories and models. If Burhoe's method is acceptable and accepted, then theology and science will benefit from each other, even because of new theories in both fields. To characterize Burhoe's theology as "contextual theology" indicates both the limitations and the opportunities of Burhoe's approach, which is unique in this field of research. Indeed, a theologian like Pannenberg, who according to N. Murphy is also doing "scientific theology" (*Theology in the Age of Scientific Reasoning* [Ithaca, N.Y.: Cornell Univ. Press, 1990], p. 30) does not realize the possibility of Burhoe's approach when he discusses the theological problems of positivism (*Theology and the Philosophy of Science,* trans. Francis Mc Donagh [Philadelphia: Westminster, 1976] chap. 1). Although Pannenberg differs further from

Burhoe in his trinitarian concept of God, he also has a positive attitude towards the sciences.

Last, but not least, I would like to emphasize the contribution of Burhoe to the discussion of religion and science in general. His founding of *Zygon* and establishing of such organizations as the Center for Advanced Study in Religion and Science (CASIRAS) and the Chicago Center for Religion and Science (CCRS) have created a forum for scientists and theologians to exchange views at a high intellectual level. In addition, Burhoe always encouraged participants to come to terms with each other by relating their concepts. He himself also tried to discuss different concepts in order to show their connectibility. Thus, he has contributed to the dialogue between science and theology two points: the fruitful approach of a scientific theology, including his theory on altruism, which awaits further development, and a forum where scientists and theologians can come together in order to develop and connect their concepts. To my mind, Ralph Wendell Burhoe has done important basic research and ranks extremely high among those persons who have developed the dialogue between science and theology to the high level we have reached today.

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Cosmos and Anthropos: A Philosophical Interpretation of the Anthropic Cosmological Principle. By ERROL E. HARRIS. Atlantic Highlands, N.J.: Humanities Press International, 1991. 194 pages. $35.00.

Cosmos and Theos: Ethical and Theological Implications of the Anthropic Cosmological Principle. By ERROL E. HARRIS. Atlantic Highlands, N.J.: Humanities Press International, 1992. 221 pages. $35.00.

The last decades of Albert Einstein's life were devoted to a long and fruitless effort to integrate the four fundamental forces of nature—electromagnetism, the strong and weak nuclear forces, and gravity—in a single mathematical construct known as the Unified Field Theory. Recent breakthroughs in theoretical physics, relating electromagnetism and the fundamental forces of the atom, have partially vindicated Einstein's quest. Mathematician Stephen Hawking, who holds Newton's chair at Cambridge, has recently suggested that the combining of general relativity and quantum dynamics may provide the elusive key to understanding how gravity is related to the other forces.

All these efforts are aimed at what physicists call a "grand unified theory," or GUT, relating the basic physical constants of the universe in a single formulation. Some scientists have even suggested the possibility of a theory that would unify all known phenomena, from the origin of the universe to the appearance of life, in a "theory of everything," often referred to as a TOE.

The idea of uniting all human knowledge in a single system or formula has inspired thinkers from Aristotle to Aquinas, although contemporary

efforts in this regard have tended to draw more on work in cosmology and particle physics. In his two volumes on the anthropic cosmological principle, Errol E. Harris follows in this ambitious tradition with a theory of everything based not on theoretical physics, but on metaphysics, philosophy, and theology.

In it simplest form, the anthropic cosmological principle is the almost trivial statement that the universe *has* to be such as to admit life at some point in its history, since otherwise we would not be here to observe it! This is the most basic formulation of the principle, termed the "weak anthropic principle" (WAP) by John D. Barrow and Frank J. Tipler in their groundbreaking work on the subject, *The Anthropic Cosmological Principle* (Oxford: Oxford Univ. Press, 1988). A stronger, more controversial form of the concept, termed the "strong anthropic principle" (SAP), states that "the Universe *must* have those properties which allow life to develop within it at some stage in its history." The same idea can be further amplified in the "participatory anthropic principle" (PAP), which proposes the "observers are necessary to bring the Universe into being," and the "final anthropic principle" (FAP), the most controversial of all, which states that "intelligent information processing must come into existence in the universe, and, once it comes into existence, it will never die out" (*Cosmos and Anthropos,* pp. 1-2).

Harris suggests that the anthropic principle, in any or all of its several forms, offers a way of bridging the gap between physics and metaphysics, science and philosophy, that has plagued epistemology since Galileo, Newton, and Descartes. The anthropic principle points to the indissoverable wholeness of the physical universe, in which all life (including human life) is intimately dependent on the fundamental physical constraints of nature. And in fact, it is this very dependency, more than anything else, which has prompted contemporary physics to pronounce the anthropic principle.

The notion of the unity and wholeness of the universe, underscored by recent advances in particle physics, is now widely accepted. Relativity and quantum mechanics have fused together space and time in a single metrical field. Matter and energy are interchangeable. The importance of the field has replaced that of the particle. In quantum theory, particle and wave have become complementary concepts. Reflecting on the new holism in physics, Werner Heisenberg observed in 1959: "The world thus appears as a complicated tissue of events, in which connections of different kinds alternate or overlap or combine and thereby determine the texture of the whole" (Heisenberg, *Physics and Philosophy,* London: Faber, 1979, p. 6).

Harris approaches the concept of wholeness dialectically. A whole is more than a loose collection of unrelated items. To say that the universe is a whole implies a unity of coherent parts. Every whole is made up of differences that are combined within it to constitute a single totality. But a whole is also a unity of differences; its separate parts are distinct, yet related through the "principle of order" which defines the whole. As relationships among the elements of the whole become more complex, the ordering principle is more and more adequately expressed as the totality that is immanent in every element and every phase of the process of self-explication. A scale of this kind is dialectical because it develops

through opposition and difference, expressed as complementarity, interdependence, or mutual identity. Clearly, this concept of an ordered totality is similar to what Hegel termed "the concrete universal," a notion which conventional logic would call a contradiction in terms. Formal logic considers all concrete existences to be particulars; universals, on the other hand, are by definition abstract. These metaphysical assumptions underlay traditional Newtonian physics, which interpreted the world as a mechanical system composed of atoms represented by mass-points acted upon by external forces. Relations between bodies were contingent and did not affect them intrinsically.

Contemporary physics has abandoned this Newtonian worldview in favor of one in which relationships and processes are intrinsically interdependent, and inseparable in a unified system. Physical entities are related in such a way that the nature of the terms depends on their mutual relations and vice versa. Conventional logic is no longer appropriate to modern physics, nor to modern science in general. What Harris proposes is a new concept of the universal as an organizing principle governing the systematic structure of an ordered whole. This proposal is fundamental to his understanding of the relationship of philosophy and science.

Harris argues that every principle of wholeness is essentially dynamic, driving its various elements and processes toward greater complexity and fulfillment. Ultimately, then, the whole must develop toward awareness of itself as a complex of relations. It does this through a process of self-enfoldments producing greater and greater complexity, not only mathematical and geometric, but functional and organic. The organizing principle, the concrete universal, remains operative and directive throughout the resulting hierarchy of forms and phases, leading ultimately to self-consciousness, intelligence, and thought. The dialectical process thus described is reminiscent of the so-called law of complexity-consciousness proposed by Teilhard de Chardin in *The Phenomenon of Man* (New York: Harper and Row, 1959, pp. 299 ff.).

What this means is that such a dialectical process is inherently teleological. While the word teleology generally means "tending to produce an end," Harris insists that teleology in this sense means causation empowered by the ordering principle of an organized whole. A teleological process, he argues, is one in which the emergent whole determines the stages by which it comes to maturity. It is a process directed by the organizing principle of the whole. This leads Harris to propose a new formulation of the anthropic principle: That there exists one, and only one, possible universe *designed* with the goal of generating and sustaining intelligent observers. This "teleological anthropic principle," or TAP, is not intended to suggest that the universe is the work of an outside agent; only that the design of a systematic whole involves a dynamic principle of order which, by its very nature, tends toward completion of the whole in self-awareness and intelligence.

Cosmos and Anthropos traces the development of the physical universe, the origin and evolution of organic life, and the appearance of consciousness as expressions of the self-specification of the universal principle of order over cosmological time. There is a continuous scale of "complexification," beginning with the metrical space-time field enfolding

the implicit order of the whole. In a brief history of the universe, Harris traces the process:

> These entities display various symmetries that are, in effect, identities of opposites, and they combine in overlapping specific forms to create larger wholes. . . . The overlap is a sort of self-enfoldment. Energy may be represented as space curvature; particles (or wave packets) are formed by superposition of waves; mesons and baryons are made up of overlapping quarks; nuclei are constituted by the overlap of protons and neutrons; atoms by that of electrons and nuclei; molecules by that of orbiting electrons in the combining atoms. (*Cosmos and Anthropos,* pp. 42–43)

There is a kind of neoplatonic scale that echoes A.O. Lovejoy's *Great Chain of Being* (Cambridge: Harvard Univ. Press, 1964) in this unfolding of the universal ordering principle. The series has two critical thresholds, or "phase transitions": The first is the movement from inorganic to living forms; the second is the transition from immediate sensory experience to self-reflective consciousness. Borrowing a phrase directly from Pierre Teilhard de Chardin, Harris proposes that the anthropic principle requires the emergence of a noösphere, as the logical consequence of this dialectical process, and it is the noösphere that is the primary concern of *Cosmos and Theos.*

The appearance of life marks a critical transition in the unfolding of the universal principle of order. Living organisms are in dynamic equilibrium with their surrounding environment. Harris defines life as "an open system of chemical processes in dynamic equilibrium capable of maintaining its specific form by spontaneous (auturgic) adaptation to environing conditions" (*Cosmos and Anthropos,* p. 65). There is an inherent wholeness in the organism, which is more than the agglomeration of previously independent parts and processes. The whole is not only *more than* the parts; the whole is *prior to* the parts! The living whole represents a higher degree of complexity and integration than the inorganic. It is hence a continuation of the dialectical scale. Life relates to the nonliving as a new and higher degree of specification of the universal organizing principle of reality, now manifesting its unity in its own active and auturgic self-maintenance at a higher level of self-sufficiency and individual self-determination. Life is the next stage, after the physical and the chemical, in the dialectical scale of forms into which the universal whole differentiates itself in its persistent drive toward coherent self-completion.

The transition from the biotic to the mental level marks the beginning of the noösphere, which is, in effect, the way in which the universe has brought itself to consciousness. Because the universe is a whole of systematically interrelated elements, and therefore incomplete, the physical world implies the emergence of both life and mind, and what it becomes in this dialectical process is the noösphere. In this self-reflective phase, the whole is included and summarized, so that what emerges at the mental and intellectual levels is the "truth" about every *prior* level. It is what the prior levels have generated and have themselves become. The universal totality has specified itself as a physical whole, a biological whole, and a conceptual whole. In the first, the principle of organization is expressed mathematically; in the second it is organic and may be expressible in terms of fractal geometry; in the third it is the self-conscious *ego,* the self-

organizing principle of thought, that is, reason. This, according to Harris, is brought to consciousness only in and through a social order.

By nature, then, the social order is a whole in itself, constituting a community acting in concert to ensure the welfare of its members. Human sociality is implied in the integral wholeness of the universe as such. Even though it is but one moment within the dialectic of reflective consciousness, the social order embraces every aspect of the noösphere, from arts and crafts to religion, morality, law, and politics. Science and philosophy, too, can only flourish within community, and are essentially social products. What the scientist and the philosopher discover, then, is the same natural process that brings them and their minds into being, the very process required by the systematic unity and wholeness of the universe itself. This is precisely what is signified by the anthropic principle!

The interdependence of persons in a social order also involves relationships of duty and responsibility. Unless people can be trusted to obey the law as a matter of course and custom, Harris argues, the whole structure of society is in danger of collapse. Sociality and morality go hand in hand. But since the social order is an expression of the principle of organization universal to the cosmos as a whole, it follows that the universe itself is a moral order, and that the moral law is actually the Law of Nature! Value and moral obligation are rooted in the same principle of organization as empirical knowledge. The natural order, in the last analysis, is a moral order!

Much of *Cosmos and Theos* is devoted to spelling out the implications of the anthropic principle for ethics and theology. Unfortunately, this is also the weakest thread in Harris's attempt to weave a "seamless garment" integrating the whole of reality in a progressive self-explication of the cosmic organizing principle. The process extends to morality, which is then transcended by religion. But religion, while a product of reflection, appeals to faith rather than reason. It must, therefore, be transcended by philosophy, which Harris defines as "religion raised to a new pitch of explicitness" (*Cosmos and Theos,* p. 45). Philosophy, in its fullest expression, is metaphysics, which, according to Aristotle, is no less than theology, or the philosophy of religion.

The evolution of religion, Harris argues, follows a dialectical course, deploying a scale of forms, in which the principle of order immanent in the subject of consciousness makes itself increasingly explicit. In effect, Harris espouses a general theory of religion, à la Hegel, the essence of which is expressed more or less clearly in specific religions. After a brief and rather pedestrian survey of "primitive" religions, Harris turns to the "God of Israel" and the "Christian God." His use of biblical materials is hampered by a total disregard for the awareness of historical development that plays such a major role in the rest of his work. Passages of Scripture are cited out of context with no reference to their historical setting. The fact that all biblical quotations are from the King James Version only serves to underline his total lack of familiarity with historical critical analysis.

But what is this "god of the philosophers" for Harris? "Religion is that phase of the noösphere in which the finite mind contemplates the whole and seeks atonement and reconciliation with it" (*Cosmos and Theos,* p. 66) The noösphere is the cosmic whole at the level of self-reflection.

God, for Harris, is that universal principle which makes the world intelligible, and which makes the mind intelligent. This universal principle, in its final consummation, is what we call God. Clearly, then, the Law of Nature, which is also the moral law, is in the last analysis the Law of God!

Identifying God as the principle of cosmic order which lies behind all reality allows Harris to restate the traditional proofs for the existence of God in new and creative ways. The ontological, cosmological, teleological, and moral proofs all find their resolution in the anthropic principle, which points to the organizing principle manifesting itself in a scale of forms from inorganic to biotic to conceptual. But the "god" to which they point bears little resemblance to the God of the Bible, or any other conception of God outside the hallowed halls of philosophy. This "god" is a person only in the sense that the universal principle of order expresses itself in the consciousness of persons. Otherwise, it resembles more "the force" of the Star Wars trilogy. Secondly, since the organizing principle specifies itself in a scale of forms over time, this "god" is continually in a state of becoming, but the ultimate consummation of the cosmic process remains unfulfilled.

These problems become more explicit in the last two chapters of *Cosmos and Theos,* when Harris attempts to deal with the problem of evil and the person of Christ. Evil is summarily dismissed as a concomitant of finitude. To be omnipotent, argues Harris, God must in effect "empty himself of his glory, pour himself out as a physical world and all that issues from it" (*Cosmos and Theos,* p. 186). God must create. A created world, however, of necessity involves finitude. But if evil is identified with finitude, asking God to create a world without evil is meaningless. It would be tantamount to asking God not to create at all! Clearly, if evil is an expression of finitude, then the problem of evil is ontological rather than theological. And in fact, Harris dismisses traditional theodicies as "incoherent and incredible," arguing that there are "much more acceptable interpretations" of the nature of evil (*Cosmos and Theos,* p. 181).

Harris's last chapter in *Cosmos and Theos* deals directly with Christian claims about the identity of Jesus. This is manifestly his best theological effort, building on the Greek concept of Logos found in John 1:1-5; 9-14. Logos, as used by Heraclitus, Plato, and Aristotle, means "principle," "thought," "reason," "due relation," "proportion." Εν αρχη ην ο λογοσ can then legitimately be translated "in the beginning was the Principle." The principle of organization, Harris argues, is prior to and determinative of all things, and is universal to the whole cosmos. This is not unlike Paul Tillich's use of the Logos as the "structure" of being, that which gives form and shape to reality (*Systematic Theology,* vol. 2., [Chicago: Univ. of Chicago Press, 1966], pp. 111-12). All the Johannine assertions about the Logos ("And the Word was with God," "All things were made through him," "in him was life,") are consistent with the notion of the Logos as the universal organizing principle.

Harris's christology waffles, however, when he attempts to deal with the incarnation. In the face of John's confession, "And the Word was made flesh and dwelt among us," Harris can only reply that, insofar as our rational self-reflective minds are the product of the self-specification of the principle of order in human personality, there is a sense in which the

Word is made flesh in each and every one of us. This, of course, is a far cry from the Church's confession that Jesus is Lord. As Harris wrestles with the identity of Jesus, the Father and the Son seem to collapse into "the divine generative principle," and Jesus is reduced to a symbol of the reconciliation of the human and the divine, the identity of finite and infinite, "which is the essence of all religious consciousness" (*Cosmos and Theos,* p. 198).

For all its shortcomings, particularly in the second volume, *Cosmos and Theos,* Harris has produced a philosophical tour de force, brilliantly drawing together insights from a vast array of sources in science, philosophy, and theology. The integration of Hegelian dialectics with contemporary physics and cosmology suggests a whole new way of understanding the evolutionary process which has ultimately become conscious of itself in the human mind. The fundamental issue which Harris does not confront, however, is the origin and nature of the "universal principle of order" that guides and informs the evolution of the cosmos. What is this principle, and from whence does it come? Is this, indeed, what might be called "God"? If so, in what sense can we speak of divine transcendence, since this universal principle is wholly immanent in the unfolding (or enfolding) of the cosmos?

Harris's metaphysical theory of everything is an impressive achievement up to the point at which, to borrow a phrase from Engels, evolution becomes conscious of itself. But Harris is a philosopher, not a sociologist or theologian. His synthesis falls short at precisely the point when it moves from the theoretical to the practical. How is the ordering principle of the universe reflected in the relationships of human beings to one another and to God? What is its relationship not only to the whole, but to the "(W)holy Other?" The anthropic principle challenges us to explore a new and radical rapprochement of science and philosophy, physics, and metaphysics. The work that remains is to explore the implications of that challenge for the social, ethical, and theological domains.

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Hegel's Circular Epistemology. By TOM ROCKMORE. Bloomington: Indiana Univ. Press, 1986. xv + 202 pages. $25.00.

Philosophical reflection on the nature of knowledge is a crucial part of the religion/science debate. The present book treats the epistemological question in the context of one of the most important philosophers in the Western tradition, G.F.W. Hegel. Rockmore hopes to show that the title of his book denotes a basic concept in Hegel's thought (p. vii). His goal is to explicate the relation between circular epistemology and Hegel's understanding of the problem of knowledge. Nonetheless, one perceives already here, in the specification of the theme, a basic difficulty for such a project: Hegel at no point independently developed the sort of doctrine

of a "circular epistemology" which Rockmore alleges is a fundamental and central Hegelian doctrine. Rockmore hopes to avoid this difficulty by approaching his theme via a systematic reconstruction of the historical development to this point. The reconstruction begins with Kant's transcendental philosophy, moves on through the challenges raised by Reinhold, Bardili, and Maimon, and finally, makes the transition through Fichte to Hegel.

The contents of the book follow directly from this methodological starting point. The first chapter introduces the concept of circular epistemology in a preliminary manner by means of examples, especially taken from representations of circularity within geometry. Unfortunately, the textual basis in Hegel's texts turns out to be rather minimal. If one nonetheless wishes to speak of a "circular epistemology" in connection with Hegel's "theory of knowledge" (p. 15), then one must give a detailed account of the relation between the alleged circularity of knowledge and a completely systematic philosophy such as Hegel's, together with the nature of the grounds given on its behalf. The next three chapters are devoted to carrying out this task.

The second chapter first develops the broader framework for the examination. Rockmore correctly locates this framework within the contemporary discussion concerning "the reformulation of the critical philosophy in systematic form" (p. 16). Hegel's thought can allegedly be understood "as a novel solution to the problem . . . of epistemological justification" (p. 17). This problem, he argues, forms the center of the question concerning the foundation for knowledge. Rockmore is extremely successful at making transparent the inner connections which link the various proposals and criticisms in the post-Kantian discussion.

Rockmore continues in the third chapter to use this background for interpreting Hegel's new approach toward the speculative grounding of knowledge in his first work, the *Differenzschrift.* He summarizes this work with the quotation, "Philosophy as a whole grounds itself and the reality of its cognition, both as to form and as to content, within itself" (*Werke,* vol. 2, p. 122 [in Rockmore, p. 73]). Rockmore asserts that this thesis contains the kernel of Hegel's doctrine of circular epistemology, which would later be fully developed in the *Encyclopedia.*

As his fourth chapter goes on to show, the explication of the theory of the circularity of knowledge requires a positive solution to the problem of the lack of presupposition inherent in speculative knowledge. As is well known, Hegel insists that the idea of absolute knowledge entails its own "presuppositionlessness." But a proof of this claim can only be achieved, according to Rockmore, by appealing to the *circular* structure of this knowledge, "for it is only in this way that the result can justify its beginning point. . . . As circular the initial presupposition can be 'confirmed,' so that the inevitable initial dependence of the theory upon its beginning point can be sublated" (p. 87). So, "philosophy, which must justify itself in part and in whole, can carry out this process only through a return to itself in the form of a circle" (90).

This result concludes the first phase of Rockmore's argument. From the fifth chapter forward, there follows an unexpected turn in Rockmore's argument. His emphasis shifts more and more from an immanent and historically supported reconstruction of the doctrine of circular

epistemology to the level of an "external" historical description. By making this shift, Rockmore hopes to show—if only by extrapolation—the contemporary relevance of the results achieved in the first phase of his argument. Specifically, he aims to establish a central place for Hegel's circular epistemology within the historical development of the epistemological problem in modernity. But before we explore the difficulties of this shift in Rockmore's approach, let us briefly summarize the conclusion of his argument.

After the fifth chapter links Hegel's doctrine of circular epistemology to his philosophy of history in general and specifically to his theory of the history of philosophy, chapter 6 ("Thought, Being, and Circular Epistemology") addresses, according to Rockmore, the center of the epistemological problem, "the *unity* of thought and being" (p. 156, emphasis mine). Rockmore comes to the conclusion (pp. 156–58) that Hegel has not been successful in solving the problem of thought and being, for the ultimate basis of Hegel's proposed solution is the claim "that we inevitably must *believe* that thought can indeed know being" (p. 156, emphasis mine; cf. p. 180). But Hegel's claim allegedly has nothing more than the status of "a mere presupposition," which is "neither demonstrated nor demonstrable" (p. 157). In particular, what Hegel was unable to show is that his necessary conditions for the transition from subjectivity to objectivity, from certainty to truth, from mere faith to reasoned knowledge, actually "are met in practice". As Rockmore tries to argue, "We never can know that we know" (p. 157). The seventh chapter supplies, in conclusion, a historical overview of the post-Hegelian development of the epistemological positions and strategies that have been proposed as solutions to this problem.

My critique will focus on two particular areas of difficulty. First, one of the central theses of the book is that Hegel finally grounds philosophy on a faith which is opposed to reason (or at least transcends it) and can no longer be justified by reason. He does this because he cannot come up with an appropriate proof of the unity of thought and being.

I have three major reservations:

1. Insofar as Rockmore's thesis (that philosophy is grounded in faith) is not self-evident, it needs a detailed proof, which he unfortunately does not provide. Instead, he limits himself to the mere assertion, "We [who are 'we'?] never can know that we know" (p. 157). The decisive question is however, *How* do we *know* that we are unable to know whether we know? And with what right can we maintain apodictically that a mediating transition from subjectivity to objectivity is simply not possible?

2. Although there is insufficient space to show it here, Rockmore's attempt to prove that groundless faith is the ultimate foundation of knowledge in Hegel (e.g. p. 156) runs counter both to the general tenor and to numerous specific segments of Hegel's philosophy.

3. Indeed, it *would* be a "curious result" (p. 157) if, as Rockmore maintains, Hegel fails to show the truth of philosophy because of his inability "to do more than point to the conditions of the transition from certainty to truth" (p. 157). What would it look like to have a successful proof of the impossibility of knowing that the conditions are fulfilled de facto? What is the more precise nature of the alleged opposition between "theoretical" and "practical" that Rockmore clearly wants to make into

the ultimate criterion of the truth of philosophy? At one point, Rockmore describes the sphere of the "practical" in terms of "experience," which provides "the standards for any knowledge claim" (p. 179). If he means by this *perceptual* experience, the argument is not sufficient to make his point, for empirical knowledge, as is well known, offers no proof for the necessity or impossibility of states of affairs. Any philosophy that is torn by a dogmatic dualism between theory and practice, thought and being, will by definition never be able to reach the goal (which Rockmore also accepts) of reconciling the poles that have been torn apart by such a dualism. Precisely when philosophy reflects on its critical heritage—as Rockmore never tires of demanding—it will turn its back on all such dogmatic presuppositions and become rather more humble concerning assertions of impossibility.

A second area of difficulty is closely connected with the first, namely Rockmore's plea for the acknowledgment of "intrinsic epistemological limits" (p. 178). An especially sensitive point at which this problem arises is the difficult question of the beginning of philosophy. Rockmore uses a dilemma to argue that neither an isolated beginning with Thought or Being, nor Hegel's beginning with the "relation" between the two (p. 179), is able to solve the problem of mediating the two poles. With what then *should* philosophy begin, if both alternatives lead to insoluble dilemmas? Can philosophy begin at all? Of course, Hegel was well aware of this difficulty. In the *Phenomenology* and the *Science of Logic* he indicated the nature of a possible solution. Now one can maintain that Hegel's proposed solutions are insufficient or flawed for *internal* reasons. But no adequate criticism of Hegel can content itself with the ungrounded claim that the sublation (*Aufhebung*) of the oppositions between subjectivity and objectivity, truth and certainty, simply "cannot be carried out" (p. 178). This remains an external criticism, and such criticisms, as Hegel once noted, are valid only in the place where one's opponent is not.

Of course Hegel was fully aware of the consequences that would follow from acknowledging unsurpassable limits of knowledge. He showed in the cases of Kant's critique of reason and Jacobi's philosophy of faith that accepting such limits gives rise to an aporetic dualism. Rockmore never examines Hegel's criticisms of Kant and Jacobi in the necessary depth—unfortunately, since they are criticisms that apply to his own position as well. To claim to have ascended to a standpoint "beyond Hegel" (p. 159) is one thing; to have supplied the proofs for this claim in action, that is, through one's own arguments, is another. As long as the necessary proofs have not been put forward for critical examination, one should raise the accusation of philosophical incompetence only with great caution.

It is for this reason that Rockmore's argument sometimes becomes disjointed. The title of the book itself already gives rise to much graver reservations than can be allayed by Rockmore's minimal efforts in the first chapter to lay all reservations to rest. The very perspective of epistemology is encumbered, in my opinion, with too many illicit connotations for it to assist in any meaningful way in interpreting Hegel's philosophy. This becomes especially clear in the final sections of Rockmore's book, in which he finally argues for a return to the Kantian standpoint. Here the perspective of epistemology clearly takes over—a perspective that remains tied to the crippling dualism between thinking and thought, truth and certainty,

which Kant never overcame. This is the reason for the lack of unity in the overall development of Rockmore's argumentation. The transition from reconstruction (chapters 2–4) to evaluation (chapters 5–7), strikes the reader merely as an unjustified switch in point of view.

What lessons can we derive from this discussion for the religion/science debate? I wish to emphasize four consequences in the form of theses:

1. There cannot be multiple ontologies in the spheres of religion and the natural sciences that are completely separate from one another. Since the Enlightenment's critique of religion, faith has found it necessary to enter into the realm of reason in order to justify itself against its opponents, including those among the natural sciences. In a similar fashion, conversely, natural scientists have to acknowledge an element of faith in their methods of research: They implicitly employ certain basic assumptions concerning the nature of reality, assumptions which are merely presupposed within the framework of a given system of hypotheses but cannot be justified on that basis. If, then, faith and reason are mutually determined by an inescapable relation that exists between them, any abstract attempt to separate them will eliminate itself on its own. The perspective of a unified universal theory of knowledge is built into both religion and science, and must be maintained as a methodological demand.

2. For Rockmore's Hegel, as we have seen, reason results in a type of faith, which he describes in largely religious terms. Rockmore thus places Hegel's "circular epistemology"—if one can speak of such a thing at all—in a religious context. Because of the necessarily universal character of the epistemological perspective (see above), this move would require us to ascribe a central significance to the religious thematic also in the process of scientific research. However, it is not possible to proceed in such a nonmediated fashion from epistemology to the question of the relations of justification between religion and the natural sciences. Even Rockmore seems to grant this by implication, insofar as he advocates Hegel's "antifoundationalism" (pp. 44 ff., p. 60, pp. 73 f.).

3. What Rockmore has apparently overlooked here is the fact that Hegel claims more for the capability of philosophical knowledge than the mere hope that dualism might be overcome; indeed, he claims to have *demonstrated* the overcoming of dualism, at least in principle. Against Rockmore's humility and self-limitation, Hegel correctly insisted on a speculative theory of the Absolute as the real center and task of philosophy. Especially if the goal is to establish an appropriate relationship between religion and the natural sciences, it can only be in the most fundamental interest of *both* to prohibit unproductive battles for domination and to leave to philosophy the task of justifying the truth of the forms of scientific knowledge.

4. Finally, this "science of knowledge as such" still offers a unified epistemology for religion and natural science. But now all knowledge, to be knowledge, must meet *conceptual* standards. This move opens up for the natural sciences and religion a vision of the systematic unity of knowledge, one which could overcome the aporias to which the discussion in the philosophy of science and theology have led.

Two dangers must be avoided. On the one side, we cannot drive a stake between religion and the natural sciences, as positivists and critical rationalists such as A.J. Ayer and Karl Popper have attempted to do. On

the other, we must not dichotomize in the manner of the so-called dialectical theologians and their followers, who attempt to rule out as irrelevant the question of the truth of religious assertions by means of the immediate affirmation of the unprovability of divine truth. We must accept the requirement that the standards of judgment not simply be imposed on the subject matter from outside, but that they should be derived only in and out of the subject matter itself. However, this requirement must not be allowed to obscure the insight that *my* truth only deserves a hearing if it is at the same time appropriate to the *one* truth, which is the truth of all.

Rockmore correctly observes that Hegel's approach cannot be lightly dismissed as irrelevant to the contemporary discussion. But Hegel's relevance has rather more significant consequences than Rockmore's retreat into the particularity of an empty hope would lead us to expect.

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