

Statement of Perspective. The word "zygon" means the yoking of two entities or processes that must work together. It is related to "zygote"—meaning the union of genetic heritage from sperm and egg, a union which is vital in higher species for the continuation and advancement of life. The journal *Zygon* provides a forum for exploring ways to unite what in modern times has been disconnected—values from knowledge, goodness from truth, religion from science.

Traditional religions, which have transmitted wisdom about what is of essential value and ultimate meaning as a guide for human living, were expressed in terms of the best understandings of their times about human nature, society, and the world. Religious expression in our time, however, has not drawn similarly on modern science, which has superseded the ancient forms of understanding. As a result religions have lost credibility in the modern mind. Nevertheless some recent scientific studies of human evolution and development have indicated how long-standing religions have evolved well-winnowed wisdom, still essential for the best life.

Zygon's hypothesis is that when long-evolved religious wisdom is yoked with significant, recent scientific discoveries about the world and human nature there results credible expression of basic meaning, values, and moral convictions that provides valid and effective guidance for enhancing human life.

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Introduction

THE SPECTRUM OF MEANING—POLANYIAN PERSPECTIVES ON SCIENCE AND RELIGION

by *Phil Mullins*

To strive for meaning is perhaps inevitable for normal human beings as symbol-using social animals. The problem most thoughtful persons face, however, is to discover how to understand our faculties for grasping meaning and how responsibly to accredit the diverse domains of meaning open to our appreciation.

POLANYI: THE MAN AND HIS PHILOSOPHY

Michael Polanyi was a scientist and philosopher whose life and thought were centrally occupied with these problems. He saw the twentieth century as an era immersed in a crisis of meaning. It was to him a time when the developing course of the philosophical tradition had born nihilistic and violent fruit; it was a time, he believed, when misplaced ideals in his own beloved science were at work undercutting the traditional bases of both scientific endeavor and the cultural traditions of the West.¹

Polanyi became interested in the philosophic problems of the modern mind as a direct consequence of his work as an internationally-minded scientist. His career as a philosopher was, as he puts it, somewhat of an afterthought.² Born in Budapest in the last decade of the nineteenth century, he began his professional life as a physician at the time of World War I. After the war he became a chemist, where his brilliance as a research scientist was soon recognized. His interest in philosophical issues concerning meaning, and in particular issues about the nature of science and the conditions necessary for its progress,

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perity, began to emerge in the thirties as a result of his personal experiences in the scientific community and his concern with the plight of science in Stalinist Russia. This interest expanded during World War II when Polanyi, now a British citizen, became involved in political discussions concerning the role of science in the war.

From the late forties until his death in 1976 Polanyi worked primarily as a philosopher. During this last phase of his life he articulated in various publications and lectures his trenchant criticisms of contemporary political and philosophical attitudes, which he felt ultimately were undercutting the established traditions shaping a meaningful human existence. In particular he focused on the mechanistic and Positivist-influenced attitudes of science which offered fully objective, impersonal knowledge as an ideal. This ideal, Polanyi argued, was an impossible, misleading goal that disguised the social, fiduciary, skillful, and personal foundations of science; its influence upon the broader nonscientific meaning-seeking endeavors of culture he saw as devastating.

Although Polanyi's critical analysis of the sources and nature of contemporary problems of meaning is ably argued in his writing, most of his thought is constructive in thrust; he developed a broad-based philosophical vision as part of his effort to restore confidence in our culture's scientific, artistic, and religious endeavors. Polanyi's constructive vision, in a strikingly original manner, brings together an epistemology, a *lebensphilosophie*, and an evolutionary ontology. He termed his work a "post-critical philosophy" and grounded his broader views in his innovative epistemological model.³

Polanyi describes the process of knowing in functional terms which distinguish two separate types of human knowledge, explicit knowledge and tacit knowledge.⁴ Explicit knowledge is that which the knower consciously attends to, that which is before the mind's eye. Tacit knowledge is the nexus of skills and internalized presuppositions which the knower uses in attending to what is of interest; it is that enabling fabric which functions like the human body in making possible explicit knowledge. From this basic distinction Polanyi's broader constructive perspective emerges. Throughout, it is a perspective that emphasizes the person as a skillful, responsible social agent shaping and holding knowledge. In its broadest dimensions it is a perspective that locates human knowledge, human responsibility, and human being within the context of an evolving universe.

Personal Knowledge, published in 1958 as a revised and expanded formulation of his 1951-52 Gifford lectures, was Polanyi's earliest and most careful articulation of his mature philosophical vision.⁵ Here in great detail he spells out his theory of knowledge and weaves a rich tapestry that suggests the theory's ontological implications. *Personal*

Knowledge is centrally though not exclusively occupied with science; it was as Polanyi carefully analyzed scientific discovery in the fifties that his central ideas took shape. As Richard Gelwick has pointed out, discovery became for Polanyi an organizing point for his entire view of the world.⁶

Almost immediately after the publication of his magnum opus Polanyi began to refine his epistemological model and extend his inquiry to areas of nonscientific knowledge. *The Study of Man*, published in 1959, is a brief essay that treats the study of history.⁷ Here Polanyi argues for a spectrum of human meaning and inquiry stretching from the study of inanimate nature to the study of dramatic history. *The Tacit Dimension*, published nine years later, presents a more developed understanding of the structure of tacit knowing than was present in *Personal Knowledge*.⁸ Finally, in 1975 Polanyi's last book, *Meaning*, was published with the help of a collaborator, the American philosopher Harry Prosch. As its title suggests, *Meaning* is a broad-based effort analyzing the problems of meaning in the twentieth century as well as an attempt to extend Polanyi's constructive perspective into a discussion of the nature of artistic and religious meaning. It is an essay that attempts a rather grand synthesis. The discussion of art and religion in this volume is primarily based on lectures treating these topics delivered in the late sixties and early seventies, although these lectures in turn reflect ideas treated in some unpublished work and comments on art and religion made, often illustratively, in earlier publications.⁹

The essays in this issue of *Zygon* critically examine Polanyi's ideas about religion in the context of his overall philosophy. Increasingly, Polanyi has been recognized as an important philosopher of science; it is particularly appropriate that this journal should recognize the broader dimensions of his thought and publish a discussion of his theories about religion. All the writers included here have worked with Polanyi's ideas for several years; most of the essays take the formulations of *Meaning* as their point of departure as they question, defend, and apply Polanyi's views. Below follow brief comments on the ambience of each essay and the original forum in which they were presented.

RELIGION FROM POLANYI'S POST-CRITICAL PERSPECTIVE

Since the mid-seventies the American Academy of Religion has sponsored at its annual meetings discussions of Polanyi's philosophical thought and its implications. Although Polanyi's work has especially seemed to interest scholars in religion, these sessions also have attracted scientists, physicians, philosophers, and others in the humanities on a regular basis. Always the discussions have had a

double-edged character: most of the papers presented have focused either on criticism of Polanyi's ideas or on application of Polanyian modes of thought to philosophical and theological issues on which Polanyi had not written. Such criticisms and extensions of Polanyi's perspective have elicited lively discussion. They have, in fact, uncovered some fundamental ambiguities in Polanyi's work. Although Polanyi writes lucidly, the implications and relative significance of the diverse themes composing his overall perspective have been widely debated.

At the 1979 annual meeting session a particular opportunity that happily combined this two-fold interest in interpretation and application emerged: Harry Prosch, Polanyi's collaborator on *Meaning*, agreed to participate in the session and help with a discussion of that book and of the broader applications of Polanyi's ideas. The 1980 session, in which Prosch again participated, was a follow-up discussion intended to look more carefully at the issues that emerged the year before in regard to *Meaning*, particularly focusing on Polanyi's analysis of religion. The essays collected in this issue of *Zygon* were originally papers or formal responses presented at the 1980 meeting.

The first pair of essays by Ronald Hall and Bruce Haddox are an especially appropriate beginning point, since Hall starts his reflections by sketching the analytical account of artistic and religious meaning presented in Polanyi and Prosch's *Meaning*. After amplifying Polanyi's views with the perspectives of other philosophers and literary theorists, Hall turns to questions about the adequacy of the treatment of the relation of science and art, and art and religion in *Meaning*. This book focuses on the discontinuities between art and science; yet it seems a natural inference from earlier Polanyi publications to argue for certain close affinities between scientific and artistic meaning. In the same way, Hall argues, the account of religion in *Meaning* is unbalanced: Polanyi identifies religious meaning as predominantly abstract and aesthetic; this claim ignores the existential focus of historical religions.

Bruce Haddox's response to the issues that Hall raises is sympathetic. Haddox, in fact, pushes Hall's critique of Polanyi several steps further. While Polanyi's analytical distinctions between indicative, symbolic, and metaphorical meaning and between self-centered and self-giving integrations are partially helpful, they also are misleading. Ultimately, Haddox suggests, the entire analytical apparatus articulated in *Meaning* is out of step with the views of Polanyi's magnum opus *Personal Knowledge*.

The essays by Richard Gelwick and Harry Prosch vigorously debate the issue of how Polanyi intended his ideas about the relation of scientific and religious meaning to be interpreted. Both authors worked

closely with Polanyi for a number of years. In 1977 Gelwick published an introduction to Polanyi's thought, *The Way of Discovery*, which Prosch reviewed in *Ethics*.¹⁰ In Prosch's review and in his essay here, he suggests that Gelwick and other theologians have misconstrued Polanyi's conception of religious meaning. At issue are two important questions bearing on the use made of Polanyi's thought by theologians and others in the humanities: How did Polanyi understand the distinction between science and religion with respect to their bearing on reality? What is the ontological status of religious meaning within a Polanyian paradigm?

Gelwick's essay, organized as a response to Prosch's review, argues that Polanyi's thought distinguishes but does not definitively separate the realities known in science and religion. Polanyi's philosophy is an heuristic perspective with a stratified conception of reality that calls knowers in every field of inquiry—theological and scientific—to accept the responsibility of exploring toward the truth. Prosch's response argues that Polanyi construed the kinds of realities disclosed in the different systems of thought of science and religion as fundamentally different. Science bears on independently existing, empirically confirmable realities while religious meaning, like artistic and mathematical meaning, bears on realities that do not exist independently of the articulate system which imaginatively projects them. Religion, in Prosch's reading of Polanyi, is important primarily as a useful framework which allows human beings to live responsible, meaningful lives.

The essays by John Apczyk and Durwood Foster integrate their reflection on Polanyian themes with a broader discussion of Wolfhart Pannenberg's views on science and theology. As a way to demonstrate the rich potential of Polanyi's understanding of religious meaning, Apczyk presents and critiques Pannenberg's program for a theological science from a Polanyian perspective. This critique leads to ultimately to Apczyk's own constructive theological attempt to show how, using Polanyi, religious claims may be ontologically grounded. Foster's response to Apczyk raises a number of interesting points regarding Apczyk's assessment of Pannenberg. He suggests that there is affinity between Polanyi and Pannenberg although Pannenberg's program must be understood directly in terms of his reaction to the generation of German philosophical and theological reflection that preceded him. In the conclusion of his essay Foster draws out several interesting parallels between Polanyi, Pannenberg, and Paul Tillich, such as their views of critical reason in theology.

William Scott, a physicist and biographer of Polanyi, has supplemented the essays from the American Academy of Religion

discussion with his own commentary. Principally, Scott directs his remarks to the question debated in the last four essays about the ontological referent of religious experience and knowledge. He argues that Polanyi believed persons have several ways of making contact with reality: Polanyi described methods of surrender and encounter as well as the method of science which involves a substantial separation of the knower and the known. All of these ways of relating to reality reflect the commitment of the knower to the external and real qualities of that apprehended. Imagination is involved in all types of knowing stretching from ordinary perception to the apprehension of artistic and religious meaning. Imagination functions as an implicit commitment to an image, a reality which transcends the perceiver.

Each of the essays collected here reflects something of the depth and imaginative vision present in Polanyi's philosophical work. Taken together, they suggest the fertile resource which Polanyi's thought can be for those interested in the interface between science and religion.

NOTES

1. These views are argued in several publications but are perhaps most succinctly put in Michael Polanyi and Harry Prosch, *Meaning* (Chicago: University of Chicago Press, 1975).
2. Michael Polanyi, *The Tacit Dimension* (Garden City, N.Y.: Doubleday & Co., 1966), p. 3. For a broader discussion of the course of Polanyi's career in relation to his philosophical ideas see Richard Gelwick, *The Way of Discovery: An Introduction to the Thought of Michael Polanyi* (New York: Oxford University Press, 1977). For a partial account of Polanyi himself see Polanyi's 1963 introduction to his 1946 volume *Science, Faith and Society* (Chicago: University of Chicago Press, 1964), pp. 7-19.
3. Although Polanyi never in short compass clearly defines "post-critical" he apparently understood his own work as a response to what he took as the limitations of both Kantian philosophy and the broader Cartesian tradition in which it stands. In an address delivered shortly after the publication of his magnum opus *Personal Knowledge*, whose subtitle is *Towards a Post-Critical Philosophy*, he made the following comment on the subtitle: "I have given to the book called *Personal Knowledge*... the subtitle 'Towards a Post-Critical Philosophy.' This was meant to say that in my view the great intellectual revolution which is marked by the names of Descartes, Hume, J. S. Mill, and Bertrand Russell, is nearing its final limits. This movement was guided by the principle that doubt is the solvent of error which leaves behind truth." "The Outlook of Science: Its Sickness and Cure" (Paper delivered in Austin, Tex., November 1958), p. 10.
4. Many of Polanyi's essays and books discuss the tacit/explicit distinction and a similar distinction between "subsidiary" and "focal" awareness. One of the briefest and clearest discussions is in *Tacit Dimension*, pp. 4-20.
5. Michael Polanyi, *Personal Knowledge: Towards a Post-Critical Philosophy* (New York: Harper & Row, 1958).
6. Gelwick, p. xii.
7. Michael Polanyi, *The Study of Man* (Chicago: University of Chicago Press, 1959), p. x.
8. This was Polanyi's own evaluation of the evolution of his ideas. See *Tacit Dimension*, p. x.
9. Harry Prosch discusses both the origin of the material in *Meaning* and his role as a collaborator in his "Preface" to *Meaning*, pp. ix-xi, and in his essay included in this *Zygon* issue.
10. Harry Prosch, review of Richard Gelwick, *The Way of Discovery in Ethics* 89 (January 1979): 211-16.

MICHAEL POLANYI ON ART AND RELIGION: SOME CRITICAL REFLECTIONS ON MEANING

by Ronald L. Hall

Abstract. This paper is a critique of the theory of meaning in art and religion that Michael Polanyi developed in his last work entitled *Meaning*. After giving a brief summary of Polanyi's theory of art, I raise two serious difficulties, not with the theory itself, but with the claims Polanyi makes about the relation of meaning in art to science and religion. Regarding the first difficulty, I argue that Polanyi betrays an earlier insight when in *Meaning* he attempts to dissociate meaning in art from meaning in science; instead I argue that both science and art are aesthetic enterprises. Regarding the second, I argue that Polanyi's account of religion is an aesthetic reduction, that meaning in religion, at least in the Western tradition, is not so much an aesthetic as it is an existential matter.

In his last work, *Meaning*, Michael Polanyi, with the help of Harry Prosch, articulates a theory of meaning in art and religion based on the epistemology he had developed in his earlier writings.¹ These focused largely on science and the problem of recovering meaning from the threat of destruction by a mistaken ideal of objectivity. His attack on objectivism led Polanyi to the view that meaning in science is rooted in the tacit, informal powers of the scientist's personal judgment. This led to the more general view that *all* meaning is achieved by the imaginative, creative and basically unspecified feats of imagination performed by persons-in-community who give voice to that meaning with universal intent. By accrediting the power of the human imagination to make cognitive contact with reality, Polanyi's epistemology seemed naturally to open out towards a new theory of meaning in art and religion where imagination, creativity, and other personal components are admittedly essential, though usually sub-

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