

THE MEANINGFUL AND THE REAL IN POLANYIAN PERSPECTIVE

An empirical statement is true to the extent to which it reveals an aspect of reality, a reality largely hidden to us, *and existing therefore independently of our knowing it*. By trying to say something that is true about a reality believed to be existing independently of our knowing it, all assertions of fact necessarily carry *universal intent*. (PK 311) [M]inds and problems possess a deeper reality than cobblestones, although cobblestones are admittedly more real in the sense of being *tangible*. And since I regard the significance of a thing as more important than its tangibility, I shall say that minds and problems are more real than cobblestones. (TD 32-33)

These two quotations from the work of Michael Polanyi offer, I submit quite different interpretations of reality. In the first quotation reality has an independent status that we can access only through skillful intellectual acts comprehension. The implication is that our thoughts may or may not be successful in comprehending such reality. That is, there is incipient in the first quotation a basic contrast between reality and illusion (intellectual acts which fail to grasp reality).

In the second quotation, Polanyi introduces the notion of a gradated, multifarious reality. By what criterion does he distinguish degrees of reality? Polanyi appears to offer two answers to this question. On the one hand, minds and problems are said to be more significant than cobblestones and thus more real.. That is, this criterion states that degrees of reality are functions of significance. I'll call this the "significance criterion." On the other hand, Polanyi states that persons and problems are more profound than cobblestones "because we expect them to reveal themselves in unexpected ways in the future" (TD 32). I'll call this the "revelatory criterion."

What is the relationship of the significance criterion to the revelatory criterion? Polanyi follows up his statement that minds and problems are more real than cobblestones with this elaboration: "This is to class our knowledge of reality with the kind of foreknowledge which guides scientists to discovery" (TD 33). This foreknowledge includes an inarticulate ability to sense clues which can be successfully indwelt and integrated into meaningful comprehensive entities. The same structure of coming to know underlies our comprehension of people, problems, and cobblestones, but the former have a rich diversity of aspects not exhausted by our knowledge of one facet of their existence. Hence they will reveal themselves in unexpected ways, which are signs of their significance. But our knowledge of reality is also confirmed after the fact by the criterion we use to assess knowledge claims. Scientists judge a contribution as meritorious by determining "*its exactitude, its systematic importance, and the intrinsic interest of its subject matter*" (TD 66). Polanyi claims that living things have far greater intrinsic interest than does inanimate matter (TD 66). Something is said to have intrinsic interest if it is expected to reveal itself in unanticipated ways in the future (TD 68, M 187-188, KB 151). Thus both in terms of foreknowledge and subsequent assessment the significance criterion seems reducible to the revelatory criterion, which is in turn linked to assessment of the richness of facets of what is known.

I have long been bothered by the version of ontology Polanyi offers in the second quotation. I

will seek to show in this essay that using the significance and revelatory criteria as measures of reality results in a blurring of genuine differences between reality and meaning. This produces an ambiguous idealistic ontology lacking the power to underwrite the sorts of discriminations usually looked for in a theory of the real. But if these criteria are understood as measures of *meaning* (which might in turn be directed toward reality), one can make sense of the second quotation. Minds and problems are more meaningful than cobblestones to humans. Thus I will argue against those persons - Phil Mullins and John Puddefoot will be cited here - who amalgamate reality and meaning into a reality/meaning holism, though I grant that Polanyi makes statements which support such an interpretation. In order to argue against this monistic interpretation of Polanyi's thought, I will bring out other dimensions of his philosophy which have been recessive in recent discussion of his ideas. I'll demonstrate how the distinctiveness of meaning and reality is entailed by Polanyi's explication of evolutionary emergence. The resulting version of Polanyian philosophy is, I believe, more coherent and more adequate to the evidence than alternative versions.

I. Reality

Reality is discussed by Polanyi and many others in a broader and a narrower sense. In the broader sense, reality designates anything and everything that exists, whether known or unknown, tangible or conceptual. On this notion, quarks, colors, cars, unicorns, UFO's, even nothingness, all have some sort of existence and therefore reality. The problem with this inclusive notion of reality is that it has no discriminatory power. Everything is real in some sense, and nothing is unreal. The only way the broader sense of reality can be useful is if a compendium of the different types of reality (tangible reality, law-like reality, imagined reality, etc.) is set forth, and this Polanyi fails to provide.

Consequently, a narrower, more useful sense of reality must be articulated, but it is difficult to specify how best to delimit the notion of reality. In part this is because the broader notion of reality lurks in the background of our minds and whispers to us about anything excluded from the real. "Well, isn't that real also?" In part we do not know how best to delimit the notion of reality because we are dealing with a topic that transcends human comprehension. Nevertheless, clarity in communication demands that some specific definition or delineation of reality in its narrower sense be stipulated.

Many Polanyian insights are useful in describing what I take to be the most important characteristics of reality (chapter 4 of Sanders, 1988, offers a thorough overview of Polanyi's various claims about reality). First, we can affirm with Polanyi the inexhaustibility and indeterminacy of reality. In its complexity it far, far exceeds human comprehension (see the first quotation above, *KB* 79, and examples throughout Polanyi's writings). Second, the independence criterion mentioned in the first quotation is important to emphasize. We don't simply create the real; it impacts us. Third, despite reality being indeterminate and independent of our knowledge, yet all animate life is immersed in reality and is able to survive because of an ability to comprehend those features of reality necessary for survival. Reality possesses the capacity to lure humans toward significant conception (*PK* 402, *KB* 119-120), thus satisfying our yearnings to know, to control. More will be said about this evolutionary perspective shortly. Fourth, I would augment Polanyi's description of reality by mentioning such clearly independent characteristics of reality as thingliness (existence in space and time), organizational features (for instance, specific structure), public accessibility, and process (for instance, law-like behavior), though I'd stress that not all that is real will manifest all such characteristics. Fifth, and perhaps most importantly, as already intimated,

reality is to be contrasted with illusion. Thus Polanyi states that our perceptual judgments may be true but they may also be false (e.g., being misled by a trompe l'oeil painting [M 91], determining the "contents" of visionary art [M 113], or erring in judging a moving object against its background [KB 111]). There is no incorrigible access to reality; all our knowledge of the real is fallible. This, indeed, is one reason why the meaningful should be separated from the real. Our claims about the real may be meaningful but false. Polanyi's emphasis on processes of verification and validation (for instance, see PK 202) is meant to ascertain when the meaningful and the real are in harmony and when they are not.

II. Meaning

Now that the leading characteristics of the real, in the narrow sense of the term, have been specified, it is time to direct attention to meaning. Again, Polanyi uses the term in a broader sense, but he also uses it in many narrower senses. In the broader sense of the term, meaning is some sort of initiative carried out by living centers responding to useful stabilities or opportunities in the environment. That is, Polanyi sees a correlation between potentially useful attributes of reality (stabilities) and active meaning construction of living things whereby they adjust to and control their environments.

Dead matter, matter that is both lifeless and deathless, takes on meaning by originating living things... The field of new potential meanings was so rich that this enterprise, once started, swept on toward an infinite range of higher meanings, unceasingly pouring them into existence, for the better part of a billion years. ... Rising stages of evolution produce more meaningful organisms, capable of even more complex acts of understanding. (TD 91)

Once humans emerged out of the evolutionary process, a new and much richer kind of meaning came into being. At times Polanyi relies upon Theilhard's term "noosphere" to designate the lasting articulate framework of thought created by humans (PK 388). When I normally use the term "meaning," I will refer primarily to a narrower concept of meaning, human meaning, as that mental process which produces the noosphere. I'll also refer to cultural forms of meaning whereby the noosphere takes on an objective quality insofar as the integrations producing it are put into such lasting forms as written language, musical scores, or digital recordings.

Before specifying the characteristics of human meaning, however, let me make it clear that Polanyi uses the term "meaning" not just in one narrower sense, but in a plethora of sometimes inconsistent senses. Thus, for instance, in the famous *Preface* to the paperback edition of *Personal Knowledge*, indeed within consecutive paragraphs, Polanyi asserts seemingly incompatible notions of meaning. First he says that when we attend from a subsidiary element A to a thing B, that the focal thing B is the meaning of A (PK x). Then he states that "the meaning of language, when in use, lies in its tacit component" (PK x, contra, for instance, PK 92). Which is it - is meaning found in the explicitly known object or the tacit resonances of language? The discussion of meaning on pages 71-75 of *Meaning* produces a tangle of unhelpful or inconsistent usages (see Gulick 1992-93 for a discussion of some of the problems). Many of Polanyi's attempts to distinguish types of meaning (e.g., the distinction between physiognostic and telegnostic meaning, KB 128-129, or even the frequently cited contrast between sense-giving and sense-reading, KB, chapter 12) are often problematic or unhelpful. In short, the term "meaning" only gradually became a technical term for Polanyi, and old age prevented him from ever bringing the concept to consistent systematic clarity.

One must be especially wary, therefore, of quotations about meaning taken from different contexts in his writing. They may not add up to a coherent theory. What is needed instead of uncritical proof-texting is a stipulated definition sensitive to the most fruitful of Polanyi's insights, but also to issues of cogency.

Here then are seven characteristics of human meaning - meaning in a stipulated narrow sense. The first five characteristics are drawn directly from Polanyi, while the sixth is taken from the writings of Susanne Langer and the seventh is my organizational suggestion drawing on Polanyi's thought. The following is a typical formulation of Polanyi's mature theory which includes several of the characteristics to be stressed.

The theory of Personal Knowledge offers an interpretation of meaning. It says that no meaningful knowledge can be acquired, except by an act of comprehension which consists in merging our awareness of a set of particulars into our focal awareness of their joint significance. Such an act is necessarily personal, for it assimilates the particulars in question to our bodily equipment; we are aware of them only in terms of the things we are focally observing. (SM 44)

First, meaning is the product of *integrative acts* which create a new whole out of previously discrete parts. The Gestalt theory of perception served as a source of inspiration for Polanyi in conceiving integration as the key act in meaning construction. While at first he generalized the process of perceiving into a universal theory of meaning, later, especially in *Meaning*, he recognized the complexity of different structures of meaning. But integration remains the basic act of meaning construction and of coming to know.

Second, meaning is not some unsupported object in the world. The act of integration producing meaning is an *embodied* achievement, and meaning exists insofar as it is experienced. Integration is a skill dependent on a cluster of other embodied activities and skills, many of which are unconscious biological functions. As embodied, acts of meaning creation are motivated by intellectual passions and various yearnings for satisfaction. Thus meanings may be empirical or non-empirical, but they are always value-laden to some degree.

Third, the particulars which are integrated stand as subsidiaries to what is *focally* known and meaningful. These subsidiarily known particulars may range across all degrees of consciousness (KB 194, "Logic and Psychology" 31). There is a difference in kind between subsidiaries, which can only be known indirectly through their bearing on focal objects, and the explicitly known focal objects jointly created by individuals indwelling subsidiaries. A shift of attention to subsidiaries as objects destroys their function as subsidiaries and may unravel a meaningful performance, as when a pianist attends to the keys rather than the music he wishes to perform.

Fourth, Polanyi emphasizes the vectorial quality of our tacit acts of meaning projection and of the context within which meaning arises. "all meaning tends to be displaced *away from ourselves*" (TD 13) because we have no focal awareness of the body when we attend to meaning. Drew Leder makes creative use of this insight in *The Absent Body*. While perceptual meaning tends to be projected, there is also much meaning that is not situated in time and place. More important than the placement of meaning is its dependence on the *from-to structure of consciousness*. We humans think *from* a tacit Background, a pre-articulate array of sensations, schematized intentions and memories, muscular signals, bodily drives, etc. Our limited avenue of access to this realm of schemata is through feeling. The Background (my use of the notion of the Background reflects the influence of Sanders [1988,

175 ffJ and Johnson [especially 181-190], both of whom refer to Searle's ideas) forms the context from which subsidiaries are drawn and meaning is constructed under the guidance of general projects and specific thrusts of intentionality. Relevant materials from the Background are utilized as subsidiaries which when integrated jointly create that meaning to which we attend explicitly. Considerable work has yet to be done to determine how the deep Background is related both to subsidiaries of which we may be conscious and to language (concerning which I will shortly offer a suggestion). In any case, the from-to structure of consciousness is Polanyi's insightful way of talking about the intentionality of consciousness.

Fifth, in contrast to the linguistic theories of meaning so prevalent earlier in Anglo-American philosophy, the Polanyian notion of meaning holds fast to the *mental* quality of meaning. Persons experience meaning within consciousness. Polanyi mentions how the linguistic theories of Charles Morris, Skinner, and Quine "all flow from a compelling desire to eliminate any reference to a tacit structure of meaning, which is necessarily mental" (*KB* 195). Polanyi reunites philosophical and psychological concerns in his understanding of meaning, and he demonstrates that attempts to eliminate the knower and the mental from explanation in the name of objective proof is both facile and futile.

III. A Symbolic Interlude

Now, however, a problem in Polanyi's notion of meaning needs to be pointed out. We have seen that meaning, as produced by integrative acts in an embodied from-to structure of consciousness, must necessarily be mental. But Polanyi does not consistently refer to what is meaningful as simply mental. Rather, early in his reflection on meaning he makes the following distinction:

We may describe the kind of meaning which a context possesses in itself as existential, to distinguish it especially from denotative or, more generally, representative meaning. . . .All kinds of order, whether contrived or natural, have existential meaning; but contrived order usually also conveys a message. (*PK* 58)

It can be seen in this and countless other passages that Polanyi ascribes meaning to objects, contexts, and a variety of entities. Here is another sample of the jumble of things he sees as meaningful. "A living individual is altogether different from any of the inanimate things, like tunes, words, poems, theories, cultures, to which we have ascribed meaning before this. Its meaning is different, perhaps richer, and above all, it has a centre" (*PK* 344). Here persons are meaningful in richer senses than words or cultures. Or again, drawing on his hierarchical notion of reality, Polanyi claims that "Mind is the meaning of certain bodily mechanisms" (*KB* 238). Pretty soon it becomes hard to see what isn't meaningful . . .and the term "meaning" is then threatened with the same lack of discrimination that haunts "reality" in the broad sense.

A sixth point is needed in our stipulative definition of human meaning. In order to bring the notion of meaning to a useful precision and clarity, I find it heuristically advantageous to rely upon Susanne Langer's division of meaning into signal meaning, connotation, and denotation. (I am not alone among interpreters of Polanyi to appreciate Langer; Robin Hodgkin also makes use of her notion of symbols, although they are not brought into close connection with Polanyi's thought - see 62-64 in particular.) Signals alert animals to past, current, or future states of reality, especially as these pertain to the survival of the animal. Signals are learned and include smells (as of food or potential enemies), sights (footprints of prey), sounds

(thunder as a signal of approaching rain, squeals of distress), touching (the banana is soft and ready to eat), and taste (this banana is too ripe). Connotation and denotation bring us into the province of symbols. Through symbols we can conceive of things apart from their presence, not merely respond to realities indicated by signals. Thus symbols are the vehicles for imagination and reflection. Gestures and images can function as symbols, but language is the preeminent domain of symbols. Words and phrases, when indwelt, have connotations, arrays of meaning. Words may be used to point out specific objects; this is denotative meaning. Through symbols in general and language in particular, human meaning is brought into being and takes on its special character. Symbols open up the past for reflection and the future for planning. Human culture is dependent on human symbolic activity.

Polanyi uses the notion of symbols in a more restricted sense than the inclusive way Langer speaks of symbols. For Polanyi, symbols, relatively uninteresting in themselves, evoke emotionally interesting subsidiaries - memories, hopes, etc. (*M* 72). I think it is important to have some term which designates such emotionally charged objects as the crucifix or a country's flag (and for this purpose I have used the term "existential symbol" - see Gulick 1990), but it is even more important to highlight the feature of human existence which brings about the distinctively human form of meaning comprehension. Such is the symbol as elaborated by Langer.

Polanyi's description of meaning is handicapped by the manner in which he tries to deal with such useful distinctions as signals, connotation, and denotation. Actually, he deals quite helpfully with signals through his discussion of trick and sign learning (see *PK* 71-73). His discussion of latent learning represents a transition (via the notion of a mental map) to the notion of symbol as set forth by Langer (see her discussion of presentational symbols). But Polanyi's analysis falters when it comes to discussing connotation and denotation. "The conflict between the view that denotative language bears on objects and the classical view, which holds that language bears on conceptions, is resolved here by admitting both possibilities and establishing a continuous transition between the two" (*KB* 190). Why not clearly distinguish between connotation and denotation rather than argue for a fuzzy synthesis between incompatible polar entities, a compromise which undermines the mental quality of meaning? The conception to be stipulated here is this: all human meaning is produced by people indwelling symbols (and generally other subsidiaries) which jointly create a mental meaning. The various meanings of words when indwelt are connotations; the various construals of sentences and longer concatenations of language are interpretations. If the mental meaning is in turn referred to some specific object(s), then what is referred to is denoted. A mental meaning is in this case referred beyond itself.

The essential function of language and other symbols in human meaning is hinted at by Polanyi through his discussion of articulation, intellectual passions, and the various domains of meaning described in *Meaning* (see *PK* 376 for an explicit recognition of the crucial role of language for humans). Lacking a clear notion of symbols, Polanyi treats words as but additional subsidiaries to be taken account of and integrated into meanings. But I would argue that symbols (words) are not at the same level as other subsidiaries. In our evolutionary development, language acquisition is recent, and its achievements are built upon insights provided by sensation and signals. Humans have developed an insatiable need to symbolize all of interest that comes to consciousness, and symbolization does not cease on command. Even when we sleep, symbols are often irrepressible, providing us with sequences of dreams. The transition from incoming sensation to comprehended perception is made possible because what is of possible interest is schematized, symbols responsive to the schemata are evoked,

and thought is thereby focused and unified. All this is to say that words, even though transparent in the creation of meaning, dominate ordinary human consciousness and create a type of consciousness different in kind from the consciousness of animals.

This leads me to a seventh and final point about human consciousness. I propose that human meaning be understood as produced through a *from-via-to* structure of consciousness in which the "via" signifies the role of symbols - primarily language - in organizing and unifying the various other subsidiaries contributing to a specific meaning. The "via" recognizes the uniqueness of symbol-saturated human consciousness. Our intentions and urges come to linguistic expression via the evocation of words which articulate our felt sense of dawning coherence, and our words are shaped into meaning according to our intentions as constrained by the rules of grammar. Our conscious life develops a momentum whereby what has been thought evokes related thoughts, or what has been sensed in the process of doing something modifies what we do next.

These seven attributes of meaning constitute not so much a strict definition of meaning in its narrow sense as a delineation of a vision of human meaning I have found fruitful. It is now time to explore how well such a conception of meaning can illuminate the nature of reality.

IV. The Relation of the Meaningful and the Real in Evolutionary Perspective

Part Four of *Personal Knowledge* has tended to be the most neglected part of Polanyi's *magnum opus*. (Of course, exceptions can be found: according to Andy Sanders, the late Professor Van Peursen of the Free University of Amsterdam emphasized Part Four in his graduate courses.) Marjorie Grene, despite her role in counseling Polanyi as he wrote *Personal Knowledge*, distanced herself from this portion of his work. In particular, she opposed his endorsement of a teleological component in evolutionary theory. Yet the perspective developed by Polanyi in this concluding section of his work is most helpful to one seeking a plausible account of what can be known of reality. I'll sketch out the links I see implied between "the rise of man," the development of meaning, and comprehension of what is real.

Taking an approach that goes back to Aristotle, Polanyi explores how life first emerges at what he calls a morphological and vegetative level. Building on the achievements of this most primitive level, an active-perceptive level of life comes into being. At the first level of life there are two classes of appraisal: health and disease (*PK* 363). The forms of appraisal at the active-perceptive level are doubled; they include "(1) objectively reasonable inference, (2) reasonable error, (3) subjectively reasonable inference, and (4) unreason, i.e., no inference" (*PK* 366). Human existence is subject to all these types of appraisal because our embodied life includes morphological-vegetative and active-perceptive components. A further type of appraisal distinctive to humans is suggested by Polanyi: "a dialogue between equals within a complex culture acknowledges a further (fifth) grade of knowledge, not appraised critically by those who recognize it, but accepted by them largely unseen, on the authority of those whom they believe to possess it" (*PK* 376). This fifth type of knowledge relies upon faith and imagination, in conversation with tradition, to reach beyond present circumstances in a creative cultural thrust. As already noted, this form of human knowing and doing is only possible because the employment of symbols allows humans to break out beyond the realm of mute feeling, beyond stimulus and response.

Evolutionary advance can only begin once centers of life emerge from the primordial)

inanimate slime and operate as self-interested entities (PK 344). "The existence of every living being is acknowledged as an aim in itself; however nasty a flea or liver fluke may be to us, we recognize the rational functioning of its organs in their own interest" (PK 360). At the morphological-vegetative level) of existence, an organism's activities are meaningful in the broad sense of the term as self generated actions systematically conducive to survival. Their reaction to environmental threats is of a stimulus-response sort. Thus organisms at this level) need sensors to account for external threats (enemies, heat from the sun) and opportunities (food, in some cases reproduction). In order for the species to survive, the sensors must accurately communicate the presence of threats and opportunities to the schematized sensitivities crucial to the organism's functioning.

Human existence builds on the accomplishments of previous levels of life. Our senses are the evolutionary descendants of primitive sensors which, as we have seen, must accurately portray the realities of the organism's environment if the organism (or more accurately, the species) is to survive. Human senses in their more sophisticated form continue to have the same function. It thus follows that the witness of our senses to the nature of reality is a highly reliable witness. The stimulus-response sensory mechanisms of primitive organisms are causal in nature. So it must be with the basic data provided by our senses: they are causally connected to the environing reality. The sensation that is available to us as potential subsidiaries is mediated by sensors, the activation of nerves, and brain states, but it is nevertheless in contact with reality in this transmuted, translated form. Sanders' description of the correspondence between tacit knowing and the object it knows as homomorphic (correspondence as correlation) seems apt to describe the fit between the real and our sensing of the real at this pre-articulate level). (see Sanders, 1988, 150-151). That is, healthy individuals are *veridically in contact with reality* via our senses in the *from* dimension of experience. When we select among the vastness of potential subsidiaries and symbolize those of interest in the process of perceiving and knowing, we introduce an interpretive overlay on sensation which diminishes the certainty of our knowledge of encompassing reality. There is an element of risk in knowing.

The next significant step in evolution is an advance found in animals only. At the active-perceptive level), deliberate action consciously triggered by drives comes into being. Perception, in contrast to mere sensation, arises as a type of conscious deliberation (PK 361). The active, perceiving individual "has two more possibilities for going wrong, namely, *subjectivity* and *error*" (PK 361). Thus rats will drink saccharine solutions which have no nutritive value and fish strike at a fisherman's fly. We judge each of these as mistaken actions of the drive to nourish the organism. We "deprecate the drinking of a saccharine solution in a rat, as offering a purely *subjective satisfaction*, and class the swallowing of an angler's fly by a fish as a *reasonable error* in an otherwise altogether rational way of feeding" (PK 362). Polanyi claims that human perception is subject to a similar logical structure having comparable opportunities to go wrong.

The implications of perception's possibilities of rightness and wrongness are interesting to consider with respect to our knowledge of reality. On the one hand, the generalizing power of symbols when integrated with sensation greatly increases the scope of meaning available to us. On the other hand, the new possibilities of error decrease the reliability of perception in contrast to sensation. But since humans need constantly to symbolize experience, we have no assured access to sensation alone, and even if we could consistently bathe in sensation, we must still symbolize this experience in order to bring it to the level of human meaningfulness. Thus, despite the fact that sensation is more veridical than perception, in practice we must

rely upon perception rather than sensation alone for our knowledge of local reality.

V. How the Meaningful and the Real are Connected in Acts of Knowing

But what of knowledge of the real that transcends perception? How can we be sure that the theories and laws of science are reliable? In its establishment of natural laws and causal mechanisms, the scientific enterprise uses symbols to capture dimensions of reality incomprehensible to a person dependent on perception alone for an understanding of the real. That is, when symbols are loosened from their empirical deployment, they have the potential to expand comprehension of the real dramatically and with an unprecedented scope of meaning. Among the mechanisms which account for the breadth and depth of scientific knowledge of the real, I'll mention three, each of which depends on the crucial via dimension of consciousness. The first is the abstractive power of symbols, through which countless particulars can be apprehended, and through which generalizations can be articulated, tested, and comprehended. Second, symbols allow individuals to rise above their immediate experience and rely upon the authoritative theories of others in the scientific communities, the guardians of a tradition, who are better placed to understand and interpret the phenomena under consideration. Third, through the descriptive and imaginative power of language humans can locate attractive problems, intuit avenues of potential solution, and creatively advance solutions to the problem. "It is only the imagination that can direct our attention to a target that is as yet unsupported by subsidiaries" (*M* 57). To be more specific, imaginative vision relies upon symbols rather than immediate sensation, and the subsidiaries which would constitute a possible verification are generally ultimately perceptual in nature. "We begin to see now how the scientist's vision is formed. The imagination sallies forward, and intuition integrates what the imagination has lit upon" ("Creative Imagination" 64).

I have emphasized the role of symbols in establishing through science a comprehension of reality. An attractive alternative explanation is offered by Esther Meek in her dissertation on Polanyi's notion of realism. (The following sentences are based on the summary of Meek's work as reported by Sanders, 1996-97, 32-33). She describes a reality criterion and an integrative criterion as each involved in making reliable contact with reality. Her reality criterion designates what I earlier termed the revelatory criterion, the feeling that what is discovered will have indeterminate future manifestations. The integrative criterion apparently comes into play subsequently once imaginative forays are satisfied by intuitive integrations supplying needed subsidiaries. Then experiences of the coherence, rationality, and intellectual beauty of the discovery will occur. I would only comment that Meek's approach, in relying upon the revelatory criterion, may offer a better account of vivid experiences of the extension of meaning than of contact with reality.

What has yet to be clarified is how one distinguishes richer meanings which result from contact with reality from richer meanings which have no bearings on reality. The issue is particularly complex with regard to whether today's highly abstract physics is making contact with reality. While Polanyi might caution us that we are dealing with a fundamental indeterminacy, it is still important, I feel, to press toward the best answer one can give to this issue.

I have acknowledged that the artifacts of human creative processes - books and buildings, sonatas and slogans - exist in some sort of objective form. It is convenient to refer to such cultural forms of meaning as being within some realm of human meaning so long as it is understood that these entities are meaningful in the strict sense only if they are taken up in

integrations or evocations by persons in the act of meaning construction. Insofar as these artifacts are publicly accessible (see the fourth aspect of reality), they express characteristics of reality as well as of meaning. As cultural artifacts they can be perceived and studied by the humanities and social sciences. Symbols can be regarded as cultural forms of meaning; when one looks up the meanings of words in a dictionary one is treating them as cultural forms of meaning. But the conventional meanings listed in such a source are to be contrasted with the connotations held by a person in the process of speaking or the denotations she employs. These latter are matters of human meaning in the narrow sense of meaning as experiential, as mental.

What is one to make of the relation between meaning and reality in such cultural forms of meaning as Mickey Mouse, Santa Claus, and an Azande witch? Each can evoke a number of meaningful experiences. Each manifests some sorts of public characteristics (Mickey's skinny black legs, Santa's white beard, the Azande witch's suspicious behavior according to some public standard), a characteristic of reality. Each would seem likely to manifest unexpected and indeterminate aspects in the future, for Polanyi also a sign of its reality. But each is also characterized to at least some degree with illusory qualities, and thereby on our definition should not be taken as real. How does one juggle all these contrasting aspects? As Mickey, the cartoon character is subject to social scientific and humanistic but not natural scientific investigation. To be sure, one could investigate the chemical properties of the paper on which the figure of Mickey is printed, but that would not be investigating Mickey. So one would have to say something like this: Mickey Mouse is not real in any referential sense, but he has an objective presence as a cultural form of meaning that has the capacity (through the entrepreneurial genius of Disney) of evoking ongoing rich experiences of meaning. Contra Polanyi, Mickey is not more real than a stone, but much more deeply embedded than a stone in realms of human meaning that matter to people

In sum, in cultural forms of meaning a marriage between reality and meaning can be found. The material basis for representing Mickey is real, as are the materials out of which a building is constructed and the stuff of which soap is made. But the functions of these entities are thoroughly infused with human meaning. I now offer this very tentative way of framing the difference between rich meanings that bear on reality and those not fundamentally deepening our knowledge of reality: in experiences of the former, our symbols and cultural resources are ultimately aimed beyond themselves (insofar as the real is independent of our creativity), aimed toward explicating what is perceived (even if that perception is as tenuous as the measurements ultimately verifying Einstein's relativity theory), whereas when the focus of attention in a rich experience of meaning is internal, focusing on our assessment of meanings (including cultural forms of meaning), the symbols in which they are embedded, or the feelings associated with the experience, then meanings one experiences do not deepen one's understanding of reality. I leave aside for now the ontological status produced by studies of cultural forms of meaning.

Now let us return to the issue of how human meaning establishes scientific knowledge of reality. There is a paradoxical character to our comprehension of the real. Our deeply etched, broad-ranging knowledge of reality is less veridical than our narrow, vague, pre-articulate, tacit feeling of it. The claim I am making about sensation as our surest contact with reality has some parallels with Whitehead's notion of causal efficacy; moreover, the Background would include, among other elements, features of his notion of presentational immediacy. But I find Polanyi's evolutionary perspective and his notion of consciousness much more adequately illuminates how humanly created meanings can be in contact with reality than

Whitehead's metaphysical scheme.

Before leaving the topic, two clarifications are needed regarding my claim that our senses are causally connected to reality. First, as Polanyi noted, it may sometimes be the case that our sensory equipment will have flaws (color blindness, deafness, etc.). But such flaws are not the norm, or the erring senses would make the human species vulnerable to living beings more in tune with the way things are. On the whole, it is legitimate to claim that sensation prior to its interpretation gives us veridical (although, of course, partial) access to contiguous reality.

Second, some philosophers might interpret my claim about access to the real as resurrecting a notion of the given, a notion generally regarded as discredited. To some extent this would be correct, but I think the notion of the given has not been treated fairly. Often it has been debunked by a version of pan-rationalism or linguistic universality, views Polanyian thought effectively shows to be untenable. Just because humans can only communicate or reflect through language does not imply that reality is inherently linguistic in nature. Reality is complex and layered, and we can imaginatively use language to comprehend dimensions of reality not linguistic in nature. Polanyian philosophy authoritatively counters any Hegelian notion that the real is the rational. The sensory given is never given already packaged in language; it is given feelingly, in one's Background. I am claiming neither that humans have immediate access to this sensation, nor that it provides an infallible foundation for scientific knowledge. But sensation is given. It contributes to perception (sensation plus identification in language of sense objects), which is a learned achievement, open to the real in ways which are potentially qualified by interests of the organism.

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