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PREFACE

With this issue, we mark our fourth periodical and second edition of Tradition & Discovery. This expansion of means of printed communication among Polanyian oriented thinkers seems to be promising. In this issue, we are able to share both investigations on major contemporary philosophers such as Noam Chomsky, John Searle, and Richard Rorty as well as the progress of discussion on the work of Polanyi Society members James Hall (Jung and Polanyi) and Jeffrey Kane (Education and Polanyi.) We are receiving both short notes and articles of about 2500 words, and the offerings suggest a good future if this intellectual and financial support continues.

Persons submitting material for publication need to heed our instructions below. Not following them increases both time lag and expense, and our operation is dependent upon donated labor. Membership in the Polanyi Society, which includes subscription to Tradition & Discovery, covers only the cost of paper, postage, and telephone calls.

Tradition & Discovery is a publication of the Polanyi Society. The Polanyi Society aims to promote post-critical thought and consciousness as seen particularly in the thought of Michael Polanyi, and in his spirit of exploration welcomes all thought that furthers this goal. Activities of the Polanyi Society include exchange of ideas, being a network of contacts, organizing and coordinating conferences and meetings. By a special reciprocal arrangement with the Polanyi group in Great Britain, we publish selections from their periodical Convivium and Convivium publishes selections from Tradition & Discovery.

Membership in the Polanyi Society is open to faculty, students, and all persons interested in its goals. Annual membership is \$10 for faculty and \$6 for students. Membership includes our periodical and receiving other notices.

Richard Gelwick

SUBMISSIONS FOR PUBLICATION

Please send news of publications, bibliographical notices, and activities as well as articles seeking publication. Our next issue will be in the Fall of 1985, and we need materials by the end of September. Articles should be within 10 pages, single spaced, and elite type. They should also have 1 1/4 inch margins and be sent camera ready so that we do not have to retype it. The other items for our exchange of news we will type, but it is very important that references be accurate and complete.

POLANYI'S REFLECTIONS ON CHOMSKY

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At what points do the linguistic theories of Michael Polanyi and Noam Chomsky intersect? In the late 1950s this question might have sounded like a conundrum. Chomsky's purpose in Syntactic Structures (1957) is limited and technical; his study of syntax "forms part of an attempt to construct a formalized general theory of linguistic structure" by investigating three models and determining their adequacy for grammatical description (5, 6). In Personal Knowledge (1958) Polanyi's goal is not only more ambitious than Chomsky's but different in kind: "I start by rejecting the ideal of scientific detachment...I want to establish an alternative ideal of knowledge, quite generally" (Preface 1957 vii). As he presents evidence and arguments for this alternative ideal, Polanyi draws on material from many branches of learning--science, technology, arts, and language--all of which, he demonstrates, are rooted in tacit knowledge.

Although it would have been difficult to find common ground between Polanyi and Chomsky in these early texts, today the once-fanciful question can be reasonably answered. In the 1960s Chomsky expanded his linguistic concerns beyond the domain of formalized grammar itself: Aspects of the Theory of Syntax (1965), for example, deals with "questions that are at the border of research in transformational grammar" (vi). Some of these questions pertain to the way in which transformational rules should be formulated, but in Section I Chomsky raises broader issues, e.g. the role of mentalism (and tacit knowledge) in formal linguistics, the nature of linguistic creativity, the process of language acquisition. Polanyi, of course, has discussed similar issues while developing his theory of tacit knowing (Personal Knowledge [1958]; "Knowing and Being" [1961]; "The Logic of Tacit Inference" [1966]; The Tacit Dimension [1967]). In "Sense-Giving and Sense-Reading" (1967), moreover, he quotes Aspects of the Theory of Syntax (hereafter abbreviated as Aspects) and comments on Chomsky's ideas in the context of a Polanyian theory of meaning.

Polanyi's reflections on Chomsky do not constitute a simple endorsement. This paper will examine the ways in which he interprets and sometimes modifies Chomsky's views of mentalism, linguistic creativity, and language acquisition as he considers them from the vantage point of his own theory. Understanding the transformation that Chomsky's ideas undergo in Polanyi's essay requires careful attention to the frames of reference. The Chomskyan quotations come from "Methodological Preliminaries" (Aspects 3-62) where the concepts and terms, some of which sound similar to those of Polanyi, are embedded in an exposition that gives them a different operational definition; Polanyi's argument in "Sense-Giving and Sense-Reading" (hereafter abbreviated as "Sense-Giving") relies on his own previous work as an extended context. In order to respect these

differences, I briefly discuss the relevant points in Aspects¹ before turning to the way in which Polanyi approaches them in his essay.

2.

Chomsky's formulation of the linguist's task in the opening pages of Aspects contains two root ideas that implicitly distinguish the principles of generative grammar from those of other contemporary linguistic "schools":

The problem for the linguist, as well as for the child learning the language, is to determine from the data of performance the underlying system of rules that has been mastered by the speaker-hearer and that he puts to use in actual performance. Hence, in the technical sense, linguistic theory is mentalistic, since it is concerned with discovering a mental reality underlying actual behavior. (4)

First, whereas empirical linguistics takes actual utterances to be the proper object of study, Chomsky holds that actual utterances are merely observations from which generative grammar deduces the abstract system of rules that forms the intrinsic linguistic knowledge (competence) of the ideal speaker-hearer. The goal of generative grammar is to formalize the rules that represent competence; although a theory of performance eventually may be constructed, it is not the present concern of Chomskyan linguistics. Second, whereas behavioral linguistics either ignores as irrelevant or rejects as unprovable the notion of mental process, generative grammar posits a "mental reality" behind linguistic behavior.

What does Chomsky mean by "underlying system of rules" and "mental reality"? His attempts to correct "a continuing misunderstanding" suggest that the first phrase, in particular, needs explication. The underlying system of rules that is put to use in actual speech refers to the grammar devised by the speaker-hearer, not to the underlying rules reflected in the linguist's construct. Confusing the latter with the former has produced, according to Chomsky, the mistaken view that the formalized rules of generative grammar represent a model for performance (Aspects 9). This essential and fairly obvious distinction has been blurred, perhaps, by his use of the term "generative grammar" to refer, with what he calls "systematic ambiguity" (25), to both competence (the object of description) and the description itself. In places where the distinction might not be clear, I shall use subscripts: generative grammar₁ for competence, generative grammar₂ for description of that competence.

The problem with "mental reality" is its comprehensiveness; we need to know how Chomsky applies the term. In the passage quoted at the beginning of this section, it presumably refers to the language-user's internalized rules, or the process by which they are formed. A footnote to

the passage suggests that, in some respects, the assumption of mental reality may be a methodological convenience: "Mentalistic linguistics is simply theoretical linguistics that uses performance as data (along with other data, for example, the data provided by introspection) for the determination of competence" (193). It will become evident a little later that introspection, of both native speaker and linguist, is relied upon primarily to verify the accuracy of the formalized rules of grammar₂.

The formalized rules themselves make no concessions to introspection. As Chomsky says, "if the grammar is...perfectly explicit--in other words, if it does not rely on the intelligence of the understanding reader but rather provides an explicit analysis of his contribution--we may (somewhat redundantly) call it a generative grammar" (4). This explicitness characterizes all three major components of generative grammar, the semantic as well as the syntactic and phonological. In the "standard theory" of Aspects, for instance, the semantic component relates a deep structure from the syntactic component to an appropriate semantic interpretation, but the semantic interpretation of a sentence is not its meaning; it is a representation of formal features contained in the lexicon that forms part of the syntactic component.

Because Chomsky claims that even the "creative aspect" of language can be explicitly described, it is important to notice how he interprets creativity. He assumes as an essential property of language that "it provides the means for expressing indefinitely many thoughts and for reacting appropriately in an indefinite range of situations" (6, italics added). By restricting his attention to means and attributing the means to the structure of language itself, he is able to adopt Humboldt's statement, which he quotes, that language can "make infinite use of finite means" (8). This concept, more accurately one of productivity than of creativity, makes it possible to formulate, within a generative framework, a series of recursive rules that describe the "production" and "interpretation" of an unlimited number of sentences.

Some way must then be found to verify that grammar₂ accurately portrays grammar₁. Noting that information about competence "is neither presented for direct observation nor extractable from data by inductive processes of any known sort," Chomsky defends the use of introspective reports as a matter of necessity in validating the rules (18). And he speaks of introspection in terms that will sound familiar to scholars of Polanyi. One tests the adequacy of a grammar "by measuring it against the standard provided by the tacit knowledge that it attempts to specify and describe" (19). Again, "the grammar is justified to the extent that it correctly describes its object, namely the linguistic intuition--the tacit competence--of the native speaker" (27). As these two quotations indicate (and the frequent uses of the terms between pages 19 and 32 substantiate), Chomsky employs "tacit knowledge" and "tacit competence" in a quasi-circular way to differentiate the non-explicit linguistic information of the speaker-hearer from the explicit rules being verified

by the linguist. (The differences between Chomsky's and Polanyi's concepts of tacit knowing will be discussed in Section 3.)

If grammar₂ is not intended as a production model and yet can be verified by introspective reports about grammar₁, how does tacit competence itself come into being? Chomsky's "language-acquisition device" resembles a black box: "Much information can be obtained about both the primary data that constitute the input and the grammar that is the 'output' of such a device, and the theorist has the problem of determining the intrinsic properties of a device capable of mediating this input-output relation" (47). Although words like "input," "output," and "device" suggest a mechanistic rather than a mentalistic approach to language learning, the terminology here is a side issue; to understand Chomsky's hypothesis we need to examine what information he derives from the input and output, and what he infers from it concerning a possible model for language acquisition. He observes that the actual speech heard by a child is meager in quantity and "degenerate in quality:" although it may include some grammatical sentences, much of it is fragmentary and deviant in character (31, 201). In contrast to the deficient primary data, the output (grammar₁) must be linguistically sophisticated, for it provides the tacit competence that enables the child to produce and understand a potentially infinite number of complicated sentences. Because of the disparity between primary data and the grammar that results, Chomsky concludes that language cannot be learned by inference; he proposes that "a child must have the ability to 'invent' a generative grammar that defines well-formedness and assigns interpretations to sentences" (201).

But a generative grammar cannot be invented *ex nihilo*. Chomsky suggests that a child possesses innate knowledge of linguistic universals, deep-seated regularities which, he surmises, are common to all languages without implying a point-by-point correspondence among them. (He argues that a general theory of linguistics, one that aims for explanatory adequacy, "incorporates an account of linguistic universals and it attributes tacit knowledge of these universals to the child" [27].) Equipped with knowledge of these universals, a child encounters the fragmentary data that he hears "with the presumption that they are drawn from a language of a certain antecedently well-defined type, his problem being to determine which of the (humanly) possible languages is that of the community in which he is placed" (27). In order to solve this problem, he requires certain additional capacities, e.g. a technique for representing signals he hears and structural information about the signals; a knowledge of hypotheses about language structure; a way of deciding which hypothesis is compatible with the data he hears and what the hypothesis implies (30). Somewhat laconically, Chomsky says that "The child who acquires language in this way of course knows a great deal more than he has 'learned'" (32-33).

On the grounds that a child's ability to construct an abstract system of grammar far surpasses what he can learn from experience and yet all normal children speak, Chomsky postulates that language acquisition

is made possible by a biologically-given, species-specific *faculté de langage*, "one component of the total system of intellectual structures that can be applied to problem solving and concept formation" (56). *La faculté de langage* thus has a specialized function that enables human beings to approach language problems in a unique way. Animals, lacking this faculty, remain inarticulate.

3.

In "Sense-Giving" Polanyi indicates his rapport with the orientation of Chomsky's work:

...a distinct tendency to break with strict empiricism and to revive the classical conception of language, which recognizes the mental character of meaning, has been expressed recently by Noam Chomsky, and my present study supports this by showing that speech has the fundamental structure of all meaningful uses of consciousness in animals and men. (195)

Immediately, one notices a divergence from Chomsky's conclusion that language is not only species-specific but so highly specialized that it bears no resemblance to animal behavior. This seemingly minor disagreement points to more significant differences, in both approach and substance, that will become evident in the course of discussion. The most important one to note here is the difference in purpose. Whereas *Aspects* examines issues from a methodological standpoint that stresses their role in linguistic theory, "Sense-Giving" examines them from an epistemological point of view that is concerned with the process of using language meaningfully.

Specifically, Polanyi's purpose is to show that although the acts of endowing our speech with meaning and making sense of what we hear are informal, they "possess a characteristic pattern that I shall call the structure of tacit knowing" (182). Hence, when he begins his essay with a discussion of the "triad of tacit knowledge," he does so for theoretical, not methodological, reasons. The concept of the triad--with (1) subsidiary particulars that make it possible for (2) a knower to grasp (3) a focal entity--is central to the epistemology he develops in *Personal Knowledge*; knowing is a conscious personal act which originates in the knower's reliance on particulars that function like clues. Even explicit knowledge can be understood only through tacit inference; one may have rules and, again, rules for applying the rules, but ultimately the interpretation must rest on tacitly understood principles that provide the existential foundation for knowing anything at all.

One can recognize an initial distinction between Chomsky's and Polanyi's views of tacit knowledge by considering the way in which Polanyi articulates his concept in *The Tacit Dimension* (chap. 1), where he differentiates four "aspects" that reveal diverse relationships between subsidiary particulars and the focal object: the functional (or

pragmatic) in which the subsidiary clues, of which we may be only vaguely aware, are necessary to comprehend the focal object; the phenomenal (or transitive) in which the subsidiaries do not completely recede beyond our awareness as we grasp the bond between either a whole and its parts or the reverse; the semantic (or heuristic) in which we discover meaning as the subsidiaries confer significance on that to which they vectorially point; and the ontological (or intuitive) that enables the knower to understand the (possibly future) implications of a complex entity. Although Polanyi's concept is thus more specific than Chomsky's, an even greater distinction can be found in its pattern of relationships, where either informal or formal knowledge can become tacit if it is used subsidiarily. Most important, Polanyi's tacit knowing represents an active principle, not a passive one; it operates in the discovery, as well as the recognition, of knowledge.

In "Sense-Giving" Polanyi counterbalances Chomsky's emphasis on formal analysis by demonstrating the pivotal role of tacit knowing at all levels of language study and use: "There could be no phonology if we could not control and use meaningfully a complex pattern of vocal actions without any explicit knowledge of what we are doing when relying on these grounds for our utterances of words" (184-85). Similarly, in the case of grammar, we compose meaningful sentences by conducting delicate integrations without necessarily being able to give a detailed account of syntactic patterns. And beyond the level of the sentence, we perform still more intricate integrations in what Polanyi calls the communicative "triad of triads" as we write prose consisting of graphemes that combine to mean a word, which combines with other words to form a sentence, which, in turn, combines with other sentences to produce discourse. The triads embedded in triads increase substantially in number and complexity when one moves beyond these elementary examples to a simple case of ordinary communication. To make the dimensions of the problem immediate, Polanyi presents an "exemplum," an anecdotal account of the manifold tacit processes that occur when a traveler writes a letter to a friend describing a landscape, which the recipient then is able to comprehend. The processes, known as "encoding" and "decoding" in some linguistic circles, are called by Polanyi "sense-giving" and "sense-reading" to emphasize that they bear on meaning and that they require personal judgments by the speaker-hearer.²

Having illustrated that tacit knowing applies generally to the use of language, Polanyi turns to a special case, "the more elementary fact that a word can mean anything at all" (192). He observes that "The brilliant advances of modern linguistics have cast no new light on the strange fact that language means something" (192), a failure which he traces to the tenets of extreme empiricism, behaviorism, and positivism that, on methodological grounds, exclude consideration of mental processes.³ Polanyi cites the unsatisfactory attempts by Charles Morris and Willard V. O. Quine to explain meaning by conventionalism, or the habitual association of sounds and objects. One wishes that he also had commented on Chomsky's use of an explicit procedure to "interpret"

sentences. The omission is especially noticeable because of Polanyi's insistence that the formalization of meaning relies on the practice of unformalized meaning. Indeed, he argues that even denotation, the simple naming of an object, is an art like that of connoisseurship (Personal Knowledge 81).⁴ And the repeated use of a word, which establishes meaning, requires a series of judgments as a person identifies different situations on the basis of some particular feature; he must distinguish, for example, what variations are irrelevant, what variations are normal changes, and what variations discredit a feature altogether (80).

Polanyi's stress on the pervasiveness of tacit knowing leads one to ask what role is left for explicit knowledge in the use of language. He poses the question himself in "Sense-Giving," where he answers rather tersely with an illustration drawn from his "exemplum": the traveler's actual experience consists of subsidiary and focal elements, both of which remain tacit; in his letter, the focal awareness of his experience becomes subsidiary to the communication, which is explicit; the recipient understands the meaning of the letter by tacitly integrating the explicit language (195). Elsewhere, however, he places more emphasis on the benefits that may accrue from the dialectic nature of the relationship between tacit and explicit knowledge. In "The Logic of Tacit Inference" he describes the integration of particulars as an interiorization that bestows meaning, and the focusing on those particulars as an exteriorization that effaces the meaning of a comprehensive entity; but "when the two are applied alternately, they can jointly develop meaning" (148).⁵

In The Tacit Dimension he shows, moreover, that the application of the complementary processes of analysis and integration may result in a modified meaning that is deeper than the original because the detailing of particulars provides a surer knowledge of them in the subsequent integration. Sometimes it may even be possible to state explicitly the relations between particulars: "When such explicit integration is feasible," says Polanyi, "it goes far beyond the range of tacit integration..The formal rules of prosody may deepen our understanding of so delicate a thing as a poem" (19-20). Although in "Sense-Giving" he does not draw the obvious analogy between formal rules of prosody and formal rules of grammar, his recognition of the advantages to be gained from explicit knowledge helps to explain why he a-critically accepts generative grammar, summarily places it within a tacit framework, and then directs his attention exclusively to Chomsky's views of language acquisition and linguistic creativity.

One must acknowledge Polanyi's context, as well as that of Chomsky, to understand the import of the following passage:

Of the grounds on which language is learned, Chomsky writes: "The language-acquisition device is only one component of the total system of intellectual structures that can be applied to problem solving and

concept formation; in other words, the faculté de langage is only one of the faculties of the mind" [Aspects 56]. But he goes no further in defining these faculties. My view is that the use of language is a tacit performance; the meaning of language arises, as many other kinds of meaning do, in tacitly integrating hitherto meaningless acts into a bearing on a focus that thereby becomes their meaning. ("Sense-Giving" 196)

Chomsky, of course, does not intend the language-acquisition device as a model for language learning; he deduces it as a convenient structure, within his theory, to account for the "invention" of an internal grammatical system. Without commenting on the nature of the language-acquisition device, Polanyi turns to the way in which the faculty of language might function, a point on which Chomsky remains silent, except to say (immediately after the remarks that Polanyi quotes) that it can be expected to result in a specialized approach to language problems. Polanyi offers an alternative view: "I would trace back the roots of this faculty to primordial achievements of living things" (196). After citing experiments that demonstrate the ability of animals to perform meaningful integrations akin to those required in using language, he concedes that human beings and animals achieve qualitatively different results in communication: "We must acknowledge the fact that speech is the application of complex rules of phonetics and grammar and must show how the theory of tacit knowing accounts for the acquisition and practice of such rules" (197).

Unlike Chomsky, he posits that tacit knowledge of a grammatical system develops gradually, along with parallel achievements, as the child explores the nature of what he encounters; among the things he encounters is a language whose structure is represented by the rules of generative grammar. These rules, according to Polanyi, the child acquires subsidiarily through the dynamics of tacit knowing that actualizes discovery: "the questing imagination vaguely anticipating experiences not yet grounded in subsidiary particulars evokes these subsidiaries and thus implements the experience the imagination has sought to achieve" (199-200, italics in text). He adds that the questing imagination is guided by intuition, an informed insight which makes discoveries within a coherent framework (203).

In Personal Knowledge he presents examples of primitive heuristic acts, analogous to those of the questing imagination, which occur at the level of inarticulate intelligence; whether animals master a trick, respond to signs, or contrive a simple plan, one can distinguish a moment of discovery from the routine acts of displaying or applying knowledge that has been acquired (71-76). These elementary feats have a highly sophisticated counterpart in the realm of articulate intelligence. Polanyi says of the scientist, "Having chosen a problem, he thrusts his imagination forward in search of clues and the material he thus digs up--whether by speculation or experiment--is integrated by intuition into new surmises, and so the inquiry goes on to the end" ("Sense-Giving" 201-202).

Language learning proceeds in similar fashion, by a sequence of advances "from the first babbled morpheme used as a word sentence, and from the child's response to similar sounds used by adults, to the eventual mastery of literary language and culture" (205). This sequence of linguistic advances, unlimited in number, is thus motivated by the imagination-cum-intuition that Polanyi finds at work in all problem solving--from the rat who must invent a new path through the maze after being mutilated by K. S. Lashley to Lashley himself, who invented the problem and interpreted the rat's solution (196).

Although the dynamics of tacit knowing provides a coherent explanation of language learning, it does not seem to apply to a problem raised by Chomsky and quoted by Polanyi: "The real problem is that of developing a hypothesis about initial structure that is sufficiently rich to account for the acquisition of language yet not so rich as to be inconsistent with the known diversity of language" [Aspects 58] ("Sense-Giving" 204). Chomsky makes it clear earlier in the passage that he means a hypothesis about innate initial structure, a hypothesis he considers necessary because "the striking uniformity of the resulting grammars, and their independence of intelligence, motivation, and emotional state" suggest that many intricate linguistic patterns could not be learned unless the child possessed prior knowledge about the character of language (58). Polanyi's response sounds odd:

The dynamics of tacit knowing has made this problem more manageable. We are no longer faced with the question how people who learn to speak a language can identify, remember and apply a set of complex rules known only to linguists. They do not identify these rules, let alone memorize and explicitly apply them, and do not need to do so. According to the dynamics of tacit knowing, the rules are acquired subsidiarily, without focal knowledge of them. ("Sense-Giving" 204)

Chomsky's problem is how much innate knowledge to include in the language-acquisition device that enables the child to "invent" grammar₁, not how to explain the learner's ability to master the rules of grammar₂. Polanyi's reply appears to conflate the speaker's competence and the rules of generative grammar, an oddity that can be construed either as a mistaken reading occasioned by Chomsky's ambiguity in using "generative grammar" to refer to both, or (more likely) as a tacit rejection of Chomsky's innateness principle.

When Polanyi turns to the issue of linguistic creativity, a similar puzzle occurs in his introductory phrase to the following passage quoted from Aspects:

Another great problem is "...the fundamental fact about the normal use of language, namely the speaker's ability to produce and understand instantly new sentences

that are not similar to those previously heard in any physically defined sense...nor obtainable from them by any sort of "generalization" known to psychology or philosophy' [Aspects 57-58]. ("Sense-Giving" 196)

Although Polanyi's opening phrase conveys the impression that Chomsky regards the explanation of creativity as a problem, this cannot be what he means. In the sentences preceding the quotation, Chomsky claims that it is empirical linguistics that cannot account for the phenomenon of novel sentences, whereas explicitly formulating the "creative aspect" of language now lies within the power of generative grammar. It must be remembered, of course, that Chomsky interprets creativity as simple productivity, a restriction he accepts in order to construct a formal grammar which, by definition, precludes the judgment of the speaker-hearer. In such a theory, "rule-governed creativity" rather than "rule-changing creativity" is the desideratum (Current Issues in Linguistic Theory 22). Even though Chomsky considers the issue closed, Polanyi seems to use the phrase "Another great problem" to re-open it because he has consistently investigated language not as a theoretical art but a practical one.

In Personal Knowledge he indicates the consequences of practicing this art: "Our choice of language is a matter of truth or error, of right or wrong--of life or death" (113). A proper choice, furthermore, cannot be made passively from a thesaurus; it requires passionate intellection as one encounters novel experiences and creates linguistic patterns that modify both language and thought. Polanyi draws a distinction between assimilating experience within an interpretative framework and adapting that framework to encompass new experience: "The first represents the ideal of using language impersonally, according to strict rules; the second relies on a personal intervention of the speaker, for changing the rules of language to fit new occasions. The first is a routine performance, the second a heuristic act" (105). In "Sense-Giving" he attributes the impetus for this rule-changing creativity to the striving imagination, which evokes the subsidiary particulars that make possible new tacit integrations (200-201). Thus, language learning and the creative use of language spring from the same source: the dynamic powers of imagination and intuition that function as prime movers in the structure of tacit knowing.

Because Polanyi maintains, contra Chomsky, that language is rooted in cognitive powers that human beings share with the higher animals, he concludes "Sense-Giving" by addressing what he calls the "ancient question" of why animals can neither invent language nor learn to use it (206).⁶ Quite simply, animals have a limited capacity for dealing with abstractions. An ape, for instance, may learn to ride a bicycle because all of the clues necessary for doing so are immediately present; on the other hand, a child learning a language must grope in a speculative way to discover abstract particulars that lie beyond his immediate situation (206). Polanyi makes a similar distinction in Personal Knowledge when he says, "To speak is to contrive signs, observe

their fitness, and interpret their alternative relations; though the animal possesses each of these three faculties, he cannot combine them" (82). Human beings are able not only to combine them but to use the combination in the yet more abstract task of applying the two operational principles that control linguistic representation and the manipulation of symbols (78). In "Sense-Giving" he draws the inference that "man's unique linguistic powers appear to be due simply to his higher intelligence" (206).

One must add a curious postscript to Polanyi's conclusion. In Aspects Chomsky does not pay much attention to the question of why animals cannot master language; he concentrates on the argument that la faculté de langage results from a neural development found only in the human species. Later, however, he turns to the issue again. In Language and Mind (publ. 1968; based on the 1967 Beckman Lectures) one finds statements that sound like a dissenting antiphonal response to those in "Sense-Giving": "As far as we know, possession of human language is associated with a specific type of mental organization, not simply a higher degree of intelligence. There seems to be no substance to the view that human language is simply a more complex instance of something to be found elsewhere in the animal world" (62).⁷ Moreover, in challenging the view that attributes the acquisition of language to intelligence rather than biology, Chomsky invokes Polanyi's image of the clever but linguistically-impooverished ape by contending that "even at low levels of intelligence, at pathological levels, we find a command of language that is totally unattainable by an ape that may, in other respects, surpass a human imbecile in problem-solving ability and other adaptive behavior" (9). This "rejoinder," with its counter-echoes of language and substance,⁸ calls attention to one of the several ways in which Polanyi's thought diverges from that of Chomsky. We must now consider how the divergences noted in this paper qualify Polanyi's stated support for Chomsky's work.

4.

Although Polanyi and Chomsky share the premise that language is a mental activity, their theories present different explanations that stem from basically different questions. Chomsky asks, in effect, how the mind can construct (or invent) the exquisite design revealed by analysis of linguistic structure; Polanyi asks how the mind of someone can use the intricate design of linguistic structure to convey meaning. Chomsky answers his question in Aspects by postulating the existence of a biological mechanism with innate linguistic properties; Polanyi responds in "Sense-Giving" by showing that the acquisition of linguistic structure, as well as the creative use of language, is a personal achievement made possible by tacit knowing combined with individual intelligence.

Polanyi's essay, however, does more than provide an alternative to Chomsky's hypothesis; it offers an epistemological grounding for the

formal rules of generative grammar which, in *Aspects*, appear to exist autonomously. Although purportedly they make explicit the tacit knowledge of internalized grammar, their function remains a mystery because current generative theory excludes the problem of how language is used. "Sense-Giving" confers significance on the rules by incorporating them into a theory of meaning that acknowledges the dialectic relationship between tacit and explicit linguistic features in human discourse. Polanyi's reflections on Chomsky thereby demonstrate that formal linguistics has much to gain by taking into account its enabling tacit coefficient.

NOTES

¹Some of Chomsky's ideas have been altered and refined during the past twenty years, but it is the purpose of this paper to discuss the ideas in *Aspects* to which Polanyi responded, not to trace the development of Chomsky's thought. Hence, his other work will not be considered. I do, however, make one reference to *Current Issues in Linguistic Theory* to clarify a point, and I quote a few pertinent remarks from *Language and Mind*.

²A detailed account of these processes lies beyond the scope of this paper. For a careful study of the relations that exist between tacitly formed concepts and their expression in language, see Robert E. Innis, "Meaning, Thought, and Language in Polanyi's Epistemology."

³A telling case, unmentioned by Polanyi, is that of Leonard Bloomfield, who admits that the exclusion of meaning is a weak point in language studies but declines to include it because "We have defined the meaning of a linguistic form as the situation in which the speaker utters it and the response which it calls forth in the hearer" (*Language* 139); and giving a scientifically accurate description of every situation that prompts people to speak cannot yet be accomplished (140).

⁴On this point he is supported by Edward Sapir, who says that language "humbly works up to the thought that is latent in, that may eventually be read into, its classifications and its forms; it is not, as is generally but naively assumed, the final label put upon the finished thought" (*Language* 15).

⁵William H. Poteat ("Further Polanyian Meditations") artfully reconstructs the way in which Polanyi himself alternately applies the tacit and the explicit in the writing of *Personal Knowledge*.

⁶Polanyi's correctness in calling this question an ancient one is amply attested by Roy Harris, who surveys the "ethological" concept of language in the cultural context of the Western tradition (*The Language Makers* 168-187).

⁷For an evaluation of ethological research that may make Chomsky's conclusion premature, see John Lyons, *Noam Chomsky*, 138-42.

⁸The pointedness of the response raises the question of whether there may have been correspondence or other contact between Polanyi and Chomsky.

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POLANYI AND JUNGIAN PSYCHOLOGY

James H. Hall is a Dallas psychiatrist, who has written on the relationship of Polanyi's epistemology to Jungian psychology. He has two books on Jungian psychology, Jungian Dream Interpretation: A Handbook of Theory and Practice¹ and Clinical Uses of Dreams: Jungian Interpretations and Enactments² and a paper,³ "Polanyi and Jungian Psychology: Dream-Ego and Waking-Ego," all commenting on the relationship of Polanyi's thought to Jungian psychology.

Hall notes several reasons for his interest in Polanyi:

(1) Polanyi is one of the major theoreticians of science who, like Jung, attempts to bridge the tension between inner subjective experience and outer social and scientific forms;

(2) Polanyi, like Jung, has relevance for the conceptualisation of religious experience, as attested by an increasing number of theological dissertations discussing his work; and

(3) although Polanyi himself did not apply his concept of focal and tacit knowing to the imagery of dreams, he raised no objection to that possible extension of his language into the intrapsychic field of subjective experience. Hall further notes that "a fourth reason for my concern with Polanyi's work is the possibility it offers of applying Jungian dream theory in such a way that the specificity and grain of the dream image is preserved without reduction, while a form is provided for

relating the structure of complexes, as revealed in dreams, to our central clinical focus of understanding the structure and fluctuations of the waking⁴ ego.

From these declarations of intent, it may be observed that Hall sees the nature of the relationship between Polanyi's work and that of Jung as a parallel, possibly as a corroboration because of certain similarities which he notes. Secondly from the use of technical language and jargon, we note that Hall is writing for those already initiated into the language of Jungian psychology. This is certainly appropriate in the Journal of Analytical Psychology, analytical psychology being the name applied to Jungian psychology.

The parallel with Jung which Hall sees in Polanyi is in Polanyi's concept of focal and tacit structure. The obvious parallel between focal/tacit knowing and psychoanalysis is the parallel with conscious/unconscious knowing. Polanyi did not make reference to the unconscious and neither does Hall draw on this parallel. Instead he notes the nature of the way in which "perception of a comprehensive entity involves the tacit reliance upon cues, in a subsidiary way, in order to attend to the entity perceived." It is the "intrinsic satisfaction in the discovery of more comprehensive entities" in which Hall sees a parallel between the creative activities of a scientist and the "movements of analysis in discovering for the analysand more comprehensive ways of understanding the process of individuation."

This is perhaps as good a definition as one could hope for of the purposes of analysis, assuming one understands what is meant by individuation. Yet in an age so positivistic that the

validity of any psychological insight is called into question, perhaps more justification is required than to proclaim knowledge as a belief stated with universal intent. This is an important point in Polanyi's epistemology. Polanyi attempted to show that even the most would-be objective sciences involve an element of personal commitment of the knowers to the things known. Many have been too ready to accept that Polanyi lets you believe anything you want or even that he justifies any beliefs that people might want to choose.

More important than simply adhering to a particular belief is the attempt to convince others in the convivial order of the essential correctness of the knowledge we hold. Perhaps nowhere is this message more important than for the various schools of psychoanalysis, holding many points in common but distinguished historically by unique sets of beliefs organized around particular individuals. Because of the extreme doubt by so many nurtured in a positivistic culture, it seems there is a particular burden upon such students of the mind to state not only their beliefs but also the grounds upon which understands are held to be true. There are inevitably many ambiguities in the attempts to study something so complex as a person's unconscious, but the conclusions on which psychological therapies are practiced are based on careful observations of individuals in particular cultural settings, and there is much to be gained from an ongoing review of what is ultimately convincing and believable.

Perhaps it is unfair of me to hold Hall to this task since

he writes for those already convinced by the analytical psychological outlook. But having just returned from a sabbatical in Oxford, I am particularly struck by the extent to which life in American universities is characterized by extreme forms of specialization, which leads to a deference to experts in narrow areas of knowledge. In Oxford and elsewhere in Europe I found it much more common for colleagues in my "specialty" and outsiders as well to be much more confident and willing to challenge expertise and to assume that there was a common intellectual framework in which ideas could be debated and in which assent could be given to claims to knowledge.

Hall in some rather interesting disclosures reflects this dilemma for modernity and in particular American modernity. He talks in some detail about his own experiences in training and how he increasingly became more interested in Jung's work. He tells us that Polanyi had read his discussion of tacit knowing and "told me that it was an accurate reflection of his thought. However, he did not wish to comment on the application of his concepts to dreams."⁵ He reminds us that Polanyi had been a classmate of both Franz Alexander, later a Freudian psychoanalyst, and Jolande Jacobi, the distinguished Jungian, but he himself had not studied either Jungian or Freudian theory." He might have gone on to add that Polanyi was quite dubious about psychoanalysis, seeing in it a kind of dogmatism justified in a scientific-appearing language of mechanical forces. The basis of the claims of knowledge of psychoanalysis has received a great deal of thought over the decades much of it stimulated by Polanyi himself. We in the modern age seem to vacillate between a

respect for the kind of personal anecdote Hall relates and the expectation of a detached third personal account.

Another of Polanyi's central points seems to be particularly relevant for psychological insight. That is Polanyi's attempt to demonstrate the impossibility of value neutrality. The knower must inevitably be committed to the things known and must acknowledge those commitments. In this sense Polanyi believes that psychologically the highest level accessible to man is his moral sense.⁶ Hall has difficulties with this and I have difficulties with his difficulties. Hall notes that "with some reservations, such agreement is possible, if the term 'moral' is taken in a very personalistic way, realizing that an individual, in being moral to his own deeper nature, may at times find himself at variance with conventional morality or with other parts of himself."⁷ Yet morality like knowledge, while it has a personal component, the "from" in the from-to vector, cannot be just personalistic without some grounding in a community of others. The morality of the sociopath can be personalistic, but the moral person has commitments that go beyond himself.

I suspect that Hall's concern here is with the ways in which "conventional morality" are often used in less than an ideal sense to enforce some sort of social conformity or even just the wishes of the parents in controlling children. Psychotherapies of various sorts are often accused of promoting a self-interested hedonism, of encouraging people to become selfish. In Freud's day (and in Jung's) the patients who came for help were often overly inhibited, especially sexually, and their treatment

consisted in loosening the bonds of inhibition so they could be more morally discriminating in their actions. Though in this day and age many therapists do encourage all sorts of indulgences--it must be acknowledged--morality ultimately must be more than personalistic. The kind of patient we are much more likely to see today are much more likely to be lost for want of a stable moral identity than to be inhibited in their impulses. Here the task of the therapy/analysis is to regain a sense of self by re-establishing contact with not only one's unconscious impulses, but also with other people. Thus Polanyi's point that psychologically the highest level accessible to man is his moral sense has particular reverence for the various psychotherapeutic schools, for it is through understanding of oneself that this higher moral sense may be achieved.

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4. Ibid., p. 239.
5. Clinical Uses of Dreams, p. 163.
6. Ibid., p. 179.
7. Ibid.

Allen R. Dyer, M.D., Ph.D.

Beyond Empiricism: Michael Polanyi Reconsidered by Jeffrey Kane, *American Studies*, Series XIV, No. 6 (New York: Peter Lang, 1984)

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Michael Polanyi's work continues to interest American philosophers. Members of the Polanyi Society meet regularly. Essays and books interpreting his theory and exploring possible extensions of it, including a number of doctoral dissertations, appear from time to time. Recently, Jeffrey Kane, currently on the faculty of Adelphi University, has come up with another essay on Polanyi's epistemology. Whether this is a doctoral dissertation, or a revision of one, is not clear, albeit the format suggests this might be the case.

No small part of this popularity comes from the fact that Polanyi's epistemology furnishes the critics of positivistic theories of knowledge with powerful ammunition by an authentic card-carrying scientist. For such an authority to assert that scientific theory ultimately is grounded in personal rather than impersonal cognition is a formidable asset in the debate. This is a startling theory, as Polanyi well realized when he wrote

To say that the discovery of objective truth in science consists in the apprehension of a rationality which commands our respect and arouses our contemplative admiration; that such discovery, while using the experience of our senses as clues, transcends this experience by embracing the vision of reality beyond the impressions of our senses, a vision which speaks for itself in guiding us to an ever deeper understanding of reality--such an account of scientific procedure would be generally shrugged aside as outdated Platonism; a piece of mystery-mongering unworthy of an enlightened age. Yet it is precisely on this conception of objectivity that I wish to insist... (Personal Knowledge: Towards a Post-Critical Philosophy, New York: Harper & Row, 1964, pp. 5-6.)

Kane argues at length and for the most part cogently that scientific thinking as described by the positivists would render the discoveries of Copernicus and Einstein logical as well as psychological miracles. To avoid resort to miracles, Polanyi opts for the ontological reality of a rational order in the universe with which the scientist appraises problems and their solutions. Thus metaphysics becomes a presupposition of physics rather than its antithesis.

In Chapter 1, Kane explicates Polanyi's metaphysics, and in Chapter 2 argues that this metaphysics rules out the "possibility of a completely logical or empirical determined process of scientific discovery or assessment." Chapter 3 focuses on the problem of "indwelling" and the tacit components of knowledge. A model of scientific inquiry is outlined in Chapter 4, and the final chapter explores the implications of the model for scientific and educational enterprises.

On the way, Kane deals with Karl Popper's attempt to rescue the fallibility of empirical generalizations by induction from flights to irrationality by relying on falsification of theories rather than on their verification. Falsification, however, is not free from the logical risks of all empirical generalizations. To prove an hypothesis false, the reported failure of the hypothesis' predictions must be true, but such reports also are grounded in fallible observations. Kane finds Popper's ploy to make scientific knowing wholly explicit unsuccessful.

For newcomers to Polanyi's work the explications Kane provides (with very generous quotations for the original texts) should be helpful, and one might suppose, persuasive. Two major themes are treated in detail. (1) The "a-critical" presuppositional immersion in the rational order in

nature and its fecundity for future disclosures, and (2) the theory of tacit knowledge as an explanation of how personal knowledge functions.

Of the two, the latter, it seems to me, is the operative one. Without the distinction between focal and subsidiary knowing, the appeal to "heuristic visions" becomes vulnerable to the charge of romanticism and idealistic atmospherics, whether it be of the poetic, religious, or metaphysical variety. To explain tacit knowing necessitated Polanyi's forays into psychology.

"My main task," he says, "will be to survey the non-strict rules of inference--in other words, the informal logic--on which science rests. This non-strict logic will be seen to rest to some extent on psychological observations not hitherto accepted as the foundations of scientific inference." ("Logic and Psychology," *American Psychologist*, 23, 1, January 1968, p. 27.)

This psychological evidence permits the extension of tacit knowing as a factor in a wide variety of human behavior and thought, for example, elucidating the role of the "convivial pursuit of scientific truth" by the scientific community. Scientists, however innovative and creative, nevertheless think, imagine, reason, and speculate with concepts and images derived from their formal schooling and by which, as Thomas Kuhn pointed out, newcomers are inducted into the guild. This fund of concepts becomes the subsidiary resources for the focal problems of the scientific practitioner. The space Kane devotes to this topic is well deserved.

In Chapter 3 Kane discusses Polanyi's treatment of the mind-body problem and finds it self-contradictory. Polanyi states that his theory of knowledge retains the dualism of mind and body, but Kane argues that Polanyi's concept of emergence contradicts it (p. 135). Kane asks (p. 135):

Are ordering principles ontologically independent laws? Are they unique instances of physio-chemical mechanisms or are they

as distinct as the meaning of the words on this page are from the ink which transcribes them? Is there a 'far side' of reality that merges with the physical in man's thinking? Do mind and body constitute more than a rhetorical dualism?

Kane concludes that for Polanyi it turns out to be no more than that and leaves no room for a knower independent of physical and chemical processes (138).

The durability of the mind-body problem is a tribute to philosophers' genius for so stating a problem that it can neither be solved nor left unsolved. To be sure, meaning and ink differ radically, if only the chemical composition of ink is considered. But ink marks are symbols that have referents which they denote, among which are meanings.

Perhaps the ontology of mind that Polanyi sought can be found in the separability of symbols from their referents. Our cortical apparatus does not prevent us from thinking and imagining what does not yet exist as an actual entity, e.g., tomorrow's sunrise or a disembodied soul. Conceptions of what might be and ought to be are independent of actuality, albeit their realization many not be. It may sound paradoxical to say that the reality of mind is witnessed as much, if not more, by the possibility of falsehood as by its grasp of truth.

Mind, therefore, is not bound by the law of matter, because symbols are not so bound, albeit they can be used by a symbol using knower so as to formulate the behavior of matter. Polanyi's insistence on including cortical functions as subsidiary clues does fudge the distinction because cortical functions are either symbols or they are not. It is this power of ontological detachment from the physical actuality that makes it possible to construct problems and theories for their solution; indeed to presuppose a rational order.

Whether or not this ancient problem can stand another flogging, it does not impair the heuristic value of Polanyi's epistemology. As Kane notes, the structure of the theory sheds light on some important problems as to how knowledge is acquired and used.

As far as education, especially formal schooling, is concerned, the tacit-focal apparatus illuminates some of its most important puzzles as no other theory does. For example, the standard efforts to justify liberal education elicit more respect than belief both in and out of the academy. This is so because its defenders try to show that the context of these liberal disciplines function by the resurrection of school studies in daily life situations, and in doing so inform and ennoble conduct.

The familiar counterexamples to such claims underline the importance of the problem and what a Polanyi analysis does to enlighten it. For the truth of the matter is that unless school learnings are reinforced in daily life by their use in a vocation (e.g., as academic philosophers, historians or scientists and literatures do), they are soon forgotten. Yet the difference in the associative and interpretive resources of those who did and those who did not study these disciplines is easily discernible. As Polanyi might put it, for the non-professional these studies provide a residue of conceptual and imagic structures that subsidiarily make sense out of life situations as they push their way into the focus of our attention. We think and perceive with these structures that remain long after the details by which they were mastered are forgotten. The subject matters ^{was} focal when studied; they become subsidiary in post-school life.

Moreover, the focal-subsidiary distinction enables us to make a case for aesthetic education. If the aesthetic experience entails perceiving

images of human import, then the "educated" perception and construal of images as embodied in the arts is fundamental in the formation of mind. Educationally this is important because advocates of the liberal studies or the studies prescribed for general education confront an awkward chasm between the sciences and the arts. The exception is literature which has occupied a dominant place in the classic curriculum, but even literature is rarely taught as a performing art, but rather as an item in the history of culture. Similarly, when the other performing arts are included in the general education requirements, they are also likely to be taught in terms of their history.

In part this situation arises because ordinary citizens make no pretense of becoming proficient in any of the performing arts, hobby painters and closet poets to the contrary notwithstanding. Beyond sketchy instruction in music and drawing in the elementary grades, formal schooling does not include the arts in the required roster, and colleges as a rule do not require them for admission.

Nevertheless, if the culture, in any important sense, is driven by images embodied in language and ritual they do become an important ingredient in the subsidiary store with which the citizen confronts the world. The associative and interpretive uses of schooling are affected by these gaps in formal education.

It may be said that just as God did not make man and leave it to Aristotle to make him logical, so human beings formed and responded to images in the several sensory modalities long before professional artists taught them to do so. Yet just as the study of science refines commonsense theories

and explanations, so does the work of the artist refine and clarify the human import of everyday images.

I do not fault Kane for not exploring this area in depth. He does refer to Polanyi's discussion of the imagination, but the role images in all phases of cognition, including the scientific, is of more than incidental importance in the "heuristic vision" of intellectual possibility. The haste of philosophers to get to logical and scientific thought is understandable, but not excusable inasmuch as such aesthetic categories as balance, rhythm, organic unity are the subsidiary resources of so much of our thought and action.

Call for Papers

I anticipate that the Polanyi Society will again be allotted a three hour pre-session meeting on the first day of the 1985 American Academy of Religion Annual Meeting. Polanyi Society members planning to attend the AAR thus can plan to attend our meeting Nov. 23, 1985, at the Anaheim Hilton, Anaheim, CA. At the Dec. 8, 1984 AAR pre-session meeting, we discussed altering the format of this upcoming gathering to allow presentation of one formal paper. We will again also include three to five short papers (1-3 pages) summarizing work in progress. The formal paper will be circulated in advance and will be allocated 1 1/4 hours for discussion; the balance of the session will be devoted to discussion of the brief papers. If you wish to present the formal paper at the 1985 meeting, please send me a 500 word proposal by May 15, 1985. Proposals should treat philosophical and/or theological applications of Polanyi's thought. I will ask several persons who attend the pre-session meeting regularly to review proposals with me. If you would like to present a short paper reviewing current work, please send me a paragraph indicating the character of your work by August 1, 1985.

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NEWS AND NOTES

THE SUMMER SEMINAR ON POLANYI WITH RESEARCH IN THE POLANYI ARCHIVES will be held July 29-August 3, 1985. Gene Reeves, coordinator, reports that there is room for some additional participants. For further information see p. 39 of this issue.

William H. Poteat's Polanyian Meditations which has been shared as an unpublished manuscript but unavailable to few besides Poteat's students will be published next year by Duke University Press. James Stines reviewed Poteat's Polanyian Meditations in the Winter issue of our newsletter in 1982. This publication of Poteat's major work on post-critical thought will be a significant contribution which we will all want to read and to discuss.

Kenneth J. Shapiro author of "Validation in the Human Sciences," Tradition & Discovery, XII (No. 1, Fall, 1984-85) has just published with Duke University Press his work, Bodily Reflective Modes: A phenomenological Method For Psychology. Joseph Lyons of the University of California at Davis says of Shapiro's book: "Here we have not only a new method for psychology but perhaps the first stage of a new breakthrough....Shapiro's project here...may be, at long last, a continuation of that first step that Merleau-Ponty took before his untimely death." Shapiro makes use of Polanyi's structure of tacit knowing in his project.

Bruno Manno reports on correspondence with Goutam Biswas of India who has published an article on Polanyi, "How is Knowledge of Man Possible? An Enquiry Into Philosophical Anthropology," The Visva-Bharati Quarterly, 47 (Nos. 3 & 4). The article by Biswas takes the position that philosophical knowledge of man as man has to be founded on knowledge of man as a whole and uses Polanyi's epistemology to show how this can be possible without the reductions of other approaches.

W. A. Gus Ereytspraak of Ottawa University in Kansas City sent in a selection of On Becoming Carl Rogers by Howard Kirschenbaum (Dell Publishing Co., Delacorte Press, New York, 1979) that has on pp. 297-299 a personal account of Carl Roger's interactions personally with Michael Polanyi. The account seems misleading, however, by suggesting that Polanyi and Rogers did not share much in actual intellectual contact. It neglects the well known fact that Rogers and Polanyi share in a major conference and published their views in Man and the Science of Man in 1968. Richard Gelwick was present at some of the meetings between Rogers and Polanyi at the Center For Advanced Studies at Stanford and recalls that Rogers was more of a listener to Polanyi than a proposer of ideas, but Polanyi appreciated Roger's work for its daring refusal to reduce the study of human beings to the logic of positivist science.

Frederick Kirschenmann, a founder and supporter of the Polanyi Society, has written recently from the Kirschenmann Family Farms, Windsor N. Dakota 58493. Since leaving the directorship of the Consortium For Higher Education Religion Studies in Dayton, Ohio that hosted the May conference of 1972 that led to our society and communications network, Fred and his wife Janet have been operating the Kirschenmann Farms. He is pleased with Fritjof Capra's Turning Point, which, like The Tao of Physics, has many complementary ideas to Polanyi's views.

Walter R. Thorson, Prof. of Chemistry, University of Alberta, Edmonton, Canada T6G-2G2 has published several papers pertaining to the work of Owen Barfield and "Scientific Objectivity and the Word of God," Journal of the American Scientific Affiliation, June, 1984, pp. 88-97. He will be lecturing in Oxford this July at a joint meeting of the American and British Scientific Affiliations.

FROM CONVIVIUM

EVERYMAN REVIVED

The Common Sense of Michael Polanyi

(To be published by The Book Guild - June 1985)

Chapter 1 The Power of Ideas. Michael Polanyi, himself a scientist, believed that a disastrously mistaken understanding of science was one of the root causes of the violence, hatred and tyrannies of our time. Men, still fired by ideals, are imprisoned by the scientific outlook in a scepticism which cannot allow any reality to their ideals. Their utopian idealism and their passionate scepticism can then fuse into violence and despair. He searched for a truer interpretation of science that could liberate Everyman from this sinister distortion.

Chapter 2 Everyman and Knowledge. The distortion arises because scientific knowledge is generally held to be impersonal, altogether clear and precise, obtained and verified according to strict rules. And science has given man such vast power that its way of knowing has become the model for all our knowledge. But persons, values and ideals cannot be known in this 'scientific' way and so their reality is called in question. Polanyi shows that this is a false idea of science; that science itself would be impossible if all knowledge were explicit, impersonal and exact. The story of the old Mystery play of Everyman is introduced as an illumination of the argument, illustrating man's relationship with knowledge.

Chapter 3 Discovery. The accepted view of scientific knowledge as entirely impersonal, explicit and exact cannot allow for scientific discovery, which is the vital core of science. Polanyi knew from experience that the great scientific discoveries are not achieved by following rules but by the intuitive sensing of a problem and of the direction in which to look for its solution, by leaps of imagination following on long periods of immersion in the problem, and by the passionate personal quest for intellectual beauty as the sign of reality.

Chapter 4 Tacit Knowing. To give a true account of the process of discovery we have to admit another kind of knowing, not wholly explicit or formally logical, that can lead to new knowledge. Our ordinary powers of perception provide a model for such knowledge. In perception we rely on

all sorts of clues of which we are not fully aware, and thus learn from childhood to see a stable world of solid objects, to recognise a face or read a mood. We focus on the object or the face, and not on the particular separate clues on which we are relying. As Polanyi put it, we attend from the clues to the object. In the same way, when we have learnt the skilled use of a tool we do not attend to the tool but to what we are doing with it. To focus on the tool can destroy our skill in using it.

All knowledge, Polanyi says, involves this kind of personal skill which he calls tacit knowing. Scientists use the same everyday skill, only backed by more special training; they too rely on clues which they cannot make fully explicit.

Chapter 5 Reality. Polanyi believed in a reality existing independently of us and gradually accessible to our understanding. We know when we are in contact with this reality by our personal recognition of a profundity and coherence which leads us on, always promising to reveal more. Reality appeals to the Christopher Columbus in each of us; with faith in reality we can commit ourselves to our incomplete knowledge and venture out to explore its oceans.

Chapter 6 Truth and the Free Society. Since scientific understanding is always based on tacit knowing, it can only be learnt by apprenticeship to a master skilled in its practice; it cannot be reduced to a set of rules. Scientists accept the authority and tradition of the community of science. But this is an authority which encourages originality and creative dissent. Polanyi found in the community of science a model of the free society, whose values must be sustained by tradition and authority but which must encourage continual reinterpretation. Only a belief in the independent reality of truth and other values can enable a society to permit this process to go on.

Chapter 7 Moral Inversion and the Unfree Society. The scientific outlook which denies the reality of values makes men distrust all morality as hypocritical. But men still moved by moral passions may then turn to violence and the amoral cult of power as the only authenticity. Polanyi traces this theme in literature and politics, showing how the 'moral inversion' thus produced has inspired both the individual anarchist and the totalitarian regime.

Chapter 8 A Many-Level World. But how can men escape from this destructive scientific outlook? How can human freedom and responsibility be real in the world of inexorable physical law which science seems to show us? Polanyi turns to the model which some biologists now find most convincing, the model of the world as a hierarchy of levels of existence. The lowest level, inanimate matter, can be studied by physics as controlled by physical laws, but with the advent of life another level emerges, still subject to physical and chemical laws but also to its own different principles. The laws of the lower level do not entirely determine and cannot

fully explain what happens on the higher level. The same pattern is found at each level of the hierarchy up to the responsible freedom of man; each level is still obeying the laws of the lower levels, but within these has freedom to explore creatively its own principles.

Chapter 9 Mind and Body. The ideas of tacit knowing and the hierarchy of levels dissolve the old problem of the relation of mind to body. The mind can be said to be the meaning of the body. It can never be explained by studying the brain, any more than a message can be discovered by studying the ink and paper on which it is written. Thus the mind is not a separate thing inside a physical body, but nor is it identical with the brain, for no higher level principle can be explained on a lower level. The mind can be free, as common sense says it is, although embodied in a physical structure.

Chapter 10 What is a Person? Polanyi has shown the limitations of impersonal rules and tests of our knowledge; he rests the validity of knowledge on the knower as a person. What then is a person? A sentient, responsible, creative being? But the prevailing conception of knowledge cannot allow such a being to be known.

Such a being cannot be known by any laboratory analysis, but can be known by our tacit powers, and Polanyi has shown that these are necessary for science too. The highest qualities and ideals of man thus have as great a claim to reality as the physical and chemical facts known by science, indeed the highest levels have the deepest reality according to Polanyi's definition of reality. And without the reality of persons there can be no science.

Chapter 11 The Poet's Eye. There are different ways of being in contact with reality. The poet's way, for instance, can be as valid as the scientist's; each is appropriate to a different level of existence. Both need faith and trained powers of imagination.

A comparison of Polanyi and Wordsworth illustrates this.

Chapter 12 A Meaningful World. The old disputes between science and religion may thus be resolved. Religion may need to become more like science really is; the religious community as vital as the scientific. Religion cannot ignore science, but will have to stop cringing before an outmoded conception of science. The difference is not that science deals with fact and religion with fantasy, but that the religious view sees a different level; and involves the whole person more deeply, requiring more commitment.

Everyman can have no guaranteed certainty of knowledge in any sphere. But science does not tell him, as he has supposed it did, that the world is meaningless. He can take heart and explore in faith all its riches of meaning.

Drusilla Scott

RORTY AND THE SCOPE OF NON-JUSTIFICATORY PHILOSOPHY - I

In his Philosophy and the Mirror of Nature (Princeton U.P. 1979), Professor Rorty rejects the whole notion of 'justificatory' and 'foundational' (or critical) philosophy, which aims to assess from some superior and external standpoint the claims to truth and validity of the other sciences. He identifies that objective with virtually the whole of modern philosophy, stemming from Descartes, Locke and Kant. Like Polanyi, whom he mentions only twice and then in restricted and misleading contexts, he rejects the idea of being able to assess one's own representations or beliefs from a transcendental standpoint by inspecting the relations between them and their objects (293 - compare PK 304). Also like Polanyi, he rejects the idea that 'whatever cannot be discovered by a machine programmed with an appropriate algorithm cannot exist "objectively" and thus must somehow be a "human convention"' (342). No 'justification' is possible except by what we already accept and what is coherent with it (177). He exposes the geneticist fallacy in Locke - the assumption that a causal account of how our representations or beliefs arise is therefore a justification for holding them. This is a fallacy hidden by the notion of 'foundations' (140, 152). His own position, 'epistemological behaviourism', concedes that there is no neutral matrix, which philosophy would study and formulate, for assessing the correspondence to reality of our perceptions and beliefs (178).

While rightly locating Linguistic Analysis within 'justificatory' philosophy (8, 134n, 172, 257), Rorty finds himself needing justificatory and systematic philosophy in order to have something to oppose. He invokes the later Wittgenstein, Heidegger and Dewey, as providing an essentially reactive 'edifying' philosophy which criticises systematic philosophy for its attempts to find a neutral matrix or transcendental standpoint (366). Edifying philosophy is intentionally peripheral, unable to use argument, and taken to be 'not really philosophy', for it does not aim to find new truths and it decries views without having a view about views. It aims to keep options open and the conversation going and so to prevent philosophy from becoming science (369-72). This is, I presume, what Rorty does in Part I of his book, where he argues against the whole idea of the mind and the need to have a view of it. In Part II he does the same with regard to knowledge. In neither case does he aim to provide an alternative view (6-7). Positively he sees a role for hermeneutics, precisely as not filling the cultural gap voided by the demise of epistemology and as a struggle against the idea that there is a set of rules which will make all discourses commensurate and so settle all disputes rationally (315-6). Rather, he recommends it as an attempt from within a 'normal' discourse to make sense of an abnormal one without trying to make it commensurate with that normal one (318-21). Yet he does have definite views about mind and knowledge, his 'epistemological behaviourism'. For, to criticise one view is to present, implicitly at least, an outline of a counter-view. Perhaps he should not have argued against views of mind and knowledge.

In Part II I shall briefly consider Rorty's positive positions and shall argue that his rejection of justificatory philosophy really needs Polanyi's account of commitment and that his account of 'the mental' requires the theory of the tacit integration of levels within a comprehensive entity. This will provide an organic criticism of his dichotomy of justificatory or edifying philosophy. In the meantime, I state simply that it neglects the possibility and actuality of systematic, non-justificatory philosophy, as may be found in much of Husserl's own phenomenology, as well as in that of Scheler, Pfänder, Merleau-Ponty and Ricoeur, or in classical and Scholastic philosophy, or in Polanyi. Nor do such thinkers proclaim the latest method as the only one and try to impose it on all - very much the contrary. Rorty says of such an attempt that it would take away choice and make Man an être-en-soi (376). He criticises Sartre for trying to create a new systematic philosophy out of the insight that man's essence is to have no essence and so for trying to find new truths from it (378). But Rorty himself errs in taking man to have no essence; for human freedom is not the Sartrean total freedom of a 'Nothingness' to be anything but a limited and situated freedom to work with or against the grain of our nature and situations. A systematic philosophy can try to describe the structures of human nature and the human situation and the scope for choice left open by them. Choice requires an unchosen range of options and a similar set of preferences, the one to choose from and the other to choose by. Choice and responsibility exist on a higher level and require the lower level of a given, yet not closed, nature and situation in and through which to express themselves. The higher level is one of judgment and decision guided by values. To describe it and its values and the possibilities and exigencies of the lower level is, in a sense, to provide 'more objective truths' as Rorty says, and to which he objects (383). Yet substituting a 'pseudo-cognition for choice' and 'claiming that moral decisions are based on knowledge of the natural world' (383) need not be philosophy's form of bad faith. That, I would say, lies in the pretence of justificatory philosophy to make a new start and to believe nothing until it has been justified while continuing, as Descartes openly avowed, to live by one's existing and unjustified beliefs (cf. PK 269-72). In saying this, I suggest that Rorty himself takes knowledge of nature as 'normal' and regards decision and value as 'abnormal'. Systematic philosophy straddles the gap between description and justification, cognition and choice, getting the facts right and telling us how to live (387). But, while the first is an error, the others are not. It is only the (tacit) metaphysics of bare and neutral fact and of a neutral and meaningless universe confronting man as a self-defining subject (with no essence), all implied in the 'Naturalistic Fallacy', which creates the dichotomies of description and evaluation, knowing and choosing. (On the former, contrast PK Chaps. 11 and 12.) On any sane outlook, our action is based on what is the case, on the possibilities and

necessities of our situation. To think otherwise is what Edmund Burke called 'metaphysical madness'. To cut duty off from the facts of our situation is either to be mad or to deny that we have any duties but only whim and fancy. Of course any account of what we can and should do leaves open the choice actually to do it and the responsibility for deciding what exactly one's own particular circumstances require. Rorty seems to evoke a Sartrean and analytic freedom devoid of values and totally arbitrary, in

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I conclude that a truly edifying philosophy (aiming at Bildung) needs to be a systematic yet non-justificatory one, conducted with a sense of personal responsibility and describing the structures within which personal responsibility operates and the standards and values which guide it. Readers of Convivium will know that this is to be found in the writings of Polanyi. Explicitly, Polanyi confines philosophy to a presuppositional approach, that articulates those ultimate beliefs which we find ourselves holding and without which we cannot think or act (PK 269, 299). This is post-critical and fiduciary philosophy which articulates the structures of commitment and provides a critique of doubt, and which alone can be self-consistent (PK 299). Yet, as one might expect, Polanyi's explicit statements do not account for all his practice. They leave out the descriptive side, the epistemological and ontological structures of tacit integration. I have already indicated how they are needed in the articulation of choice and responsibility. In Part II I shall show how they are needed by Rorty's own accounts of mind and knowledge.

R.T. Allen

The Reith Lectures 1984. Minds Brains and Science by John Searle.

These were easy lectures to listen to and easy to read, being crisp and clear in style, and sometimes funny. John Searle dealt competently with some of the muddled ideas, leftovers from Cartesian thinking, which confuse us about minds and brains. He is particularly good on 'artificial intelligence'; he believes and proves that machines cannot think although they may simulate thinking.

But when he comes to his central point, which is to convince us that there is no mind-brain problem; that 'naïve mentalism' and 'naïve physicalism' are both true, and compatible, the crispness and clarity of style is not enough to make it work. 'All that exists is physical particles, their properties and relations'; this is his naïve physicalism, and the naïve mentalism is 'mental states are real, conscious, subjective, intentional and can cause things to happen in the physical world.' He believes enthusiastically in both, but has he the tools to fit them together? If ever arguments needed a dose of Polanyi, I thought, these do. Reading them sent me back to Polanyi, and when I read again the essay on "the Structure of Consciousness" in Knowing and Being, I found Searle's formulations very superficial in comparison.

These are some of the Polanyi Ideas which I think Searle's argument lacks. First, the group of Ideas which includes the notion of levels and boundary conditions and the structure of tacit knowing. Searle starts talking about levels as though he was going to develop a Polanyi sort of argument. He explains how an object can be described on two levels. For instance a hammer described on the higher level is solid and heavy; this weight and solidity is caused by the behaviour of particles at a lower level and can also be described in these terms. If I raise my arm, at the higher level it can be said that my intention to raise my arm causes it to move, but at the lower level the explanation is that a series of neuron firings starts a chain of events which results in the contraction of the muscles. But this presentation lacks the structure of Ideas which would make it possible to show how mind is nevertheless real and independent. Brains cause minds, Searle says; electrochemical processes cause consciousness. This seems to me like saying that pianos cause music or the letters on a page cause Hamlet. For the mind to be real and independent we need the notion that the higher level is made possible, and limited, by the lower, but not determined by it - in fact the idea of boundary conditions. With the help of this idea one can see that no comprehensive entity existing on a higher level can be fully described in terms of its lower level constituents, since the higher level embodies laws which are not observable on the lower level. So life cannot be fully described in terms of physics and chemistry, nor mind in terms of neurophysiology. Minds are, as Searle says, biological, but they are more. Searle defines mind as "the sequence of thoughts and feelings and experiences that make up our mental life." But this leaves out the characteristic of mind which is most unaccountable if we are trying to think of mind as caused by the brain; that is, its relation to external reality; its capacity for distinguishing truth from error.

The lack of these Ideas also makes it impossible for Searle to see how free will can be real, although he is sure that it is. As Polanyi wrote, if mind and body were two aspects of the same thing, mind could not conceivably do anything but what the bodily mechanism determined. The other group of Polanyi Ideas which is needed is that of indwelling and the convivial recognition of other minds. Searle complains that some people he talks to object that mind, consciousness, and subjectivity are unsuitable subjects for scientific study. But so they are, if scientific means impersonal, laboratory type study. As Polanyi says - "to depersonalize our knowledge of living beings would result, if strictly pursued, in an alienation that would render all observations of living things meaningless... We know another person's mind by the same integrative process by which we know life... we experience a man's mind as the joint meaning of his actions."

There is nothing, Searle says, more mysterious about how one chunk of matter can think, than about how another chunk can be alive. Perhaps not more mysterious but certainly not less, and these lectures are not a convincing abolition of mystery.

It has always been the trouble about getting rid of Cartesian thinking, that if you simply say - 'mind and matter are not two things, they are the same thing' - and you don't have a good theory of their relationship, you end up with just matter, however much you want to hold onto both.

Drusilla Scott

A HUMOROUS DICTIONARY OF THE TACIT



Below is a selection from this dictionary. For a copy write to:
Jere Moorman, Box 70155, San Diego, CA 92109.

E

- EMERGENCE:** More dirt comes out of a hole than you can get back into it.
EPICYCLICAL STRUCTURE OF IMPLICIT BELIEFS: The wolf never lacks a pretext against the lamb.
ERROR (RISK OF): You win some, you lose some, but you have to suit up for them all.

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A POLANYI SEMINAR

Would you enjoy an opportunity to spend a convivial week in Chicago with others who are interested in the thought of Michael Polanyi and have access to the large collection of Polanyi materials at the University of Chicago's Regenstein Library? From Monday evening through Saturday noon, July 29 through August 3, at Meadville/Lombard Theological School, about fifteen of us will be doing that.

The ground rules etc. are approximately as follows:

- 1) Morning sessions, Tuesday through Saturday, will be devoted to discussion of papers submitted in advance by participants.
- 2) Afternoons will be free to work with the library and archival materials at Regenstein Library, just one block West of Meadville/Lombard. Since fifteen people at one time would be difficult for the special collections staff at the library, some of us may need to find other things to do on some afternoons. Lake Michigan is nearby, and several excellent museums are easy to get to.
- 3) Evening sessions will be devoted to informal group conversation, perhaps picking up on the morning's topics, certainly enjoying refreshments and good company.
- 4) Dormitory housing in individual rooms will be available at Davis Hall of the Chicago Theological Seminary, one block South of Meadville/Lombard. It will not be possible to accommodate families.
- 5) Each participant will be expected to submit a paper or at least a draft of a paper on or related to Polanyi's thought by July 1. They will be copied and mailed in advance of the seminar to all participants. No papers will be delivered at the seminar itself.
- 6) The cost will be \$90 for registration, which includes copies of the papers, refreshments, etc., and \$90 for housing for six nights. Meals will be on your own. An inexpensive deli/cafeteria is very convenient. You probably could get by on as little as \$6 a day, and could, of course, spend much more.

If interested, please complete and return the form below with your deposit to Gene Reeves, Meadville/Lombard, 5701 S. Woodlawn Ave., Chicago, Ill. 60637. Since enrollment has to be limited to fifteen, who are to be selected by the order in which applications are received, it is in your interest to respond promptly.

I am interested in attending the Polanyi Seminar at Meadville/Lombard, July 29-August 3. Enclosed is my deposit of \$50. I would/would not like to have housing reserved for me at Davis Hall. If accepted in the seminar, I promise to have a paper in the mail by July 1 or forfeit all due dignity and respect.

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