
Polanyi on Epistemology, Worship, and Theology

Michael Polanyi regarded his contribution to the theory of knowledge as “primarily an enquiry into the nature and justification of scientific knowledge.”¹ Nevertheless, he was aware that what he established in this area “leads on to a wide range of questions outside science.”² This was not merely a possibility which he acknowledged, but an insight into the nature of his epistemology which he pursued in many directions and with a passion. Polanyi’s extra-scientific concerns drew him in many directions. He wrote about politics and economics, about myth and art, about psychology and metaphor, to name but a few. He also wrote about theology and worship; and it is with these themes that I am principally concerned in this article.

Polanyi’s comments on theology and worship represent, undoubtedly, a flawed engagement with the disciplines which take up these subjects as their theme. It is known that Polanyi attended services of Christian worship during periods of his life, but he had no formal training in theology or liturgy. There are insights to be found in Polanyi’s explicit writings in this area, but in order to discern them one must look beyond their obvious limitations and also have some grasp of the epistemological concerns which fund his engagement with theology.

In pursuit of these insights I will offer an exposition of one of the central aspects of Polanyi’s theory of knowledge: his concept of indwelling (and the concomitant concept of articulate systems), followed by an account of how Polanyi applies this to theology and worship. In the second part of the essay, I will offer some critical but substantially constructive comments on Polanyi’s

ideas in order to show some of the ways in which they represent a valuable resource for theologians. I will conclude with some provisional thoughts on the broader ramifications of Polanyi's oeuvre for theology.

The Limits of Articulate Knowledge and Indwelling

By the time Polanyi had turned his attention to philosophy, and the explication and justification of scientific knowledge in particular, he had established an international reputation for research in physical chemistry. It was as a respected practitioner of science that Polanyi spoke, in philosophical terms, of the nature and justification of science. He knew the life of science from within, and it was out of this knowledge that his distinctive theory of knowledge came to expression.³ In lieu of a systematic treatment of Polanyi's theory of knowledge, which is beyond the scope of this essay, I will focus upon just one aspect of his epistemology: "indwelling" and the concomitant concept of the "articulate system." The meaning of these terms will become clear as I proceed to expound what is undoubtedly a crucial aspect of Polanyi's work.

Polanyi asserts that, while science is associated with a vast body of *explicit* knowledge (documented in scientific journals, papers, symposia, texts, etc.), scientific knowledge is not exhausted by such explicit representations. Indeed, Polanyi describes this explicit body of knowledge, vast as it is, as a "highly attenuated summary"⁴ of what is actually known in science. Such a claim may seem puzzling, but Polanyi's reasons for making it, while substantially overlooked, are not obscure.

Science is established, grows, and is transmitted within the context of a community of skilled practitioners. To be recognized as a scientist one must serve one's apprenticeship. It is through the years of undergraduate, postgraduate, and postdoctoral studies that one gradually acquires the skills of the "trade." During this period of training students master a large body of explicit knowledge in their respective chosen scientific disciplines and, in particular, within their specialized fields of research. This "tool-

ing-up” is the indispensable preparation for a career in science. However, the task of the research scientist is not merely to repeat what he or she has learned⁵ but to utilize that training in the pursuit of scientific discovery.

One might say, without fear of contradiction, that any discovery will be facilitated by the scientist’s wealth of scientific knowledge. But to say this is not to explain a scientific discovery. The question is, *How* will that knowledge lead to a discovery? Before the event, a full answer to that question is not possible.⁶ A scientist must possess intimations of a discovery, even in the formulation of a problem. Such expectant anticipations sustain the researcher in the demanding work typically involved in making a breakthrough. One might speak of a scientist’s “foreknowledge” in this regard, but the nature of the process of discovery, which will span a problem’s formulation and its resolution, remains partially indeterminate until a breakthrough is made. The scientist’s “anticipations” of a discovery are clearly crucial in sustaining and directing a research program toward a successful resolution,⁷ but such “foreknowledge” is not a form of knowledge that can be fully articulated.

The issue of incipient discovery is the quintessential case of scientific knowledge which cannot be rendered fully explicit, but there are many others. To be a scientist one must “live the life of science.” A scientist must come to appreciate the values of science, and the ways in which those values are honored within the scientific community. A scientist must also develop an impression of the scope of the scientific problems which exist within their field and a sense of the scale of difficulty associated with any specific scientific problem. To maintain a place in the research community, a scientist must be able to identify problems which are regarded by the community as scientifically important but which will not outface the one who confronts them. In other words, a scientist must be able to venture a sober estimate of whether his or her own skills and imaginative capacities are a match for an envisaged undertaking.

In these aspects of science, as with the indeterminate pro-

cesses which lead to discovery, it is evident that, while it may be possible to say something—and important things—about the knowledge which pertains to them, much of this knowledge is what Polanyi calls “tacit”: it is more than we can tell. Such tacit knowledge is gained from participation within the community of scientific inquiry and is a product of the processes of education, socialization, and enculturation implied in such participation.

Polanyi seeks to substantiate his claims about the tacit element of science by pointing to the difficulties which have been experienced in establishing new scientific communities in areas where there has been no established scientific tradition. He notes that “[r]arely, if ever, was the final acclimatization of science outside Europe achieved, until the government of a country succeeded in including a few scientists from some traditional centre to settle down in their territory and to develop there a new home for scientific life, moulded on their own traditional standards.”⁸ If “science” is a self-contained body of explicit knowledge, this phenomenon would be difficult to explain; but if, as Polanyi claims, a substantial part of scientific knowledge is tacit, the difficulty of transmission can be readily understood.

Tacit knowledge, embedded as it is in communities of practices and the skills of those who inhabit them, can be transmitted only through participation (apprenticeship) within such communities. The body of explicit scientific knowledge cannot be abstracted from the life, beliefs, traditions, mores, and values of the community which sustains it (and out of which the body of explicit knowledge emerged) without divesting it of its comprehensibility and its meaning.⁹

Polanyi refers to this participative knowledge as *indwelt* knowledge. This is not peculiar to science. Indeed, the concept of indwelling is a broad one and occupies a key position in Polanyi’s general epistemology. Indwelt knowledge is knowledge which we have assimilated in such a way that we do not ordinarily think *about* it, but *with* it. So, for example, when we are experienced in using a mouse in operating a computer, we do not pay attention to the plastic object in the palm of our hand, but to the effect of

our manipulation of it on the computer screen. Perhaps the most crucial example of *indwelt* knowledge concerns our own bodies. In most of our waking experiences we are using our bodies to perceive things around us. We do not pay attention to the ways in which we are doing this—for example, the movement of our eyes and the mechanics of focusing—but rather to the knowledge which accrues to us on the basis of such usage. We have become highly skilled in using our bodies in such ways at an early age, and have little cause to question our own competence in this regard. We attend *with* our bodies and are able to do so because we *indwell* them.

Articulate Systems

Polanyi develops the theme of scientific “indwelling” through his concept of “articulate systems.” The term is unfortunate because Polanyi does *not* mean by it “systems which can be articulated,” as one might surmise.¹⁰ The term is also awkward because of the vast diversity of items which he attaches to it. The list includes science¹¹ (and relates to the ideas I have just expounded), as well as an intriguing mix of other items including, for example, a theory,¹² works of art,¹³ a mathematical discovery,¹⁴ morality,¹⁵ a symphony¹⁶ and, as we shall see, religious worship.¹⁷

The function of this term in Polanyi’s epistemology is part of the way he distinguishes between two quite distinct ways of knowing. It is meaningful to say that we have “knowledge of” those things that Polanyi identifies as articulate systems: we can state a theory, recognize a work of art, articulate a moral principle, etc. This is the first way of knowing. However, there is another way of knowing to which Polanyi attaches the term “indwelling.” Because we know the theory, it becomes part of our way of perceiving that to which the theory pertains, and it may facilitate our ability to develop further theories. Our knowledge of a work of art can impact the way in which we look at the world around us, and our knowledge of a moral principle can transform the way in which we understand our place in the world, our relationships and our responsibilities. This is the second way of knowing.

The distinction between the two ways may be explicated as follows: in the first, we focus *upon* the item; in the second, we focus *with* or *through* it. Consider how this analysis might be applied to eyeglasses. We can look *at* a pair of spectacles, perhaps to inspect the lenses for dust; or we can look *through* them. In the latter case the eyeglasses function as an articulate system in that we “indwell” them.¹⁸ We see by looking through them. And in looking *through* the spectacles, we forego the facility to look *at* them; we entrust ourselves to the vision they facilitate.

While we may analyze or evaluate an articulate system, its primary function is to enhance the way in which we perceive and comprehend the world, or some aspect of it.¹⁹ Hence to conceive of an articulate system merely as a body of explicit data is to miss its fundamental function. Polanyi tells us that articulate systems are “the happy dwelling places of the human mind.”²⁰

Worship as an Articulate System

Polanyi’s desire and willingness to engage with religion—and Christian theology in particular—is evidenced in *Personal Knowledge*. In this book, which is regarded as his *magnum opus*, there are two substantial passages which are essentially “theological.”²¹ I will refer to both in the exposition which follows.

Polanyi writes, “Religion, considered as an act of worship, is an indwelling rather than an affirmation.”²² He goes on to say that “God cannot be observed, any more than truth or beauty can be observed. He exists in the sense that He is to be worshipped and obeyed, but not otherwise; not as a fact—any more than truth, beauty or justice exist as facts. All these, like God, are things which can be apprehended only in serving them.”²³ Although there is an inscrutability about this sentence, what is clear is that Polanyi conceives Christian worship as an articulate system. The *primary* concern of worship is not the “facts” or “assertions” contained within it, but the “heuristic vision” which worship confers upon those who indwell or participate in its various forms. Polanyi makes his point acutely when he asserts that

religious worship can say nothing that is true or false. Words of prayer are addressed to God, and while other parts of the service *speak of* God, they are mostly declarations of interpersonal relations—such as the praise of God. Some parts of worship, like the credo, admittedly make theological assertions, and the lessons from the Bible are couched in plainly narrative language. But the accent of the credo lies on the words: ‘I believe’ which emotionally endorse worship, while the extracts from the Bible are not quoted in the course of a Christian religious service in order to convey information, but as starting points for teachings that sustain the faith. All such statements function as subsidiaries to worship.²⁴

For Polanyi the meaning of worship cannot be conceived in terms of creedal statements or doctrinal propositions. Worship is the search for God facilitated by the worshippers’ indwelling of the components of the worship service. The religious service²⁵ is, “a framework of clues which are apt to induce a passionate search for God.”²⁶

For the religious worshipper the components of the service of worship parallel the theoretical, experimental knowledge, etc., which the scientist indwells in seeking to address a new problem. The worshipper indwells the elements which comprise a service of Christian worship as the means for seeking God. “The words of prayer and confession, the actions of the ritual, the lesson, the sermon, the church itself, are the clues of the worshipper’s striving towards God. They guide his feelings of contrition and gratitude and his craving for the divine presence, while keeping him safe from distracting thoughts.”²⁷

Polanyi knew that the pursuit of scientific discovery does not always meet with success. Nevertheless, discoveries *are* made and eventually such discoveries, once they are embraced by the scientific community, are assimilated into the corpus of scientific knowledge and become part of the body of knowledge scientists indwell and through which new problems are conceived and new discoveries sought. It is here that Polanyi discerns a significant

distinction between science and religion.²⁸ For Polanyi the experience of the Christian is unique: “the dwelling of the Christian worshipper within the ritual of divine service differs from any other dwelling within a framework of inherent excellence, by the fact that this dwelling is not enjoyed.”²⁹ He goes on to explain: “By these ritual acts the worshipper accepts the obligation to achieve what he knows to be beyond his own unaided powers and strives towards it in the hope of a merciful visitation from above. The ritual of worship is expressly designed to induce and sustain this state of anguish, surrender and hope.”³⁰ This tension is irresolvable because “[t]he moment a man were to claim that he had arrived and could now happily contemplate his own perfection, he would be thrown back into spiritual emptiness.”³¹ The Christian “inquiry”—the search for God—represents “an eternal, never to be consummated hunch: a heuristic vision which is accepted for the sake of its unresolvable tension.”³²

So, Christian worship is an articulate system that the worshipper comes to indwell. But what justification might people offer for trusting themselves to *this* articulate system? Why attend a Christian service (or, indeed, that of any other religious tradition)? Polanyi is aware that such a decision “may appear merely subjective”³³ and admits that “[i]t cannot be fully defended . . . against this suspicion.”³⁴ Worship is a heuristic vision and stands alongside the great intellectual systems such as mathematics, fiction, and the fine arts. We do not say that they are “true” but we entrust ourselves to them (or withhold our trust) with a greater or lesser degree of confidence. There can be no *absolute* justification for such a decision.

It must be recalled that, for Polanyi, something broadly parallel must be said of a commitment to the scientific community.³⁵ The scientist must operate within the scientific community with its beliefs, practices, conventions, values, authority structures, etc. But no scientist could offer a *scientific* justification for the trust they place in the scientific community.³⁶ Nevertheless, scientists demonstrate their positive personal evaluation of both the integrity and fecundity of the life and work of the scientific

community—and their substantial submission to its authority—by their participation within it or, to borrow Polanyi’s phrase, by their embracing it as “a happy dwelling place of the human mind.”

Although both “science” and “worship” are articulate systems, Polanyi distinguishes between them. He writes, “The acceptance of different kinds of articulate systems as mental dwelling places is arrived at by a process of gradual appreciation, and all these acceptances depend to some extent on the content of relevant experiences.”³⁷ The distinction is to be found in the fact that “the bearing of natural science on facts of experience is much more specific than that of mathematics, religion or the various arts.”³⁸ Polanyi acknowledges this distinction in speaking, on the one hand, of the “verification” of science by experience and, on the other hand, of the “validation” of other articulate systems. “Our personal participation is in general greater in a validation than in a verification. The emotional coefficient of assertion is intensified as we pass from the sciences to the neighbouring domains of thought.”³⁹ But Polanyi is emphatically not reverting to a positivist position with its fact/value dichotomy. His point is *not* that science is an objective, value-free activity dealing with impersonal data in contradistinction to other systems, which are value-laden and subjective.⁴⁰ This is clear from his comment that “both *verification* and *validation* are everywhere an acknowledgment of a commitment.”⁴¹

Polanyi differentiates the ways of knowing associated with science and other systems, but he firmly resists any position which would suggest that these ways are fundamentally discontinuous.⁴² The life of science and the life of religious commitment are both indwellings of articulate systems. The knowledge associated with the respective indwellings is ineffable in the sense that it transcends the forms of articulate expression associated with them.

Criticism

One of the reasons Polanyi developed his epistemology was to confront the flourishing positivistic approaches to the philosophy of science. In engaging this task Polanyi’s knowledge of science

was an obvious strength. The philosopher Marjorie Grene says of Polanyi that he

came to the problem, raised it and grappled with it from within the life of science. It was knowledge in the concrete context of existence, the existence of science and scientists, that he was concerned to vindicate. What resulted was often obscure, sometimes mistaken, and couched in a rhetoric that most professional philosophers find hard to tolerate; but it was a philosophy rooted in reality, neither the clever gymnastics of analysis, nor the prophylactic debate of a philosophy of science based on a grave misconception of, and almost entirely out of contact with its alleged subject matter.⁴³

This grounding in science was also the strength of his constructive proposals, especially in his account of scientific discovery. But, as I mentioned at the outset, Polanyi was aware that his findings had implications beyond science which he clearly felt compelled to explore. The difficulty is that he was inadequately grounded in some of the fields into which he ventured. Grene suggests that this is reflected in his engagement with philosophy, but it is all the more clear in what he writes in regard to theology.

In evaluating the theological aspect of his writings, it is not really appropriate to apply the criteria that one would apply to a scholar within the field because Polanyi was not such. As I attempt to evaluate his work, I want to address two problems which might distract from perceiving his creative insights. The first suggests a problem of inconsistency; the second relates to his methodology.

First, let us consider the problem of inconsistency. Polanyi's concept of indwelling, and its elaboration in his articulate systems, represents a crucial component of his theory of knowledge.⁴⁴ But the way in which he applies this in his writing on theological themes is not consistent with the way in which he applies it in science. The scientist's indwelling of the life of science provides the resources through which new discoveries may be made. When new discoveries are made and acknowledged within

the scientific community, they become integrated into the “scientific canon” and become part of the way in which scientists subsequently seek to resolve new problems. This is the dynamic of the expanding heuristic vision of science. For example, the discovery of the heliocentricity of the solar system, once integrated into Kepler’s attempts to understand planetary motion, became one of the clues which led him to new discoveries relating to the elliptical nature of the movement of the planets. Kepler sought to understand the nature of planetary motion on the basis of his heliocentric convictions (a tacit assumption of his research program). Although he did not focus upon the theory of heliocentricity, he clearly believed that it was true.

However, in Polanyi’s discussion of worship (as an articulate system), the situation is quite different. As I have noted, Polanyi claims that “religious worship can say nothing that is true or false.”⁴⁵ In this claim he includes, for example, the affirmations of the creed and the narratives of the Bible. These things, along with prayer, praise, etc., have nothing to do with truth and falsity, he asserts, because they comprise the subsidiaries of worship which is our search for God.

Polanyi appears to assume that because the worshipper seeks fellowship with God through these things (via the heuristic vision which they collectively provide) they say nothing that is true (or false). This contrasts starkly with his understanding of the nature of subsidiaries in a heuristic vision in science. This distinction, which Polanyi asserts without explanation, represents an inconsistency which detracts from his account of Christian worship.

Second, let us consider his methodology. The scientist’s pursuit of scientific discovery through his indwelling of the articulate system of science is, according to Polanyi, one example (and a very important example) of a fundamental human desire (shared with all intelligent animals) to solve problems and puzzles. In pursuit of a solution to a problem, the scientist experiences tension, then release, relief, and satisfaction when a discovery is made. Religious worship, according to Polanyi, is a further example of this desire, but it is unique in that it is “not enjoyed.”⁴⁶

As I noted above, Christian worship, as a “search for God” is, for Polanyi, “an eternal, never to be consummated hunch: a heuristic vision which is accepted for the sake of its unresolvable tension.”⁴⁷ Indeed, he claims that worship is designed to sustain a state of anguish.⁴⁸ As an articulate system, worship serves to sustain this insoluble tension.

It would be possible to challenge Polanyi at a theological level by suggesting that, in the absence of any reference to the forgiveness and peace of God, and the comfort of the Spirit (themes typically acknowledged in the liturgy and other elements of Christian worship), his understanding of worship is not well balanced and inclines toward stoicism. However, this is not primarily my concern. The point that I want to emphasize here is strictly methodological.

I have noted that one of the profound strengths of Polanyi’s epistemology, as an explication and justification of scientific knowledge, is that it is born out of a deep knowledge of scientific practice. To put it another way, his method is strongly *a posteriori*. What emerges from his discussion of theology and worship is very different. Polanyi does not do justice to Christian worship and demonstrates little familiarity with either historical or contemporary theological ideas relating to the territory upon which he trespasses. His description of worship as “an eternal, never to be consummated hunch”⁴⁹ smacks of the imposition of an *a priori* scheme, derived from his work in scientific epistemology, upon the phenomenon of worship. As such this is a methodological reversal of the approach which he adopts in his treatment of science. The attendant weaknesses are not difficult to identify.

Positive Evaluation

Notwithstanding these and other shortcomings in Polanyi’s writings on the theme of worship and theology, he offers valuable insights into Christian theology and the study of religion in general. The heart of this contribution is to be found in his understanding of indwelling, articulate systems, and his distinction between the two ways of knowing.

Polanyi claims that worship, as an articulate system, is one of “the happy dwelling places of the human mind.”⁵⁰ I would transpose this phrase into “the happy dwelling places of the human person,” as it is embodied persons who indwell the articulate system of worship and not just “minds,” but I will not pursue this point here. I have criticized Polanyi for claiming that “religious worship can say nothing that is true or false,”⁵¹ but his insight—and I think it is a profound insight—is that the elements of worship (readings from the Bible, prayers, confession, creedal affirmation, and other parts of the liturgy) are not the primary focus of those who gather for worship but the means by which the worshippers seek to focus upon God. As such Polanyi may be close to the mark in claiming that even while “parts of the service *speak of God*, they are mostly declarations of interpersonal relations.”⁵²

Consider a service of worship in which a formal liturgy is used. The worshippers are not primarily concerned with the form and content of the liturgy; they use the words of the liturgy to worship God. The liturgy is functionally self-effacing. It exhorts the worshippers to turn to God, and that turning is manifestly embodied in the prayers addressed to God. The liturgy does not invite the worshipper to evaluate the merits of its own form,⁵³ but to use it in the worship of God. The worshipper looks not *at* but *from* the liturgy.

All services of worship have a form, regardless of whether they employ a formal liturgy. It is necessary for a worshipper to gain familiarity with this form in order to fully indwell it, and until this process of familiarization is complete a worshipper’s attention will be distracted from worship to the form of the service. The introduction of a new liturgy invariably causes dissatisfaction among worshippers. This may be, in part, because of theological or aesthetic concerns, but the key issue, whether or not it is recognized as such, is typically one of unfamiliarity. One simply has to *learn* a new liturgy, and until this process is complete the liturgy will be a distraction from the business of worship. We look *from* the liturgy to God, but we can do this only when we indwell the liturgy. The liturgy is an articulate system.

While this may be true of the liturgy, isn't the purpose of reading the Bible in church to establish the meaning of a text? Again, Polanyi is not without justification in saying that "extracts from the Bible are not quoted in the course of a Christian religious service in order to convey information, but as starting points for teachings that sustain the faith."⁵⁴ Contrary to Polanyi, I do not see the "conveying of information" and the "sustaining of faith" as oppositional. Nevertheless, in the context of worship, the principal emphasis of the Bible reading (and the sermon, or homily, which may follow it) is upon the sustaining of faith. Indeed, in the context of a liturgical service, the congregation may be exhorted to "Listen for the Word of God" (or something similar) as a preliminary to a reading from the scriptures.

As Polanyi points out, the worshipper's engagement with God through a service of worship involves all the various elements of that service. Polanyi's distinctive insight here is that what is known in and through the service of worship ought properly to be conceived relationally as an engagement of the worshippers with their God. It is a "vision of God." One may be able to express something of an experience of worship, but ultimately it is a reality which cannot be reduced to the totality of its cognitively rendered, component liturgical parts. Nor will it be possible to offer a full account of how the elements of the service contribute to that reality.

The worshippers do not focus *upon* the components of the worship service but *with* them. This implies that they entrust themselves to the forms of worship in which they participate. This is the nature of dwelling within an articulate system. As the student scientist entrusts himself or herself to the nurture and life of the scientific community, with its beliefs, teachings and practices, so the Christian entrusts himself or herself to the nurture and life of the Christian community (the church), with its beliefs, teachings, and practices. The worship service is an important aspect of the church's life, and in addressing this as a theological theme Polanyi makes an important theological point.

These considerations suggest that a form of worship must, through the integrity, authenticity, and richness of its content,

commend itself to the community of worshippers as a trusted vehicle for worship.⁵⁵ As they entrust themselves to it, the service conditions, to some degree, the worshippers' approach to God. But this will happen only if the worshippers feel that their trust is warranted. Of course, no *absolute* justification for such trust can be presented, but neither can a scientist offer an *absolute* justification for the trust he or she places in the articulate system which is science.

Concluding Considerations

Despite its failings, Polanyi's treatment of worship contains distinctive insights that are worthy of the attention of the theologian.⁵⁶ I have only hinted at some of the ways in which these might be developed. It is intriguing that, even in an area where he was substantially unschooled, Polanyi was able to make a creative contribution on the basis of his broader epistemological insights.

Nevertheless, Polanyi's greatest contribution to theology is not to be found either in his comments on worship or in the other things he says on the themes of theology and religion. Rather it is to be found in the epistemological tools which he has made available to theologians. It is noteworthy that, while Polanyi's writings deal primarily with a philosophy of science and a theory of knowledge, one finds his work cited far more frequently by theologians than by philosophers.⁵⁷ The fecund possibilities of Polanyi's ideas for theology have already been acknowledged in part, but there remains considerable potential for further theological development.

The heart of this potential resides in the fact that what Polanyi says of the service of worship, or liturgy, may be expanded to encompass the many and diverse aspects of the church's life. For Polanyi the life of the church, like the life of science, comprises many communities of believers who engage in a variety of practices (of which communal worship is only one). What the church and individual believers can claim to know—their knowledge of God, or their religious knowledge, more generally—arises, substantially, out of these practices.

One of the underexplored strengths of this insight is its potential to deliver the church from a Cartesianism that would simply identify the knowledge of God with what can be expressed in doctrinal statements and theological discourse. Polanyi's comment that the body of articulate scientific knowledge is a "highly attenuated summary"⁵⁸ of what is actually known in science is paralleled in the relationship between theological formulations and what is actually known of God in the life of the church. This is not to demean theological expression but to recognize that theological expression is inevitably partial—a distillation of what is known within the community of faith.

Polanyi's insights are, in part, reflected in the phrase *lex orandi, lex credendi* (the law of prayer is the law of belief); but his ideas go far beyond this. In his distinction between the two ways of knowing (knowing *that* and knowing *from*), in his understanding of indwelt knowledge and of articulate systems, Polanyi offers rich resources for future theological development.

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NOTES

1. Polanyi, *Personal Knowledge: Towards a Post-Critical Philosophy* (London: Routledge & Kegan Paul, 1958), vii.

2. *Ibid.*, vii.

3. One of Polanyi's deep concerns about the philosophy of science was that it was profoundly out of touch with and detached from scientific practice.

4. Polanyi, *Personal Knowledge*, 171.

5. There is, of course, a place for this in the teaching of science.

6. If the precise relationship between existing knowledge and a new discovery was known it would not, strictly speaking, be a discovery because discovery implies new knowledge.

7. There is no guarantee that a discovery will be made. Some

projects end in an impasse. There are many reasons why a project might fail, and a scientist may well not know why a solution to a problem has not been found.

8. Polanyi, *Personal Knowledge*, 182.

9. As with the playing of a sport, typically there will be explicit rules to guide those who are participants. While such rules are meaningful to those who have a basic understanding of the sport, they will be of little or no help to a person who has never witnessed the playing of the sport and knows nothing of it.

10. At least, they cannot be *fully* articulated.

11. Polanyi, *Personal Knowledge*, 203.

12. *Ibid.*, 195.

13. *Ibid.*, 286.

14. *Ibid.*

15. *Ibid.*

16. *Ibid.*, 195.

17. *Ibid.*, 286.

18. The terminology is awkward, but its significance is clear.

19. Our dwelling within an articulate system may *distort* our view of the world, and the trust we place in it may be revealed as rash and ill-conceived.

20. Polanyi, *Personal Knowledge*, 280.

21. See *ibid.*, 195–202 and 279–286. Both passages have a theological flavor in that Polanyi explores within them the significance of his own epistemological insights in the realm of religion. It is evident that Polanyi has the Christian faith in mind in much of what he writes although his intentions are somewhat imprecise. One of the difficulties of handling the religious aspect of Polanyi's writings is that it is often less than clear whether Polanyi's reference to elements of Christian practice implies that he is consciously engaging with Christian theology and practice or whether he just happens to be referring to the particulars of Christian religion (perhaps because he had some familiarity with them) in order to make a generic point about religious knowledge. This is a genuine weakness in Polanyi's contribution in this area, although it is not a factor which bulks large in the present

discussion.

22. *Ibid.*, 279.

23. *Ibid.*

24. *Ibid.*, 281 Polanyi's emphasis.

25. Presumably Polanyi is referring to congregational worship.

26. Polanyi, *Personal Knowledge*, 282

27. *Ibid.*, 281. It is arguable whether all the elements of a church service are always effective in keeping the worshipper safe from distracting thoughts!

28. Here Polanyi has the *Christian* worshipper in mind.

29. Polanyi, *Personal Knowledge*, 198.

30. *Ibid.*, 198.

31. *Ibid.*

32. *Ibid.*, 199.

33. *Ibid.*, 201.

34. *Ibid.*

35. The obvious difference is that, while there are multiple paradigms of religious indwelling (comprising the great world religions), there is, essentially, only one modern scientific paradigm.

36. At the very least, it must be acknowledged that any attempt to offer a general, global justification for modern science must fall far short of the standards of proof set forth in any positivistic or objectivist philosophy.

37. Polanyi, *Personal Knowledge*, 202. Here Polanyi is acknowledging the significance of empirical data.

38. *Ibid.*, 202.

39. *Ibid.*

40. Polanyi's epistemology represents an emphatic rejection of any such fact/value dichotomy.

41. Polanyi, *Personal Knowledge*, 202.

42. This would be a non-negotiable component of the positivist creed.

43. Grene, "Tacit Knowing: Grounds for a Revolution in Philosophy." *Journal of the British Society for Phenomenology* 8,

no. 3 (1977): 167–68.

44. This is intrinsically bound up with his theory of tacit knowledge, of which it is a part.

45. Polanyi, *Personal Knowledge*, 281.

46. See *ibid.*, 198.

47. *Ibid.*, 199.

48. See *ibid.*, 198. It appears that Polanyi is referring, in a somewhat stumbling way, to the Christian teaching that human beings stand in ongoing need of the grace of God.

49. *Ibid.*, 199.

50. *Ibid.*, 280.

51. *Ibid.*, 281.

52. *Ibid.*

53. This is the professional task of the liturgist.

54. Polanyi, *Personal Knowledge*, 281.

55. There is also a generational dimension to this. Worshipers will typically bring their children to the worship service, nurturing in them a trusting disposition toward it.

56. I acknowledge a modification of my own evaluation of Polanyi's contribution to this topic. See Clark, *Divine Revelation and Human Practice: Responsive and Imaginative Participation* (Eugene, OR: Cascade, 2008), 137–144.

57. His ideas are cited in the work of theologians Jeremy Begbie, David Bosch, Avery Dulles, Langdon Gilkey, Colin Gunton, Trevor Hart, Thomas Langford, Andrew Louth, John Macquarrie, Alister McGrath, Jürgen Moltmann, Lesslie Newbigin, Ronald Thiemann, Thomas Torrance, and Kevin Vanhoozer, to mention only some.

58. Polanyi, *Personal Knowledge*, 171.