

# THE CENTER FOR ADVANCED STUDY IN RELIGION AND SCIENCE: A PERSONAL PERSPECTIVE

by George A. Riggan

*Abstract.* This brief account of my year as a fellow of the Center for Advanced Studies in Theology and the Sciences recounts the invaluable supports given by the center to my efforts as a theologian to assess the scientific aspects of the theology of Pierre Teilhard de Chardin, summarizes my findings, and indicates some of the potential for the support of interdisciplinary studies in religion and the sciences afforded by the successor organization, the Center for Advanced Study in Religion and Science.

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Ralph Burhoe has characterized the Center for Advanced Study in Religion and Science (CASIRAS) as the reconstitution of the Center for Advanced Studies in Theology and the Sciences (CASTS), founded by the Meadville Theological School of Lombard College under the presidency of Malcolm Sutherland as part of an innovative program in theological education. My participation in CASIRAS, my perception of its past and of its possibilities for the future, are shaped by my experience as a fellow of CASTS in the 1967-68 academic year while on sabbatic leave from the Hartford Seminary Foundation. I trust that by reference to some highlights of that year I can convey not only my gratitude to Ralph Burhoe, Director of CASTS, and to Malcolm Sutherland, without whose vision and support the Center would never have come into existence, but as well some intimation of the function and the significant possibilities of CASIRAS, its successor organization, as I personally see them.

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A LESSON FROM TEILHARD'S ATTEMPTED SYNTHESIS OF SCIENCE  
AND RELIGION

My project for my year at CASTS was an examination of the scientific aspects of the Teilhardian synthesis of Roman Catholic theology and contemporary evolutionary theory. Much of Pierre Teilhard de Chardin's work was still privately circulated in mimeographed form at that time, thanks to the Vatican's earlier ban on its publication. Teilhard's posthumous publisher, Seuil de Paris, was then restricting access to this material pending editing and publication of Teilhard's collected works. I was fortunate to get part of this unedited corpus through Hammond Library of the Chicago Theological Seminary, but most of it upon direct application by the Director of CASTS, as access was denied to individuals without an institutional base.

My first task was to grasp the broad structure and to immerse myself in the details of Teilhard's pioneering effort to demonstrate the compatibility of Catholic theology with the findings of contemporary sciences. My second task was to achieve a layman's grasp upon developments in the several sciences bearing upon the theory of cosmic, planetary, biological, and social evolution.

For an understanding of the broad outlines of the so-called synthetic theory of evolution, CASTS provided access to the several libraries of the University of Chicago, prior to their consolidation, and thus to the works of George Gaylord Simpson, Theodosius Dobzhansky, Thomas Hunt Morgan, George and Muriel Beadle, Ronald A. Fisher, P. B. Medawar, and Bernard Rensch, among many others. Likewise helpful to me were the regular seminars conducted at the Center in which a variety of occasional papers were discussed by a coterie of graduate students and professors from schools in the Chicago area interested in the work of the Center. Among scholars passing through Chicago who made presentations at these seminars were Alfred E. Emerson and Michael Polanyi. Of inestimable value were my long and frequent conversations with Ralph Burhoe, Director of the Center, and with Donald R. Gentner, a biophysicist who was my colleague as a fellow of CASTS in the same year.

In seeking to understand the specifics of Teilhard's argument, I turned to Don Gentner, without whose help the publication of my critique of Teilhard's combination of scientific and theological reflection would have been impossible. Don first gave me what amounted to a physics 101 introduction to thermodynamics. When that proved to be too elementary, he and I went to Ralph Burhoe, who arranged a conference at a luncheon for the three of us with a member of the physics department at the University of Chicago. Entropy and negentropy proved to be outside her field of specialization, but the food was

good. Don expanded his own understanding of the phenomena of energy by numerous excursions into information theory until with his help we arrived at a mutual understanding of the ways in which Teilhard's descriptions of mass/energy states and interchanges deviate from the consensus among contemporary scientists.

Valid insights arising from his work as a paleontologist underlie Teilhard's attempt to integrate evolutionary theory with Roman Catholic theology. The scientific aspect of his synthesis is flawed, however, by his conception, derived from an outmoded nineteenth-century physics, that energy is a vectorial rather than a scalar phenomenon. This misconception shapes his resolution of what he perceives as the theological problem of the second law of thermodynamics. According to the second law, interchanges of energy within an isolated system irreversibly increase the entropy of that system—a law underlying the grim prospect for human life, indeed for all life, on earth upon the eventual death of our sun. Teilhard makes an idiosyncratic distinction between what he terms radial (or psychical) energy, on one hand, and tangential (or physical) energy upon the other. On the basis of that distinction he argues that the law of *complexity/consciousness*, rather than the second law of thermodynamics, defines the major axis along which energy moves universally.

His argument in support of this conclusion also challenges the invariance of the first law of thermodynamics, according to which the total mass/energy of an isolated system remains constant throughout all interchanges within it. Briefly, he argues that within such an isolated system those interchanges that produce certain statistically improbable, highly ordered energy states—the organization of DNA within a cell, for example—involve a definite though infinitesimal diminution of the (physical) mass/energy of that system. Despite the invalidity of his challenge to the first law of thermodynamics, we should note that Teilhard anticipated evidence, based upon later developments in information theory, that astonishing increases in the storage of information can be achieved with very little thermal input. In any case, he infers that through the ages the statistically improbable, increasingly complex arrangements exhibited in subatomic, atomic, and biological evolution, culminating in the emergence of the human brain and self-reflexive consciousness, is continuously purchased by a scientifically negligible decrease in the total (physical) mass/energy of the universe. (For further details of Teilhard's complex argument concerning the nature of energy, see Riggan 1968, 271-75.)

Finally, Teilhard holds that continuing evolution along what he calls the axis of complexity/consciousness will eventually converge in Point Omega and the liberation of the many generations of human beings

from dependence upon the material universe of mass/energy. Thus he employs his interpretation of the evolutionary process to support his choice of one from a number of Christian eschatologies. He envisions the literal second coming of Jesus, in a body of purely radial or psychical energy, as coincident with Point Omega and the arrival of a new cosmos comprised of radial energy to the exclusion of ordinary mass/energy systems that will long since have been reduced by entropy to an inertial state. Theologically his achievement exhibits Gnostic characteristics, attenuating the idea of divine incarnation in the material world.

Teilhard's theological studies, commendable as a pioneering effort, serve nevertheless as a warning to all, be they scientists or not, who seek to relate their religious experience and convictions to developments in the sciences. Teilhard, unfortunately, was not abreast of advances in quantum mechanics occurring within his lifetime. He exemplifies the urgent need of religionists engaged in such creative syntheses for the support of others with wide-ranging experience in the sciences and with widely divergent religious experience and theological outlook. CASTS provided a formal structure within which such support was readily available.

In the closing weeks of my fellowship, Ralph Burhoe, Malcolm Sutherland, Donald Harrington, and I, to name but a few, began a prolonged evaluation of CASTS after it became clear that Meadville Theological Seminary would no longer be able to fund the Center. Out of that continuing evaluation finally emerged the establishment of CASIRAS, its incorporation in the State of New York, numerous efforts to secure foundation and other institutional support for the full-blown center as conceived, and the location of its program in preliminary form at the Lutheran School of Theology at Chicago and its publishing arm at Rollins College.

#### THE PURPOSE OF CASIRAS, EXEMPLIFIED IN RELATION TO JEWISH AND CHRISTIAN THOUGHT

I turn then to the broad purpose of CASIRAS, as I see it from the perspective of my experience in CASTS. That purpose it seems to me is to achieve honest and dynamic reconciliations between the liberating intellectual disciplines of the sciences significantly contributing to the understanding of cosmic, planetary, biological, and sociocultural evolution, on the one hand, and the stabilizing affective disciplines of the world's great religions, on the other. In the pursuit of this purpose the scientific study of religion takes its place among the numerous sciences bearing upon social evolution. The central aim, as I perceive it,

is not study *about* religion but rather disciplined reflection upon the actual foci of our ultimate concerns and the appropriate ordering of our affections in the combined light of that body of culturally tested religious experience compatible with scientific information concerning invariances operative in the origin, the nature, and the possible destinies of humanity and the societies, the planet, and the cosmos of which we are part. Implementation of that purpose is inherently a multidisciplinary project requiring of participants that they articulate and risk, in open dialogue with others, their deepest and most comprehensive affective commitments by placing them in relation to findings of the contemporary sciences.

At this juncture I digress briefly to consider evidence of selection against profound religious convictions once dominant in my own religious tradition, for, to the extent that CASIRAS and like endeavors are successful, selection and transformations of myths and religious ideologies are inevitable. In Judaism, of which my Christian faith is a sectarian development, the conviction once prevailed that, if a person were righteous before Yahweh, he or she would be blessed with many progeny, fertile cattle, productive fields, good health, and long life. In the evolution of faith, that conviction was shattered in a selective process that produced the Book of Job. My recent contacts with contemporary rabbinical thought, in the course of helping to plan and then of participating in a conference for Jewish-Christian dialogue, lead me to suggest that the decimation of European Jewry in the holocaust becomes a decisive challenge to the once widespread conviction, among both Jews and Christians, that faithful observance of Torah would assure Israel of a divinely favored status among the nations. The notion that the holocaust is Yahweh's punishment upon the Jewish people for lax observance among themselves of the ritual and moral commands of the Torah makes, to me, no sense at all.

Past transformations of myth and ideology have refined our perceptions of the sacred and have increased the credibility of the beliefs and values by which ideally we purpose to guide our lives. Witness the evolving theologies, especially numerous accounts of creation, in the literature of the Bible. The borrowed myths of creation in the book of Genesis, for example, were adapted to Hebrew monotheism in a fight against fertility cults and their attendant human sacrifice. The Genesis creation myths imply the conviction that we adequately perceive and celebrate the meaning, dignity, and beauty of human existence never merely in respect of some aspect of our living and dying but only as we glimpse and celebrate the drama of human life and death as an astonishing integral element in an awesome cosmic drama the denouement of which lies ever beyond our full comprehension.

The story of creation in the Prologue of John's Gospel, addressed to Hellenists, employs the *logos* concept, an explanatory model that underlies the Grecian beginnings of the sciences, in order to make intelligible to them the claim that the divine logic of human existence became incarnate in the life and death of Jesus. Two comments here. First, any science designated by a word ending in *ology* pays tribute by its name to the *logos* concept: anthropology, the logic of humankind; geology, the logic of the earth; psychology, the logic of the psyche; cosmology, the logic of the cosmos. Second, the perception of the life and death of Jesus as clearly exhibiting the true logic of human existence constitutes a revolutionary paradigmatic shift that can claim but a small minority of devoted adherents. Most of us live by an earlier model according to which the paradigmatic Christic or Messianic figure was a prophet-kingmaker, like Samuel and Elisha; or a king, like David; or a high priest, like Judas Maccabaeus. By the organization of our lives within nation-states, we profoundly commit ourselves to economic and physical coercion, ultimately to death and destruction, as indispensable means of resisting evil and maintaining social order. John's Gospel claims that the logic of specifically human existence demands concern for the welfare of the other, open and persuasive engagement with your opponent, and fighting the evil powers at the risk of your life without resort to violence against persons. Parenthetically, the nuclear arms race raises questions as to which paradigm is more likely to assure the survival of our species.

The Christic hymn of creation in Colossians 1:15-20 implies that—within the intelligible world of mathematics and language, in the physical and biophysical sphere, and in the specifically human interpersonal and social realm as well—every systemic relationship, however distorted by the exercise of perverse human creativity, constitutes in some degree a theophany—a manifestation of the presence of a mythic creator, the cosmic Christ, who is revealed in the life and death of Jesus (potentially also in each of us), as the savior of coerced and coercing persons and institutions.

Hebrew-Christian scriptures implicitly reject pantheism—the idea that God and world are identical. The Christian churches, of course, have developed as theistic dogma the scriptural adumbrations of God as wholly other than the world that he has created. The Christic hymn in Colossians, however, provides one of several scriptural adumbrations of panentheism—the conviction that God is present to varying degree in everything that exists, though identical with none. The theology of the Colossians hymn, though infinitely richer in poetic and religious connotation, is nevertheless quite compatible with Burhoe's identification of God as the process of natural selection operating in physical, biological, and social evolution.

My own earlier shift from a theistic to a panentheistic theological conviction has been greatly enriched by my experience as a fellow of CASTS, by my membership in CASIRAS, and by my participation in the Institute on Religion in an Age of Science (IRAS). I find theism, as defined above, to be moribund—no longer an explanatory concept. Advances in the sciences inevitably push theisms toward deistic irrelevance. The more the sciences explain, the less there is for a god who exists completely independent of the system of the cosmos to do. I welcome current developments of panentheistic adumbrations within Christian scripture and tradition as being compatible with scientific interpretations of the processes of continuing evolution. I affirm the concept of God's action in every action, both because it expresses the faith, implicit in scientific endeavors, that the universe is to be found intelligible by the disciplined human mind and because it manifests the further conviction that the cosmic drama, of which human life and death is part, is to be found good by the disciplined human heart.

## REFERENCE

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