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PREFAE

Another Developmental Stage

In the Writhe Of Thought On Polanyi

The abundance and richness of thought on Michael Polanyi's philosophy continues to grow. In this issue we focus on two reviews, one on William H. Poteat's Polanyi's Methodological...
POLANYI SPONSORED JOURNAL ON ULTIMATE REALITY, PUBLISHES ARTICLE BY POLANYI. In 1975, Michael Polanyi accepted an invitation to be a co-editor of *Ultimate Reality and Meaning*. The first issue appeared in 1979. Recognizing its connection with Polanyi, the Winter 1986 issue presented WALTER POLANYI'S paper "Michael Polanyi's Theory of Meaning and Reality. Prolegomenon to Exploiting Polanyi's Resources on Ultimate Reality and Meaning." Tibor Horvath, editor of *Ultimate Reality and Meaning*, in a preface to Quick's paper recounts Polanyi's association with the periodical and states an intent to publish more articles on Polanyi's thought.

INTERDISCIPLINARY STUDY, UNCHOL-SHIN, Department of Humanities, Eastern Kentucky University presented a paper on "The Structure of Interdisciplinary Knowledge: A Polanyian View" to the Association for Integrative Studies. Unchol-Shin analyzes major conceptual models of interdisciplinary study and shows the need for Polanyi's epistemology to understand how disciplinary wholes are integrated into interdisciplinary wholes.


PHYSICS AND THEOLOGY. W. JIM Heathcote, Physics Dept., New Jersey Institute of Technology is combining his training in physics with studies in theology. Recently he was a Visiting Scholar at Louisville Presbyterian Theological Seminary working with Harold Niewieck. He has published many articles on science and theology applying Polanyi's concepts. One of his most recent articles is in "The Creative Dialogue Between Human Intelligibility and Reality - Relational Aspects of Natural Science and Theology," The Asbury Theological Journal, Fall, 1986.

SOCIAL SCIENCE, KURK AND POLANYI. Douglas Ford, 020 Avon Ct, Dixon, CA 95620 has just completed a M.A. thesis in social science at California State University at Sacramento in which he examines Polanyi's influence on social science. He concludes that Polanyi's direct influence has been slight but that through "Kuhn's unintentional populism and vulgarization" of Polanyi's ideas, the influence has been wide. He also shows how Polanyi's philosophy might provide a missing element in the epistemic interactionist perspective in sociology. Ford also did extensive biographical and bibliographical work that will be helpful to others.
'Intuitions of the Inexpressible'—William Poteat's Polyanian Meditations

David W. Rutledge, Furman University

This paper has two purposes: to help the uninitiated reader make his or her way into the difficult text of William Poteat's Polyanian Meditations, and to thereby further the discussion with Poteat of what a post-critical logic is, and what its importance might be for our intellectual life. I will begin with an attempt to concentrate on the first of these aims, but there can be no rigid separation between the two, for to learn how to read such a book takes one quite far in understanding what it is about.

What we need most, I suspect, is simply to read the book—read it again, or for the first time, with care and enough skepticism to argue with Poteat through his pages. Polyanian Meditations is written to work on its readers, to engage them in the author's search as fellow travellers, interlocutors in what he calls "this long colloquy" (lx). To talk about such a book runs the risk of missing its chief reward, which is undergoing an "Orphic dismemberment" of our hypercritical, objectifying, worn-out modern brains. This is not an entirely pleasant experience, as you might imagine, but it is necessary. To use a metaphor: one understands what "health" is not by reading an anatomy textbook, but by experiencing an illness or injury, and then recovering. To think profitably about "logic" in our Cartesian setting is to undertake therapy with one's own mind. My account of the Meditations should be clear, but to the extent that it reflects your mental cramping and uncramping, it distorts what I take to be Poteat's intent. That intent is nothing less than "reimagining what it means to be a human being," beyond the despairing bewilderment of "the old modern age." So "Read the book."

I am not, however, entirely unsympathetic or unconcerned with the difficulties of reading this particular text, so I will offer such help as I can, while asking you not to forget that the book is designedly intractable in important ways, and its message demands that the reading of it be not painless.

1.

In the Prologue (I-10) Poteat traces the thirty-odd year history of his struggle to understand and extend the insights of Michael Polanyi, particularly those expressed in Personal Knowledge (1958). The motive behind this commitment was quite simply that in Polanyi's work Poteat saw the possibility of "way out of the madness, the "dissociation of spirit," the radical de-humanizing of our modern intellectuality with which he had already been struggling. In order to begin, we can compress and condense a complex story into a sketch of the "critical ideal," which can be seen in the way our culture courts insanity through a blind allegiance to the view of knowledge and reality that was refined in the period from Descartes to Kant, and which is described elsewhere by Poteat as follows:

"...it is the perennial temptation of critical thought to demand total explicitness in all things, to bring all background into foreground, to dissolve the tension between the focal and the subsidiary by making everything focal, to dilute the temporal and intentional thickness of perception, to de-humanize thought, to lighten every shadowy place, to dig up and aerate the roots of our being, to make all interiors exterior, to instigate all reflection from time and space, to disintegrate mind, to define knowledge as that which can be grasped by thought in an absolutely lucid "moment" without temporal extension, to flatten all epistemic hierarchy, to homogenize all logical horizontality; in short, the temptation of enlightenment is to doubt all our previous certainties and to ground our knowledge strictly upon clarity and distinctness in the present."

While Poteat assigns Descartes and the Cartesianesque responsibility for giving primary impetus to this vision (esp. 252-254), and offers a brief historical sketch of how the linear perspectiveism of the Renaissance shaped our western picture of sight (58), he is not interested here in an exhaustive account of how the critical temper developed and spread over the last four hundred years. What he evokes in the Meditations is the spirit of critical thought that is residually active in our culture, unknown to most of us. He notes, however, its long association with the work of Pascal and Descartes, Kierkegaard, Merleau-Ponty, Wittgenstein, and Hannah Arendt (2), which gives some sense of the intellectual tradition from which he launches his critique. Further, Poteat candidly acknowledges that his approach will irritate segments of the professoriat:

"I am fully aware of the presumption I exhibit and of the risks I run in proposing to develop this line of argument [contrasting the conception of reality of classical antiquity with that propagated in biblical modes of thought]. The dilemma seems to be that those possessed of the linguistic skills and the historical perspectives that might enable them to do this are likely to be overwhelmed by a sense of the complexity of things with which their training burdens them and are therefore intimidated into silence on such large issues. (102)

Poteat overcomes this hesitation both because his concern is not historical ("my text will be the models that I find in my own imagination..." [103]) and because the presuppositions of Western academia regarding "knowledge" have been so shaped by the critical ideal that a challenge to its inner coherence will be cut off at once and granted the case against the charge of "antiquarian" and "philosophical facts". Without surrendering intellectual rigor in the least, Poteat carefully avoids entering a debate over "the Enlightenment" in which all terms have been defined exclusively by his adversary. He might think of Kierkegaard's critique of Hegel or Polanyi's revision of philosophy of science, as analogous examples of this extra-territorial posture.

Though it was this same critical spirit which Polanyi addressed in Personal Knowledge, particularly as it had distorted our vision of science and its achievements, Poteat makes it clear that the Meditations are "not a contribution to Polanyan scholarship and interpretation," but "an attempt to think out of myself, under the influence of new deeply interiorized Polanyan motifs, about matters nowhere dealt with as such in Personal Knowledge" (8). The model Poteat gives of using the work of a major figure as "a point of departure" is Husserli's Cartesian Meditations, to which his meditations are a conscious counterpoint (8). Aside from the Husserlian allusion, Poteat adopts the title "meditation" because it seems apposite to his "reflective and intuitive" style, as his thinking "has circled, doubled back, been dialectical and agnostic" way (9). I would add that the term seems appropriate as well for the frequent personal examples Poteat uses, and for the attentiveness and tenacity with which he pursues his subject. If in meditation "purity of heart is to will one thing," then this is true of Poteat's meditation.

So from Michael Polanyi's "massive literature...begging to be deciphered," Poteat begins a search for a new view of logic, and does so with careful attention to the manner in which such a search must be conducted, and in which it must be expressed. A note is now in order regarding the various literary strategies which the reader will encounter in the Meditations.

Straightforwardly described, Polyanian Meditations is a sustained reflection on "logic" and related concepts, divided rather arbitrarily into a Prologue and seventeen sections. The book has a minimalist form: there are no "Contents" page, and each of the sections are not titled or divided, with the exception of the four-page passage at the end of section 3 labeled "Divertissement" (45-49).
...I claim that language--our first formal system--has the sinews of our bodies, which had them first; that the grammar, the syntax, the ingenuity and choreography of our rhetorical interaction with the world, the meaning, the semantic and metaphorical intentionality of our language are preformed in that of our prelingual mindbody being in the world, which is their condition of possibility.

...It is you, and I, moving out of our mindbody integrity, who interpersonally and convivially shape form out of the inherited materials at hand and, in speaking and hearing, endorse and uphold the meaning, sense, and sentiment of clear exposition and def philosophical dialectic (9, 50, 99-103, 124-125, 133-136, 174-175, 229-230, etc.). These are the only most obvious of the book's stylistic techniques.

And these devices, or motifs, are not simply used serially, or as elements in a tightly structured whole, but are all employed throughout the work, as Poteat goes back and forth, crisscrossing his subject from different directions. The overall effect is overwhelming, certainly at first.

Though one does become more acclimated to this text, particularly in its last half, what is most needed is to realize that learning to read this book is a first and major step in appreciating Poteat's argument. In his own introduction to Intellect and Mind, he notes a need for constant attention to the epistemology of our restless age, and in the Meditations he tells the reader of what she must keep in mind if her reading is to be fruitful (the Prologue, 45-49, 154-157, and especially in the Notes: 293n.2; 294.5.7; 295n.10, 12, 14a; 296n.1.3; 296n.2). He also has demonstrated an able ear for the subtleties of other writers, their foibles and unvoiced assumptions. We are therefore dealing with a man who is convinced that understanding that is, on a deep level, on learning the content, not on how to read the text, but how to read again. I am not interested in or able to extract a "theory of reading" from Poteat's work, though it seems to me that the reader is the author, and that understanding, in his thinking (it is forgotten that reading is itself, after all, a complex, intentional, exegetical act, absolutely every time it is performed) 164. What will I do is boldly claim that there are lessons here for the reader of Pomegranate Meditations.

The first is that Poteat's endeavor is to free readers from a picture of rationalization that estranges them from the deepest levels of their being in this world, and to carry out this task he must use tools of language and intellectual discourse that are already thoroughly infected by the sickness he describes. It is like talking to a person with a plague in his ear; no matter how interested he is in what you are saying, he simply cannot hear you. Our world is so steeped in language, so as he puts it, "the sounds so strange, that is why our head sometimes aches after a session in the Meditations. He deliberately lays aside the simple, clearly well-organized prose on which we have been nurtured, to work with us from the new picture of knowledge in which that prose is embedded. Accepting this disarray, this dissemblance, learning to obey the new voices he hears in this text, is where we must begin.

The second lesson is less easily put. It is that in reading we enter a world, not by a window, but through our body and mind together, unified, as psychosoma. The world of meaning that reading opens to us rises within our mindbody as we mindbody engage with others in enduing and unfolding the meaning and sense of our reading, maintaining complete control over the modalities of sense that arise from that text. To the degree that you address the text through you, that is, by being with full power of response in its address, and by then hearing that address, you have become part of a conversational setting in which learning and knowing can occur, indeed are practically unavoidable. In Poteat's more compelling language:

II.

Accepting now, at least generally, the necessity of the unusual form and style of Pomegranate Meditations, we may focus on its content. The book is a search for a satisfactory logic, and here Poteat's polemical instincts seem absolutely sound. What element of the excessively rationalist tradition besought us by critical philosophy has a greater mystique than "logic" and the "logical"? For many readers, it will be easy to remember our entrance into our first "logical" class as a kind of initiation into legible philosophy, as we walked into the sacred shrine, where at last the secret core of all our understanding would be revealed. It seemed an arcane realm, ascetic, pure as a crystal, holding the promise of being the magic key that would unlock all conceptual doors, the final calculus by which all propositions could be judged. ("...Plato...seems to believe that nous-at least "essentially logical"")--will have untrammeled access to the very form of things."

Logic itself was usually enough to dissipate this misty vision, but it has not been eradicated (as a survey of the Encyclopedia of Philosophy shows)10. Poteat is not suggesting, of course, that there is no legitimate place within human understanding for the traditional sense of logic, as the principles of reasoning, in order to establish the validity of arguments 266. The Meditations steadily argue, however, the conclusion of this philosophical sub-field to the status of the dominant model of knowing. The crisis of our traditional view of "logic" are to see it as non-temporal, as necessarily constrained within a visual model of experience, and as disincarnate. The static, visual mode dominates the epistemological exposition of the (temporally) logical structure of the conditions of knowledge, conceived as an established fact.
no significant deviation from the model of the paradigm knower as the nature, rational, lucid, "objective," ahistorical man...produced by Descartes,... the epistemological subject under investigation in both Hume and Kant has, in their accounts, no living body with a place in the world, has arrived at the present moment of inquiry bearing with him no historical past, and therefore his contemporary mindbodily reality makes no appearance. (175)

By engaging a two-pronged methodology of phenomenology and of etymology (21-24), Poteat uncovers the rootlessness of all of his knowings (the "hanging together" of things) in the living reality of a mind-body (or embodied mind) engaged with the world. Logic is rooted in the pre-formal realities of the human person. When he then asks why this manifest fact of our embeddedness should seem so odd, he discovers that the dependence of our culture on a visual picture of logic has excluded such mindbodily experience from accounts of knowing. This leads him to uncover an alternative picture rooted in auditory faculties which seems more apposite, more fitting to the phenomenologically educed experience of sense-making than is the visual picture. Tracing these pictures, Poteat then clarifies their Greek (visual) and Hebrew (auditory) roots.

To the static, disembodied, timeless visual picture of Platonist/Aristotelian provenance, he contrasts the dynamic, temporal, oral/aural model of reality arising from the Hebrew encounter with Yahweh:

The dhabbar of God then does not replicate the particular logoi of an eternal and finite text, and by so doing, conform to...what is eternally true. His dhabbar, even as do yours and mine, "makes a world appear." (119)

I have taken the time to do this unravelling in order to show decisively what is missing in the Greek imagination: a paradigmatic speaker whose speech makes a world appear, and who is personal in a sense absolutely unassessable to any other. So, the dhabbar is always paradigmatically the speaking word of God—even when it is in a text—it remains alive, lively in an oral/aural context. (122-123)

Returning to Polanyi, Poteat shows how Polanyi's thinking was implicitly informed by this biblical model, and this resource, this dynamic picture of spoken meaning, was what enabled him to escape the distortions of Cartesianism and talk so naturally of personal knowledge.

After a penetrating analysis of religious beliefs in Personal Knowledge (concluding that this is very bad Yahweh 'theology'), Poteat neatly summarizes Polanyi's central claims:

I want therefore to suggest that the decisive motifs of his thought...are embodied in images of the personal, of knowing as obedience and responsibility, of the fiduciary mode of our being mindbodily in the world, of our calling, and of the inescapability of what is real. (136)

Much of the remainder of the book pursues these various themes, though out of Poteat's reflection, rather than Polanyi's. Here we should note that the entire work of Merleau-Ponty (his phenomenological study of the body and of language) and of the later Wittgenstein (the centrality of language as speech acts) lies beneath Poteat's book as a sub-text, as a conversational partner in his own highly individual efforts (see, for example, 200). The alert reader will hear echoes, particularly of Wittgenstein, throughout the Meditations, and Poteat himself frequently alludes to this. But these are Polanyian meditations, and if I hear correctly, it is to Polanyi's steady focus on the human person, on the creative agent of language and action, that Poteat must readily respond. In bringing together phenomenology's revolutionary revisioning of the body in terms of its intentionality, and Wittgenstein's radical break with traditional ways of philosophizing "in the mind," Poteat acquires philosophical resources (techniques and forms of reflection) that were unavailable to Michael Polanyi. Careful attention to his own experience, and familiarity with the theological and philosophical traditions in which he is gladly about these other thinkers, yields a strikingly new species of reflection. While the "metaphorical intentionalities" of all those people (and others as well) are present in his language, Poteat speaks in a distinctly new voice, and enables us to see far beyond the giants on whose shoulders he sits. (11)

Let us look at some of the ways in which Poteat revisits this discerning knower. Note well that he is not building a new epistemological theory in the reflectionist mold of that term, for "theory" has traditionally been used in service of the belief in "exhaustive formalization" of reason, the tyrannical insistence that a simple essence of every act of knowing be found and explicitly articulated before we grant it the status of "knowledge." Such a program must logically fail for Poteat in that it artificially detaches the theoretical realm of reason from the practical, our consideration from our doing (246-250). He asserts in the Prologue that:

...it is my view that rationality...and logic...is more deeply and ubiquitously, though inexplicitly, embodied in our ordinary thinking and doing than we are likely to notice. We fail to notice this because when called upon to reflect upon these facts we are likely to do so in the light of models...formed by critical philosophy... (9)

Thus logic is embedded in ordinary thinking and doing which we ignore under the pressure of the critical picture. He continues:

I argue therefore that...formalized rationality—mathematics and formal logic—derives from and remains parasitical upon the "hanging togetherness" and "sense-making" of mindbodily rootedness in the as yet unreflected world and in our unreflected "thinking" and doings in that world. (9,10)

Here he claims that the "highest" (most abstract) types of reflection derive from pre-reflective levels of the person, and that this pre-reflective level involves the body and activity, as well as other things. And finally:

...I claim that language—our first formal system—has the snout of our bodies, which had them first...I contend therefore that when we speak of our world as an object or of our bodies as more objects in the world, we use and can only use language generated out of a "reality" more archaic...than...more objects in the world, namely our lived and lively being in the world prior to speech... (9-10)

Speech as a human activity is here included in Poteat's revisiting. If we grant that activities involve duration, then we have logic described in terms of the ordinary unconscious (pre-reflective) activities of people who have bodies and talk. Now my reduction of Poteat's rich prose is destructive of much of his meaning, of course, but it does spotlight one crucial feature of what he is doing: he is returning us to the obvious, the evident, the given world. Over and over he expresses his exasperation at having to work so hard to say what should be obvious, were our understanding not bewitched by the Cartesian picture of logic (43, 174, 189, 246, 248, 250-252, 252, etc.). Reflection is capable of rendering a more faithful account of our experiences of sense-giving and sense-reading, when the "ink" of discarnate thinking in us is released. This results not in a new theory, but in a mental homecoming, in which we "know the place for the first time":

In a sense nothing has changed; everything remains essentially the same. We may go on talking as we pretty much always have...the world remains pretty much what we have always considered it to be...what a challenging thought it is to think that we are incarnate beings, irreducibly carnal spirits, actually existent mindbodily persons! (166)
Let us focus briefly on three features of Poteat's post-critical logic, beginning with its temporality. The hallmark of the visual picture that underlies the critical tradition is that the perceptual moment is, ideally depicted, instantaneous. It is this timelessness which makes possible the analytic power of the visual model of knowledge, for it excludes the possibility of the objects of cognitive experience changing while we investigate them. Experience, however phenomenologically understood, shows that in audition we cannot perceive temporality; it is part of the very form of hearing. This unavoidable fact of our sensormum is demonstrated by Poteat in an analysis of the first notes of J.S. Bach's First Prelude in C (74, 82, 99, 199, 265).

Clearly the notes "come to pass" in time rather than merely existing as simultaneously co-present in a dead slice of (visual) space. To such an extent they are dynamic as opposed to static...(82)

It is then not too much to suggest that the model that governs Polanyi's use...is a musical one: as in the Bach Prelude the temporal sequence of heard notes C, E, G, C/E, G, C is one in which the logic of melody itself demands that the second C extends for me the E, G that follow it and retrains for me the C, E, G that precede it. If we did not hear this dynamic pretension and retension quite simply, there could be no such thing as music. (92)

Though Poteat probes various details of this musical analogy (as to the necessity or contingency of relationship between the heard notes, etc.), the point is the obvious one: if a melody "hangs together," it has a "sense," its parts have a "connectedness" with one another; that is, a melody has a "whole," and that logic is inherently temporal. This provides us, then, with another picture of rationality besides the visual picture, and it is one which is quite capable of sustaining the usual ontological, epistemological and philosophical terms in logic, such as "form," "content," "whole," "integrity," etc. (90). There is no compulsion, then, on the basis of this analysis of experience, to restrict our reflections on logic to a visual model; that have done so is a matter of history, not of eternal necessity. This treatment, coupled with Poteat's more historically oriented examination of Greek and Hebrew models of "word," opens up an avenue by which the Cartesian view of reason can be abandoned, not as "wrong," but as fused in its pretensions to exclusively represent "the way we know things."

A further feature of this post-critical logic that bears comment is its insistence that our formalizations (from mathematics to ordinary speech) are rooted in our bodies, pure and simple. In a long and beautifully evocative passage (22-23), Poteat traces the "biography" of his mindbodily unity to the archaic forms of measured time that were present in his foetal body even before it "moved for the first time in my mother's womb," forms of measured time that emerge through his small body, by his mother's beating heart. These were the forms that eventually gave rise to his entering the world of "the beating rhythm of parental and hence meaningful sound." These forms, he concludes, "are for me, even still for a conscious person, temporally enmeshed in a mindbodily sense of a convivial order, the only possible source of the "ordinances" of experience that we term "logic."

We can best summarize these central elements of Poteat's picture in the way he does, by repeating the "formula" again ("even to the point of incantation"): The picture of the knower's situation is therefore shot through with time, history, place, and intention. He bears within him a past and therefore both the history and contemporary temporal density of his own mindbodily culture, his history, his "merely" animal preverbal and convivial infancy and childhood are co-present with his contemporary feats of rational judgement...providing real traction in a real world. (175)

This paper has intended to interest you in the scope and novelty of the Meditations, while also enabling a bit your engagement into its meaning, in a manner that might bring a connection to many of the many themes that Poteat takes up, nor is it a thorough analysis of his central motifs. In order to further the discussion, however, I do want to point to a few of the things that struck me as I read.

The most decisive step in separating Polanyi from philosophical discussions that are still within the Cartesian picture is to see that the meaning of what he
written lies in the language he used, not in the "concepts" or "ideas" he introduced. Though Poteat is aware of and occasionally uses terms like "tact," "hierarchical levels," "emergence" or "connotative power," he deals with these only as revelatory of the intentionalities of Papai's speech, as indicating a new way of viewing reality. One only has to compare the Meditations with Harry Prosh's recently published study of Polanyi to see and feel the difference, not only of depth, but of fundamental difference. Perhaps this simply means Polanyi has described a new way of "the linguistic turn" of modern philosophy, but it portends for me that fruitfully working out the consequences of Polanyi's thought will follow the general direction in which Poteat has persued.

The mutually accrediting character of our speaking to and hearing another person, as we own our words and theirs, is explored in Poteat's somewhat difficult detail that the charges of "irrationalism" frequently thrown at Polanyi now seem not so much sound or even correct. The only unambiguous and uncharacteristic difficulty (which is the only kind there is in traditional canons) we can conceive is an eternal stability, beyond the temporal order. As our fundamentally temporal mindbody context makes such a certainty humanly impossible, then our everyday sense of "sureness" must adhere in something other than "ideas." Poteat places it in the convivial order of language, where, "mutually upholding the world that in our speaking we have made--a ground is established upon which, while this continues so, no relativizing skepticism can get a foothold." (162).

He also makes this same point in discussing Polanyi's use of "fiducial" as our "relying on" a given world of meaning which we appropriate as our own.

"... our very being in the world is fiducial in structure. Our mindbody being is fiducially fiducial because to be, or know any given thing at one moment and on one logical level, we have to rely upon some temporal antecedent moment and logically antecedent level." (139-140)

The originating model for such reliance in our culture is the hearing, covenancing response of the person to the dhabar of God (140). This is the ultimate reliance of a person who expresses meaning through speech: knowledge is acknowledged ("doken ish dakken").

The two questions arising concern Poteat's etymological method. The first is relatively minor, because extrinsic to Poteat's thought and to his use of this method, namely, the debates among professional Hebraists as to the legitimacy of Thorlie's conclusions regarding inbrow culture and thought, based on a particular analysis of certain words. Only because the Hebraic model is so important to Poteat's case, and is based so heavily on Boman, do I suggest that the countervailing views of Boman and others need to be examined. Note that Poteat is aware of this type of professional objection, and that to reduce his text to academically unobjectionable remarks would render it sterile and not worth reading (107-103). I note also, however, that he is careful to remark where legitimate questions arise, and is highly responsible in dealing with such, though his strategy is usually to look for the picture from such objections or questions are launched. Often they will be seen to have critical presuppositions which, of course, severely weaken the strength of their case. With this in mind, then, let me move from the extrinsic, scholarly questioning of etymological method to one based on Poteat's own post-critical grounds.

Poteat relies a great deal on Eric Partridge's book, Origins: A Short Etymological Dictionary of Modern English, for the resources with which he treats the linguistic setting of logic. (21, 234, n.4). Now this struck me as peculiar, given the attempt, not only in an etymological dictionary to show on the dynamic of linguistic utterances (the "metaphorical intentionalities" of words), he is depending on an approach to language which fixes meaning in roots, in specifiable, fixed entities, meaning in logics, rather than finding meaning in dynamic connections between human speakers. Granted, there is a "field" of shades of meaning in the various senses which Partridge refers to (e.g., "contemporary to be, to touch with, to touch with, to touch with," (20)). Poteat is not an advocate of the conception of various senses in mindbody context, as they are actually used by living

speakers. Is not an etymological dictionary a reconstruction of how words were once used, based on written records, and necessarily subject to the schema of the reconstructor, the agreed-upon system by which philologists operate in such an endeavor? Dictionaries are, to a degree, models of the discourse in which their modern-day readers, like me, and Johnson, like Hume, live in the Enlightenment milieu. Given Poteat's attention to the invisible determinants of meaning in a person's thought (e.g., Walter Ong), this text seems logical richness of words is influenced by the Meditations raises this question, does it also provide possible answers?

I find two ways in which such a question could be answered from the text, though Poteat does not deal factually with the issue as I have raised it. First, it could be argued that he is using the "metaphorical intentionalities" of words, as revealed in his etymological dictionaries, as a heuristic device, to reveal the dimensions of meaning in our utterances of which we are unaware. He notes that his use of historically conditioned pictures of Greek and Hebrew thought is such a heuristic device, and that this is an "entirely logical mode of philosophical argument." (52). But I could find no corresponding comment regarding his etymological method. There also are places where Poteat seems clearly to deny that etymological functions in simply heuristic fashion: "Whatever the contemporary usage and 'logical' context of a word,... the etymology of a word is multivariantly implicated in its logical context." (62). And even more boldly he states that 'any given sense or use of a word is intentionally bonded to its true (which etymologically speaking is to say, its literal, original) sense, no matter how attenuated... that bend way in a given context he felt in me." (140). And finally, in distinguishing his approach from that of Plato, he suggests that etymology describes the "true archaic" logical ground and rationale for mathematical reasoning, inasmuch (I assume) as the intentionalities of words are the logical ground for any and all meaning. (24). These quotations suggest that in etymologies we will be taken back to the originating ground of language, or of sense-making, whereas the other one he clearly states his consistency with that of Platonic tradition, which originates in the speech-acts of living persons, mindbody dwelling in a convivial order. The relation of our dynamic acts to the 'frozen' archaeological data of etymology is unclear to me, which I bring up because the matter is so important to the argument of Meditations.

Now one could simply say that etymologies state the possibilities which real speakers actualize as they speak, but in order for this relation to be a logical relation, we would have to argue that the etymological richness of words is pre-representatively (tactically) present in mindbody living, whether we have ever seen an etymological dictionary or not. That is, words "carry" with them the residue of their past usages, which are then rendered "transparent" or "publicized" when a speaker uses a word. This seems sensible, and helps me understand Poteat's discussion of etymology.

The form and language of this paper expresses my rather partial grasp of all that is being done in Polanyian Meditations. It should also clearly express my intuitive affinity for Poteat's approach and his claims. I believe this text can be tremendously revealing for everyone interested in how words are used to know and affirm that knowledge as "logical," and for those who are trying to rend the veil that separates them from themselves" (2). Read the book.

NOTES

1 The first part of my title is taken from Raymond Aron's essay, "Max Weber and Michael Polanyi," Intellect and Hope: Essays on The Thought of Max Weber, ed. Thomas A. Langston, and William H. Woodward (Garden City, N.Y.: Doubleday Anchor, 1960), p. 341. I use it simply to express the theme of much of Poteat's book. I note that Poteat uses "intuition" of the mindbody known in a number of places (pp. 90, 162, 227, etc.), and while he does not speak of the
"Inexpressibility" of personal knowledge, he would agree, I think, that one of the aims of the critical temper is "to say everything, plainly."


5 The phrase is from Paul Holmer, "Polanyi and Being Reasonable: Some Comments in Review of Intellect and Hope," *Sounding* 53 (Spring, 1970) 95-109. This review illustrates how vulnerable Polanyi was to professional philosophic criticism, and how Poteat's style of thought and expression renders him much less vulnerable.

6 Though "interlude" seems the most appropriate translation of divertissement, Castells also allows "diversion, pastime, relaxation; recreation, amusement, entertainment; a light piece of music; or entertainment," the fact possibility leaving us somewhat uneasy over this lone directive.

7 Tender readers might appreciate the sentiments of John Updike, who laments the "virtually manic use of quotation marks" in scholarship on Henry James. Unwittingly, however, he confirms the apposition of Poteat's style: "I have just read--or, rather, 'read' until my eyelids became abraded 'beyond endurance' by incessant typographical 'pricking'--" Here is a revealing example of that union, that integral embracement, of mind and body, text and reader, that Poteat is so concerned to demonstrate. "A Mild Complaint," *Hugging the Shore: Essays and Criticism* (N.Y.: Knopf, 1983) 66-69.


9 While it must be remembered that the book is a sustained argument, whose sectioning is arbitrary, Poteat's reflection seems to gather in four major areas, all of which are continually before the author, though one is prominent at each stage.

First, he discusses the oddness of Polanyi's locutions on logical themes, and how reflecting on this oddness reveals a certain picture of knowledge in the critical tradition (sections 1-3).

Second, he extracts alternative pictures of the "hanging together" of consciousness (logic) deriving from the experiences of seeing and of hearing, and traces their respective foetage in Greek and Hebrew thought (sections 4-8).

Third, he examines language in the critical and the mindbody perspectives (sections 9-11). These two middle areas (sections 4-11) seem to me to be especially important to the overall argument.

Fourth, he sketches the subversions of our common sense acknowledgements of meaning by positivists, particularly in the work of Noam Chomsky and Walter Ong, as we read them under the illumination of a new view of logic (sections 12-17). This does little justice to the thoroughness and subtlety of Poteat's thought, but may at least point out the relatedness of parts to the whole.
A Review of William H. Poteat’s
Polynesian Meditations: In Search of a Post-Critical Logic

Martha A. Crunkleton

In the last year and a half, two big books have appeared on Polanyi, one by Harry Prosch and this one by William Poteat. Of the two, Prosch’s is about Polanyi or his thought, but is intensely dependent on Polanyi’s thought. Spend some moments thinking about the title of the text itself, and recall similar works with similar titles by Descartes and Husserl. Husserl took up his lifetime of reading Descartes’ Meditationes de Prima Philosophia when he wrote his Cartesian Meditation. In Polynesian Meditations, Poteat shows us his lifetime of reading and living with the work of Michael Polanyi. While Polanyi is the most apparent pretext for Poteat’s thinking as reflected in this text, other thinkers along with Polanyi also have informed Poteat’s thinking, and they appear here: Wittgenstein, Arendt, Kierkegaard, Pascal, and Merleau-Ponty.

Persons fortunate enough to have been Poteat’s students at Duke and elsewhere will recognize this group of thinkers immediately. The works of these six formed a sort of canon in Poteat’s courses, a canon organized around Poteat’s central contention that we are all creatures of the Enlightenment and that this historical claim entails a regnant cultural madness. We have “mastered” nature, made ourselves gods, and have thereby ushered in and continued “a ripening flirtation with godhood, with infinity, restlessness, tumult, and madness” (p. 4). This canon, however, is not treated historically by Poteat. Indeed, one of the things it took forever to learn as a student of Poteat’s was just this. The “canon” is not a canon to be examined historically and analytically, although one might do that if one wished.

What the book tells the reader about the thought of Michael Polanyi it does so indirectly and subversively. This indirectness is not just a matter of style. Poteat holds that it is counterproductive to attack the most distressing and troubling issues in philosophy directly. Like Kierkegaard, he recognizes that charging head first against the heavily defended front door of Reason is a tactical error. It is far easier to engage these issues through more accessible side doors.

Wittgenstein told his students that what he said was easy but why he said it was hard. Poteat tells us in this book that what he is saying is hard and he will not disguise the difficulty. If anything, the text requires from the reader a conceptual athleticism and a
willingness to experience uncertainty. One does not always know what Potae is saying in this book (consider, the verb, the sources of "sourceless" language, the number of word coinages, the baroque syntax itself, cause the reader to question anew these understandings). This book is an intellectual parallel to hanging by two fingers from a subway strap, thrilling and scary. In this way, too, reading this book is like therapy, exhilarating but not especially pleasant.

Like Wittgenstein, Potae writes because he is captured by a picture. The picture is one he attributes primarily to Descartes but there is plenty of authorial responsibility assigned to others, too. Briefly, the picture is one of deracinated reflection, unembodied cognition; in other words, the mythology of objectivity, the belief that mathematics and formal logic is the paradigm of the connections of reality. The picture is one of human being which thinks and makes the world as disembodied mind and which has accordingly, no logic, no categories appropriate for considering itself as human being. This picture controls even as its limits and barbarisms repel, and this is the picture Potae wishes to make explicit, to bring to consciousness, so that it may lose its enthralled qualities over him and over the reader. The search for a post-critical logic, a logic whose outlines are suggested by Potae's three-decade study of Polanyi's work, then is the movement away from the picture which holds Potae and the reader captive.

To conduct the search Potae has a variety of schemes and techniques. One of these is a heavy reliance on etymology. He spends, for example, several pages distinguishing necessity and contingency, noting the transitive and intransitive, in the case of perspective and contingents, respectively (pp. 81-3). Yet this whole discussion of the linguistic variance of the two terms takes place against a broader, more thorough development of a discussion the first section of both Bach's "Well-Tempered Clavier" and Mozart's "Don Giovanni" (pp. 79-92), and this musical distinguishing is part and parcel of the etymological discussion of the same. Critics may argue that Potae in his use of etymological arguments falls prey to naturalism or, more likely, to a presuppositional use of etymology as a warrant for some philosophical contention. Does Potae use etymology to prove his point here, or does he use etymology to limit his argument? If one argues he is trying to prove a point, in the garden-variety sense of prove we use in a logical, one will quickly see that no point is proved and that proof itself seems to be a task Potae does not take up. If one reads the etymological cases as historical warrants for a point of view not regnant in the Cartesian picture, one is coming closer to the mark perhaps. However, I am inclined to think that the etymological excursus of this text, which are considerable, exemplify a point of view, one can get astray just as if one were a student trying to understand how Potae was using "canon". His use of canonical texts is the etymology, not historical. And, his use of etymology, with all the rich historical patina it suggests, is still profoundly literary, not historical. When trying to prove another picture might look, another image might be discussed, these etymological cases serve as sketches, rather than proofs, historical or analytical. If the critic wishes to contend that such use of etymology is not linguistically sound, let us make the argument about the sources of "sourceless" language, which makes ourselves all the ways etymology is attractive and unattractive to us. We might not use it to prove our case, but we certainly understand how it might show a variety of cases.

Potae argues, indirectly and with luxuriant etymologies, that another picture might give us a better fit, might feel more appropriate, might enable us to be more fruitful in our thinking about how we make ourselves and the world. He holds throughout that formal logic and mathematics emerge from and depend upon our "mindbody" rootedness in the world (p. 9). Such a picture acknowledges the very great distance between our abilities to abstract the world, as in mathematics, and the somatic roots, ourselves as embodied beings, upon which such abilities depend for their possibility and existence. Accordingly, when we venerate the abstract to such an extent that we idealize abstraction itself, we ourselves are diminished. This is the Cartesian inheritance Potae wants to move from even as he fully accredits that this is in many ways still the coin of the realm for Western philosophical consciousness.

The Cartesian inheritance according to Potae uniformly opposes ambivalence. What are the sources of this opposition? The philosophical and literary archaeological task carried out here, with the etymology, locates these sources in an emphasis on the visual mode of perception, the elevation of mathematics, the curious historical commemorating of Greek thought and Jewish sensibilities that became Christianity, the diminution of spirit as a category for interpreting the world, and the reduction of rationality to logic. The phenomenon of ambivalence itself in one Potae acknowledges as one he might be inclined to oppose, too, and to prevent himself from succumbing to opposing ambivalence, he goes so far as to coin words, like "mindbody" and "mindbody" which he finds necessary to his very ability to carry out his project. These coinages help Potae confront his own Cartesianism---"...it has provided me...the means for sustaining my grip..." (p. 7)---and afford him the opportunity to consider sidestepping the private, weak questions of the philosopher (Will my body betray me? Will I think in such a way that I deny my body? Will I do something I don't want to do? Is it possible to think and act without madness? Is it possible to think and act with hope?) Indeed, Potae could say that a profound, entwined and frightening question animates this entire text: Is it possible to be a thinker and embodied and Christian? Such a question, lurking about in the background, promotes reflection that is almost solely concerned with first principles, even as it uses etymology and phenomenological cases in a discursive way to work out those principles.

The mathematician Henri Poincare thought that every human being took, or his own body as an instrument to construct a space of instinctive geometry that her or his imagination could then amplify into a greater space where a universe could be lodged. This is what Potae has done in this book and this performance of instinctive geometric imagination especially comes through in the many examples or phenomenological cases or analyses of mindbody being he undertakes
The phenomenological cases are extensive throughout and at times remind one of the experience of J.J. Austin. There are descriptions of running, of naming, of answering the question "Where are you?", of hitting a tennis ball, of listening to music played on the piano, of observing oneself in the act of writing, of identifying how and where one thinks in a place while writing, and so forth. These cases are not merely excursus, but play a central role in the movement of the text. It is worth noting that these cases are of one type, roughly, Potet describing Potet doing x. That is, the phenomenological cases are descriptions of individual actions. It would be interesting to have Potet take up the description of social cases, of feats performed by more than one person. This would be especially valuable because of the radical value he affords speech. Because language is our instrument of both individuation and socialisation, because it forms both our individual worlds, the world in which we gather with other individuals, and the world we make these sorts of social phenomenological descriptions would be useful to read and would reflect the radical importance and nature of language itself as well as the social constitution of knowledge in language.

Potet's understanding of speech as action is central to his attempt to describe the features of human being and thinking in a post-critical manner, and this understanding forms the ground upon which his text traverses to and fro:

The radical truth about our being in the world is, then, simple, though it is not simply said: since it can be said at all only by means of a feat of estrangement from that simplicity. Only speech as action, our preeminent human power, which in second-order accounts of our doings and knowings can alienate us from ourselves and from itself, is as action, powerful enough to disenchant us from these self-enchanting pictures (p. 22).

Speech in action, then, is understood here as the fundamental activity, or, as a first-order distinction. By contrast, philosophy(and theology) can be understood as second-order activities. Yet, the paradoxical nature of reflection and of language are such that our speaking itself, whether in action or in reflection(though we may decide to distinguish these two activities), turns in on itself as reflexive, and recoils upon itself. Even as we speak, even in speaking as action(whatever we have determined that to be), our speaking is never finished and thereby always suggests both the inadequacy and the fecundity of speech. Language-shadowing may be inadequate but it is never conclusively so. It is never conclusive at all, and this is its power. Further, we speak, realizing the inadequacy of our speaking along with the adequacy and this ambiguity of the speech-act propels us to new ones, just as it propels us occasionally to silence and occasionally to speak again, perhaps anew, but always again, until our fundamental human power to speak is halted. This reflexivity, this recoiling of language itself, Potet wants to represent in his text, not capture. One good case of this in the text is the divertissement which appears on pages forty-five through forty-eight. This excursus, given a more frontal status in the text than many of its brother and sister excursus, describes the relation of this reflexivity to the puzzle which prompts reflection. Potet intuits that the relation of the two, contra Descartes, is no accident. Indeed, in another passage(p. 313, fn. 6), Potet details the function of "necessity" and of "logical necessity" within this very context of the reflexivity of our speaking.

It would be possible to read this text and conclude that Potet's religion is language. Thinking such a thing would be especially fruitful when one considers this text in relation to one of its precedent texts, The Future of an Illusion, since there Freud constructed a "new" religion of "Our God, Logos", as well as in its relation to Wittgenstein's Philosophical Investigations. Yet, Potet will not permit us such simple identifications and relegations to a place in the tradition:

"I have here capitalized 'Reality' for the first time and this in order to preserve for the reader a sense of the logical heterogeneity of its uses when it refers to the everyday reality between men and when it refers to the very arch of all realities, itself not a reality, being the background of all reflection, the unique being the nonexistence of which is inconceivable: namely, our tonic mindbodies."(p. 312, ..., fn. 1).

At this juncture, the reader may want to assert that embodiment itself functions as the ground for religion in this text. Such a view, while incorrect in one way, is never the case in its totality, nevertheless is correct in another. In Pascal's Pensées, another text which functions as a progenitor for this one. One of the most significant features of Pascal's argument was the role he allotted the body. The body, and its habits, has a vital part in Pascal's thoughts insofar as it is the ground of automatic, unthinking habit. Like Confucius, Pascal understood the way of ritual. Embodiment is the vehicle for ritual, the locus for knowing more than we can tell. The primacy of what Potet calls tonic mindbodies grounds and creates our speaking and our acting.

The significance of mind-body dualism then, and the importance of Descartes as primal father, and, for, become apparent. The recovery of Greek thought, and the overcoming of "Orphic dismemberment" become descriptive pathways for thinking out this significance. One cannot read these sections without remembering Nietzsche's and his struggle with the Spinozistic and Hellenistic strands of genius. Just as Nietzsche understood the inherent ambiguity in distinguishing such strands, Potet describes, over and over, the ambiguity of the relations of embodiment and reflection. The realisation of this ambiguity is what I believe necessitates many of the word coinages to which David Runciman refers in his review.

Other readers may find this argument less ambiguous. They might
contend that the very phrase "post-critical logic" is yet profoundly Cartesian. They might say that Poteat has replaced one representational view of reality with another one, perhaps a more sophisticated one, but a representational view nonetheless. This criticism would issue a judgment that choosing one representational view over another would be a matter of reference and that a picture, a new picture to be sure, but still a picture, yet holds Poteat captive. Such a reading would require an emphasis on the assertoric and a corresponding deemphasis on the ambivalent tenor of this text.

Whatever understanding of Being the reader decides is operative for Poteat in this text (and I think there are several), the most significant fact about this is not Poteat's definition of Being. Rather, it is that it is impossible for the reader not to catch herself or himself thinking about Being and about the reader's understanding of Being. In the process of asking the perennial question, "Is this text true?", the reader turns up other questions, and the reader begins thinking, or resumes thinking about something that didn't seem to need thinking about earlier. This catching of the reader thinking is the sign of the performance that is this book.

Richard Gelwick has pointed out that the distinctive character of William H. Poteat's Polanyian Meditations is that it itself is a performance, a text which is an embodiment of its central argument. This salutary comment about the performance that is this text should be born in mind.

Poteat's seminars, undergraduate and graduate, have been performances. There, students, receiving good fortune we most certainly did not deserve or earn, saw his mind at work. The vivification of the life in the mind, the importance of reason and of its claims and inadequacies, the significance of the unity of thought in a tradition of more than three thousand years of thinking, and the invitation to participate in the tradition, to join it—all to understand the author's performance. Now, in this text, we have this performance anew, retained on paper, eveready to challenge us to catch ourselves thinking and to understand the author's performance. In so doing, we come to understand anew Polanyi's performance as well. That understanding accompanies the realization and questioning of one's own understandings and facile acceptances of intellectual paradigms and regnant cultural pieties. The reader's attempt to understand this text will not go unrewarded and the reader will not leave the text unaffected by it. In this way, Polan an Meditations is a virtuous performance. Even if the reader comes to differences with interpreting the performance, the performance sustains itself because it is itself endlessly creative when engaged by the reader.

Dear Editor

I would like if I may to reply to Verlyn Barker's interesting criticism of my piece "On Personal Knowledge and Sex Education." I would agree that my article was open to the criticisms it was not fully enough or properly integrated. But I find some of these criticisms hard to understand.

1. Tradition. Of course I was not saying that tradition totally determined us. And I thought my first paragraph would make clear that I was speaking of tradition as Polanyi has defined it; certainly not static, for the tradition and authority of a community dedicated to certain ideals makes genuine progress and originality possible. (See for instance Polanyi's "Science, Faith and Society") The same applies to Verlyn Barker's criticism of what I said about apprenticeship. Of course the good teacher does not teach the pupil simply to mimic or ape. But an apprentice, or a child learning to speak, needs to begin by mimicking the teacher, to get the feel of what the teacher is doing. He will do this because he trusts that what the teacher is doing is meaningful. The teacher may well correct him at this stage if he does not act correctly, because until he understands, through doing it, what the teacher is doing, he cannot make it his own and develop it. The scientific community, Polanyi says, teaches conformity for the very purpose of encouraging nonconformity, and the same is true of other communities in varying degrees.

2. Barker thinks I should not speak of "good mothering" without defining what "good" means. On the contrary, it is impossible fully to specify what makes a good mother, for there are any number of being a good mother. But good mothering can be recognized, just as we recognize a good carpenter or teacher or cook. No two good cooks will cook identically, but one can expect a good cook without any trouble.

3. Verlyn Barker questions what tradition can mean in a pluralistic culture and seems "what is our tradition with regard to homosexuality? to abortion?" etc. This is to take tradition at a much more cerebral level than I intended. The tradition I am thinking of is something a parent could teach a child, it is absorbed by the child from the child's own experience, transmitted by the language, touch, expression, and voice inflections of the parents. One of the "sex education" booklets I have seen is entitled "Taught, not Caught" stressing the fact that the writer disapproves of attitudes that the child simply "catches" or absorbs from his environment. The approved attitudes in his view are to be taught in a properly constructed, explicit programme. But I am arguing that the understanding that is taught goes much deeper, does not need to be so explicit, but grows like a seed and has the power and discrimination later to assimilate or to reject other views. If, that is to say, the nurturing environment has been good. In such a family environment a child learns by every nuance of speech and attitude of his parents to each other and to him, which he absorbs in an atmosphere of trust and love. So the essential for sex education is really to provide a supporting climate in which parents can rise to this challenge.

I quoted Gerald Heard in my article; I should like here to quote a few more excerpts which were omitted before. Heard is speaking of the education parents give, which "is taken in... at a depth well below and more powerful than any rational perception or deduction.... Such educators (the parents) cannot be so raised and so kept in the right teaching state unless the community can give them the backing they need for their faith. They are the medium between the child and the community.... when the parents
have to supply to the child is not information or instruction but a climate of dynamic security...."

In the last paragraph I think Verlyn Daker assumes no of leaving out the central part of human sexuality: the "unsensuousness of touch and feeling." Yes, I did leave that out, because I was not writing about sex but about sex education, and I believe that to attempt to teach sex is disingenuous. This is illustrated by the story of the husband and wife who bought a book that was to help them to have better sex. The wife complained that her husband followed it so well, she could tell exactly when he got to the bottom of page two and started on page three. It was explicit, not tacit knowledge, and utterly destructive. I do believe that a child who grows up in a loving, caring and relaxed family, with the mixture of freedom and guidance which makes a good education, is likely to find his or her own way in human sexuality when the time comes, unless the community's traditions and beliefs have broken down to such an extent as to make this very difficult, in that case heaven help his or her, for instruction will not.

\[Signature\] 17 2 1987.

FROM Convivium

BOOK REVIEWS

Arthur Peacocke. God and the New Biology. J.M. Dent & Son Ltd., 1986. £10.95. pp. 196. Index. (Note: Having read this book in manuscript, I have not been able to give page numbers for the few quotations. The book will probably be out by the time readers receive their copy of Convivium.)

Arthur Peacocke is both a scientist and a theologian, and is well equipped to undertake the kind of bridge-building exercise represented by this book. Its aim is to help us ask and answer some basic theological questions in the context of modern scientific culture. No philosophical or theological reflections, he writes, on "the classical trilogy of nature, man and God" can be unaffected by the developments in the biological sciences which have taken place since Darwin, due largely to the fruitful interaction of biologists with physicists and chemists. Developments arising from the discovery of DNA are central to modern molecular biology, which represents the marriage of two strains of thought, the one concerned with the transfer of genetic information and the other concerned with the three-dimensional structures of biological molecules.

In Chapter I, Peacocke discusses different kinds of reductionism and distinguishes in particular between the forms of ontological and epistemological reduction, which refer respectively to systems and processes or to concepts and theories. He points out that philosophical discussion is often associated with the theme of the relation between wholes and parts, since the laws that explain the behaviour of the whole is not the same as those explaining the behaviour of the parts acting separately. He refers to Ernst Nagel, who, in 1952, carefully analysed the meaning and usage of the terms 'whole', 'parts', 'sum', and 'organic unity', and whose conclu-

sions show, says Peacocke, that the question of whether 'the analysis of organic unity...necessity involves the adoption of irreducible laws for these systems and whether their organisation is of such a kind as to preclude a simple summation of their parts to yield a whole' is not one which can be settled in a wholesale or a priori fashion. Each system needs to be examined on its own merits, "even each biological system and level of inquiry."

I was challenged by this statement, which differs in fundamental respects from what I understand to be Michael Polanyi's position, and I intend to discuss this question later, having first reviewed the book as a whole. In Chapter 2, Peacocke considers the relation of biology to physics and chemistry in the light of his earlier analysis of reductionism. Chapter 1 showed that methodological reductionism is permissible for research, but needs balancing by holistic or 'compositionist' methodologies. Biological phenomena are emergent phenomena characterised by increasing complexity of organisation, constituting a succession of forms, a hierarchy of parts making wholes at different levels. At each new level of biological organisation, we need special concepts to describe and understand the new complex relations which emerge. This, thinks Peacocke, is strong evidence for the autonomy of biological concepts and for the impossibility of translating the distinctive conceptual terms of biology into those of physics. The interface between biology and physics and the causal concerns of the new biology and there are various theories in circulation, but, as Peacocke points out, there is still profound confusion over the question, which seems always to centre round the nature, character and existence of distinctive relations between the parts and their respective wholes.

Peacocke refers with qualified approval to Polanyi's account of 'boundary conditions', but seems to think Polanyi's argument is vulnerable because he first works it out with reference to machines "and he then transfers the same argument to the relation of biology to physics and chemistry." Peacocke's footnote for this statement gives five general references to Polanyi's writings, including Personal Knowledge, The Tacit Dimension, and The Study of Man, but without any specific page references. He does, however, refer to Polanyi's article, Life's Irreducible Structures, originally published in Science, (1968) and reprinted in Knowing and Being (R.B.P. 1969), where Polanyi shows that living organisms work, as machines do, under the control of at least two distinct principles. In the case of the machine, the higher principle is that of the machine's design, which harnesses the principles governing the physical and chemical processes on which the machine relies in the service of the machine's own purposes. The organism is also a system which works according to at least two different principles, its structure serving as a boundary condition harnessing the physical and chemical processes by which its organs perform their functions. Polanyi argues that any two-level system operates under dual con-
trol, whether we are speaking of human artefacts or of biological systems. Peacocke finds the argument vulnerable because, in his view, "the concepts of mechanical engineering are reducible to physics and chemistry, at least in principle; for, given the parts with their physico-chemical properties and the relationships between these parts (his italics), the operation of the machine can be deduced. It would then seem plausible to argue that mechanical engineering is indeed reducible to physics and chemistry." (Compare this with Polanyi's comment, "A complete specification of a machine in physico-chemical and engineering terms".) I am genuinely baffled by Peacocke's logic at this point, but I am still leaving discussion till later. I note, however, that Peacocke agrees with Polanyi that "the differentiating characteristic of the concepts of mechanical engineering is that they are concerned with the relations between parts and are, to that extent, distinct from those of physics and chemistry." Yet this is clearly not enough, in Peacocke's view to establish what he calls epistemological autonomy, let alone process autonomy.

Peacocke sees more force in Polanyi's argument when it is applied to a biological system such as DNA, which carries biological information. "The concept of 'information transfer' which is needed to understand what is going on biologically when DNA functions in an actual cell, cannot be articulated in terms of the concepts of physics and chemistry." This leads Peacocke to the cautious admission that "there does seem to be a prima facie case for arguing that some biological concepts, and so theories, are autonomous and not reducible in the strict sense." Again, Peacocke is clear that, to be governed by the dictates of naive reductionism is to allow oneself to be robbed of the conceptual resources for describing the complexity of reality. Why, he asks, should molecules and atoms alone be 'real'? There are enduring entities on every level. "There in", he says, "no sense in which subatomic particles are to be graded as 'more real' than, say, a bacterial cell or a human person, or even social facts. Each level has to be regarded as a cut through the totality of reality... in the sense that we have to take account of its mode of operation at that level." Such a statement seems to me to show that Peacocke fully appreciates the irreducible reality of things and situations on every level of reality. Why, then, does it not provide him with strong evidence for the autonomy of biological systems and for the impossibility of reducing them as well as the concepts we hold about them to their physical and chemical components? I am beginning to suspect that the answer to this question will reveal a disagreement, not about the nature of reality, but about the relation between epistemology and ontology.

In the next two chapters, Peacocke picks out a few leading features of the 'new biology', dealing in Chapter 3 with biological investigations that rely on a 'holistic' methodology and in Chapter 4 with investigations that aim to reduce the concepts and theories of high level sciences (biology, sociology and the study of behaviour) to lower level description. In Chapter 3, he talks about new ways of thinking about biological evolution, made possible because matter is now understood to be self-organising and capable, through its own inherent properties, of producing new living forms. Evolution is open-ended, unpredictable, creative, and increasingly so, as one goes up the scale of evolution. Focussed more and more in the activity of the biological individual, till, in man's creativity and sense of freedom to take responsibility for his decisions, it reaches its apogee, and also manifests most clearly that this process involves interdependence as well as struggle, pain and suffering. The death of the old is the prerequisite of new life; but the survival of the new involves an intricate exchange of energy and matter - hence, the importance of ecology and of a holistic outlook. To survive, man must become a wise and committed steward of the earth, using his technical powers to protect the biosphere in all its interconnectedness.

In Chapter 4, Peacocke speaks first of the work of Prigogine and the Brussels school, which has thrown light on the emergence of self-producing living systems, which can maintain themselves in an ordered, steady state. Work in molecular biology and biochemistry has shown that the interplay of chance and law is creative in a way that makes the emergence of living structures possible, including the possibility of biological and human life. In the second part of Chapter 4, he discusses sociobiology, which studies the biological basis of all social behaviour and aims to 'biologise' the various social sciences, that is, to reformulate them and integrate them in what is called 'the modern synthesis'.

The second part of the book is an attempt to assess the implications of these new biological perspectives for our understanding of man, nature and God. "Since our explicit concepts of God must be sensitive to the best knowledge of the world available to us.

In Chapter 5, Peacocke gives a brief survey of nineteenth and twentieth century theological reaction to the impact of Darwin and the Darwinians, concentrating on the more positive responses of European theologians like Bergson, Pannenberg, Moltmann, Rahner, Tennent and Raven, drawing attention also to the influence of Whitehead and his idea of 'becoming' on thinkers like William Temple and L.S. Thornton, as well as on those who call themselves 'process theologians'.

In Chapters 6 and 7, Peacocke attempts his own unified perspective on the classical trio of nature, God and man, offering us a theologically informed view of nature as creation and of man's role as co-creator, and pointing out that a right relation between man and nature involves cost and sacrifice of selfish ends and commitment to a holistic view of nature. The 'simple' matter of the 'big bang', he writes, had implicit in it every level of development that has taken place since - but has only gradually unfolded. "We do not know all there is to be known about oxygen, carbon, nitrogen, hydrogen and phosphorus until they adopt the form of the DNA
molecule in its biological milieu." Indeed, we do not know all that is to be known about matter until it adopts the form of persons. Man is one of the new features and properties of matter, whose self-consciousness is one of the most real and significant features of the cosmos, showing the potentiality of living matter in a new light. Peacocke describes his own theological position as pan-anthropistic, defined as the belief that the being of God penetrates the whole universe but is not exhausted by it. God is immanent in the creative interplay of chance and law that has given rise to the increase in complexity in the universe, but also transcends it. Christian materialism sees the physical and the personal as facets of one reality, seeking nature as an expression of God's being and sacramental of personality. A sacrament is a focused instance of what is happening all the time. We live in a world of continuous creation, an open-ended process of emergence of new forms. Man alone has the power to refuse his calling to be a co-worker with God in loving and intelligent stewardship and to introduce instead discord and imbalance.

In Chapter 8 Peacocke poses some questions to advocates of 'evolutionary naturalism', who see nature as 'all there is', dynamic and evolving, but explicable entirely in the causal language of genetics, with behaviour viewed merely as a strategy for gene survival. Peacocke is clear that we need a language other than that of genetics to express the possibilities for self-fulfilment and creativity which have been opened up by the freedom God has allowed to evolve. His sacramental view of the cosmos brings the scientific and theological perspective into a single focus. In Chapter 9, he discusses the sacramental and instrumental functions of matter and suggests that there are two ultimate sacraments - the created order as a whole and the incarnation, which Christians believe uniquely expresses God and his purpose as well as being uniquely operative of that purpose. In Christ, the sacramental character of the world was made explicit and perfected.

He reminds us that it is the natural processes of the world that have led to the emergence within it of human beings, whose sense of transcendence over their environment led to the quest for 'One who makes intelligible the fact that there is anything at all'. Peacocke also points out that it is the transcendence-in-Immanence of man's experience that raises the hope that in man 'immanence might be able to display in a uniquely emergent mode a transcendent dimension to a degree which could unveil, without distortion, the transcendent Creator'. This is precisely what the incarnation means to Christian faith - the unveiling to us in personal form of a Creator who shares in the creative process in which suffering and death are the unavoidable gateway to new life and new creation. Just as transcendence and immanence belong together in personal being, so do emergence and continuity in the process of evolution, and Peacocke rightly warns of the danger of treating our relation to nature as merely that of a stage on which to strut. We overlook our continuity with the organic world at our peril, but equally, we must not forget that 'the final apoxy and apoeyes of the evolutionary process is the paradox of a man on a cross exalted by God into the divine life.' With these words the book ends, leaving one with the feeling that one has participated in a highly satisfying exercise in interdisciplinary study. There is also a useful appendix on Thermodynamics and Life, which will be welcome to those who, like myself, have problems in understanding how a universe that is 'running down' can also continuously 'wind itself up'. In other words, the appendix is about entropy and its mysterious relation to the process which gives rise to a continual increase in complexity and order.

I want now to return to the earlier question raised by Peacocke's suggestion that we need to distinguish between the hierarchy of theories, concepts and descriptions employed by different sciences and the hierarchy of organized systems and real relations between events to which the theories and concepts refer. Is it, in fact, necessary to distinguish between epistemological and ontological reduction, between what Peacocke also calls 'the autonomy of theory' and 'the autonomy of systems and processes'? The idea is that it may be possible to view higher level concepts and theories as non-reducible to terms of lower level parts and the laws which govern them. As Peacocke says, the extent to which reduction is possible involves the question of whether methodological reduction is merely a technique for studying real entities, or whether it involves a metaphysical claim. Methodological reduction is in itself merely a strategy for studying problems by breaking down wholes into their component parts. This analytic procedure is a prerequisite of research and involves no philosophical claims, whereas hard reductionism is the view that wholes reduced to parts are 'nothing but' the component bits. Each science is a relatively autonomous interlocking network of theories, concepts, experimental techniques and fields of observation, yet most scientists have an implicitly reductionist outlook. The central dogma of molecular biology is the transmission of genetic information through molecular structures and its ultimate aim is to explain all biology in terms of physics and chemistry. Sociobiology is also reductionist in import and hopes eventually to 'biologize' the various social sciences. Peacocke exposes the circularity of hard reductionism by showing what happens when the argument is pushed to its logical conclusion: not only is all biology reducible to physics and chemistry, but this is merely the application of mathematical truth, which is merely the result of rules of thought, which are merely the product of social, cultural and linguistic influences, which are merely the expression of psychological mechanisms, 'which are merely physiological processes!'

Peacocke points out that the issue of whether methodological reduction is merely a technique or whether it involves the genuine ontological reduction of real entities hinges principally on the question 'whether the theo-
ries and experimental laws formulated in one field of science can be shown to be special cases of theories and laws formulated in some other branch of science." If such is the case, we can say that the former branch of science has been reduced to the latter. The hard reductionist believes there is no stopping short of the so-called 'fundamental particles' which are supposed to be the indivisible units of matter - the 'billiard balls' that underlie the mechanical model of the universe. But, according to the new physics, there may be no such 'thing' as an elemental particle, since even the smallest identifiable element of matter seems to be a pattern of energy, to be regarded in theory as a 'composite whole'. Even if, in practice, it is too infinitesimally small to be analyzed.

As has already been said, Feeney accepts that many of the concepts we use are non-reducible, since, as new forms of matter emerge, new terms need devising, descriptive of new relations and processes. For example, in evolutionary theory, we speak of mutation, sexual recombination, natural selection, and so on - terms which belong to the logic of biology, which cannot be translated into terms of physics. What I find puzzling is the argument that we can accept epistemological autonomy - the autonomy of biological concepts - but not the autonomy of the new forms of matter which make the new concepts necessary. I am also puzzled by the suggestion that we can accept epistemological autonomy in particular cases, but that each case has to be settled on its own merits, not as a matter of general principle, based on the logic of the part-whole relation.

The layman is always at a disadvantage in discussing scientific matters, especially if the question at issue has to be decided empirically. However, if, as I believe, there are logical grounds for the difference of viewpoint, I must venture to pursue the matter with 'universal intent', hoping at least to provoke further discussion and to clarify my own thinking, and not to contribute to the confusion that marks the current debate amongst scientists and philosophers. As I have already indicated, I suspect that the problem arises because we start from different presuppositions about the nature of the relation between epistemology and ontology. Anyone familiar with Polanyi's analysis of the structure of knowing will be aware that the act of knowing consists in integrating clues of which we are subsidiarily aware to form a meaningful coherence at the focal level of awareness. We attend from the subsidiary level of awareness to the focal level, and in doing so, we integrate the subsidiary particulars or parts to form a pattern or whole. The parts and the whole belong to different logical levels. In the context of epistemology, the difference of logical level is demonstrated by the fact that we cannot be aware focally of the clues from which we attend and of the whole to which we attend simultaneously. It is logically impossible to achieve focal awareness of different levels at the same time. In the context of ontology, it is equally true that parts exist on a different logical level from the wholes which they jointly form. Every composite entity exists on at least two logical levels. The difference of level means in this case that the principles and relations which govern the behaviour and define the meaning of the parts (as such) are different from those which govern the behaviour and define the meaning of the whole. Their 'logic' is different. Both kinds of relation and both sets of 'laws' operate in the same physical space. They are not levels in the sense of being separable layers - top, middle, bottom and so on. If this were so, they could be set side by side and viewed simultaneously as one might do with the layers of an archaeological dig or a sandwich. In a logical sense, the layers of a sandwich all exist on the same level. Because we are talking about different logical levels, the whole cannot be reduced to terms of its parts without destroying it. Reduction is irreversible in the case of physical dissection, though it is a reversible process for observational or theoretical analysis, and depends simply on a switch of attention from the whole to the part or vice versa.

Logical levels are levels of meaning. Polanyi always uses the term 'level' in the sense that it represents a level of organisation or meaning, and it is part of his holistic metaphysics that meaning cannot be separated from its object, any more than knowing can be separated from being. According to Polanyi's thesis, knowing is a form of being, and this was the great discovery he made in the course of his analysis of the structure of knowing: namely, that we indwelt what we know subsidiarily in the way we dwell in our body - so that body and mind can be viewed as a two-level unity; so that all knowledge can be said to be bodily knowledge; and so that persons can be understood as embodiments of what they 'know' (in the broadest possible sense). On a Polanyian view, epistemology and ontology belong together in a unity that is like that of form and content. All facts are meaningful facts. They are only recognisable as facts because of our powers of aesthetic recognition, which enable us to discern pattern and coherence. Meaning can never be separated from its object precisely because there is no such thing as a 'bare' fact. Facts are inherently meaningful because they have 'shape' or significant pattern of some kind. William Temple once expressed this quite simply by saying, 'The actual significance of an object is more properly called its reality or substance than its purely physical nature.' (Daily Readings, 1948, p. 186. Hodder.) Our intuitions of reality have to do with our discernment of some kind of significant pattern. We recognise an entity in virtue of the order which gives it coherence and meaning. We both achieve this integration of clues to form a pattern and discover the order and pattern that is objectively there, waiting to reveal itself. This gives to knowing its polar structure. The knower, as subject, stands in a relation of polar complementarity to the object of his knowing. When we recognise an entity as real, we form a concept that reflects the meaning we have discerned. It is part of Polanyi's basic thesis that
the structure of our comprehension reflects the structure of the entity comprehended. This is what validates the claim that knowledge of the real world can be genuine knowledge. This, in my view, is the great merit of Polanyi's theory of personal knowledge. He bridges the gap between knower and known by his discovery, (made in the course of analyzing the structure of knowing) that the structure of knowing actually reflects the structure of being and is itself part of being. This goes together with the realization that genuine knowledge is 'understanding' and that the quest for knowledge is a quest for 'meaning', which can be satisfied because the real world is inherently meaningful. It also goes together with the recognition that knowing and being share the same two-level, part-whole structure, on which the dialectical interaction depends, which takes place in all acts of true participatory knowledge. Knowing is both achievement and discovery, and takes place within a framework of commitment. This means that the knower's very being is involved in his knowing, or as Polanyi sometimes says, knowing has a subjective as well as an objective pole - an element of personal legislation as well as an objective reference.

There seems to be little disagreement between Polanyi and Peacocke about the fact of the non-reducibility of concepts, but Polanyi's reasons for arguing for what Peacocke calls 'epistemological autonomy' are different from Peacocke's. In Polanyi's view, epistemological and ontological reduction stand or fall together, and the non-reducibility of concepts derives from the non-reducibility of the entities or systems referred to. Any biological entity can be analyzed into its parts as a matter of methodological reduction; but concepts reflect the meaning inherent in the entities to which they refer, and a meaningful entity is no more reducible than a meaningful concept. On Peacocke's view, one may have epistemological autonomy without ontological autonomy. If Polanyi's metaphysical assumptions are correct, this is not possible. It would only be possible by allowing facts to be separated from meanings and treated as mathematically measurable 'bare' facts. According to Polanyi's metaphysic of levels, every real entity is a unique meaning or meaningful coherence while, at the same time, being a collection of parts on a different logical level. Each level of being has its own distinctive unity or principle of rationality which is its meaning. One can trace this principle from atoms to galaxies. On one level, a part of reality or coherence is the atom; on another it is the molecule, on another the cell, and so on, up the scale of levels from organs to organisms, to populations of creatures, to ecosystems. Each higher level includes all the preceding levels in a hierarchy of growing complexity. Each whole is a meaningful system with its own distinctive internal relations and principles of organisation, irreducible to the relations and 'laws' of lower level wholes, which remain recognisable for their own distinctive relations and ways of being.

Because a whole exists on a different logical level from its parts, its functioning is no way interferes with that of the lower level entities which constitute its parts. A molecule has its own distinctive internal relations and way of being, which does not interfere with that of the atoms which compose it. The molecule relies on the atoms for its existence, but harnesses them in the service of its own distinctive 'higher' level functions. Their relation is one of complementarity, not of contradiction, but they do not exist on the same logical level. When analyzed, the molecule is a collection of atoms, but the atoms, viewed as such, do not constitute the reality of the molecule. The two are not synonymous, because the molecule has an order and a pattern, a Gestalt which constitutes a meaning that is 'more than the sum of its parts'. Additive logic does not work for entities whose meaning is inherent, because every change of logical level involves new emergent properties and new organisational principles which are definitive of their meaning.

Different logical levels can occupy the same physical space, but we are able to focus attention on which level we choose, as when the artist switches attention from his painting to the individual brush strokes. Brush strokes and picture relate as parts to a whole and the former derive their meaning from the latter. Similarly the scientist can switch attention from a molecule to the atoms which compose it. In doing so, he is switching attention from one logical level to another. In every act of perception, the clues which lie in our subsidiary field of awareness derive their meaning from the pattern or coherence which is formed by our ability to integrate parts to wholes at the focal level of awareness. What we observe depends on our intention. The principle is the same when the nuclear physicist sees either a particle or a wave movement in an experimental situation. Which he sees depends on his intention, on his experimental technique and on the questions he is asking at the time.

In this paper, I have been 'thinking aloud' - trying to identify the nature of the disagreement between Peacocke and Polanyi, and daring to do so only because of my belief that the difference has little if anything to do with the study of particular cases and everything to do with basic presuppositions about the nature and structure of reality. Quite often in the course of his book, Peacocke makes statements which appear to support 'system autonomy', (the non-reducibility of higher level systems and processes to terms of lower level laws and relations), but he remains insistent that this is not a matter on which judgement can be made wholesale or a priori. This increases my conviction that he must be working with presuppositions that differ in certain respects from those which I share with Polanyi.

It seems clear to me that the confusion has to do with the nature of logical levels and whether the relations and principles which govern the structure and behaviour of any given level also define the nature of each particular reality and give it a rationality and a meaning which inheres in its very structure. If we believe that meaning is inherent in its object,
we must - it seems to me - agree with Polanyi that epistemology and ontology belong together, that knowing is a form of being and that the cognitive or theoretical aspect of our knowing reflects the structures and meaning of what we know. The issue seems to hinge on whether one can say that the richly complex and manifold forms of nature are recognised in virtue of their inherent rationality or whether order and meaning is something we arbitrarily impose on the sense data. Only if the latter is the case can we separate objects from their meaning and allow methodological reduction to develop into ontological or metaphysical reduction.

For Polanyi, the unity of fact and meaning is integral to his metaphysics. He repeatedly demonstrates that, when we analyse a whole into its parts, or view the particular focally, the meaning of the whole is lost. This can be demonstrated in a wide variety of experimental situations, but is also part of our everyday experience. Every whole as such has a meaning that is more than that of a collection of its parts. An organism as such is not reducible to terms of its organs, and so on. If one wishes to analyse any particular whole into its component parts, the original whole is destroyed, though not irrevocably in the case of mere perception. Methodological analysis is, of course, a prerequisite of research, but the point is that, for as long as the parts receive focal attention the whole and its internal relations and processes is lost sight of. Nor can the laws and relations of the whole be deduced from a knowledge of the laws and relations operating in the parts.

For Polanyi, concepts correspond to the realities to which they refer. We invent concepts to help us understand the real world and its inherent rationality and communicate our experience. Concepts are symbols of our comprehension: they are the correlates of what we comprehend. As Polanyi says, the structure of our comprehension reflects the structure of comprehensive entities. Higher level concepts are irreducible precisely because they refer to autonomous realities whose meaning is part of their being. We recognise these meaningful coherences in virtue of our aesthetic power to integrate parts to wholes. As has been said already, knowing is for Polanyi both achievement and discovery, a dynamic and dialectical interaction between subject and object. Polanyi's presuppositions being what they are, he is able to say that one can make an a priori judgement about the irreducibility of concepts and of entities to which they refer. Such a judgement has to do with the logical relations that obtain between parts and wholes. In his system of thought there is no possibility that our concepts about a biological system may be autonomous, while the system itself may be viewed (though not adequately described) in terms of the laws governing its component parts on a different logical level. The idea of conceptual autonomy combined with ontological reduction makes no sense, because concepts derive their meaning from our knowledge of the relations and laws which govern 'wholes' on their own logical level. Reduce a whole to terms of its parts.

that is, to terms of its lower level relations, and you have a different set of concepts, relating to different realities. If you reduce a molecule to a collection of atoms, you no longer have a molecule. When any whole is reduced to its parts, that collection of parts cannot, logically cannot, mean what the same collection of parts meant when they were organised to form a more inclusive whole. When they function as parts, components derive their meaning from the whole. Conversely, when the whole is dismantled, its own distinctive relations and operational principles cease to control the parts, because its own higher level 'logic' ceases to exist and its own distinctive concepts become 'homeless'. This is what happens when methodological reduction develops into ontological reduction. This is why positivists like Ernst Mach and his followers could disregard all theoretical constructs and concepts as merely convenient summaries of experience and could argue that the structure of our thought can claim no relation to reality.

Polanyi's theory of personal knowledge assumes a genuine relation between epistemology and ontology, a relation that allows our theories and concepts to be 'true' or 'false', and not just convenient summaries of the data of experience. It allows our concepts to correspond to different kinds of reality and to reflect the inherent meaning of real entities and systems on different levels of being.

To sum up, it seems to me that the disagreement between Polanyi and Peacocke is initially of a logical character, but raises at a deeper level, an ontological issue, because it concerns the question of whether the concepts and theories we form about them genuinely reflect the nature of this inherent rationality or meaning. Polanyi is only able to maintain his thesis in the context of his theory of personal knowledge. The very structure of knowing is anti-reductionist, because we cannot know anything without integrating the subsidiary clues to form a meaningful coherence. It is in virtue of the structure of tacit knowing that he can demonstrate that the part-whole structure of real entities corresponds to the two-level structure of knowing. Knowing is an exercise in synthesis, in achieving meaning - the reverse of reduction. We recognise meaningful patterns in nature by our powers of integration. This gives rise to intimations of reality, which depend on the coincidence of pattern achieved and pattern recognised, that is, recognition of the inherent principles and relations which are constitutive of meaning. Polanyi's ontology is therefore also anti-reductionist and includes mind and the emergent properties of consciousness and self-consciousness as modes of being. True knowledge is, for Polanyi, a matter of understanding - that is, of participating in the richness and complexity of reality, which is its meaning - a complexity that, at the level of conscious and self-conscious behaviour, includes purpose and intention and the search for meaning - which suggests that life is an ultimate sense future-drawn and not merely causally conditioned.

Having said this, I have to add that, on the basis of the kind of
discussion which marks the second part of Fescooke's book, which deals more specifically with theological issues and stresses the sacramental nature of the cosmos. I am persuaded that he would probably want to endorse all that Polanyi says about our powers of participating in and contributing to the rich ontological complexity of our world. I have to conclude that, whatever disagreement Fescooke may have with Polanyi on questions to do with reduction and autonomy, they share a remarkably similar vision of what is ultimately and irreducibly 'really real'.

J.O. Crawford.

EDITOR'S NOTE. Professor Fescooke has been kind enough to reply briefly to Joan's review, and permits us to reproduce the following comment: 'You cannot, in my view, talk of the 'autonomy of new forms of matter' [e.g. p. 14 above]. Autonomy is about novel - laws, and so is about concepts and so in epistemological. I think she is too much in the straight-jacket of Polanyi's classifications to accept my point. Thus I do not think Polanyi's account of perception (drawn from attend to, subsidiary/local awareness and all that) is about the same area of discourse as what I refer to as the hierarchy of complexity in both the sciences and in natural systems.' The Editor hopes that this spouting of controversy will encourage our subscribers to read Fescooke's book and perhaps contribute their own impressions. As they might say in the trade, 'This correspondence is now open'.

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Psychology__Psychiatry__Science and Technology__Economics__Sociology
Law__History__Political Science__Other
Primary Interest in Polanyi (few words)

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