

# Tradition & Discovery

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# The Polanyi Society

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# Preface

Those who have studied Polanyi's philosophical writing are aware that, late in his life, Polanyi became very interested in the nature of meaning which is found in art, myth and religion. In part, Polanyi's late analysis of meaning turns on his conclusions about the role of imagination in human affairs. The book *Meaning*, co-authored by Harry Prosch, is the major published document which collects Polanyi's late ideas on these matters; those who have explored the Polanyi archives at the Regenstein Library at the University of Chicago are aware, of course, that there were some North American lectures that underlie *Meaning* as well as some articles reflecting Polanyi's growing interest in imagination, art and religion. This issue of *TAD* includes three articles which nicely fit together as pieces sharing an interest in themes emphasized in later work; although this is not a special thematic issue, it is fair to say that this issue explores what I would dub Polanyi's philosophical aesthetics. The articles by Barbara Baumgarten and Unchol Shin are creative efforts which make use of Polanyi's late ideas about imagination and meaning. The short article by the late Gabriella Ujlaki, reprinted from our sister journal *Polanyiana*, is an appreciative recognition of her good work as a Hungarian scholar whose work focused on Polanyi and aesthetics. Here she links Polanyi's epistemology with the longer tradition of philosophical aesthetics; she argues that tacit integration grounds cognition but is essentially an art.

Don't overlook some of the other things in this issue. There are three substantial reviews of books explicitly making use of Polanyi's work (pp. 29-35). David Rutledge has provided (p. 4) the call for papers for the November 1995 Polanyi Society meeting; note that proposals must be in by March 17, 1995. There is also news (p. 5) about the N.E.H Summer Seminar for secondary school teachers which focus on *Personal Knowledge*. Diane Yeager who will direct this program has specifically asked Polanyi Society members to help make qualified teachers aware of this excellent summer study opportunity.

Phil Mullins

*Tradition and Discovery* is indexed selectively in *The Philosopher's Index* and *Religion One: Periodicals*. Book reviews are indexed in *Index to Book Reviews in Religion*.

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## NEWS AND NOTES

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On November 19, 1994, in Chicago, IL, the Polanyi Society held its annual meeting in conjunction with the meetings of the American Academy of Religion and the Society for Biblical Literature. Twenty-six people participated in the discussion of papers by **Ira Peak** on "Polanyi and Multiculturalism," and by **Barbara Baumgarten** on "Theology and Embodiment." Formal responses were provided by **Bruce Haddox** and **Phil Rolnick**. We are grateful to presenters and respondents for their work. For those who missed the session, papers are available via FTP from the electronic archive which is a component of the Polanyi discussion list (see page 39 for information). A business session following the paper discussion brought members up to date on **William Scott's** biography of Polanyi, and **Diane Yeager's** plans for an NEH Summer Seminar for high school teachers; ideas were solicited for the Philadelphia program in 1995. The November 19 session followed a very instructive Friday, November 18 afternoon seminar at the Regenstein Library of the University of Chicago. Ms Suzy Taraba, Public Service Librarian in the Department of Special Collections, provided an orientation to the special collection of Michael Polanyi's papers, for twelve members of the Society. We received an overview of the collection, information about using the collection, and were then able to look briefly at some of Polanyi's manuscripts.

**M. W. Poirier** has published (*Modern Age* 35:3 (Sp 1993): 215-223) an extensive review of fellow Canadian Charles Taylor's *The Malaise of Modernity*, a book covering some of the same ground as Taylor's *Sources of the Self*, but based upon his 1991 Massey Lectures delivered over C.B.C. Radio. Taylor, an influential contemporary philosopher who has read and occasionally cites Polanyi's writing, tries to articulate a view of modernity that is neither too positive nor too negative, according to Poirier. Taylor offers a rehabilitated ideal of authenticity as a remedy to the disorder of the modern psyche; Poirier asks whether

Taylor's remedy is capable of treating (or is it merely a manifestation of) the hubris that is the origin of problems. *The Malaise of Modernity* was published in the U.S. under the title *The Ethics of Authenticity* (1991); see **Walter Gulick's TAD** 19:1 review under this title for another Polanyian perspective.

**Joan Crewdson's** *Christian Doctrine in the Light of Michael Polanyi's Theory of Personal Knowledge: A Personalist Theology* (ISBN 0-7734-9150-3) has recently been published by The Edwin Mellen Press. **Drusilla Scott's** *Everyman Revived: The Commonsense of Michael Polanyi* (ISBN 0-86332-077-5) has been out of print but will soon be reprinted by W. B. Erdmans Publishing Company of Grand Rapids, Michigan. Reviews of both books will be included in a future issue of *TAD*.

Doris Prosch, wife of **Harry Prosch**, reports that "they have had an avalanche" of visitors this fall. While Harry's health is about the same (following his stroke), he would enjoy hearing from members of the Polanyi Society. Because he is not able to write, please do not expect a reply.

**Aaron Milavec** has developed a method for lay study of the scripture. His method and work are published by Sheed and Ward under the title *Exploring Scriptural Sources*. A review of this book as well as of his *EasyGreek Software* is forthcoming in a future issue of *TAD*. Milavec is Professor of Church History and Historical Theology within the Lay Pastoral Ministry Program at Mt. St. Mary's Seminary of the West in Cincinnati.

Richard Gelwick

# Call For Papers

The Polanyi Society is issuing a call for papers to be presented at the Society meeting to be held November 18, 1995 in Philadelphia, in conjunction with the annual American Academy of Religion/Society for Biblical Literature meetings. While consideration will be given to papers on any aspect related directly or indirectly to the philosophical writings of Michael Polanyi, the Society is particularly interested in encouraging work in the following areas:

- ~ pedagogy in Polanyian perspective;
- ~ the political implications of Polanyian thought;
- ~ economic theory in the background of *Personal Knowledge*;
- ~ Polanyian thought and Deconstruction.

Society members are encouraged to share this announcement with colleagues in philosophy, literature, and the social sciences.

If there is sufficient interest, a second session on Friday evening may be added to our usual Saturday morning program. Abstracts (one page, single spaced) should be sent by March 17, 1995 to the address below; if you have questions, please phone (803-294-3296), fax (803-294-3001) write or contact me by e-mail (Rutledge\_David/furman@furman.edu).

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# Upcoming N.E. H. Seminar for Secondary Teachers on *Personal Knowledge*

Georgetown University in Washington, D. C. will host a National Endowment for the Humanities Summer Seminar for Secondary Teachers from June 26 through July 28, 1995. Diane Yeager, a Georgetown faculty member, will direct this program which will focus on study of Polanyi's magnum opus, *Personal Knowledge*.

Fifteen participants can be accommodated in this program which Yeager emphasizes will be a seminar rather than lectures on Polanyi's complex text. Like other N.E.H. summer programs, this one will include not only intellectually stimulating work but some convivial opportunities. Graduate credit is not directly available for the seminar, although Yeager is willing to provide a letter recommending equivalency credit. Participants will receive a stipend of \$2825 to cover living expenses.

Yeager has requested the help of Polanyi Society members in locating teachers who might be interested in participating in the seminar. She can provide a brochure describing the program and will write or talk by phone to anyone with questions. Yeager can be contacted by phone (202-687-6232), e-mail (yeager@guvax.acc.georgetown.edu), or regular post (Professor Diane Yeager, Theology Department, Georgetown University, Washington, D. C. 20057-0998).

**The N.E. H. mandated application deadline for the seminar in March 1, 1995.**

# Gabriella Ujlaki

## 1959-1994

Last spring, the Polanyi Society office in Biddeford, Maine was informed of the sudden and unfortunate death of Gabriella Ujlaki. The news was a very saddening event. Gabriella was the secretary and a key leader in the founding and development of the Michael Polanyi Liberal Philosophical Association in Budapest. Her efforts were a major part of the Polanyi centennial celebration held in Budapest in August, 1991, in the beginning of their journal *Polanyiana*, and in the carrying out of a research program on "The Liberal Philosophical Tradition in Eastern Europe." Gabriella was one of the promising young Hungarian scholars developing the understanding and implications of Michael Polanyi's thought; her loss to Polanyi scholarship and development is a great one.

I first met Gabriella at the Kent State Centennial Conference. She and Endre Nagy had both come to meet Polanyians in North America and to find ways to bring to Budapest copies of Polanyi's papers. She and Endre used their time well, met many people, and were able to return later to the University of Chicago for study in the Polanyi archives there. Eventually, with the help of John Polanyi, the Michael Polanyi Liberal Philosophical Association obtained a copy of the Polanyi papers which are now in the library in Budapest.

The energy and zeal of Gabriella were remarkable. At the Budapest celebration, she was not only busy with the running of the meeting and the arrangements, but she was very generous in guiding and helping foreign guests to find their way. We were especially surprised to see her early in the first morning at our hotel where she came to accompany us to the opening session.

Her paper, "The 'Tacit' and the 'Personal': An Aesthetical Approach to the Nature of Knowledge", was a brief but incisive discussion of the contribution of Polanyi's epistemology and showed her capability in philosophy. On the list of conference participants, Gabriella is listed by discipline as "aesthete." She taught aesthetics and was working on her doctoral degree. Her death was caused by a heart attack that occurred while she was returning from studies in The Netherlands. Very unfortunately, she left behind two young children. While we only knew her briefly, we glimpsed her spirit as one that would benefit many in the search for truth and wisdom. In a short time, she accomplished much. For her wonderful life with its joyfulness and for her example of dedication in research, she will be long remembered.

Richard Gelwick

The movement in Hungary to study the thought of Michael Polanyi was dealt an unexpected and cruel blow this past spring. Gabriella Ujlaki, the spark behind the Michael Polanyi Liberal Philosophy Association, died of a heart attack on her way home from her doctoral studies at the University of Leuven. She leaves behind two young children and her mother, a survivor of the Auschwitz death camp.

My wife and I have special reason to mourn the loss of Gabi, because from the time she met us at the Budapest airport in January, 1993 until the time my Fulbright was up nearly six months later, Gabi was a vivacious friend who perhaps more than any other person made our Hungarian stay such a wonderful, memorable experience. Our adventures with Gabi started right off when we drove with her into the center of Budapest from the airport. She had just recently begun driving her own car, a none too reliable Skoda. Her joy in the freedom her car gave her was not matched by skill in operating it. She tended to decide where she was going once she was in an intersection, and, to keep her options open, she often straddled the white line. She did all she could to avoid shifting. Consequently, Barbara and I learned some choice Hungarian words from other drivers within an hour of arriving in Budapest.

The name of Michael Polanyi was barely known in Hungary before the fall of communism. Gabi was, I believe, the first person to appreciate Polanyi's importance and then do something about it. Her enthusiasm was the catalyst that led her, together with faculty from several disciplines in Budapest, notably philosophers Marta Feher and Eva Gabor at the Technical University, to seek out funding from the Soros Foundation to found the Michael Polanyi Liberal Philosophical Association. She became involved in the translation of many key Polanyi texts into Hungarian. Published by a leading Hungarian academic publisher, Atlantisz, these translations offer a good reason for hope that that appreciation for Polanyi's work may flourish despite Gabi's death.

In addition to her work on translations, Gabi also wrote a number of articles on Polanyi's philosophy. Her special area of interest was aesthetics, and this interest is evident in much of what she produced. The next issue of *Polanyiana* will feature these writings.

Together with Hungarian political scientist Endre Nagy, Gabi made two extended trips to the Regenstein Library in Chicago to photocopy the Polanyi papers in order to make them available in Hungary. During the first of these trips, funded by the Soros Foundation, Gabi and Endre were able to attend the Polanyi Centennial meetings at Kent State and thereby make contact with Polanyian scholars from America and Western Europe. Gabi was a leading force behind the meeting in Budapest to celebrate the centennial in the summer of 1991.

An outgoing, fun loving person, Gabi made friends easily and seemed to know everyone in Hungarian philosophical circles. Through her arrangements, I was able to meet many of the leading philosophers in Hungary, one of the great joys of my stay. Her stories of smuggling Western literature into Hungary before 1989 were dramatic glimpses into another world (even in 1993 crossing borders made her nervous). I fondly recall becoming Uncle Walt for Judit, her little girl, and showing Daniel, her boy, how to throw a frisbee; enjoying her pleasure in exploring Freud's home in Vienna; and hearing her happy high pitched greetings. I'll not forget driving her Skoda only to discover the clutch barely worked (no wonder she didn't shift) and the dipstick revealed nary a trace of oil. I know there are many others who share my sense of loss, and on behalf of the Polanyi Society I send my condolences to members of the MPLPA.

Walter Gulick

# The “Tacit” and the “Personal”: An Aesthetical Approach to the Nature of Knowledge<sup>1</sup>

Gabriella Ujlaki

ABSTRACT Key words: judgment, perception, conception, personal, tacit, art, integration , Kant, post-critical epistemology.

*Polanyi’s post-critical epistemology is empirical and not transcendental but it grounds knowledge in perception; knowledge is thus primarily aesthetical and only partly conceptual. The conceptual is always embedded in the perceptual and comprehension or judgment always has an integrative structure. Polanyi’s tacit knowledge is pre-conscious and must be distinguished from the personal which implies conscious commitment. If knowledge produces a cathartic effect, then it is more than merely tacit. The Polanyian revolution in epistemology argues that the human ability to reach truth through use of our cognitive powers is an art.*

The main purpose of my paper is to throw new light on the fundamental notions of Michael Polanyi’s post-critical philosophy, especially that of the “tacit” and the “personal” as the grounds of his paradigm-shift in epistemology. My starting point is based on the fact that according to Polanyi all knowledge is rooted in tacit, perceptual judgments, whether sensory or propositional/conceptual. Having claimed that all knowledge must be rooted in our tacit powers, Polanyi renews an old request in philosophy for establishing a brand of epistemology based on sensory knowledge (or perception) as a way of cognition equally important to conceptual thinking. Aesthetics, conceived as a field of sensory knowledge, was claimed to be a branch of philosophy that owes its birth to the ancient principle of “tabula rasa”: “Nihil est in intellectu quod non prius fuerit in sensu.” Art was not the main subject of this branch of philosophy and not even the most important, as we can observe in Baumgarten’s or Kant’s works. Aesthetics at the time was considered in a broad sense a theory of perceptual knowledge. In this case, art was merely a good example of how we reach knowledge through visual or any other type of perceptual judgments before we can account for it in conceptual terms. Polanyi emphasizes that “all comprehension is informal and personal: this is the real theme of the *Third Critique*.” And “the very nature of knowledge is in the *Third Critique* not in the *First Critique*.”<sup>2</sup> He also remarks that “the experience of external objects is an act of tacit comprehension and it is phantastic to represent it with Kant as a formal conceptual deduction from a priori categories. . . . This leaves little of the *First Critique* standing. For all a priori is to be understood rather (though not altogether) in the sense of the *Third Critique*.”<sup>3</sup> We do not need a more persuasive argument of the fact that, according to Polanyi, the nature of knowledge is closer to tacit, perceptual judgments than to conceptual, abstract thinking. This also applies to the way we appreciate, or what amounts to the same thing, the way we comprehend, natural and artificial objects and among them works of art. Consequently my starting point is that in Polanyi’s view the nature of knowledge is mainly aesthetical and only partly conceptual, and the latter is always embedded in the former. Obviously Polanyi’s theory of knowledge is not a kind of transcendental aesthetics in the Kantian sense. On the contrary, Polanyi’s theory is fully empirical. Tacit knowing is a-critical: we cannot deduce it from critical assertions or from any a priori categories. It has a special logical form; it is neither deductive nor inductive: Polanyi calls it “integration”. It is the ground of the two other logical forms; therefore, all comprehension has to have an integrative structure. The tacit side of knowledge teaches us that our power to understand art is no

different from our ability to comprehend any other kind of thing.

Knowledge, however, has a personal side as well. This point can be expressed in the maxim: “no knowledge without a knower.”<sup>54</sup> The knower is existentially connected with the known. The idea is that if a person gets to know something new, if he or she discovers something, that will change his or her entire life. Thus we come to the conclusion that knowledge also may have a cathartic effect, although it occurs only when our previously established framework of knowledge has to be changed. The cathartic change needs the personal act of commitment and though it is rooted in our tacit powers still it is not fully tacit. We have to recognize that there is a fundamental distinction between the tacit and the personal in Polanyi’s theory. We share tacit knowledge with animals, because it is pre-conscious, it is necessary but not a sufficient condition of consciousness. Perception, orientation in space and time, or even understanding speech do not require consciousness or reflection. As I will try to demonstrate later, a person can master these tacit powers in practice as a skill without being able to tell someone else how to do it. The tacit is not the personal: “the act of knowing includes an appraisal, and this personal coefficient, which shapes all factual knowledge, bridges in doing so the disjunction between subjectivity and objectivity. It implies the claim that man can transcend his own subjectivity by striving passionately to fulfil his personal obligations to universal standards.”<sup>55</sup> An appraisal cannot be fully tacit in the sense of being pre-conscious because it needs commitment. “It is the act of commitment in its full structure that saves personal knowledge from being merely subjective.”<sup>56</sup> And “if I, as a subject, responsibly and actively make an assertion. . . also by the very same act submit myself to something beyond me.”<sup>57</sup> Although we cannot fully explicate the reason for our commitment, because it is rooted in our tacit powers, still we consciously commit ourselves to something beyond us. Unless we find that what is beyond us deserves our choice, we will not commit ourselves to it. Therefore it is not sufficient to be only subsidiarily aware of our personal obligation for committing ourselves; we have to be focally aware of our decision, otherwise we cannot call it a personal act. So the distinction between the “tacit” and the “personal” is that a tacit, perceptual judgment can be full pre-conscious, while a personal act of appraisal, though embedded in our tacit powers, cannot be completely devoid of consciousness.

However, a conscious choice is not, by the same act, a responsible one. It can also be conscious and subjective, it will not claim universal validity. In contrast to the subjective a personal act has to meet universal standards, as Polanyi emphasized. But if I, as a subject make a claim beyond myself, then, by the same act, I have to submit myself to standards which are not purely mine, so I have to transcend myself. Transcending subjectivity amounts to accepting the judgments of a given group or society, which means submitting to intersubjective standards. These, in turn, determine the value of the personal act of appraisal. What we are committed to, whether it is tradition, religion, social lore, or a political faith, or whatever, is always embedded in society. The universal validity of our commitment can only be evaluated from the viewpoint of the society we belong to. So a commitment “which saves personal from being merely subjective” will introduce a new element, a new level, that belongs to society, into our subject matter. On the one hand, the social validity of our choices saves them from being merely subjective while, on the other hand, our belief in the propriety of our decision makes us feel it our own, personal choice. Hence if we want to demarcate more precisely the tacit from the personal we will recognize more different features between them than between the levels of consciousness. I would rather say that they are different from this viewpoint because they belong to different levels of reality. I would complete the maxim “no knowledge without a knower” with its possible cathartic effect. If knowledge produces a cathartic effect then it is more than merely tacit. As we have already noticed, it occurs only when we have to change a previously established framework of knowledge; and this act needs a conscious decision which cannot be fully “pre-conscious”, tacit. Our decisions are made by means of commitment, hence we raise the choice to the personal level. Thus, if our knowledge has to be changed it will have to occur by means of a commitment, through a personal act of

appraisal: and this act will possibly have a cathartic effect which, in turn, highlights the aesthetical nature of knowledge.

Thus on the tacit level the aesthetical nature of knowledge lies in the fact that it comes about as a perceptual “pre-conscious” judgment, while on the personal level it manifests itself in its cathartic effect.

There is a third argument for my proposal about the aesthetical nature of knowledge. According to Polanyi “the very nature of knowledge is in the *Third Critique*”. He means that knowledge takes place as an aesthetic judgment. An act of judgment occurs in a subjective but universal act of appraisal. And since every judgment may be regarded as putting parts in relation to a whole, it follows that all judgment is synthesis, or, to use Polanyi’s term, “integration”. The aesthetic judgment in its Kantian sense is very close to the tacit act of integration. Integration is subjective or, more precisely, personal because it is universal and necessary, but it lacks the intervention of a reflective idea. Hence it is also tacit or rooted in our tacit powers. But Polanyian personal knowledge is nevertheless not a renewed kind of Kantian aesthetic judgment. The main difference between them, according to Polanyi, is that the act of integration is the only way we discover something new or, generally speaking, we get to know something at all; while according to Kant “the judgment of taste” contributes in no way to cognition. The Kantian judgment simply expresses the felt harmony in the play of our own powers on the occasion of a certain perception. Kant considered the pure aesthetic judgment subjective: it exists only in and for a percipient. Therefore in a pure judgment of taste we will not reach any knowledge, according to Kant. Aesthetic judgment excludes objectivity, and hence it excludes knowledge as well. In contrast to this view, Polanyi takes the tacit act of integration as the most important way of cognition.

So the Polanyian revolution in epistemology, which highlights the aesthetical nature of knowledge, is not limited to the assertion that art also has a cognitive side and can reach the truth by virtue of this feature (Gadamer, Heidegger). However, Polanyi turned this question upside down: our ability to reach truth, or our cognitive powers, is also a kind of art. In this sense art regains its former, ancient meaning: “the art of knowing” is a faculty of man that is rooted in our perceptual judgments and everyday skills and is a ground for our intellectual powers.

## Endnotes

<sup>1</sup>Editor's note: reprinted with permission from *Polanyiana* 2:1-2 (1992) : 127-129; the abstract is an editorial addition.

<sup>2</sup>A letter from Marjorie Grene, 13 October 1959. In: University of Chicago, Joseph Regenstein Library, Polanyi Papers.

<sup>3</sup>Ibid.

<sup>4</sup>Marjorie Grene: *The Knower and the Known*, Faber & Faber, London, 1966.

<sup>5</sup>Michael Polanyi: *Personal Knowledge*, The University of Chicago Press, 1962, p. 4.

<sup>6</sup>Ibid., p. 65.

<sup>7</sup>Marjorie Grene: "The Subjective and the Personal", address at the Kent State University Polanyi Conference in Apr. 1991; manuscript forthcoming in one of the next issues of *Polanyiana* [Editor's note: published in *Polanyiana* 2:4/3:1 ((1993): 43-55.]

# Artistic Expression And Contemplation: Some Reflections Based On The Epistemology Of Michael Polanyi

**Barbara Bennett Baumgarten**

**ABSTRACT** Key words: subsidiary/focal, dwelling in/breaking out, intuition/imagination, visual perception, observation/communion, present/future.

*An exploration of the relationship between imagination and intuition and the workings of visual perception, in light of Polanyi's epistemology, helps us to understand aesthetic seeing. The artist and contemplative learn to see anew and accordingly grasp extraordinary coherences of meaning.*

## Preface

These reflections descend from personal experience in both artistic expression and contemplation. In the interest of clarity and brevity, I have limited my discussion to acts which focus on objects of natural reality. I do not intend to limit art or contemplation to concentration upon objects outside of ourselves. Both artistic expression and contemplation can and do involve interior and exterior reality in a variety of ways. The sections on intuition and imagination, and on visual perception derive from my book, *Visual Art as Theology* (New York: Peter Lang Publishing, Inc., 1994), 56-66.

## Introduction

Michael Polanyi's epistemology details two kinds of awareness inherent in all knowing: the subsidiary parts, details, or particulars from which we attend; and the focal whole or meaning to which we attend. This is the characteristic structure of tacit knowing and is the fundamental basis of Michael Polanyi's post-critical epistemology. The first type of awareness, the subsidiary, is that of which we have knowledge but are unable to tell. We know the first term only by relying on our awareness of it for attending to the second type of awareness, the focal (*TD*, 10). We rely on our eyes subsidiarily, to which we pay no focal attention, in order to see the person focally for whom we are looking in the crowd. We use our own body, without being focally aware of it, in order to attend to things beyond ourselves. Important to note is that our subsidiary awareness is not the same thing as unconscious, pre-conscious or subliminal awareness, nor is it fringe awareness. "What makes an awareness subsidiary is the function it fulfills; it can have any degree of consciousness, so long as it functions as a clue to the object of our focal attention" (*TD*, 95-6).

When we attend from the particulars of an entity to the whole they constitute, we may be unable to specify the constitutive particulars while recognizing the whole. We may be unable to specify facial features while recognizing a face. This achievement of a coherent understanding is integration not deduction. One cannot formally explain how one knows the face. And the achievement is irreversible, we can only retrace our steps when we disintegrate the comprehension attained.

Knowing, in Polanyi's schema, is a combination of two tendencies, "dwelling in and breaking out". We build

up frameworks into which new experience is assimilated, and we adapt these frameworks to accommodate new experience. The ability to hold these tendencies together establishes our reality as a person and our relation to truth.

Indwelling is our extending ourselves into something known so that it becomes an extension of the self and a tool for further exploration of reality. When a painter first picks up a paint brush s/he focuses on the brush as an object; but once the painter acquires the skill of using the brush, the brush becomes an extension of the painter's body so that the painter may attend from the brush to the painting. The painter dwells in the brush, reaching out from this known entity in order to discover an as yet unknown, a new reality, the painting. The particulars in which we dwell are clues for extending ourselves into the discovery of external reality; and by doing so we find meaning not in the particulars, but in their integration. We dwell in our perceptions, former encounters with paintings, iconographic and formal features, and such to form a progressively more meaningful relationship with works of art.

To sort out how this basic structure of tacit knowing helps us understand contemplation and artistic expression, further nuances of Polanyi's thought need to be considered. One is the relationship between intuition and imagination, the other is the workings of visual perception.

## **Intuition and Imagination**

The relationship between intuition and imagination is one of empowerment and infusion. The imagination implements our intentions. It is "the nucleus of all discovery, invention and artistic creativity" (*M:P*, "From Metaphor to Perception," 5). The integrative powers are largely spontaneous; thus, Polanyi names them "intuition." However, rather than an alternation between imagination and intuition, the thrusts of the imagination propel and supply intuition with suitable material that leads towards discovery. Imaginative effort and intuitive observation are merged to account for all apprehensions of meaning. In the process of inquiry

we have always the same story. An idea appears, given by intuition to be pondered by the imagination. Second, the imagination is let loose to hammer out a path of possible clues, guided by intuitive feelings. And thirdly, an idea offers itself intuitively as a proposed conclusion to be pondered in its true light of the imagination (*M:P*, "Works of Art," 18).

Our intuitive faculties are empowered by the imagination. The imagination, in turn, is infused with intuition. The imagination is guided by the intuition in its future-oriented quest to implement performance, be it movement, perception or discovery. The imagination thrusts forward with a deliberate focal intention and intuition integrates the subsidiary clues imagination lights upon. Intuition works on a subsidiary level, sensing and integrating clues that are largely unspecifiable while the deliberate focal acts of the imagination seek reality and its meaning.

Thus, intuition sparks the imagination which implements our intentions; imagination imbued with intuition informs and enriches our tacit mindbodily being. This process of knowing is not primarily a dialectic between imagination and intuition but a unique and entwined aspect of the act of extending ourselves mindbodily into tacit integrations that achieve an aim and appreciate a comprehensive whole. I would call this procedure "open empowerment."

While all meaning is achieved through the same implementation of the imagination and intuition, the thrusts

of the imagination required to perceive a simple scene, to make a painting, or to contemplate are not the same. The imaginative performance required to create a painting or to focus on awareness is much greater than is required to scan a scene. Likewise, the complexity of an intuitive integration bears directly on the measure of imaginative effort. The more complex an integration, the more imaginative-intuitive effort will be required for its achievement. The integrations required to scan a scene are much less complex than are those needed to create a painting or to concentrate contemplatively.

We attend from our tacit knowledge of the subsidiary parts to our focal knowledge of the whole. It is through the integration of particulars which we have embodied intuitively that the reality these particulars comprise is endowed with the meaning imagination lights upon. This meaning is grounded in our reliance on the framework or location in which we dwell. One's unique epoch, race, geography, social history, ideology, training and so forth affect one's view of the whole. Knowledge is grounded in bodily indwelling so as to make sense of the outside world. We live mindbodily in the world, open to change and discovery.

## Visual Perception

Visual perception consists in the integration of clues evoked in our body by the impact of light to produce the sight of their joint meaning. Visual clues include the retinal image, the feeling of our eye muscles, the feeling of our bodily muscles supporting the position of our head, the sensations from our inner ear, the hidden memories which shape our interpretation of objects, as well as the neural traces evoked by the light reaching our eyes. Perception is grounded in these feats of bodily indwelling which jointly make sense of the objects presented to our vision. We rely on the clues of visual perception subsidiarily to integrate them into their joint meaning, the sight of the object.

Perception is not instantaneous, nor is it effortless. The simplest scanning of a scene requires time and a remarkable feat of integration. Our eyes intuitively see the objects before them in a series of imaginative snapshots taken from consecutive positions at the rate of about three to four shots per second. Thus, in a period of ten seconds spent looking at an object, we collect thirty to forty different snapshots. This collection of snapshots is then integrated into a single view of the object looked upon. It is a curious feat of integration that enables us to merge into a single sight the whole collection of consecutive pictures we have built up. The collection of images is not random. Vision selects the details that are of the most interest (*M:P*, "From Perception to Metaphor," 6).

The effort of the eye to present an image of clarity is the result of self-set perceptual standards in which we dwell. The muscles of the eye adjust the thickness of its lens and the collection of images are selected and integrated in accordance with a learned interpretive framework. When a baby moves a rattle towards its eyes and away again, the baby's perception must choose between seeing the rattle swell up and shrink alternately, or see it change its distance while retaining its size. The baby chooses the latter alternative. This choice guides our perception into a universal interpretive framework which sees objects as retaining their size and shape when seen at different distances and angles, and their color and brightness when seen under different types of light (*PK*, 96-97). Even when retinal evidence is to the contrary, we make perceptual adjustments to maintain the standards of correct seeing. The subsidiary clues of visual perception work toward a coherence of the world we see about us. The process of uniting visual clues into their joint meaning is a lifelong course of application and reliance on established sensory clues. We dwell in sensory clues subsidiarily in order to attend to integrated, and thus meaningful sightings.

Making art compels the artist to acquire a new way of seeing things that re-integrates their established perceptual interpretive framework. Contemplation dissolves integrative seeing, not to reverse perception, but to deepen it. The art of learning “to see” aesthetically and contemplatively is a breaking out from the perceptual standards in which we dwell. The artist and contemplative, rather than relying on what they have learned to see in the past, learn to see in a new way. For example, an artist learns, when setting out to draw a person lying horizontally with feet close to the artist and the head at a distance, to see the body differently than it is ordinarily seen. The artist learns to see the feet swelled and the head shrunk rather than the seeing the feet closer and the head at a distance. The opposite choice of the baby rattle experience is made. The feet are drawn proportionately larger than the whole of the rest of the body; the body is drawn progressively smaller as it moves toward the head. In art this is called foreshortening. What is closer is drawn larger, what is at a distance is drawn smaller. Objects, in the artist’s eye, do not retain their size, but change when seen at different angles and distances. The same is true for color. The artist learns to see variances in color rather than consistency due to illumination changes. This ability to break out from existing perceptual frameworks demonstrates our ability intentionally to prompt our perception to explore and assess perceptual clues in new ways in the quest of artistic expression.

The contemplative, rather than aiming to incarnate a new way of seeing things, wholly dissolves the screen of perceptual knowledge and “sees” patches of color for its own sake. Intellectual control is relaxed as the contemplative becomes absorbed in the quality of experience. The contemplative gaze ceases to scan the scene before the eyes with an aim towards recognition or representation. Contemplative seeing is intensely focal, subsidiary and participative in an experience that is ineffable and inexpressible. It unifies focal and subsidiary awareness into a divine whole by sinking self-set standards of seeing into abeyance. Or, following Polanyi’s use of the *via negativa*, contemplatives “see things. . . not focally, but as part of a cosmos, as features of God” (*PK*, 198). The contemplative then, like the artist, breaks out from conceptual frameworks of perception, but unlike the artist, the contemplative does not aim toward novel integrations of expression.

## **Artistic Expression and Contemplation**

Polanyi states that the most radical manifestation of the urge to dwell in and break out is the ecstatic vision of contemplation. We dissolve the screen of our conceptual framework, we cease to move through experience and instead pour ourselves into experience; “we cease to handle things and become immersed in them” (*PK*, 197). The experience is vivid yet dream-like, timeless and without definite spacial location.

It is not an objective reality; for it is not the focus of an intelligent perception anticipating future confirmation by tangible things, but resides merely in the colored patches of various shapes which the things present to the eye (*PK*, 197).

The person participates, indwells completely in what is contemplated. In contemplation the knower resides imaginatively in natural reality in order to experience an imageless and nameless reality. Time, space and discursive thought are transcended into an awareness of a intuitive coherence which bears meaning in an extraordinary way. Reality is fused into an ecstatic experience as all is “merged with the unfathomable intuition of the universe” (*PK*, 197). The contemplative immerses oneself into natural reality so that rather than being aware of the objects of nature, s/he experiences a deeper now. Contemplative detachment is highly imaginative due to its concentrated effort, but is also

an unimaginative suffusion into reality that does not attend towards the future. This paradox enables the contemplative to reside in the parts, rather than the whole, without dismembering meaning but deepening it in an extraordinary way. Contemplation is a skillful seeing into the natural world that reveals profound meaning.

In an aim to embody extraordinary meaning, the artist, like the contemplative, ceases to handle things and instead becomes immersed in them. When an artist is questioned about the process of making art, the artist most often states that it is a timeless yet vivid experience. It is for the artist a spiritual moment of vision. Like the contemplative, the artist does not focus on an observation of nature but pours oneself into a communion with nature. But unlike the contemplative who indwells the present, the artist anticipates a future manifestation of embodied meaning. The artist resides in the colored patches of various shapes which are present to the eye, not as a means of communion with nature (though this may occur) but in order to make extraordinary meaning visible, and thus tangible to the eye. The artist makes imaginative tacit integrations which are wholly non-specifiable, visible. What art creates is not illusion but intuitive embodiments of the creative imagination. The achievement of artistic integrations are an heuristic leap that incarnate what cannot be communicated otherwise. Art does not communicate facts of ordinary experienced reality that can be observed, but novel, tacit integrations or facts of the imagination that can only be indwelled.

The contemplative, like the artist does not focus on nature but pours oneself into a communion with nature. But unlike the contemplative who indwells without an incarnational aim, the artist anticipates the tangible. This is not to suggest that embodiment does not occur in contemplation. It must because meaning is grounded in embodiment. Contemplation is an intense act of union which is embodied into the contemplative's mindbodily being in the world. The experience of contemplation is assimilated into the self while the self is integrated into the object of contemplation. This dual movement lends contemplation its ecstatic character.

Art embodies clues from the self and natural reality that when imaginatively integrated outside of the self into form present a uniquely meaningful coherence. The contemplative pours the self into natural coherences imaginatively and experiences the depths of intuition which are re-embodied into the self. The contemplative resides in the present; the artist thrusts toward future manifestations of embodied meaning. Both grasp deeper coherences of reality than are ordinarily experienced. The contemplative immerses the self into a reality that exists in nature to comprehend a deeper level than can be communicated. When the contemplative does strive to share the experience, artistic expression arises. The artist surrenders the self into natural reality and re-integrates it imaginatively through form. The artifact's reality relies on nature but does not in itself find its full meaning in nature. Natural reality holds the potentiality for extraordinary meaning to be experienced and embodied by the contemplative or incarnated into works of art.

## **Abbreviations of Michael Polanyi's Works Cited**

*M:P* "Meaning: a Project," unpublished lectures forming background of *Meaning*. (University of Chicago; University of Texas, Austin; February, March, 1969).

*PK* *Personal Knowledge* (Chicago: University of Chicago Press, 1958).

*TD* *The Tacit Dimension* (Gloucester, Mass.: Peter Smith, 1983).

# The Role of Imagination in Integrative Knowledge: A Polanyian View

Un-chol Shin

**ABSTRACT** Key words: imagination, integrative knowledge, the parts and a whole, verified and validated realities, indeterminate implication in technology, science and humanities

*How do we know the degree of imagination involved in knowing a reality? This is essentially an epistemological question. This essay discusses first the role of imagination in Polanyi's epistemology since it is used here as the basis of integrative reality. The essay then discusses the degree of imagination involved in three types of integrative reality that are found respectively in technology, science, and humanities. It concludes with a discussion on the role of imagination in education.*

In the preface to his book *The Body in the Mind*, Mark Johnson writes about the role of imagination as follows:

Without imagination, nothing in the world could be meaningful. Without imagination, we could never make sense of our experience. Without imagination, we could never reason toward knowledge of reality.<sup>1</sup>

It is clear, according to him, that imagination plays the central role in human experience, understanding, and reasoning. And yet, he says, "It is a shocking fact that none of the theories of meaning and rationality dominant today offer any serious treatment of imagination." He further states that there is "the total absence of an adequate study of imagination in our most influential theories of meaning and rationality."<sup>2</sup> Why is this so? The reasons are obvious.

During the past two centuries in the Western world, dominant theories of meaning and rationality have been largely derived from reductionistic objectivism in which the role of imagination in human experience, understanding, and reasoning has been denied. In reductionistic objectivism, the world is made up of objects and properties independent of human understanding. According to this view, the human mind, in facing the world, functions passively like a mirror or a camera eye that has no regard for personal belief or the cultural context in which personal belief is shaped. In explaining the world from this perspective, words that we use are merely literal signs that correspond to or represent objects and properties. To reason means to map the rational structures of objective reality, and to reduce them to concepts according to logical rules.

Based on this view of reasoning, human psychological experiences are identified with those rational structures found in the objective and natural world. Accounts of human experiences which are distinctively different from the rational structures of the objective and natural world cannot be considered as legitimate parts of human experience; human understanding of the world entirely depends on the rational structure whose meanings are independent of the human context. In this approach to human experience, understanding, and meaning, it is no surprise that the role of

imagination is negated.

In contrast to this reductionistic view, a non-reductionistic, Polanyian view of contemporary science recognizes the active role of the human mind in shaping human experience. This perspective recognizes the imagination as integral to the functions of the human mind in science as well as other endeavors. In epistemological terms, this perspective regards real things as integrative in nature. The role of the knower is recognized in the known. The knower's imagination is respected for the part it plays in the knower's experience of the known. Imagination actively molds integrative knowledge.

Imagination alone, however, does not make integrative knowledge possible. Knowledge arises as the anticipatory grasp (or anticipatory potential) of an integrative reality first sensed by the intuition of a person who makes an inquiry. For the inquirer, a problem and the anticipation that the problem has a solution represent hope, possibility, and new meaning. From this perspective, the problem and the solution are an integrative reality that is not yet fully actualized. Such a reality is pursued in an intuitive mode of apprehension by the searching person. The way the searching mind works is explained by Polanyi as follows:

It seems plausible to assume, then, that two functions of the mind are jointly at work from the beginning to the end of an inquiry. One is the deliberately active powers of the imagination; the other is a spontaneous process of integration which we may call intuition. It is intuition that senses the presence of hidden resources for solving a problem and that launches the imagination in its pursuit. It is also intuition that forms our surmises in the course of this pursuit and eventually selects from the material mobilized by the imagination the relevant pieces of evidence and integrates them into the solution of the problem.<sup>3</sup>

Polanyi clearly holds that the discovery of an integrative reality is impossible without recognition of the role of imagination but imagination works in tandem with intuition.

Because integrative reality is discovered by the active power of imagination, it emerges first in the human mind as an imaginary reality. At this initial stage, it is only imaginarily perceptual, but not sensible. Later, such a reality may be verified scientifically, or it may be validated as is done in the case of real things such as poems. When an integrative reality is verified in the sciences, its imaginary elements are transposed into realistic elements which the knower regards as more fully independent from the human mind like so-called objective items. Such verified integrative realities are no longer predominantly imaginary realities; they have followed the path toward the status of ordinary things. Strictly speaking, what determines the status of an integrative reality is the degree of imagination involved in knowing the reality.

How do we know the degree of imagination involved in knowing a reality? This is essentially an epistemological question. In this essay, I want first to discuss further the role of imagination in Polanyi's epistemology, since it is used here as the foundation of my claim that it is important to recognize knowledge and reality as integrative. I will then discuss the degree of imagination involved in three types of integrative reality that we find respectively in technology, science, and humanities. Finally, in conclusion, I will discuss the role of imagination in education.

## II. Integrative Reality

As suggested above, what is sought for by a person as a solution for a problem is originally hidden. It is however present as a hope and a possibility. This double status, hidden as well as present as a hope and a possibility, means that a solution is not somewhere out there in the world like a natural thing just waiting to be discovered. Discovery in the sense of solving a problem demands the creative act of the human mind. The way the human mind works for discovery is not really different from the way it works for the creation of a new reality. The discovery of a hidden reality, like the creation of a new reality, requires the use of multiple resources conjoined in an effort aiming at actualization. The actualization is a process of integrating multiple resources. Who integrates them? How is such an integration accomplished? According to Polanyi, such an integration does not take place naturally. It is done by the intuitive imagination of a person who is in search of a solution to a problem.

In terms drawn from Polanyi's epistemology, a problem's solution is the object of focal awareness and the multiple resources contributing to the solution are the components of subsidiary awareness. Polanyi explains the relationship between these two kinds of awareness in terms of the relationship between means and end and between parts and whole. When he says the object of focal awareness depends on the components of subsidiary awareness, he means that the end depends on the means and the whole depends on the parts. He states the relationship as follows:

We cannot comprehend a whole without seeing its parts, but we can see the parts without comprehending the whole. Thus we may advance from a knowledge of the parts to the understanding of the whole.<sup>4</sup>

According to Polanyi, for an understanding of a whole, there is a direction of movement that begins with the parts. The parts are directed toward the whole, as they are being integrated by the power of intuitive imagination which is the act of the creative human mind. This directive process, in psychological terms, can be effortless and short, but it is the process of integrating the parts into the whole. The parts have no meaning unless they are related to the whole, which is to say that the parts find their joint meaning in the whole. The meaning that results from the joining of parts is different from the original state of the "parts" before they were joined together. Such a meaning is a joint meaning and a new reality. The act of joining parts is an integrating act carried out in intuitive imagination. The new reality is, therefore, an integrative reality.

Why term a new reality an "integrative" instead of "integrated" reality? Meaning is an "integrated" reality when imagination is only minimally present in the process of integration. When imagination functions as a principle component of an act of the human mind, apprehended reality is alive and dynamic. Such a new reality is incomplete. Although such a new reality may be a problem's solution, it is to be regarded more as a fruitful possibility than as a final solution. Such a solution can be refined, improved and understood more deeply. In sum, the term "integrative" reality, retains the sense of process appropriate to true mental achievements as they emerge in human history.

By recognizing the active role that imagination plays in knowing reality, we recognize that real entities are not close-ended. Imagination works tacitly and unexpectedly with great surprises when it leads us to the discovery or creation of a new reality.

Reductionistic objectivists reject this vision of an integrative knowledge grounded in imagination as a scheme

overly subjective and irrational. For them, the world is made up purely of objects that have properties independent of persons who experience them. These properties are inherent in the objects, and, through analytic and reductive approaches, certain conceptual categories and concepts corresponding to the properties are established. Even relations between the objects are understood in terms of categories and concepts. Our knowledge of objective reality cannot rely on imagination that is subject to errors of individual judgement and that is culturally biased.

Although Polanyi obviously opposes the objectivist position, this does not mean he accepts a subjectivist alternative. His theory of “personal knowledge,” transcends both the objectivist and the subjectivist options. Polanyi accepts the personal participation of the knower in the known; he calls for the recognition of personal commitment in the knowing process. He affirms passion as integral to personal action and recognizes that human actions are the expression of personal beliefs. Polanyi’s personal knowledge is clearly distinguished from subjectivist views. Polanyi explains the difference between his notion of the “personal” and the “subjective” as follows:

I think we may distinguish between the personal in us, which actively enters into our commitments, and our subjective states, in which we merely endure our feelings. This distinction establishes the conception of the personal, which is neither subjective nor objective. In so far as the personal submits to requirements acknowledged by itself as independent of itself, it is not subjective; but in so far as it is an action guided by individual passions, it is not objective either. It transcends the junction between subjective and objective.<sup>5</sup>

For Polanyi, all knowledge is personal knowledge. In fact, there is no separation between the “personal” and the “knowledge” in personal knowledge. Essentially what constitutes the “personal” in personal knowledge is the activity of a particular human. That is, personal knowledge is achieved through the integration of the components of subsidiary awareness by intuitive imagination. Personal knowledge is therefore integrative knowledge, and we can also say that, when we achieve integrative knowledge, we achieve an integrative personality.

An integrative personality, like integrative knowledge, is not static and fixed. Integrative reality is open-ended; it holds the possibility of additional meaning. Integrative personality never curtails the activity of self-cultivation that occurs when newer understandings of integrative reality emerge. Being an integrative personality means having an imaginative understanding of an integrative reality.

Imaginative understanding is the act of a person’s mind which moves the person toward discovery or the creation of an integrative reality as new meaning. In the process of understanding, the person is confronted with a problem, and the solution of the problem is sought. Intuitive imagination leads to the solution. Since imagination is unpredictable, risk is involved in problem solving. But belief in the possible discovery of the solution comes along with intuitive comprehension. This comprehension first occurs as a glimpse of a whole. It is a tacit comprehension with which all creative acts of the human mind begin in the initial stage of discovery. The person’s commitment to the discovery of a solution for a problem is intensely passionate until he or she is brought to the realization of the goal. Imaginative thinkers have no other choice but to pursue a goal humbly and hopefully. They must be prepared for failure to achieve their goal. Their task is risky, and errors are always part of imaginative understanding. But failure only means that the goal needs to be seen from different perspectives. As long as imaginative persons are humble and prepared for failure, their minds are always open to new sources, new approaches and new understanding. New ideas and new methods remain open.

As the source of our ever new meaning, integrative reality always points toward the future. Acts of imagination are related to things that are not here and now. Polanyi explains acts of imagination as follows:

I call all thoughts of things that are not present, or not yet present—or perhaps never to be present—acts of the imagination. When I intend to lift my arm, this intention is an act of my imagination. In this case imagining is not visual but muscular. An athlete keyed up for a high jump is engaged in an intense act of muscular imagination. But even in the effortless lifting of an arm, we can recognize a conscious intention, an act of the imagination, distinct from its muscular execution. For we never decree this muscular performance in itself, since we have no direct control over it. This delicately coordinated feat of muscular contractions can be made to take place only spontaneously, as a sequel to our imaginative act.<sup>6</sup>

What is clear in Polanyi's discussion of imagination is his recognition of intention as an act of imagination. Where there is an intention, there is an act of imagination. As recognized by phenomenologists, there is intentionality in consciousness, which is an act of imagination. There is no consciousness without an object. That object is, in Polanyi's epistemology, the object of focal awareness. Lifting one's arm, for example, is implemented by the integration of subsidiary muscular particulars. In this situation, the imagination is fixed on lifting the arm and that is the end result; by fixing the imagination, we can induce the requisite muscular integration. Originally, the conscious intention of lifting one's arm is distinctively different from the muscular execution. Lifting one's arm is the end and the muscular execution is the means. Intention and execution represent two different movements or levels in Polanyi's epistemology. Thus, when our means are insufficient to meet the end, there is a gap between them. How do we close the gap? Polanyi explains this as follows:

A new life, a new intensity, enters into this two-leveled structure the moment our resolve meets with difficulties. The two levels then fall apart, and the imagination sallies forward, seeking to close the gap between them. Take the example of learning to ride a bicycle. The imagination is fixed on this aim, but, our present capabilities being insufficient, its execution falls behind. By straining every nerve to close this gap, we gradually learn to keep our balance on a bicycle.<sup>7</sup>

The act of imagination works exactly in the same way in the act of speaking. James Alan Astman explains the role of imagination in the act of speaking as follows:

Simply put, what enables us to speak is the intention of speaking. And when we are in the act of speaking, we are focused on an achievement that has not yet been fully realized. That is, we know what we want to communicate before we are able to bring into use all of the abilities, all of the words and sentences, that will enable us to express our meaning. In other words, our intention is aimed at the future. And it is only through our imagination that we can attend to that future.<sup>8</sup>

In the act of our speaking, its achievement in the future is the expression of our meaning. "All of the words and sentences" are the means for the meaning on which our imagination is focused, and they are integrated through our imagination. When the meaning is expressed, it is very much like the achievement of a solution to a problem which occurs by

integrating multiple resources through an act of our imagination. Speaking is the creation of a new and integrative reality.

Since integrative reality is achieved in the act of imagination, it is not yet in an actualized form. It is a vision of coherence which is detected by intuition. Intuition launches and guides imagination. But it is our imagination that ransacks the brain and available resources and sallies forward onto a vision of coherence. It is a deliberate act, in Polanyi's terms, a focal act of the creative imagination. In the meantime, the vision of coherence is recognized by our intuition. This recognition of coherence is the spontaneous act of discovery. Before the discovery is made, the coherence still remains hidden, although it was guessed. The guessing requires "a skill guided by innate sensibility to coherence."<sup>9</sup> Hidden coherence is only sensed by intuition. This function of relating clues to the hidden coherence lies in the power of imagination. Hidden coherence is a potentiality that is not yet brought into a vision. When the potentiality is sensed, however, it evokes an anticipation through which we maintain our quest for the discovery of the coherence. According to Polanyi, this process is how our mind works not just in search for natural reality in science, but also in search for truth and beauty in humanities.

The roles of intuition and imagination, in acts of the human mind complement each other. Polanyi explains their functional relationship by stating that "intuition informs the imagination which in its turn releases the power of intuition."<sup>10</sup> The greater is the power of intuition, the greater is the power of imagination. With a greater power of imagination, our intuition can sense a deeper coherence. Our imagination carries all the available resources forward, pointing to the future manifestations of a deeply hidden coherence, while our intuition integrates those resources and recognizes the final result of our imagination to be valid. Even when our quest for a coherence has ended, our intuition and imagination are not exhausted. The inquiring mind returns again for a deeper, more profound new vision of coherence. According to Polanyi's epistemology, our intuition works tacitly, on a subsidiary level, and, therefore, we do not know exactly how it works. There are principles by which our intuition integrates subsidiary clues into a coherence. But Polanyi states clearly that "history suggests that there are no universal standards for assessing such coherence."<sup>11</sup> This means that we do not control intuition's operations. Coherences are not of our making. Instead, we give our allegiance to them. We recognize their value and their authority over us.

Although there are no rational accounts that explain functions of our intuition, Polanyi does discuss imagination in almost quantitative terms in relation to the types of coherence recognized in science and humanities. According to Polanyi, the mind appreciates coherence and recognize an integrated reality. When the mind first grasps novel coherences, it is an integrative reality in the imagination rather than a perceptual reality that is apprehended. Generally, in science such a novel coherence eventually becomes a verified reality, while in the humanities it becomes a validated reality. Originally, however, novel coherence begins as an integrative reality in imagination. Verified and validated realities are different types of coherence. Now the question is how our imagination works differently in these different types of coherence or realities. This will be explored in the following section.

### III Imagination in Verified and Validated Realities

According to Polanyi's epistemology, the belief that knowledge of reality can be completely objective and detached is false. Because of the tacit element in the knowing process, knowledge of reality has an indeterminate content, which is explained by Polanyi as follows:

The content of any empirical statement is three times indeterminable. It relies on clues which are largely unspecifiable, integrates them by principles which are undefinable, and speaks of reality which is inexhaustible.<sup>12</sup>

We first know reality as a vision which means we know it intuitively in our imagination, but how we come to know it as a vision cannot be explained. Even though the vision is later a more recognizable, familiar reality, how resources worked toward its discovery remain unspecifiable. The power of intuition is spontaneous and effortless. In a scientific inquiry, intuition predominates. It is intuition that senses a hidden reality, launches and guides imagination, integrates clues which are sought by imagination, and then finally accepts the apprehended reality. Without imagination, however, the work of intuition is empty and fruitless. For the discovery of integrative realities, intuition and imagination constantly work together as two mental powers, distinguishable but not separable. In all scientific inquiry, Polanyi says,

First, an ideal appears, given by intuition, to be pondered by the imagination. Second, the imagination is let loose to ferret out a path of possible clues, guided by intuitive feelings. And third, an idea offers itself intuitively as a possible conclusion, to be pondered in its turn in the light of the imagination.<sup>13</sup>

Although a vision of a reality as the object of focal awareness is first sensed by intuition, it is brought into focus by imagination. Without being focused, the vision cannot become an apprehended reality. The duration of the act of focusing is proportionately longer than that of the intuitive sensing. Because this is the case, the specifiability of the focusing act seems greater than that of the sensing act. Thus specifying or measuring the activity of imagination seems to us more plausible than measuring the activity of intuition. In the work of imagination, some objects of integration, however, seem, or become with practice (as in the example of raising the arm), less indeterminate. What this amounts to saying is that when the focusing act requires greater effort and integrative knowledge seems most indeterminate, the degree of imagination involved is greater. Of course, according to objectivist reductionism, all human knowledge is determinate and specifiable and, therefore, no range of imaginative participation in the content of knowledge is recognized.

Polanyi comments on the indeterminate implications of the imagination in the focusing act in three different areas: technology, science, and humanities. There is no question that, in Polanyi's epistemology, the imagination works in search of a solution to a problem in all of these three areas. But imagination has a different character and different degrees of indeterminate implications in different areas. Comparing technology with science, Polanyi says,

The solution of a technical problem has perhaps less widely indeterminate implications, but they are wide enough to substantially engage the imagination.<sup>14</sup>

Why are there "less widely indeterminate implications" of the imagination in the solution of a technical problem? In his discussion of differences among technical invention, scientific discovery, and artistic production, Polanyi explains the differences as follows:

The quest for scientific discovery also integrates fragmentary clues to an initially unknown coherent meaning (although the quest is guided vaguely by certain powers of anticipation), whereas technical

invention starts, on the contrary, by aiming at a product that will fulfill a definite function and seeking the means to contrive it. To produce a work of art is to make something never before seen but grasped in a vague way by powers of anticipation, and in this essential feature the artist's quest is nearer to that of the scientist than to that of the inventor.<sup>15</sup>

One distinctive difference between a technical and a scientific problem is that the former has a more clearly desirable focus than the latter does. In other words, the aim of a technical problem is to invent or produce a tool for useful performance. Technology always involves applicable knowledge that is derived from an acknowledged purpose, and it has to serve the purpose successfully. On the contrary, scientific discovery is totally unrelated to any such purpose. Scientific knowledge, unlike applicable knowledge, lacks any framework of useful performance. Its aim is originally to discover an initially unknown fact in nature and this unknown fact has nothing to do with its useful performances. Instrumentality is the key in technical knowledge. The focus of a technical problem is necessarily more specifiable than that of a scientific problem. In the solution of a problem, the final achievement of the imagination is guided by intuition; this is known as invention in technology and discovery in science. Differences between invention and discovery are explained by Polanyi as follows:

The beauty of an invention differs accordingly from the beauty of a scientific discovery. Originality is appreciated in both, but in science originality lies in the power of seeing more deeply than others into the nature of things, while in technology it consists in the ingenuity of the artificer in turning known facts to a surprising advantage. The heuristic passion of the technician centres therefore on his own distinctive focus. He follows the intimations, not of a natural order, but of a possibility for making things work in a new way for an acceptable purpose, and cheaply enough to show a profit. In feeling his way towards new problems, in collecting clues and pondering perspectives, the technologist must keep in mind a whole panorama of advantages and disadvantages which the scientist ignores. He must be keenly susceptible to people's wants and able to assess the price at which they would be prepared to satisfy them. A passionate interest in such momentary constellations is foreign to the scientist, whose eye is fixed on the inner law of nature.<sup>16</sup>

Since tools are made to serve particular purposes, in many cases inventions quickly become ordinary things which require little imagination to use them. There is no doubt that an automobile is the product of an enormous amount of technical imagination and knowledge, and yet the majority of automobile drivers need little knowledge of cars to operate them. An inventor's passion for the solution of a technical problem is essentially not different from that needed for a scientific inquiry or artist's creative inquiry. What makes them different is the character of the imagination involved in the passion.

Polanyi's arguments make it clear that scientific imagination has wider indeterminate implications than technical imagination. Discovery of the unknown facts that already exist in nature is the aim of scientific imagination. Unknown facts are initially sensed by intuition; such facts are loosely imagined in terms largely guided by powers of anticipation. Loosely imagined facts have few specifiable qualities; they have widely indeterminate implications, and thus to apprehend these realities definitively demands extraordinary imagination on the part of scientists. Because the focal object is relatively amorphous, the imagination relies heavily on whatever clues seem promising. There are also greater chances for the imagination to make mistakes in filling in the missing parts in the case of a less specifiable focal

object. Searching for the right clues bearing on the focal object is not easy.

The results of scientific inquiries are eventually verified, and the verification process in science transforms the strange vision into the familiar. Integrative realities come to be understood as facts of nature. Knowledge of nature is not directly useful like technological knowledge. However most natural phenomena come to be regarded as ordinary things in our world, although some remain ambiguous and seemingly pregnant with deeper meaning. In sum, Polanyi's outline of the role of imagination in science suggests that originally hidden facts in nature are the objects of our imagination, but as ordinary things most natural facts evoke little imagination.

The creative integrative realities known in humanities are in Polanyi's scheme the most indeterminate of coherences. Such realities do not have practical or instrumental value such as inventions do; they do not serve us. Instead, they sometimes demand that we serve them. We study the works of Shakespeare to find higher and more noble ideas and then we respect, honor, and follow those ideas. The coherences recognized in the humanities, including literary, artistic, and musical creations, are not integrative realities to be verified like the results of scientific inquiry. Such realities are accepted by the public in imagination. This means that we as members of the public do not accept them as things of nature or as practical devices.

Polanyi's epistemology is fundamentally based on the conviction that the discovery of heretofore unknown facts involves the activity of a person's intuition and imagination. In terms of personal participation through intuition and imagination in the process of discovery, there is no difference between scientific discovery and artistic creation. No one can deny the greatness of Einstein's intuition and imagination. Where do we then find the difference between scientific and artistic creativity? Polanyi explains it as follows:

As we have seen, the inception of a scientific inquiry and the undertaking of a technical problem are both based on imaginative anticipations of unknown facts, but to start on a work of art is to anticipate a result which will be brought into existence first in the imagination of the artist and then in that of his public. An artistic problem is the imaginative anticipation, not of unknown facts that already do exist, in some sense, in nature, but of a fact of the imagination—of a poem or a painting that could exist.<sup>17</sup>

According to Polanyi, problems, whether they are scientific, technical, or artistic, are resolved only as imaginative anticipation begins searching for solutions to problems. But powers of imaginative anticipation are not persistently called into play as solutions to problems in science and technology come to be known in the public world. Discoveries and inventions are eventually accepted by the public as natural or practical things; such things are taken for granted. They evoke little imagination in us. This process of becoming second nature does not prevail, however, with the integrative realities found in humanities. As Polanyi states, "an artistic problem is the imaginative anticipation, not of unknown facts that already do exist, in some sense, in nature, but of a fact of the imagination—of a poem, or a painting that could exist." "A fact of the imagination... that could exist" is different than those facts "that already do exist." Strictly speaking, this difference marks a distinction between the realities known in the sciences and humanities. Humanities deal with facts of "the imagination... that could exist." This means, the facts are recognizable only through overt imaginative anticipation; artistic coherences always reveal meaning only by directly evoking the imagination of the public. This type of integrative reality does not come to be accepted in the same way that natural or practical things do by the public. Artistic realities are known by the public by relying on imagination. In Polanyi's words, "we do have

to achieve an imaginative vision in order to 'use' a work of art, that is, to understand and enjoy it aesthetically."<sup>18</sup>

#### IV. Integration and Education

To recognize that the powers of intuition and imagination are engaged in technological invention, scientific discovery, and artistic creation is to recognize that all reality created and understood by persons is fundamentally integrative reality. However, as both invented and discovered realities in technology and science become more familiar, they, at the same time lose the power of evoking the imagination in the mind of the public. As the public enjoy, in daily life, benefits that are provided by these scientific and technological products, the products are quietly accepted as ordinary things and facts.

Ordinary things and facts are normally in our control, which means we know how to use them with minimal imaginative effort; in many cases, we know very little about how they were originally made. A telephone is a wonderful product of science and technology. Without it, our life today would be enormously inconvenient. As users, we pay very little attention to how it is made. We just use it and it is at our mercy. Its inventor, Alexander Graham Bell, however, was a man of great imagination. The telephone was originally a product of his great imagination. When it was first conceived as an idea in his imagination, there was belief and passion in his mind, as is the case with all great inventors, driven by the idea for realizing something. The telephone may be viewed as the product of his belief and passion. He invented it and presented it to the public for use. But Bell could not transmit his belief and passion to the public. The public takes the product, but it fails to be infected with the imaginative component. This is the nature of the relationship between the public and ordinary products and facts.

The limited ability to transmit the belief, passion, and imaginative powers of a creative technological or scientific mind is reflected in the difficulties in our educational institutions. Our educational facilities are often provided with the best equipment in the world today. Socially, in daily life, we have and enjoy the greatest advantages of technological and scientific creativity. And yet there is no certainty that our society and educational systems will produce imaginative and creative students. The reasons for this are much clearer when they are examined in light of the role of the imagination in the knowing process. A central issue is how to educate students to have greater powers of imagination.

Before exploring this issue, some summary of the role of imaginative thinking in integrative knowledge is in order. To anticipate anything imaginatively involves a sense of the future. The object of imaginative anticipation is something to be achieved. Thus all works of the imagination are achievements. From the view of Polanyi's epistemology, a solution to a problem is an achievement which is realized by intuitively integrating clues; the solution is an integrative reality. Integrative realities are of several different types: Polanyi seems to distinguish scientific, technological and humanistic achievements. Scientific and technological achievements are at least eventually subject to processes of verification while humanistic achievements must be recognized as valid. All three types of achievements can be considered as an arrival at a significant or meaningful whole. That whole is visible in imagination and the parts (the clues that function subsidiarily) may be either tangible or intangible. When functioning as subsidiaries, such clues remain somewhat of a mystery; we can say only that such clues are integrated into a whole. When such clues are seen in themselves as objects of focal awareness, they appear as specifiable things; they have lost the original meaning they had as subsidiaries bearing on the original meaningful whole. It is the integration of clues through imagination that

Polanyi focuses our attention upon as the central act of the dynamic, living mind.

How can teachers get their students involved in such dynamic and living acts of the mind? First, according to Polanyi's epistemology, students need to recognize that they acquire a sense of a whole, of coherence or global meaning by taking what they know already and by using it as clues or parts to some broader coherence. In other words, what they already have and know needs to be placed in the context of something larger that is not fully known, and not fully specifiable. That something larger is an integrative reality.

The study of technological machines, social systems, or scientific theories as only things in themselves produces only acquaintance with information. Any study that does not show an interest in a larger framework or whole will not increase integrative knowledge. Information can be accumulated, of course, but such knowledge is largely impersonal and detached. Integrative knowledge is personal knowledge that demands personal commitment to an unspecifiable larger meaning than what we already have and know. Personal commitment to a meaning naturally places teachers and students in the process of achieving the meaning. In this process, both find themselves as achievers or makers of meaning. As achievers of meaning, we all join in the creative process that is carried out with the dynamic act of our imagination. Creative people function best as makers or achievers of meaning. As already explained, a meaning is a solution to a problem. In our actual lives, not all solutions are deeply meaningful. But in the case of serious integrative knowledge, meaning is more encompassing than what already is known and the knower can never be in the position of controlling the meaning. After habits are formed, we can easily control specifiable objects with relatively little use of our imagination. But unspecifiable meanings demand a greater use of our imagination. They evoke our imagination. When we try to understand such meanings (i.e., Polanyi's "facts of the imagination") in the creative works in humanities, we must use our imaginations. When imagination comes more fully into play, we find ourselves already personally committed to the meaning we arrive at through our mental acts. The pursuit of meaning in such challenging mental acts stands in contrast with the meaning we already hold or take for granted in our present life. Within the context of pursuit of more comprehensive realms of meaning, we come to sense what we lack and thus we become humbler. Nevertheless, any discovery of integrative meaning as the result of our commitment, also bring joy, a great intellectual joy.

In integrative knowledge, the joy and the meaning of life are not separated. They do not come from controlling or possessing tangible objects or information. They come from achieving comprehensive meanings which are larger and greater than the meanings we already have in our present life. What would then be the better sources in which teachers and students can find those meanings? They are the works of the imagination with greater indeterminate implications. Specifically what are they? Polanyi answers this question as follows:

The arts are works of the imagination, and so are the sciences. But all our hopes and fears, all our memories and our very feeling of ourselves, our suppressed desires and hidden feelings of remorse, all that we see in sleep and indeed in daytime perceptions, and all our deliberate bodily motions—all these are also works of the imagination. Why then does the word "imagination" instantly evoke in our minds the notion of works of art rather than any of these other matters? The reason that comes to mind with little effort is that the arts alone aim at transmitting their imagination to a public—to successive generations of publics—and depend on the imaginative powers of these people to accept the works of their imagination as meaningful. But we can explain also what it is that qualifies the arts—and the arts alone—for this enterprise. Our lives are formless, submerged in a hundred crosscurrents. The arts are imaginative representations, hewn into artificial patterns; and these patterns, when

jointly integrated with an important content, produce a meaning of distinctive quality.<sup>19</sup>

This passage clearly indicates that the works of the imagination in humanities provide a greater foundation for “a meaning of distinctive quality” in our lives. As potential makers of future technology, science, humanities as well as of their lives, our students need to prepare themselves to be imaginative. Let us not forget to teach them, along with science and technology, the poetic, artistic, musical, and other works of the humanities. In other words, let us not forget their need to have integrative knowledge that will prepare them with greater imaginative power for “a greater meaning of distinctive quality” in their lives.<sup>20</sup>

## Endnotes

<sup>1</sup>Mark Johnson, *The Body in the Mind: The Bodily Basis of Meaning, Imagination, and Reason* (Chicago: The University of Chicago Press, 1987), p. ix.

<sup>2</sup>Ibid.

<sup>3</sup>Michael Polanyi and Harry Prosch, *Meaning* (Chicago: The University of Chicago Press, 1975), p. 60.

<sup>4</sup>Michael Polanyi, *The Study of Man* (Chicago: The University of Chicago Press, 1959), p. 29.

<sup>5</sup>Michael Polanyi, *Personal Knowledge* (Chicago: The University of Chicago Press, 1962), p. 300.

<sup>6</sup>Michael Polanyi, “Creative Imagination” in *The Concept of Creativity in Science and Art*, eds. Denis Dutton and Michael Krausz (Hague, Netherlands: Martinus Nijhoff, 1981), p. 100.

<sup>7</sup>Ibid.

<sup>8</sup>James Alan Astman, “Reading and the Role of Imagination” in *Claremont Reading Conference 1986* (Claremont: California: Claremont Graduate School Curriculum Laboratory, 1986), p. 35.

<sup>9</sup>Michael Polanyi, “Creative Imagination,” p. 99.

<sup>10</sup>Ibid, p 104

<sup>11</sup>Ibid., p. 102

<sup>12</sup>Ibid, p. 106.

<sup>13</sup>*Meaning*, pp. 96-97.

<sup>14</sup>Ibid., p 97.

<sup>15</sup>Ibid., p. 98.

<sup>16</sup>*Personal Knowledge*, p. 178.

<sup>17</sup>*Meaning*, p. 99.

<sup>18</sup>Ibid., p. 85.

<sup>19</sup>Ibid., p.101.

<sup>20</sup>I appreciate very much the editorial revisions, offered by Phil Mullins, which greatly improved the clarity of my article. I also want to thank Dr. Anne Brooks for sharing with me many hours of fruitful conversations on integrative studies.

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# Book Reviews

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Benjamin A. Reist, *Processive Revelation*. Louisville, Kentucky: Westminster/John Knox, 1992. Pp.xv+205. ISBN0-664-219551.\$25.

Revelation lies at the heart of Christian life and faith. This statement, in itself, is hardly the occasion for controversy. But the ongoing attempts of the Church to appropriate for itself (in the variety of cultural contexts in which it finds itself) renewed understandings of revelation is a task worthy of serious and sustained reflection. In *Processive Revelation*, Benjamin Reist seeks to reinterpret this foundational doctrine. Rather than understand revelation as God's self-disclosure, first to Israel and then to the Church in Jesus (a disclosure unique and in some sense "finished"), Reist proposes a model that understands revelation as "the moving presence of the Ultimate One's own becoming" (15). Thus, not only is the past opened, but the future as well: "the future is not yet decided for the living God, as well as for us" (43).

To develop his position, Reist relies not only on process thought but also on liberation and feminist theologies as well as insights from postmodern science. "Contextual theology," Reist's own description of his work, needs to be rooted in the present "agenda of reflection" which includes not only the struggles against oppression (racism, sexism, classism, etc.) but also the recent developments in modern science.

Most of *Processive Revelation* is given over to a discussion of three "revelatory vectors" of God, meant to coincide loosely with the Trinity: "The Relating God" (Spirit), "The Liberating God" (Son) and "The Creating God" (Father). In the most interesting chapter of the book, Reist discusses the relating activity of God in light of Calvin's and Barth's doctrines of election. He draws particular attention to Barth's emphasis that in "Jesus

Christ God relates to all humanity, not the good, not the elect, but humanity as whole....Fallen humanity is confronted from the beginning in Jesus Christ as electing God and elected humanity" (82). Intrinsic to the relating God is that all humanity is included in the relationship.

When Reist turns to the "Liberating God," he relies most heavily on liberation theologians: Letty Russell, Juan Luis Segundo and James Cone among others. Yet at the same time he wishes to wed liberation theology with process thought; "orthopraxis" and liberating thinking need to acknowledge the open-ended reflection and relational thinking of process thought. An understanding of God in terms of "contextual creativity" (Delwin Brown) can add a new dimension to the liberation struggles.

Reist uses his discussion of "The Creating God" as an opportunity to explore the relationship between theology and the natural sciences, a relationship liberation theologians have ignored, but which Reist believes essential for contextual theology. It is in this final chapter that Reist relies most heavily on the thought of Michael Polanyi, who he describes as an example (along with Paul Ricoeur) of "heuristic theological reflection in action." Reist uses the term heuristic theology to point to the cumulative, irreversible and communal character of genuine insights. As this is rooted in the tacit dimension, Reist endorses what he refers to as one of Polanyi's deepest insights:

The admonition to look at the unknown really means that we should *look at the known data, but not in themselves, rather as clues to the unknown; as pointers to it and parts of it*. We should strive persistently to feel our way towards an understanding of the manner in which these known particulars hang

together, both mutually and with the unknown. (160)

According to Reist such heuristical reflection is central for processive revelation: “revelation ...is never capable of reaching completion because God is always on the move, always having more to say...” (50).

Reist’s willingness to cross traditional disciplinary boundaries of theology, philosophy and science is refreshing, as is his emphasis on creativity and dynamism. Unfortunately, however, Reist’s own creativity leaves him at points awash in a sea of theological problems which are left unacknowledged and thus unresolved. Chief of these is that the revelation of God in Jesus Christ is so creatively redefined that traditional Christological claims disappear. Although Reist states that “Chalcedon means nothing if it is not continually reinterpreted” (133), he also calls into question the “vigorous contention that the transcending God has actually come into our midst in Jesus the Christ.” Reist adds, “Though this is good news indeed, it begins to have the ring of a cryptic deism” (154). This seems to me not a reinterpretation of Chalcedon but a rejection. Such an approach causes Reist at times to slip into vague generalizations—for instance, “the witness of the resurrection is that whereas the risks of real crosses attend the only liberation we may know, these risks are not final, for they speak of ultimacy’s ultimate resolution” (134).

While much is to be said for Reist’s attempt to develop a heuristic, “Polanyian” theology, I wonder if he has fully assimilated his own Polanyian insights, especially the communal character of theology. I say this because of his failure, as suggested above, to do justice to the sweep of Christian tradition, his stated intentions to the contrary. Thus Reist ends his book embracing the notion that God as mother bodies forth the world and that creation is therefore God’s body (Sallie McFague). Reist applauds this approach since it expresses the fact that the universe and God are not totally different. But surely the wider Christian tradition has wanted to maintain the distinctness of God from everything else as well as to distinguish itself from pantheism. Reist avoids addressing the more genuine difficulties his processive revelation entails.

Despite these failures, *Processive Revelation* is worth reading for its introduction to a wide variety of thinkers (Calvin, Troeltsch, Teilhard de Chardin, Birch, Peacocke, Ricoeur and others). It is also a thoughtful example of one person’s attempt to incorporate the wisdom of theology with the epistemological turns of modern science, an effort which challenges us all.

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Richard Allen, *Transcendence and Immanence in the Philosophy of Michael Polanyi and Christian Theism*. Edwin Mellen/Rutherford House, 1992. Pp.196. ISBN 0-773-416358.\$69.95.

Having spent many years reflecting on Michael Polanyi’s theory of personal knowledge and its application to theology, I undertook to review Richard Allen’s book with considerable interest. Allen writes primarily a philosopher with an unquestioning commitment to “the Faith”, by which he means Christian theism, understood to include classical theism (God viewed as Necessary Being, creator and sustainer of the universe). This theological position stands in contrast to other ways of relating God to the universe, which fail to affirm either God’s transcendence or his immanence. Allen’s aim is to take Michael Polanyi’s philosophy “into the Church” (p. 2) and to show how the theory of tacit integration helps us to understand how God can simultaneously be fully immanent in the world and transcendent of it.

I have not found this an easy book to review, since as a theologian, but not a trained philosopher, I have at times wanted to question Allen’s theological assumptions and have not always seen the relevance of the philosophical arguments he uses in arriving at theological conclusions. I am, however, in complete agreement with his general thesis, that Polanyi’s philosophy provides the ideal foundation for a theistic view of the God-world relation - a view which, I believe, will eventually come to

be widely appreciated. I have, therefore, tried to follow his arguments in the light of his own position and have attempted, for the purposes of this review, to “indwell” his theological thought framework, rather than my own.

In Part I, Allen examines how far Polanyi’s philosophy admits the possibility of a genuine metaphysics and theology and considers Polanyi’s own account of Christian theism. He sees the theory of tacit integration as the central feature of Polanyi’s philosophy, which views consciousness as a double act, integrating two modes of awareness. There is a good account of tacit knowing, except that Allen states that Polanyi “tended to equate the focal with the explicit and the subsidiary with the tacit” (p. 20). I believe this is incorrect. It is true that readers of Polanyi often mistakenly talk as though focal awareness means explicit knowledge and subsidiary awareness means tacit knowledge, but Polanyi himself never confused them. On the whole, however, Allen’s discussion of tacit integration, its ontology and the principle of dual control are extremely helpful. As Allen says, Polanyi’s aim is to help us conquer mistrust of our personal powers of judgment and to challenge critical rationalism to face up to its fiduciary foundations.

Chapter 1 introduces Polanyi’s philosophical position and includes an interesting discussion comparing Polanyi’s view of ultimate beliefs with R.G. Collingwood’s “absolute presuppositions.” In the next two chapters, Polanyi’s understanding of religion and Christian theology are discussed and assessed. For this, Allen relies largely on two passages in *Personal Knowledge* and I constantly found it necessary to go back to these passages in order to follow Allen’s argument. In chapter 3, Allen takes up the question of the “circle of faith” and how Polanyi deals with “logical gaps.” This leads to a consideration of the possibility of doing “natural theology” and suggestions as to how Polanyi’s philosophy can be used in practicing it.

I was impressed with this section. However, I was not happy about Allen’s handling of the method of

natural theology. For example, he assumes that Barth dismisses natural theology as a “presumptuous exercise of autonomous human reason” (p. 55). This does less than justice to Barth. At one time, I was puzzled to know how T.F. Torrance could speak with enthusiasm about Karl Barth and Michael Polanyi in the same breath. This was because I believed that Barth rejected natural theology, whereas Polanyi’s theory of personal knowledge clearly supports the idea that our knowledge of the natural world points beyond itself to transcendent meanings. Later Torrance explained to me why he found them compatible. Barth does not reject natural theology, he said. On the contrary, he uses it all the time in his *Church Dogmatics*, but it is always used within the framework of the basic biblical revelation. In Polyanian terms, Barth sees Christ as providing the framework and key by which everything in the universe is to be interpreted. Natural theology is essential, but must always be undertaken within a framework of revealed theology.

At one time, it was thought that religion could be studied by the method of “natural theology” without a fiduciary framework and it was assumed that reason and revelation were different modes of knowing. Polanyi’s epistemology affirms the unity of knowledge and shows that all our knowing is done within a framework of commitment. Allen knows this, but I would have been happier if, in his championship of natural theology, he had made the relation between reason and revelation clearer. In my view, it is not always obvious to the reader that Allen does not treat natural theology as a separate mode of knowing, a view which is largely discredited, even by theologians who have not read Polanyi. This is why I also wish reference to E.L. Mascall had been balanced by reference to other writers known to favor a more dialectical method of doing theology, that works “from above” as well as “from below.” John Macquarrie’s label for this method is “dialectical theism.” Part I ends with a discussion of the difference between “validation” and “verification,” based on passages in the book *Meaning*, co-authored by Harry Prosch, and an evaluation of the debate of the early 1980’s between Prosch and Richard Gelwick concerning Polanyi’s understanding of the reality of God.

In Part II, Allen discusses the Being of God and Polanyi's account of language. This amount, he suggests, provides the ideal foundation for the doctrine of analogy, which explains how we can speak significantly about the transcendent God and affirm his ineffability. By tacit knowing, we can attend from the universe and particular events within it to God, both in his transcendence and his immanence. Allen first discusses the use of metaphor and analogy and its dependence on tacit comprehension and then goes on to deal with various problems that arise in applying the epistemology of tacit knowing to God. It would seem, for example, that we can only apply tacit knowing directly to awareness of God, if we view him as the Soul of the universe, wholly immanent in it, but not transcendent. A further problem which he raises is that, if God is transcendent, then, according to the epistemology of tacit knowing, he cannot be known "in glory," for God has no lower levels, and so, no subsidiary particulars from which to attend. At this point, Allen points out that the traditional conception of the "Word" of God provides within God himself something analogous to a lower level, form which we may attend. This leads on to a consideration of the doctrine of the Trinity, which Allen sees as "an ultimate requirement of a Polanyian theology" (p. 99). He illustrates this with reference to Polanyi's theory of language and the suggestion that the Trinity be viewed as "Speaker, Word and Meaning" (p. 131). In the last two chapters of Part II, Allen deals with possible pantheistic implications of Polanyi's epistemology and ontology for our knowledge of God and for God's knowledge of the universe, which would undermine the traditional theistic view of the God-world relation.

In Part III, Polanyi's concept of "indwelling" is taken up and set in the context of the important doctrine of perichoresis, where it is used as a key concept to illuminate the doctrines of the Trinity, Grace, Providence, preparation for this theological section, but I must confess that I found these last chapters disappointing. Perhaps I hoped too much from a book of under two hundred pages. Perhaps Allen expects too much of his readers, if his final conclusions are to be seen as following clearly from earlier

arguments. Despite this, the book as a whole has an important message and will, I hope, be read by many who are interested in exploring the implications of Polanyi's thought for theological issues.

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Milton Scarborough, *Myth and Modernity: Postcritical Reflections*. Albany: SUNY Press, 1994. Pp. 152. ISBN: 0-791-418804. \$14.95 (ppr).

Milton Scarborough's *Myth and Modernity* is an articulate and exciting guidebook for exploring the nature of myth. Generally, Scarborough argues that modernity destroys myth, but also that myth, perhaps paradoxically, actually grounds modernity. The book opens with the story of how an anthropologist introduces modern artifacts and technology to the people of an isolated stone age tribe in New Guinea in 1969; within six months, these people change. They are different--they become modern--individually and communally. Their sacred rituals, the mythic basis of their culture, are radically altered and then discontinued; these mythic mysteries are not forgotten, yet they cease to serve their function and are not replaced by anything with the same ultimate significance. Scarborough sees this event as cultural murder and as an allegory about western civilization: "this numbing and the absence of the renewal of myth are the calling card of modernity. ...Modernity seems to result in the termination of the possibility of having any vital myth whatsoever" (6). In order to discover the means of such cultural annihilation, Scarborough begins to examine the relationship between myth and modernity.

What is it about modernity that is so inimical to myth? Basically, it is "the bifurcation of reality into inner experience and outer world" (10). Descartes definitively expresses this dichotomy philosophically, but it is grounded by Copernicus, Kepler, and Galileo in a new metaphysics of the natural world which takes the mathematically measurable 'primary qualities' as objectively

constitutive of the outer world and relegates the not so measurable 'secondary qualities' as subjectively constitutive of the inner world.

Obviously, myth cannot be about the outer world and no objective science or history of the outer world can include myth. As the Enlightenment relentlessly draws out entirely negative implications of the inner-outer dichotomy for myth, "myth [becomes] what it remains today in the popular imagination--namely, a cipher for all that is false" (11).

Scarborough next presents a very interesting explanation, comparison, and systematic classification of nineteenth and twentieth century theories about the nature of myth; he believes such theories about myth, as modern, will also reflect the modern inner-outer dichotomy that destroys myth. This critique of theories of myth (previously he has also commented on ancient theories of myth, viz., the euhemerist, Christian-apologetic, and allegorical theories) is a very useful part of the book. All modern theories agree that myths are analyzable, meaningful, nonliteral, and false, but explain myth in different ways. The primary distinction in Scarborough's classification of these modern theories is "inside" and "outside;" the secondary distinction within both the inside and the outside is 'up,' 'middle,' and 'down.' I will not further explain this system, but among the authors considered are Max Mueller, E.B. Tyler, Andrew Lang, Sir James Frazer, Robert R. Marett, Robert Henry Codrington, Bronislaw Malinowski, C.S. Lewis, Ernst Cassirer, Claude Levi-Strauss, Rudolf Bultmann, Sigmund Freud, Carl Jung, Joseph Campbell, and Ira Progoff. These theorists "succeed in demonstrating, contrary to the thinkers of the Enlightenment, that myth makes a kind of sense and is worth serious study. ...On the other hand, consistent with their modern presuppositions, they view myth as associated with what is primitive, past, subjective, and untrue--namely, all the things that modernity hopes to outdistance" (30).

Scarborough believes that modernity is not only influenced by but grounded in myth; before arguing for the latter claim, he considers other theorists who support

the former (these theories can also be categorized according to the above schema): Mircea Eliade, Taylor Stevenson, Michael Novak, Harvey Cox, Stephen Toulmin, Michael Foster, Langdon Gilkey, Edward Maziarz, and Earl MacCormac. Again, Scarborough's explanation and critique of all these theories of myth are quite interesting and useful. This last group of theories is found wanting because each accepts modernist assumptions and sees myth as inferior and subordinate to modernity. In contrast to all previous theorists, Scarborough wishes to show

(1) that myth does not lie outside or on the periphery of modernity but at its heart, (2) that myth's effect is not confined to the past but is operative in the present, (3) that myth is not false but has a much more complicated relation to truth and falsity, (4) that myth is not to be identified per se with any isolated feature of modernity, (5) that myth is not simply a matter of subjective self-understanding, and (6) that myth is not metaphorical (46).

More simply, Scarborough's theory of myth is not founded on the inside-outside dichotomy.

Scarborough argues that two creation myths--Plato's *Timaeus* and the P-account in *Genesis*--are at the heart of modernity, "in the most sophisticated domains of the present. Their influence may be found within the walls of academia, where the theories of both science and philosophy, for example, are dependent on them" (48). In the *Timaeus*, the rational, intelligible pattern for the world is the eternal Forms, the source of stability, order, and necessity, and of objective knowledge, logic, and universality. The raw material for the world is eternal matter--earth, air, fire, and water--which have inherent powers and ceaselessly interact with each other in a disorderly and chaotic fashion. The active principle of the Demiurge, as an imitative craftsman, brings form and matter together to produce the world as we know it. In the P-account in *Genesis* (the seven day creation in *Genesis* 1:1-2:4a)--viewed without neo-Platonic glasses--Yahweh creates the world from serious and thoughtful intentions, but

without blueprints. Matter may exist prior to Yahweh's creative act (perhaps "waters" and an "abyss" are raw materials), but orthodox doctrine affirms creation out of nothing; in any case not much is said about the nature and status of matter. Here, the world is not composite, not fully intelligible, and has a beginning and an end; it is proclaimed to be good only after post-creation inspection (48-53).

Scarborough's "contention is that these myths are not confined to a distant past, affecting the present by means of a series of intermediate historical causes; instead, they are alive in the present and exercise their authority directly" (66) on modern theory and methodology. He considers several theories and methodologies and their mythical sources: big bang theory (*Genesis*) versus steady state cosmology (*Timaeus*), essentialism (*Timaeus*) versus existentialism (*Genesis*), phenomenology of religion (*Timaeus*) versus history of religion (*Genesis*), and covering law (*Timaeus*) versus continuous series (*Genesis*) explanations in science (54-63).

How does myth directly influence modern thought? Scarborough answers this questions with the help of Michael Polanyi's notion of tacit knowing; the "principal claim [here] is that scientific knowledge cannot be achieved by explicit inferences, deductive or inductive, but relies from start to finish on the tacit powers of the mind and its content (66). "First and foremost myth belongs to the tacit dimension" (68) and "in both the original formulation and subsequent modification of theories myths are tacitly animating the imaginative and creative processes underlying those reflections; ... we think with myths" (70).

Using Polanyi's work, Scarborough demonstrates the pervasiveness of myth in modernity. In order to overcome modernity's inner-outer dichotomy and move toward a postcritical understanding of myth--"that all knowledge has a tacit component is the meaning of 'postcritical'" (132)--he considers twentieth-century physics and existential phenomenology, especially Maurice Merleau-Ponty's work. The former subverts the ontological and epistemological foundations of modernity, i.e., the

distinction between primary and secondary qualities and the consequent inner-outer dichotomy (76-79). The latter shows us, with the notion of "intentionality," that consciousness and its objects do not exist separately, but are primordially and constitutively together (79). Further, Merleau-Ponty's notion of the "body-subject" and its "operative intentionality" as "a prereflective, preconscious, system of 'anonymous' powers" that "intends or is directed toward a world...which is always 'already there' before reflection begins--as an inalienable presence," displays "the integration of mind, body and world" (80-83). Thus, Scarborough establishes an anthropology and epistemology of finitude.

From these foundations, Scarborough develops his notion of the nature of myth; he claims that myth is (1) a form of intentionality, which (2) provides an orientation for existence; (3) that this orientation is comprehensive of the life-world; (4) that it expresses itself in language; (5) that this language is highly condensed; (6) that it takes the form of a story; (7) that its language is neither literal nor metaphorical; (8) that myth is a special kind of apriori condition of theoretical thinking; (9) that myth's proper home is in the background of human existence, and (10) that it is part of the body (84).

Myth cannot be judged true or false in any theoretical sense, because it functions in our life-world--"the life-world embraces what reflection distinguishes as self, society, and nature" (86)--where it grounds, i.e., generates and lends credibility to, theories and criteria of truth (106-109). Rather than being true or false, myth is "viable or not viable for the tasks (both theoretical and otherwise) which confront us...in the very process of living. ... Viability is 'assessed' in the course of tacit reliance upon clues which emerge from one's living in the world in accordance with the myth" (110).

Interestingly, Scarborough argues that his postcritical reflections on myth take us beyond, not only

modernity, but postmodernism, “at least Derrida’s brand of it, [which] is simultaneously committed to the *Timaeus* in terms of its parasitic dependence upon ontological and epistemological dualism and to *Genesis* in terms of its critique of that commitment. Because *Timaeus* is given priority, however, postmodernism tends to skepticism and relativism” (106).

Scarborough recommends Abraham as the guiding image for the emerging postcritical era, as the nomad who leaves Ur of the Chaldees--not knowing where he is going--because of a vague promise of a land flowing with milk and honey and numberless descendants; the Abraham story is an “epistemological allegory” homologous with the P-account of creation in *Genesis*. His journey takes place in the Land of Learning between the Greek epistemic extremes of complete knowledge and complete ignorance where he will find what he is promised “only as he is transformed by the journey itself and only as he is able to create from some merely suitable place something more” (128). Such “knowledge-in-process” is a finite model of knowledge, the meaning of which can be explored by comparing two Jewish thinkers, Derrida and Polanyi (129-131).

Derrida asserts--with his doctrine of undecidability--that meaning in language is “dispersed,” “disseminated,” or “deferred,” as continually postponed; this leaves us with an absence or emptiness of presence. Polanyi asserts--with his analogous doctrine of unspecifiedity--that the grounds of any knowledge claim cannot be completely or exhaustively specified; the qualification is important because it makes clear that there can be a positive increase in the probability of satisfactory knowledge, that the process of perception or knowledge--as “a collecting, a gathering together, an integration of tacit clues in a vectorial from-to thrust toward a relatively more explicit foreground of meaning” (130)--embraces neither presence nor absence, but leads away from dissemination. Scarborough claims that Derrida’s rhetoric indicates that a critique (deconstruction) of the past is more important to him than moving beyond past options (construction); he is still caught in modernity’s epistemic dualisms. Polanyi’s

finite model of knowledge, like Abraham’s search, “delivers us from both the...absolutism and omniscience of the Western philosophical tradition...and the skepticism and relativism of much of Postmodernism” (133). Scarborough journeys with Abraham, Polanyi, and Merleau-Ponty journey--with a finite model of knowledge--through a world informed by the *Genesis* myth.

Scarborough argues admirably for his position and his book is most useful for exploring the nature of myth and its relationship to modernity. There are, however, some questions that arise--questions that are important for Scarborough’s project. One set of such questions concerns what a feminist critique of myth and modernity--and of the *Timaeus* and *Genesis*--would reveal concerning, not only ontology and epistemology, but perhaps more importantly, ethics, politics, and economics. Since both of Scarborough’s grounding myths are part of patriarchal conceptual frameworks, how do they both contribute to oppression, to sexism, racism, classism, and environmental destruction? How do they differ from myths and understandings of deity that liberate the feminine; and how are these other myths part of our collective consciousness? Another set of questions concerns whether we can function unaffected by myth and what sort of awareness arises if we do. What, if anything, is human consciousness before it is influenced by myth and how might we experience such a state? We can fruitfully explore these and other, further kinds of questions about myth and modernity, because Scarborough has given us such a comprehensive guidebook for the terrain.

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## Contributors To This Issue

**Barbara Bennett Baumgarten** is a visual artist and scholar who approaches Polanyi's thought from this dual sensitivity. She holds a Ph. D. from the Graduate Theological Union at Berkeley in Theology/Religion and the Arts and until recently was teaching Anglican Liturgics at the Episcopal Theological School at Claremont. Her new book, *Visual Arts as Theology*, is based on Polanyi's epistemology.

**Un-chol Shin** is Professor of Humanities at Eastern Kentucky University. Polanyi's theory of knowledge describes how subsidiaries are integrated into a focal object and this provides, Shin believes, an epistemological foundation for integrative studies. In addition to his article on this topic in this issue, readers may wish to see Shin's related article "Panofsky, Polanyi, and Intrinsic Meaning" which deals with artistic expressions based on Polanyi's theory of knowledge and appeared in 1990 in the *The Journal of Aesthetic Education* (24:4).

**Gabriella Ujlaki** was a promising young scholar and active leader in the Michael Polanyi Liberal Philosophical Association centered in Budapest. She died unexpectedly in the Spring of 1994. See pages 6 and 7 for reflections on Ujlaki's life and work by Richard Gelwick and Walter Gulick. Ujlaki's essay in this issue was originally a paper at the August, 1991 Centennial Commemorative Conference on Michael Polanyi held in Budapest; it later appeared in *Polanyiana* (2:1/2[1992]: 127-129).

## Electronic Discussion Group

The Polanyi Society supports an electronic discussion group exploring implications of the thought of Michael Polanyi. For those with access to the INTERNET, send a message to "owner-polanyi@sbu.edu" to join the list or to request further information. Communications about the electronic discussion group may also be directed to John V. Apczynski, Department of Theology, St. Bonaventure University, St. Bonaventure, NY 14778-0012 PHONE: (716)375-2298 FAX: (716)375-2389.

## Submissions for Publication

Articles, meeting notices and notes likely to be of interest to persons interested in the thought of Michael Polanyi are welcomed. Review suggestions and book reviews should be sent to Walter Gulick (see addresses listed below). Manuscripts, notices and notes should be sent to Phil Mullins. Manuscripts should be double-spaced type with notes at the end; writers are encouraged to employ simple citations within the text when possible. Use MLA or APA style. Abbreviate frequently cited book titles, particularly books by Polanyi (e.g., *Personal Knowledge* becomes *PK*). Shorter articles (10-15 pages) are preferred, although longer manuscripts (20-24 pages) will be considered.

Manuscripts should include the author's name on a separate page since submissions normally will be sent out for blind review. In addition to the typescript of a manuscript to be reviewed, authors are expected to provide an electronic copy (on either a 5.25" or 3.5" disk) of accepted articles; it is helpful if original submissions are accompanied by a disk. ASCII text as well as most popular IBM word processors are acceptable; MAC text can usually be translated to ASCII. Be sure that disks include all relevant information which may help converting files to Word Perfect or ASCII. Persons with questions or problems associated with producing an electronic copy of manuscripts should phone or write Phil Mullins (816-271-4386). Insofar as possible, *TAD* is willing to work with authors who have special problems producing electronic materials.

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# Polanyi Society Membership

*Tradition and Discovery* is distributed to members of the Polanyi Society. This periodical supercedes a newsletter and earlier mini-journal published (with some gaps) by the Polanyi Society since the mid seventies. The Polanyi Society has members in thirteen different countries though most live in North America and the United Kingdom. The Society includes those formerly affiliated with the Polanyi group centered in the United Kingdom which published *Convivium: The United Kingdom Review of Post-critical Thought*. There are normally two or three issues of *TAD* each year.

The regular annual membership rate for the Polanyi Society is \$20; the student rate is \$12. The membership cycle follows the academic year; subscriptions are due September 1 to Richard Gelwick, University of New England, Biddeford ME 14005. Please make checks payable to the Polanyi Society. Members living outside North America can pay subscriptions by credit card by providing the following information: subscriber's name, the card name, and the card number and expiration date. Credit card subscription applications should be sent to Phil Mullins, Missouri Western State College, St. Joseph, MO 64507.( fax USA 816-271-4574 ). Changes of address and inquiries should be mailed, faxed or e-mailed to Mullins (mullins@griffon.mwsc.edu).

New members must provide the following subscription information: complete mailing address, telephone (work and home), institutional relationship, and e-mail address and/or fax number (if available). Institutional members should identify a department to contact for billing.

The Polanyi Society attempts to maintain a data base identifying persons interested in or working with Polanyi's philosophical writing. New members can contribute to this effort by writing a short description of their particular interests in Polanyi's work and any publications and /or theses/dissertations related to Polanyi's thought. Please provide complete bibliographic information. Those renewing membership are invited to include information on recent work.