Between tacit knowing and pragmatism: linking Polanyi and the pragmatists

Entre o conhecimento tácito e o pragmatismo: relacionando Polanyi aos pragmatistas

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Abstract: This paper will explore a number of intersections between the work of the great philosopher-scientist Michael Polanyi and key themes and issues that lie at the heart of the pragmatist philosophical tradition. Polanyi's notion of tacit knowledge and his construction of a model of consciousness developed from clues from Gestalt psychology has a remarkable set of parallels with pragmatism's own concerns on both the methodological and substantive levels. I show, through selective examples, how Polanyi's work can be fruitfully linked with pivotal notions from Dewey's, Peirce's, and James's reflections. Of especially importance is Polanyi's exploitation of the analytical notion of a skill which allows him to develop a truly experimental theory of knowing that abolishes the spectator model that has haunted the philosophical tradition and which pragmatism opposed on many levels.

Keywords: Polanyi. Tacit knowing. Skills. Pragmatism. Spectator theory of knowing. Consciousness.

Resumo: *Este artigo explorará várias interseções entre a obra do grande filósofo-cientista Michael Polanyi e os temas e questões que estão no cerne da tradição filosófica pragmatista. A noção de Polanyi do conhecimento tácito e sua construção de um modelo de consciência desenvolvido de indicações da psicologia da Gestalt possui um notável conjunto de paralelos com as próprias questões do pragmatismo em ambos os níveis, metodológicos e substantivos. Demonstro, através de exemplos seletivos, como a obra de Polanyi pode ser proveitosamente relacionada às noções cruciais das reflexões de Dewey, Peirce e James. É de especial importância a exploração de Polanyi da noção analítica de uma capacidade que lhe permite desenvolver uma teoria do conhecimento verdadeiramente experimental, que suprime o modelo espectador que tem perseguido a tradição filosófica e ao qual o pragmatismo se opôs em muitos níveis.*

Palavras-Chave: Polanyi. Conhecimento tácito. Capacidades. Pragmatismo. Teoria espectadora do conhecimento. Consciência.

In this paper I want through *schematic exemplification* to show how to profitably link the philosopher/scientist Michael Polanyi's theory of 'tacit knowing,' with its foundation in a rich model of conscious awareness, to James's, Dewey's, and

Peirce's attempts to pinpoint the fundamental distinctions to be drawn in the way we encounter the world at the very 'thresholds of sense.' Polanyi, coming from outside 'professionalized philosophy,' with a deep knowledge of science and its philosophical and social import, both confirms them, expands them, and maybe even twists them in ways that light up new features of each of the points of intersection that I will pass in review. Polanyi supplies new analytical tools, rooted in his account of tacit knowing, for coming to grips with the fundamental ways we endow our experience with meaning within the whole continuum of our interactions with the world. What I am presenting here is not so much a detailed argument, which is impossible in the present circumstances, as a provocation and invitation to 'see connections,' which Wittgenstein thought was the fundamental role of philosophy. I have treated these issues extensively in my books, *Consciousness and the Play of Signs* (Innis 1994) and *Pragmatism and the Forms of Sense* (Innis 2002).

In the preface his *The Tacit Dimension* (Polanyi 1996), summarizing and extending the model of knowing of his magisterial work *Personal Knowledge* (Polanyi 1958), Polanyi wrote:

> All thought contains components of which we are subsidiarily aware in the focal content of our thinking, and all thought dwells in its subsidiaries, as if they were parts of our body. Hence, thinking is not only necessarily intentional, as Brentano has taught: it is also fraught with the roots it embodies. It has a *from-to* structure. (x)

This from-to structure, according to Polanyi, applies to all acts of awareness by means of which, as he put it in his essay, 'The Structure of Consciousness,' we are "not only conscious *of* something, but also conscious *from* certain things which include our body" (in Polanyi 1969: 219).

Further, in the preface to *Personal Knowledge*: *Toward a Post-Critical Philosophy* he wrote:

> I regard knowing as an active comprehension of the things known, an action that requires skill. Skilful knowing and doing is performed by subordinating a set of particulars, as clues or tools, to the shaping of a skilful achievement, whether practical or theoretical. We may then be said to become 'subsidiarily aware' of these particulars within our 'focal awareness' of the coherent entity that we achieve. Clues and tools are things used as such and not observed in themselves. They are made to function as extensions of our bodily equipment and this involves a certain change in our own being. Acts of comprehension are to this extent irreversible, and also non-critical. For we cannot possess any fixed framework within which the reshaping of our hitherto fixed framework could be critically tested. (vii)

Skilful action aims toward various kinds of achievements, 'whether practical or theoretical,' and thus the model of skills repudiates the 'spectator' view of knowing that the pragmatist tradition also opposed in various ways.

Indeed, in his concise and profound 1896 critique of the reflex arc model of experience ('The Reflex Concept in Psychology,' also known as 'The Unit of Behavior') Dewey had argued that experience quite generally, like a skill, is a *circuit* and in "continual reconstruction" (1896: 5), much as Peircean semiotics sees semiosis. What Dewey said about life as such also applies to the development of a skill: in these words of his 1938 *Logic* it is a "continual rhythm of disequilibrations and recoveries of equilibrium" (p. 34). A skill is a self-developing emergent whole that integrates a complex set of subsidiary elements upon which it relies in order to achieve a goal or to meet the demands of what Dewey called a 'problematic situation' whose resolution elicits skilful action of various sorts. A skill is way of 'being-knowingly-in-the-world,' of being attuned to it and coping with it, whether the 'world' is a tennis court, a physics lab, an operating room, the kitchen stove, or a lecture hall. These are all matrices of knowing, clearly involving complex fusions of 'knowing how' and 'knowing that,' and they illustrate, in their rich diversity, how the model of skills explodes the spectator or ocular bias of epistemology that puts a 'subject' over against an 'object.'

According to Polanyi, and also Dewey, in skillful action we cannot objectify or focus upon, *in actu*, all the elements we rely upon, although clearly we can formalize up to a point the 'rules' we are following, but this comes afterwards by a process of reflection and the development of complex symbolic systems such as the algorithms that inform automated activities that extend our skills and allow us to fly advanced aircraft, land them on aircraft carriers, produce scientific instruments, and so forth and so on. Polanyi argued that *being in* a skill, even if underpinned by automated systems which we have constructed, is a tacit operation, embodied in a 'knack,' and accompanied by a feeling of 'rightness' that is rooted in *application* to problematic situations that have to be resolved, such as riding a bicycle, stitching a wound, wielding a hammer, and so on. And being within an articulate framework, 'indwelling' it in Polanyi's terminology, involves relying on it as a subsidiary, as a support, just as a blind man uses his cane or a surgeon his scalpel. Moreover, an 'articulate' framework is not just something 'in the head' but involves affects and habits of behavior, which are rooted in the body, and this makes it all the more difficult, yet at times necessary, to stand outside it and to subject it to the type of control Peirce proposed as the fourth method for the fixation of belief, at least in the first instance.

In this regard, we find another link between Polanyi and Dewey in the following passage in Dewey's essay, 'Context and Thought,' which also avails itself of reference to the body and, indeed, extends the notion:

> We cannot explain why we believe the things which we most firmly hold to because those things are a part of ourselves. We can no more completely escape them when we try to examine into them than we can get outside our physical skins so as to view them from without. Call these regulative traditions, apperceptive organs or mental habits or whatever you will, there is no thinking without them. (1931: 211-212).

It appears, unpacking Dewey's text, that we have two bodies that are intertwined: (1) a living material body, an 'endosomatic' body, subject to the felt stresses and

strains of the physical world, which we all inhabit and which is the permeable boundary between us and world, and (2) a body of supervening regulative traditions, apperceptive organs, mental habits, and so forth with which we are inextricably intertwined and in which, as Polanyi claims, we dwell and upon which we rely. This is an 'exosomatic' body that is shared and which informs us, individually and socially, by providing the 'access structures' to the world. Both bodies, in all their complexities and levels, make up the 'roots' of thought out of which all our thinking grows and is nourished.

We do, however, by reason of the power that comes from what Dewey called 'going out into symbolization,' Peirce 'semiosis,' and Polanyi 'articulation,' constantly attempt to criticize our frameworks, to make our ideas clear, not necessarily to repudiate them but to make sure we can rely on them, including in certain cases, as all the classical pragmatists showed, betting our lives on them. But, if we use the model of a skill to think about the way we find our way about in the world, there is no Archimedean standpoint functioning as a stable platform for us to stand on while wielding the lever of criticism, which is itself a skill to be practiced and cultivated. We cannot move ourselves to nowhere to get a view of where we are. This is one of the permanent existential and theoretical tasks imposed on us by the whole philosophical tradition and the ground of fallibilism, the informing maxim of pragmatism. Fallibilism is clearly exemplified in skills, where we do not respond to a 'situation,' such as riding a bicycle, as respond 'into' it, one of Dewey's most insightful formulations.

With regard to the participatory side of knowing, which is foregrounded in Polanyi's skill based notion of 'personal knowledge,' Dewey writes in his 1929 *The Quest for Certainty*:

> Knowing is an act which modifies what previously existed. […] The spectator theory of knowing may, humanly speaking, have been inevitable when thought was viewed as an exercise of a 'reason' independent of the body, which by means of purely logical operations attained truth. It is an anachronism now that we have the model of experimental procedure before us and are aware of the role of organic acts in all mental processes. (195).

Indeed, as Dewey writes, this model of experimental procedures is made up of "doing acts, performing operations, cutting, marking off, dividing up, extending, piecing together, joining, assembling and mixing, hoarding and dealing out; in general, selecting and adjusting things as means for reaching consequences" (125). These are all *mediating activities* that occur, in different ways and modalities, at the boundary between us (and not just us) and the world. They are, or involve, skilful achievements and are subject to various gradients and exemplifications. They take on both 'material' and 'cognitive' forms, which are in fact joined together. This model of 'experimental procedure' is the one that Peirce proposed under the name of the 'laboratory mind' as necessary for the development of a coherent model of knowing—and not just scientific knowing with its formal procedures and extensive physical apparatuses. In the laboratory you are engaged with setting conditions,

but you are also subject to the 'logic' of the tools and instruments you are using. The 'laboratory mind' is not just an attitude or point of view. The 'laboratory' is an essential part of our body-mind, what Polanyi called the 'extension of our bodily equipment.' It is the job of a coherent comprehensive account of knowing to examine the paradigmatic exemplifications of these activities. This Peirce already did under the rubric of the lessons from the history of science, a concern he shared with William Whewell, focused on the logic of abduction.

As to the 'role of organic acts in all mental processes' that Dewey alludes to, consider the following passage from Polanyi's (1968) essay, 'Logic and Psychology,' where once again the pivotal distinction between focal and subsidiary awareness appears. It foregrounds the fundamental fact that the knower does not stand apart from experience, but is always *embodied* in one way or the other, depending on the subsidiaries upon which the knower relies, including those subsidiaries that are produced specifically as signs, where, as Peirce showed, we are just as subject to their 'logic' as we are to the 'logic' or operational properties of any tool or instrument. The passage is rich with implications for understanding the bodily basis of meaning-making, the theme of a large literature beyond, yet linked with, philosophy, especially as exemplified in the well-known work of Antonio Damasio but also in the whole phenomenological tradition. Polanyi writes:

> Our muscles, our sense organs, our nervous system, are experienced as they perform their functions of noticing and interpreting things outside and manipulating them for our own purposes. One is aware of the body subsidiarily as it performs these functions, while focal observation of one's body is only superficial. We may look focally at our hands and feet, but even so our subsidiary awareness of them predominates. One still *feels* them to be part of the body. This is what the from-knowledge of the body feels like to us: *it amounts to awareness of living in one's own body*. (33).

This awareness, in the mode of feeling, is not undifferentiated. It is an indwelt or immanent awareness of 'how things are with us' (cf. Heller-Roazen, *The Inner Touch*) and, by extension, with the world. By reason of the intentionality of consciousness, which Polanyi alluded to in the passage from *The Tacit Dimension*, it is not empty of a certain 'content,' which does not have to be an 'object.' It is also marked first and foremost by a defining *quality* in the Peircean sense, a notion that Dewey found revolutionary for the progress of philosophical reflection.

Near the end of his 1935 article, 'Peirce's Theory of Quality,' Dewey wrote: "I am quite sure that he [Peirce], above all modern philosophers, has opened the road which permits a truly experiential philosophy to be developed which does not, like traditional empirical philosophies, cut experience off from nature" (375). According to Dewey, Peirce's key insight for framing experience was the claim that what we encounter first and foremost is "a sheer totality and pervading unity of quality in *every*thing experienced, whether it be odor, the drama of King Lear, or philosophic or scientific systems" (372). This is what Peirce called '*quale*-consciousness,' something not confined to 'simple sensations,' but something that extends to what Dewey

called "the boundless multiplicity of the concrete experiences of humanity" (1931: 216). Peirce, for his part, claimed that there is "a distinctive *quale* to this moment as it is to me—a distinctive *quale* to every day and week—a peculiar *quale* to my whole consciousness" (CP 6.223). Such a distinctive *quale* is accessed through feeling, rooted, as Polanyi pointed out, in the body. At the same, knowing for Peirce is not merely feeling or a variation of it in the traditional sense nor is it for Polanyi, and clearly not for Dewey, although, following Polanyi, a distinctive feeling-tone accompanies all forms of awareness by reason of *indwelling* and varies depending on the *subsidiaries* upon which we rely and which mediate and enable, as well as constrain, our ways of being in the world: through, to allude to a Peircean triad, feeling, action, and thought.

Cognitional structure, as proposed by Peirce, is seen as a universal pattern informing conscious appropriation of the world, just as Polanyi's from-to structure is meant to be, and James's theme-field-margin schema elaborated in his *Principles of Psychology*. Peirce's pattern, as well as James's, to which I will return, does not stand in opposition to Polanyi's. Like Polanyi, Peirce does not take any one instance of consciousness as a universal model: not seeing, not touch, not hearing, although each are authentic exemplifications of the way the world is accessed on the experiential level and lead to inquiry by initiation of the 'itch of doubt.' Peirce's central contention is that "every kind of consciousness enters into cognition" (CP 1.381)—and each kind has a defining *quality* which informs it, which it is task of philosophy to reflect upon. In Peirce's formulation, although feelings "form the warp and woof of cognition," and while "the will, in the form of attention [to the other], constantly enters," cognition, on Peirce's account, is neither feeling nor the polar sense. It is, as he says, "consciousness of process, and this in the form of the sense of learning, of acquiring, of mental growth." It cannot be immediate for it cannot be "contracted into an instant." It is "the consciousness that binds our life together. It is the consciousness of synthesis" (CP 1.381). Synthesis is schematized by Polanyi under the category of 'tacit integration' of subsidiary particulars, of all sorts, into 'wholes,' a process that involves crossing a 'logical gap' between the subidiaries and the 'focal wholes' into which they are bound and which they, to use a phenomenological term, 'found' or 'ground.' This is a philosophical elaboration of the key principle of Gestalt, echoed in Merleau-Ponty's (1964) assertion that grasping a 'figure on a ground' is a kind of originary experience (191).

Polanyi makes a helpful distinction between two ways of looking at these syntheses, of the integration of particulars into wholes. One way, which he calls, perhaps not so felicitously, 'self-centered,' occurs in the synthesis of particulars of all sorts into wholes to which they 'lead' in a general process of 'indication,' a term he uses in way very close to Peirce and the philosophical tradition. It involves forms of abductive inference where it is the meaningful connection between parts and wholes independent of the self that is the focal concern. In such a case it is the parts, or subsidiary particulars of a whole, that are integrated by an act, performed by the self as skillfully interpreting the world, where it is the pattern that connects, the focal whole, that is of interest. The particulars make up the 'from pole' of the tacit relation and are merged in the 'object,' the 'to-pole' of the act of attending. Such a form of synthesis involves, in the broadest sense, objectification. This form

of synthesis is clearly derived from the Gestalt model. The other form, which Polanyi calls 'symbolization,' results from a 'self-giving' integration and is a *self-embodying synthesis of all the particulars of ourselves* and of *what matters to us*, into wholes, into 'symbols,' where each particular in the whole is of intrinsic interest in the sense of having a semantic pregnance or relevance. Such syntheses ground the semiotic logic of myth, art, religion, political ideologies, dreams and so forth, which are constituted by configurations of prime symbols that we are willing to live and die for. We could say, relying on Polanyi's distinction, that we frame the world in indication, but we frame ourselves in symbolization, as Polanyi uses these terms. These distinctions, while not Peircean, nevertheless do not contravene the core of Peirce's concerns. 'Symbolization,' in Polanyi's sense, clearly belongs in certain respects to the iconic order whose interpretants transcend discourse. 'Indication,' in Polanyi's sense, links the primacy of the perceptual-motoric frame of skillful perception and action with the indwelling in language understood on the analogy of a probe. Indeed, one can also recognize a connection here between Susanne Langer's distinction between discursive and presentational forms. I have dealt with these issues and correlations elsewhere in much more detail (Innis 2004, 2009, 2013).

Peirce's essential triad of the categories of consciousness is well known: feeling, the polar sense, and synthetical consciousness (whose ontological correlates are firstness, secondness, thirdness). But, in fact, *as undergone*, the polar sense and synthetical consciousness, too, have their distinctive and defining quality, which appears in and as feeling. This 'affective tone' is the constant background, exemplified in a 'somatic tonus,' of all our intercourse with the world, a theme that Whitehead developed in his philosophy of organism, which Susanne Langer developed extensively in her *Mind* trilogy (see my *Susanne Langer in Focus: The Symbolic Mind*, chs. 6, 7, 8), and which Dewey also recognized, especially in his great 1934 book on aesthetics, *Art as Experience*. This comes from the fundamental fact, pointed out by Polanyi, that *indwelling* is a universal feature of consciousness, since the subsidiaries in which we are embodied are felt, even in the defining feeling of 'transparency.' So, Polanyi would not find Peirce's theory of quality so foreign and, following Dewey, would see it as a defining phenomenological feature of the world as apprehended, analogous to a physiognomic property grasped in perception and whose features present us with a 'face' prior to our grasp of the particulars that make it up. While the reference to a physiognomy is oriented to the 'object pole' which has distinctive 'tone,' Polanyi's idea, following Dewey's extension of Peirce, is that all 'the forms of appearing,' that is, the 'frames' in which things appear, likewise have their 'tone.' This is analogous to Peirce's 'material quality' of a sign which accompanies all forms of semiosis and especially in the aesthetic function where the 'palpability' of the sign is put into play (Jakobson).

Peirce's synthetical consciousness does not just bind our life together, giving us a sense of living 'in' time and being carried ineluctably forward. Synthesis, as Peirce uses the term, is clearly the Peircean analogue to a reformed Kantian unification of a manifold, and Peirce is clearly right to ascribe felt qualities and particular senses of resistances to the manifold, which includes our body. As I have pointed out, Polanyi's equivalent of synthesis is 'integration.' What is integrated is an array of subsidiarily apprehended and indwelt particulars, in every sensory order,

encompassing all clues, tools, sign-systems, and so forth. Every integration, whether of the body in skilful action, of 'sensations' in identifying the closing of a door or the switching on of a furnace at night, of a phonic structure in recognizing it as a word, of a sequence of words that constitute a sentence, and so forth, gives rise to a 'whole' of some sort, which Polanyi assimilates to a 'meaning.' When Polanyi speaks quite generally of 'comprehensive entities' he is referring to 'wholes' of every sort: motoric, affective, theoretical, aesthetic, religious, and so on, part of his generalization of the philosophical implications of Gestalt theory. I will point out later how such a notion bears on James's idea of multiple worlds.

Peirce and Polanyi give two very similar descriptions of a type of experience that all of us have had and illustrate the foregoing general point. Polanyi (1959) writes in *The Study of Man*:

> We may instantly recognize a familiar writing or voice, or a person's gait, or a well-cooked omelette, while being unable to tell—except quite vaguely—by what particulars we recognize these things. The same is true of the recognition of pathological symptoms, of the diagnosis of diseases and the identification of specimens. In all these instances we learn to comprehend an entity without ever getting to know, or to know clearly, the particulars that are *unspecifiable because they are unknown*. (45).

This clearly is the indexical function of particulars, a field of vectors that carry the knower in a specific direction, 'biasing' the knower, even independently of the knower's will. These are cases of Peircean abduction and Polanyi's enumeration, like Peirce's, encompasses an arc from common perceptual achievements such as voice recognition and identification of writing to the omellete example where the perception and recognition are distributed differently in the case of the one preparing the omellette and the one enjoying it, to high medical knowledge, involving pathological symptoms, the determination of which entails antecedent knowledge of the 'normal,' whether merely physical or psychological, for the diagnoses of diseases.[1] When Polanyi speaks of 'instantly' one is reminded of Peirce's observation in 'The Law of Mind' (1892) that mental action often displays a kind of "arbitrary spontaneity" (329). In perceptual abduction, for example, Peirce remarks that the suggestion of unity in the flow of sense "comes to us like a flash. It is an act of *insight*, although of extremely fallible insight" (CP 5.184). As both Peirce and Polanyi point out, the perceptual judgment must be subject to criticism, but this comes after. Judging in the first instance involves commitment and is inherently risky.

Peirce writes that "… this process of forming the perceptual judgment, because it is subconscious and so not amenable to logical criticism, does not have to make separate acts of inference, but performs its acts in one continuous process" (CP 5.185). This continuous process involves continuous adjustment of particulars that, as Polanyi showed, if attended to focally, would paralyze the process, provided, of course, that we even know, in any determining way, what the particulars are.

1 Polanyi was originally trained as a medical doctor. See his essay, 'My Time with X-Rays and Crystals,' in Polanyi, 1969.

Polanyi points out that it is only *in the integrated whole* or comprehensive entity that what the particulars really are comes to light. Polanyi's analysis of skills of all sorts, in light of what he calls 'destructive analysis,' illustrates this. This shift from subsidary to focal awareness in performing skilful action is catastrophic, as we see in cases of stage fright of every sort, which induces a kind of paralysis, whose philosophical equivalent of focusing on sensations Dewey called a 'confirmed species of intellectual lockjaw.'

Peirce has a passage that runs parallel to Polanyi's. He writes:

> Just as we are able to recognize our friends by certain appearances, although we cannot possibly say what those appearances are and are quite unconscious of any process of reasoning, so in any case when the reasoning is easy and natural to us, however complex may be the premises, they sink into insignificance and oblivion proportionately to the satisfactoriness of the theory based on them. (EP 1:17).

Thus, the abductive nature of perceptual judgment, as well as, we can say, of tacit integrations, confers on it "characters that are proper to *interpretations*" (CP 5.185). As Peirce put it, "the fact is that it is not necessary to go beyond ordinary observations of common life to find a variety of different ways in which perception is interpretative" (CP 5.184). Indeed, the "interpretativeness of the perceptive judgment …is plainly nothing but the extremest case of Abductive Judgments" (CP 5.185), the generative principle of mental life. And Polanyi, writing in his early book, *The Logic of Liberty*, pointed out that "even at the most elementary stages of cognition, we are already committing ourselves to an act of interpretation" (19). The complex premises that Peirce alludes to make up the ineluctable variety of subsidiaries that make up the from-pole of all our forms of awareness, indwelling not just those subsidiaries that make up the ultimate premisses of our articulate but skilfully used conceptual frameworks but all the elements upon which we rely.

James, in line with his pluralistic vision of the universe, which admits 'multiple realities,' each arising out of specific formations of structuring experience, continues the theme of the different ways that perception engenders and is engendered by different forms of interpretation that James, in a well-known image, compares to the way a sculptor releases a figure from a block of marble. The marble allows of multiple ways of 'freeing the form' depending on just what subsidiaries are being *attended from* and *why* as well as depending on the material properties of the marble. Here is a text from his 1911 *Some Problems of Philosophy*, which was already anticipated in the *Principles of Psychology*.

> Different universes of thought thus arise, with specific sorts of relation among their ingredients. The world of common-sense 'things'; the world of material tasks to be done; the mathematical world of pure forms; the world of ethical propositions; the worlds of logic, of music, etc. – all abstracted and generalized from long-forgotten perceptual instances from which they have as it were flowered out – return and merge themselves again in the particulars of our present and future perception. (33-4).

Note the idea of these worlds, constituted by "specific sorts of relation among their ingredients," returning and merging, that is, informing, "the particulars of our present and future perception."

These worlds are interlocking Jamesian *themes* located within different *fields*. They arise, as wholes of various sorts, out of selective interest by our abstracting and following "the particulars" that James refers to. In as much as these particulars function as Polanyian subsidiaries, the 'same' particulars are attended from in different ways in different patterns of experiencing. A burning flame can be considered as a source of heat for cooking, a rhythmic dance for non-instrumental perception, a manifestation of a physical law, and so forth. Jamesian 'worlds' arise through shifts in the forms of integration of parts of a complex phenomenon into different kinds of wholes, including wholes which are theoretical frameworks or antecedent patterns, affective, actional, interpretative, *from which* we attend.[2] This is a Polanyian way of specifying the 'returning and merging' that James points out, since, if we recall Dewey's account of experience, it is constantly self-constructing and re-constructing spiral or circuit, each movement to a 'higher' level involving discrimination and application of the antecedent frameworks which then 'bias' the further elaborations.

Looked at from a Polanyian standpoint, we can say that each Jamesian universe selects, whether spontaneously or deliberately, certain features and integrates them into unities, the features being incorporated into the different 'worlds' which, as Polanyi puts it, are 'ordered contexts' with their own 'logic.' But these worlds are clearly not purely perceptual. They are, as Polanyi put it, 'fraught with the roots they embody' and these roots encompass all the semiotic instruments or sign systems out of which they are constructed and which are embedded in them. They, too, are the 'subsidiaries' of various sorts that function as *semiotic vectors* carrying us toward various focal points that integrate our experience in different ways and in the case of symbols assimilate us to themselves in which we are made to appear. These subsidiaries become for us indwelt frames that function much as the blind man's stick, that is, as an access structure that makes it possible to access dimensions of reality that would otherwise be closed, an analogy that Ernst Cassirer also utilized. Learning to live in and by these frames involves the development of specific types of skills that allow us to apply antecedent frames and to transform them to deal with novel experiences.

Polanyi offers a key to how the assimilation of wholes to meanings, based on the pivotal distinction between subsidiary and focal awareness, would apply to the emergence of multiple 'worlds' out of the flux of experiential occasions. These worlds have their own logic and are not meant to be translated into one another. None can be reduced to another, hence the idea of 'multiple realities' and the repudiation of reductionism. But the phenomenological task is to follow up all the

2 This is a reference to Peirce's triadic schema of the categories of consciousness. But we should also keep in mind Heidegger's analysis of the *Vorstruktur* of understanding: *Vorhabe*, which specifies an operative antecedent existential, affect-laden 'set' toward the world, *Vorsicht*, which specifies antecedent forms of perceiving or perceptual habits, and *Vorgriff*, which specifies antecedent systems of concepts. These 'fore-structures' make up the circle of understanding (*Versteben*) that is a core notion of philosophical hermeneutics.

elements that enter into each world, which mediate our access to it. Differences *within* worlds, such as the religious worlds, is just as great as differences *between* worlds, and, following Polanyi and Dewey, the vast realm of clues upon which one is relying upon and integrating are not fully accessible to us. They are operative premises that are part of our semiotic body, which we have constructed and to which we have been appropriated in the great processes of 'articulation,' manifested in the symbolic capacities that raise us up to symbolic level of semiosis that marks us as human.

For Polanyi "a symbolic formalism is itself but an embodiment of our antecedent unformalized powers" (1958: 131) and he argues that the feat of articulation is based on a transformation of three forms of learning, which he sees as already at work in the non-human world: (a) trick learning, involving learning a means-end relationships and which is grafted onto motility, (b) sign-learning, primarily the result of strained attention linking sign and event, and hence grafted onto perception, and (c) latent learning, manifested in the ability to reorganize the sensory field by means of some sort of cognitive map that allows one to 'find one's way' in alternative ways through and in the world. For Polanyi, 'articulation' on the human level involves the ability to *combine* these three essential forms of learning in higher levels of *heuristic acts* of *invention*, *observation*, and *interpretation* and the resultant swing and sway between reversible and irreversible acts of understanding, which all our pragmatists affirm.

There is, as a consequence, as Polanyi (1959) puts it, a "tremendous intellectual advantage of articulation, without in the least derogating from the supremacy of man's tacit powers" (25) and he is right to affirm that "articulation does not merely make us better informed: it enriches us even more by increasing our mental power over any given piece of information" (24). In *The Tacit Dimension* we find the following summary passage which encapsulates the thrust and arc of Polanyi's model of knowing and sense-making: "We can, accordingly, interpret the use of tools, of probes, and of pointers as further instances of the art of knowing, and may add to our list also the denotative use of language, as a kind of verbal pointing" (7). Linking this with pragmatism, we find in the great chapter on 'Nature, Communication and Meaning' in Dewey's *Experience and Nature* the following passage: "As to be a tool, or to be used as a means for consequences, is to have and to endow with meaning, language, being the tool of tools, is the cherishing mother of all significance. For other instrumentalities and agencies, the things usually thought of as appliances, agencies, and furnishings, can originate and develop only in social groups made possible by language" (146). The reason is that formalisms have not only to be produced by processes of abstraction but to be *applied* to experience and this process involves skill, mutual adjustment between the formalism and that upon which it bears. Although James has a point that "conceptual knowledge is forever inadequate to the fullness of the reality to be known" (1911: 45), Polanyi counters that the fact that we can know more than we can say is not a weakness and does not contravene the great benefits of articulation but points to its roots it in our being able to experience the limits of articulation while being aware of the 'surplus' of sense latent in it, a position close to the infinite semiosis that lies at the heart of Peirce's semiotic theory. Indeed, in accordance with the analogy of the use of tools and probes, 'meaning things' through language in particular and through signs in general, is ultimately, according to Polanyi,

> […] a performance, like understanding or meaning something, which can be done only in our heads and not by operating with signs on paper. Our whole articulate equipment turns out to be merely a tool-box, a supremely effective instrument for deploying our inarticulate faculties. And we need not hesitate then to conclude that the tacit personal coefficient of knowledge predominates also in the domain of explicit knowledge and represents therefore at all levels man's ultimate faculty for acquiring and holding knowledge. (1959: 25).

For Polanyi language *in use* bears witness to "our faculties for recognizing *real* entities, the designation of which form a rational vocabulary" (1958: 114). The relation between 'naming' and 'dividing' the experiential continuum is described by Polanyi in the following way:

> To classify things in terms of features for which we have names, as we do in talking about things, requires the same sort kind of connoisseurship as the naturalist must have for identifying specimens of plants and animals. Thus the art of speaking precisely, by applying a rich vocabulary exactly, resembles the delicate discrimination practiced by the expert taxonomist […]
>
> In all applications of a formalism to experience there is an indeterminacy involved, which must be resolved by the observer on the grounds of unspecifiable criteria. Now we may say further that the process of applying a language to things is also necessarily unformalized: that it is inarticulate. Denotation, then, is an art, and whatever we say about things assumes our endorsement of our own skill in practicing this art. This personal coefficient of all affirmations [is] inherent in the use of language. (1958: 81).

These are some ways the 'vitally important topics' of pragmatism can be considered and supplemented by analytical tools brought to the job by a true philosophical friend.

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Data de envio: 31-01-2016
Data de aprovação: 25-02-2016