

# “Beyond Logic and Beneath Will” – Teaching in a Polanyian Spirit<sup>1</sup>

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**ABSTRACT** Key Words: post-modernism; warfare model; critical ideal; doubt; disincarnate; ambiguity; *Science, Faith and Society*; apprenticeship; fiduciary; unity of knowledge; dialectical, communal, and personal pedagogy.

*Crucial to teaching Polanyi is an appreciation of his post-critical position outside of usual philosophy of science debates. He is especially useful in introducing students to religion & science debates (esp. Science, Faith and Society), because he struggled out of a critical dilemma similar to theirs. Polanyi’s work has unusual moral and historical dimensions; Science, Faith and Society anticipates, in accessible form, many of his later arguments. A class mirroring Polanyian concerns will be communal, dialectical, and personal, in a combination which helps students find their own voice.*

How does one go about teaching students to read Michael Polanyi, and what does the study of Michael Polanyi’s work contribute to our teaching generally? Let me begin addressing these questions by noting that middle age is said to be the time of confession, and I confess that I am a treasonous clerk who, after reading Michael Polanyi devotedly for years, has assigned his writings to my students infrequently, and who has never taught *Personal Knowledge*.

I mention this because I think my ambivalence about teaching Polanyi may be significant, and may be shared by others. My reluctance springs from the hard-won knowledge that Polanyi is not simple and straightforward like most textbook authors; he was writing to his intellectual peers, who are not, for the most part, my students. I am like a traveler who once struggled mightily to pick his way through difficult terrain, and now, having won through to the other side, is loath to go back and encourage others to enter the same dangerous pages. It is much easier to sit on the near side of Polanyi’s work, drawing simplified maps for my students, than to try to lead them safely through *Personal Knowledge*. And so I confess I have not taught a great deal of Polanyi, *per se*.

What I have found, however, is that my own difficult journey through *Personal Knowledge* marked me for life, giving me not so much new knowledge, as new vision, eyes which seemed newly opened so that everything was fresh and startling. I was like those people in Marius von Senden’s *Space and Sight*, who happened to reach adulthood just as surgeons learned how to safely remove cataracts.<sup>2</sup> Blind from birth, they suddenly were enabled to see, and their lives were transformed by light and space they had never known before. No one so changed could hide it, or repress it, or forget it completely, and thus I have been, willy-nilly, a Polanyian who has tried to tell others what it is like to undergo such a metamorphosis of thought. Even when not teaching Polanyi, I have remained a Polanyian teacher.

The two sides of our theme are thus related in a particular way: one may not be able to teach Polanyi in straightforward fashion as one does many subjects for the very reason that what he offers is not a new theory, so much as a new grasp on reality. Or, to use Jerry Gill’s imagery, Polanyi does not offer a new foundation, but in prototypical post-modern form, he gives us a new axis or center around which to organize our understanding, and only subsequently do we acquire a new theoretical understanding.<sup>3</sup> That *Personal*

*Knowledge* may be difficult for undergraduates is no reason not to teach it, of course, but one should always be mindful of what it is that you are trying to do in teaching Polanyi, and how radical that is.

## A Moral and Historical Approach

Polanyi was a polymath, and his work therefore connects to numerous disciplines. For me, his relevance to religion and science discussions has been primary, and others share that preference: three of the most widely used surveys of religion and science all refer to Polanyi's work, and one of those authors, Ian Barbour, has attended several meetings of the Polanyi Society.<sup>4</sup> This "field" of study began to appear and organize itself just a few years after *Personal Knowledge* was published, and he has been widely cited, if sometimes superficially read, by scholars attempting to construct a dialogue between these areas. To place Polanyi within religion-science debates is not to ignore the philosophy of science or epistemology to which he specifically addresses himself, nor is it to suggest that Polanyi presents trenchant comments on contemporary theological debates, but it is rather to relate *to* these issues from a concrete, practical problem in our culture with which students are struggling. Part of the story I tell in these courses is how an appealing and powerfully productive scientific tradition took shape in a peculiar context that set it in opposition to traditional religious perspectives. (Note that it was the context – philosophical, social, religious – that caused the opposition.) This tension reached its height in nineteenth century accounts of the warfare of science and religion (Draper and White), and we normally begin the class with a discussion of this warfare model.<sup>5</sup> Michael Polanyi's critical analysis of this objectivist, "scientism" trajectory in the philosophy of science helps to identify the reasons for misunderstanding and confusion between religion and science (though this was not his purpose), and provides a starting point for fruitful dialogue. This, I have found, is always relevant to my students; they are indifferent, at least initially, to Polanyi's relation to Popper, Feyerabend, Kuhn, Lakatos, or Hanson; they are keenly interested in knowing whether it is possible to be religious any more in this thoroughly scientific age.

Let me try to spell out some of what this means. The students who walk into my classes are remarkably diverse, but they typically fall into two epistemological camps — those who are determined to defend traditional beliefs against all comers by proving the absolute truth of those beliefs (this is a small group), and those who assume that traditional beliefs are not things we can know at all, and are thus wary of any attempt to ground morals, politics, or faith intellectually. Neither group would describe themselves in these words, but they are either absolutists or relativists on matters of knowledge, and it is the strength of Michael Polanyi's work that he explains how both groups, unbeknownst to them, are reacting to the program of critical philosophy, which was implicated in the warfare model just referred to. Naive and unreflective though my students might be, their response to critical culture is absolutely normal, I would argue, and simply the most recent version of the unease that initiated Polanyi's philosophy sixty years ago. Polanyi's own entrance into the problems which would occupy his philosophical life came when he encountered the wave of enthusiasm for planned science in the thirties, and realized with a shock that it was at odds with his most deeply held convictions about the nature of knowledge. He instinctively knew that this conflict was not merely epistemological, but that it was somehow related to values, to bedrock commitments. His early writings and such later pieces as "Beyond Nihilism" (1960) remind us of the thoroughly *moral* protest that Polanyi launched with his inquiry into the grounds of scientific knowledge.<sup>6</sup>

His concern was that western patterns of thought were leading to cultural madness, to a nihilism that would destroy not only the hypocrisies of an unjust social system, but the very foundations of rational thought. Having seen the cultures of central Europe destroyed by such a neurosis, Polanyi wrote with a seriousness and purpose that gives weight to his ideas. He opens up for us, therefore, the possibility of infusing our teaching with a similar moral weight. This “pathological perversion” of moral values took concrete form in Polanyi’s life in fascist and Soviet regimes, but he also saw its appeal to intellectuals in the western democracies. Though the cultural context has changed, we are not immune to the threat of intellectual nihilism in schools of thought guided by scientism or certain forms of post-modernism, or in a society so addicted to technological affluence that it will not question the implications of this addiction.<sup>7</sup> Polanyi was led to re-think the foundations of knowledge not as the conclusion of a long series of philosophical arguments, but as the result of surprise and dismay at the inability of western philosophy and science to answer the political threat of state planning of science. I take it to be a warrant of the genuineness, the trustworthiness of Polanyi’s work that it began in shocked reaction to the intellectual disarray of the west, and I suggest this makes him particularly helpful in teaching students who sense this same problem.

Where my students accept the critical ideal unquestioningly, or reject its implications out of hand, Polanyi entered a forty-year effort to understand the sources of our madness, and to prescribe a cure. He begins *Personal Knowledge*, for example, with a statement of the “objective” ideal, and then asserts that “it goes without saying that no-one – scientists included – looks at the universe this way, whatever lip-service is given to objectivity.”<sup>8</sup> Polanyi then traces (in the second section, “The Growth of Mechanism”) the history of this idea of objectivity, which he notes, “in its massive modern absurdity has almost entirely dominated twentieth-century thinking on science,” and proceeds to reveal its internal contradictions and logical lacunae. He has moved, in the twenty years between his first shock and *Personal Knowledge*, to a clear and confident assessment of the problem and a firm outline of the solution, and my unoriginal suggestion is that he has pioneered a path on which our students will also have to travel, though their route will have to be tailored to their degree of awareness. Reading back over Polanyi’s writings, I think it is appropriate to describe the process he underwent as a conversion, and his texts provide a first-order report on that momentous event. It is not too much to say that as a teacher I am in the business of encouraging my students to undergo a similar conversion.

Now you are perhaps nervous with my language of “converting students,” academic secularists that you are, so let me quickly insist on the appositeness of the metaphor. (Indeed, the antipathy of the academy to the language of conversion is a palpable sign of the malady I am about to describe.) Our students feel uneasy for the same reason that Polanyi’s work is important: our culture is deeply conflicted because it has been led to see its present home as at war with its deepest longings, and nothing short of a “turning around” or “transformation” (root meanings of “conversion”) will enable it to overcome this conflict, and be whole. We are members of a thoroughly scientific culture which makes us comfortable by its attentive ministrations to our physical needs — from Novocain at the dentist’s, to transcontinental air travel, to kiwi fruit in the middle of winter — and by granting us an equally comfortable and predictable mental world, where everything is set out, described and explained with finality. And yet we are also members of a human community whose greatest passions flow from those values which scientific culture ignores: our conviction that we and our loved ones, as individuals, are infinitely, eternally precious; our undeniable encounter with beauty and wonder, when we least expect it; the sure sense that our bodily selves are not mere costumes or spacesuits for our minds, but integrally involved in who we are; the certain grasp we have on our intending, hoping, and believing, as well as our knowing. These two parts of human being, to which we give the twinned names of fact and value, knowing

and being, reason and faith, science and religion, seem to both belong, and yet we cannot understand how to put them together, how to live at peace with each, and the failure produces both sadness and pain.<sup>9</sup>

Polanyi's attempt to overcome this condition is stated in terms of the overcoming of critical by post-critical thought, and early in religion and science classes I elicit from students the ways in which their education and culture are critical, and the ways in which they sense problems therein. Briefly, this critical perspective insists that knowledge is impersonal, skeptical, disincarnate, and explicit. (1) Students have been told to avoid the first person singular in scholarly writing; they learn that *all their personal claims to know something must reference someone else*, “experts” who can be trusted precisely because they do not know them at all (so they can remain “objective” sources), etc. (2) They accept *doubt as the “royal road” to knowledge*, for they have been taught that it is only by ruthlessly discarding all the views handed down to them “by tradition,” views which have not survived the acids of critical doubt, that a residue of pure fact may be found. Descartes' *Discourse on Method* established this advice as philosophical dogma, protected by hedges of mathematical, quantitative clarity and distinctness.<sup>10</sup> They learn, therefore, not to trust themselves or those things on which they have always relied, for these occupy a somewhat hazy pre-articulate realm that is maddeningly difficult to get out into the light – the realm of “beliefs,” “values,” “commitments,” “prejudices,” and “assumptions.” One consequence is an epistemological minimalism, in which the number of things they are prepared to affirm as knowledge becomes drastically reduced to a few atomistic facts about the public world. When knowledge is understood in this way, according to the rule of skepticism, then the more bits of information students can hold clearly and distinctly in consciousness, the smarter they are, the better students they are. So the learning of microeconomics, or art history, or Latin, is largely a matter of “mastering the data,” as we say – giving each doubtless item in the study a specific place in a system from which we can retrieve it on demand. (3) Students also learn that knowledge is a *mental thing, which has little or nothing to do with their bodies*, despite the fact that their bodies are of extraordinary interest to them at this point in life. The dominant model for their mental life is the computer, and the disanalogies of computer equipment to their own bodies only accentuate the disincarnate character of ideas. A corollary is their inability to sense how the natural world, with whom they feel great affinity, has any relation to their feats of knowing, except insofar as it provides objects for mental processing. (4) And finally, my students *assume that knowledge and ambiguity are contradictory terms*, that anything which is worth knowing must be absolutely clear and distinct, able to be explicitly and publicly stated, defined, and analyzed. This becomes their unconscious warrant for derogating the humanities to the status of “arts,” meaning entertainments, and elevating the natural and social sciences with their perceived exactitude. The realization that much of life's pleasure comes from its humanistic side creates exquisite dilemmas, for they must assume that the serious world of work or career should be dedicated to the more effective, predictable – and boring — activities of technocracy.

This view of knowledge survives such dilemmas because it is so reassuring, even comforting in its admirable clarity and simplicity. Everyone knows what it is to have all the elements of mental exercise directly before you, completely present and clear, totally accessible to the bright light which is our mind. A simple algebraic equation or a regular verb conjugation present us with mental tasks that we find comfortably familiar, entirely ‘natural.’ The ambiguities and ambivalences of humanistic disciplines may be fascinating, but students take them as evidence of the inherent instability and uncertainty of these fields. This, with suitable embroidery, describes the attitude which my students seem to have to learning in most of their classes.

Many people instinctively feel the inadequacy of this picture, but Michael Polanyi has helped us to see *why* it is inadequate, and to believe that it can be overcome. Anyone who has studied Polanyi both

recognizes the dilemma under which such students labor, and also recalls his rich resources available for addressing the dilemma. What we gain by reading *Personal Knowledge* and his other works is not primarily a new theory but a new place to stand, from which the history of western thought – even those episodes untouched by Polanyi – sounds different, and so reveals the deficiencies and self-contradictions of the dominant model of knowing.

[Let me remark here in an aside that one of the curious things about the reception of Michael Polanyi among scholars – the prominent role played by theologians and scholars in religious studies – is partially explainable by their location in the culture.<sup>11</sup> Few areas of intellectual life have been marginalized as deliberately by critical thought as the area of religious reflection. The scientific revolution and the modern philosophical project, with their peculiar embodiments in movements such as the Enlightenment, Marxism, and Freudian psychology, assumed that one of the earliest, most visible signs of the success of their work would be the atrophy and eventual disappearance of organized religion. The critical thought opposed by Polanyi, therefore, was understood deep down as a sweeping threat to an approach to the world that western culture not only had endorsed for most of its history, but out of which critical thought itself had arisen. Theologians, or those infected by theology, had been expelled from intellectual conversation, and had been wandering in the wilderness for several generations when our St. John appeared, in the guise of a Michael, calling out to the culture, “Repent!” (Stay with me, now) This is not to say that other areas of culture had not also felt the pinch, but only that the immediate response of religious reflection to Polanyi makes perfect sense. This helps us to see as well why philosophers have had a much more ambivalent response to his work – they were *not* targeted for extinction by critical thought; indeed, they were usually “riding the wave.”]

A careful reading of Polanyian texts also reveals the *sources* of this critical model of knowing in the certain images of Greek philosophy; in late medieval nominalism and its Reformation heirs as they split off faith from reason; in the catastrophic impact that the medium of printed texts had on our sense of *meaning*; in the separation of phenomena into primary and secondary qualities in the seventeenth century;<sup>12</sup> in the mathematical model of knowledge that Galileo and Descartes enshrined; in the positivism that developed in the philosophy of science in the late nineteenth century, and so on. These books, especially *Personal Knowledge*, open up a new perspective on western intellectual history, allowing an archaeology of modern theories of knowledge which both informs us of the assumptions which our students bring to our classes, and gives us an alternative story of a *post-critical* world.<sup>13</sup> Thus Polanyi encourages teaching that is **historical**, rooted in the concrete details of the western philosophical and scientific tradition, rich in its appreciation of our role in an ongoing intellectual adventure.

## Some Particular Classroom Examples

The Polanyian text I have used most often with undergraduates is *Science, Faith, and Society* (1946), whose first two sections, “Science and Reality” and “Authority and Conscience,” present many of the post-positivist perspectives that define Polanyi’s major contribution to the philosophy of science. These perspectives are presented concretely in discussions of the process of discovery, the unspoken premisses upon which science rests, the apprenticeship to which science students must submit, the master-pupil relationship through which personal skills and judgements are shared, and the institutional structures of science which embody these personal values. In most respects the general vision of *Personal Knowledge* is already implied in *Science, Faith, and Society*, allowing one to raise larger epistemological and ontological

issues, while the text's shortness and simplicity permit a straightforward discussion of each part of his argument.<sup>14</sup> I don't feel constrained to teach the whole book, usually giving a light touch to the third and final part, and not even assigning the appendices.

Let me describe a couple of ways I use this text to work on my students' critical assumptions. *Science, Faith and Society* begins with a charming yet somewhat elusive discussion of the paradox that orthodoxy and dissent are always wedded in science, that part of the business of scientific authority is to encourage freedom, that there is a "perpetual *tension between discipline and originality*."<sup>15</sup> This directly counters the naïve assumption that scientists are slavishly obedient to facts, following docilely wherever the Scientific Method may lead them. But it also denies the absolutist and relativist assumptions that knowledge must be complete, absolute, perfect, if it is to deserve the name "knowledge." Polanyi shows how science has made remarkable progress by what we might call "deep guessing," intuitive leaps whose truth is demonstrated only much later through a multitude of unanticipated confirmations. In that calm way of his that is initially infuriating, Polanyi affirms: "Though I deny that truth is demonstrable, I assert that it is knowable, and I have said how."<sup>16</sup> After a good bit of discussion, students usually begin to sense the implications of this new way of talking. If scientific knowledge at any given moment fulfilled the critical requirements of being totally explicit, present before the investigator in its totality, then scientific discovery would be an oxymoron, and scientific progress an illusion. If "absolutism or relativism" were a real, a true dichotomy, then science would lose the internal dynamic which drives it. In such small ways, students can be led to *look at* their assumptions, to query them, to taste an alternative flavor of knowing.

A second lesson from this text that relates to our theme of pedagogy is Polanyi's discussion of *apprenticeship*, by which the premisses of science are acquired by each new generation of scientists. "[A] full initiation into the premisses of science," he writes, "can be gained only by the few who possess the gifts for becoming independent scientists, and they usually achieve it only through close personal association with the intimate views and practice of a distinguished master."<sup>17</sup> It is through this close personal contact between teacher and student that the intuitions, apprehensions, integrations, and choices of the teacher reveal her art of knowing so that the student acquires "a reflection at least" of her "essential visions." Later in *Personal Knowledge*, Polanyi will repeat these comments in his discussion of tradition and authority in science. If knowledge is irreducibly personal, then we gain it from persons in the multiplicity of interactions through which one human being communicates himself or herself to another. Such relationships are crucial to higher levels of learning because it is only through participation in the dynamics of knowing as it happens, in all its temporal, bodily, emotional complexity, that we acquire a sense of the subtleties of perception and judgement that make genuine knowledge possible. We normally do not, of course, conceive of these things as I have described them, but as they appear in the words, gestures, actions, and life of one whom we respect, of whom we want to some degree to emulate. In a day when "distance learning" has become fashionable, so that money and energy is being poured into computer programs and technology that will allow one to "learn" without direct human contact, Polanyi's discussion of the teacher-student *relationship* in knowing is profoundly important.

It is also in *Science, Faith and Society* that Polanyi introduces what he will later call "the *fiduciary element*" in knowing, and through a patient working out of the sources and implications of this assertion, students can be helped to overcome the fact/value dichotomy that critical culture has instilled in them. There are two aspects to this element of reliance, of "trusting in": the first is a reliance on clues for the solution of a problem, as when we construct a theory of a burglar from various night sounds in a house – what Polanyi will later call "the structure of tacit knowing";<sup>18</sup> the second is the intentional act of commitment by which a

scientist submits to the authority of his peers and of the institution of science, what Polanyi will later call “the structure of commitment.”<sup>19</sup> If all acts of knowing, from the most abstract to the most deeply personal, contain at their core this element of faith, of relying on, of trusting, of depending upon that which cannot be exhaustively specified, then the fact/value distinction loses its epistemological and ontological force, and becomes *merely* a distinction, as it properly should be.

Implicit in this last lesson which I draw from *Science, Faith and Society* is a larger one that I find more clearly presented in Polanyi’s later writings, and that is *the unity of knowledge*. I alluded to the *atomistic* character of critical thought earlier, in which students see no overall unity or center to their studies, no wholism that will lead them to good intellectual and spiritual health. Polanyi was positively brazen in defying the wrath of academic critics who insist that knowledge be specialized, and knowers specialists. Coming from a central European humanist tradition which sought wisdom and understanding rather than knowledge, Polanyi moved quite naturally from science into the humanities in order to test and apply his views more widely. If his insight concerning the tacit structure of knowledge was correct, then all human knowing springs from the same ground, and follows the same logic of meaningfulness.<sup>20</sup> This overcoming of critical dualism is the most powerful message of *Personal Knowledge*, and makes real his claim to be moving not toward some new theory, but toward a new way of living and thinking, a post-critical *philosophy*.

But when you have the real thing to read, there is little point in your reading Rutledge on the themes of Polanyi’s thought. What I can do, however, is conclude this paper with even more specific comments about pedagogy that might stimulate thinking and discussion, and I want to thank Jerry Gill, in particular, for suggesting some of these things.<sup>21</sup> From a Polanyian perspective, we can say at a minimum that learning must be dialectical, communal, and personal.

By “*dialectical*,” we simply mean learning that moves as a conversation between people, back and forth, question and answer, giving rise to new questions and answers. Socrates provides the enduring model for such education, and his approach is so well known that we forget its richness, its subtlety, and its difficulty. (We do well to remember that two of the most complex and disturbing of modernity’s critics, Kierkegaard and Nietzsche, both take Socrates as their model.)

For Socrates, the process of searching for truth was at least as important as the answers one found, and this echoes Polanyi’s insistence that knowledge begins in searching out the intimations of reality that we sense subsidiarily, but never have completely: ‘we know more than we can tell.’ It is not difficult then to see the difference between a Polanyian class and the traditional pattern of teaching, such as that so wonderfully described by Charles Dickens in the opening pages of *Hard Times*.<sup>22</sup> There knowledge is a set of facts which an expert --one who possesses great stores of facts-- pours into the empty minds of passive students like water being poured into pitchers. This traditional lecture model has so abstracted knowing from its dynamic, convivial, bodily roots that it seems like ghostly, disembodied ideas are somehow floating from one mind to another. A classroom that got the student involved in his or her search for understanding by a dialectical process of question and answer between professor and student would appear much less orderly, and would seem to move much more haphazardly, even chaotically, yet it would better represent the ways we come to know things.

Beyond simply the fact of dialectical, conversational interchange between professor and student, a successful classroom must also allow for a *communal*, convivial setting in which students feel comfortable

practicing problem-solving, making tentative integrations, venturing judgements before the answer is clear. Such a classroom requires that the professor step down from his or her omniscient perch and allow students room for their imaginations to flourish, and to fail. This is perhaps the most difficult step for most of us, because our training teaches us to *assume* more knowledge, more mastery, than we actually possess – one does not survive graduate seminars by confessing ignorance. By the time we begin teaching, the unspoken rule, “if you don’t know, fake it” is deeply ingrained in our psyches. Students quickly pick up subliminal messages telling them how open we are, how genuine is our request for their comments, how honest we are being about our own perplexities. A communal classroom gives everyone in the class responsibility for bringing joint efforts to a successful conclusion, and allows everyone to participate.

Note that I am not suggesting that a convivial classroom dissolves all differences between professor and student, only that a classroom should strive to imitate community as much as possible, and in such a body, all parts are important; every member has his or her important role to play, such that the professor becomes less a gatekeeper than a midwife, encouraging students to contribute to the joint effort. Classes that occasionally incorporate meals, or that meet in more “liveable” surroundings, such as a student lounge or parlour or the professor’s home, can further this communal, convivial setting even more.

And finally, learning obviously must be *personal* to be Polanyian --that is, we must find ways to bring students to *own* their acts of knowing, to accept responsibility for their judgements, to become confident in their assertions. At the simplest level, writing and speaking assignments can help students to get their thoughts out into the open, on paper or into sound, with their signature or name attached, particularly when these assignments require students not to collect and exposit the views of others, but to think for themselves, even on difficult issues. Encouraging the use of the first person singular *along with* the evidence and reasons they deduce for a particular idea is a simple and yet profoundly important task. I vividly remember my first exposure to Michael Polanyi was in a graduate seminar in which a different student led the discussion each week. I was a divinity student in the midst of doctoral candidates, and my week came to lead the class’s discussion of “Intellectual Passions,” Chapter 6 of *Personal Knowledge*. Though I had thought I was “hot stuff” coming in to the seminar, by the time we got to Chapter 6 I had *no* idea what was going on. But because I was to lead the class, I worked my head off reading and re-reading and trying to interpret that section, and felt, when it was over, that I belonged in some partial sense to this particular community. (Even though Poteat seemed to ignore my ideas, he did not ignore *me*.) In this case, apprenticeship and ownership were united, and genuine learning took place.

In addition to encouraging students to use their personal voice, one can search for reading that subverts the critical model of knowledge. I have found myself drawn in recent years--due, I would argue, to the maturing of my Polanyian instincts – to assigning texts like Annie Dillard’s *Pilgrim at Tinker Creek*, Aldo Leopold’s *Sand County Almanac*, Wendell Berry’s *Home Economics* or *What are People For?*, James Watson’s *Double Helix*, Robert Pirsig’s *Zen and the Art of Motorcycle Maintenance*, and the poems of Pattiann Rogers, rather than simply the dry academic surveys of topics in religion and science. These are books written with a personal grain, with passion, and they therefore show students what it means to look at the world from *somewhere*, rather than nowhere.

Now, how is the dialectical, communal, personal classroom I’m describing different from a typical senior or graduate seminar? In outward form they might appear similar, but my ideal classroom is thoroughly grounded in an approach to knowledge that sees it residing in the members of the class, at least as much as it

resides in books or in the professor. Whether we attempt to convey this approach by way of teaching the ideas and texts of Michael Polanyi himself, or by applying the Polanyian principles I have mentioned to every pedagogical opportunity, we will find ourselves better equipped and directed by his reflections. Our aim is conversion out of critical madness, a healing of insanity, and toward this end we bend the usual elements of education into new configurations, making them subsidiary features of a new awareness within our students. The therapy we attempt is not some kind of emotional rescue as much as it is an intellectual re-orientation, leading students, on our good days, out of the cave of shadows to a fuller confrontation with reality. And on our bad days, we take courage from Michael Polanyi himself and his inspiring words for all teachers, and all learners:

The technique of our redemption is to lose ourselves in the performance of an obligation which we accept, in spite of its appearing on reflection impossible of achievement.<sup>23</sup>

### Endnotes

<sup>1</sup> The phrase in my title is from a poem by ee cummings, no. 157 in his *Collected Poems* (1973): “voices to voices, lip to lip.”

<sup>2</sup> See Annie Dillard, *Pilgrim at Tinker Creek* (NY: Harper & Row Perennial Library, 1985), p. 25.

<sup>3</sup> Gill describes Polanyi this way in Ch. 5 (p. 148ff.) of an unpublished manuscript, *The Tacit Mode: Polanyi’s Post Modern Philosophy*.

<sup>4</sup> I am thinking of Ian Barbour, *Religion and Science* (1997) and its earlier versions; Holmes Rolston, *Science and Religion* (1987) and now out of print; and John F. Haught, *Science and Religion* (1995).

<sup>5</sup> I am referring, of course, to the well-known volumes by John William Draper, *History of the Conflict between Religion and Science* (1874), and Andrew Dickson White’s *A History of the Warfare of Science with Theology in Christendom* (1896). The tale of the rise of the warfare model is told admirably in James R. Moore, *The Post-Darwinian Controversies* (Cambridge, 1979), Part I.

<sup>6</sup> “Beyond Nihilism” is included in *Knowing and Being*, ed. M. Grene (1969). Polanyi discusses the origin of his perplexities in *The Tacit Dimension* (Doubleday Anchor, 1967), pp. 3-4, 56-57, and in the “Background and Prospect” which precedes the text of the 1964 University of Chicago edition of *Science, Faith and Society* (pp. 7-10).

<sup>7</sup> For examples of this kind of scientism, a current mutation of critical philosophy, I usually have students read Richard Dawkins, *The Selfish Gene*, etc., Edward O. Wilson, *On Human Nature*, etc., or Jacques Monod, *Chance and Necessity*.

<sup>8</sup> *Personal Knowledge*, p. 3.

<sup>9</sup> In the history of western thought, of course, all of these paired terms are not precisely equivalent. I do think each points, however, to one important dimension of the split in consciousness that Polanyi is trying to overcome with his paradoxical affirmation of *personal knowledge*.

<sup>10</sup> It is in the fourth section of the *Discourse* that we get the most concise statement of the isolated self, doubting all received arguments, arriving finally at “I think, therefore I am” as the ground of knowledge. See Arthur Wollaston’s Penguin edition (1960), pp. 60-61. Polanyi refers specifically to Descartes’ role in *Personal Knowledge*, pp. 269ff.

<sup>11</sup> As well as, of course, the particular role played by people like Thomas Torrance, Bill Poteat, Charles McCoy, Richard Gelwick, Bob Osborn, and Tom Langford in using his work.

<sup>12</sup> The distinction actually goes back to Democritus, but was popularized by Galileo and Descartes, and especially by Boyle, Locke, and Newton. See *The Encyclopedia of Philosophy*, vol. 6.

<sup>13</sup> This story has often been told; see e.g. Richard Gelwick, *The Way of Discovery* (1977), Harry Prosch, *Michael Polanyi* (1986), Part One; essays by Grene, Pols, and Kuhn in Poteat & Langford, eds., *Intellect and Hope* (1968); Marjorie Grene, *The Knower and the Known* (1966), etc.

<sup>14</sup> In the “Introduction” to *The Tacit Dimension* (1966), Polanyi says “my ideas were first given a systematic form in *Science, Faith and Society* in 1946....In my Gifford Lectures (Aberdeen, 1951-52) I greatly expanded these themes....The result was *Personal Knowledge* (1958).”

<sup>15</sup> *Science, Faith and Society*, p. 16 (italics added).

<sup>16</sup> *Ibid.*, p. 82.

<sup>17</sup> *Ibid.*, p. 43.

<sup>18</sup> *The Tacit Dimension* (1966).

<sup>19</sup> *Personal Knowledge* (1958), pp. 308-315.

<sup>20</sup> It is this particular thread of Polanyi that William Poteat has followed so tenaciously, particularly emphasizing that knowing is an act of the whole mindbody. You should read *Polanyian Meditations* (1985), *A Philosophical Daybook* (1990), and *Recovering the Ground* (1994).

<sup>21</sup> I had the opportunity this summer to read Gill’s manuscript “The Tacit Mode: Michael Polanyi’s Post-Modern Philosophy,” which has been submitted to a publisher. See note 3.

<sup>22</sup> Charles Dickens, *Hard Times* [1854] (Oxford University Press, 1989); see ch. 1 and ch. 2, “Murdering the Innocents.”

<sup>23</sup> *Personal Knowledge*, p. 324.