Polanyi and Peirce on the Critical Method

David W. Agler

ABSTRACT Key Words: Charles S. Peirce, Michael Polanyi, Descartes, method of doubt, skepticism.
This essay points to parallel criticisms made by Charles Peirce and Polanyi against the "critical method"or "method of doubt." In an early set of essays (1868–1869) and in later work, Peirce claimed that the Cartesian method of doubt is both philosophically bankrupt and useless because practitioners do not apply the method upon the criteria of doubting itself. Likewise, in his 1952 essay "The Stability of Beliefs" and in Personal Knowledge*, Polanyi charges practitioners of the critical method with a failure to apply the method rigorously enough. Polanyi contends that "critical" philosophers apply the method of doubt only to beliefs they find distasteful and rarely ever to the tacit beliefs that make doubt possible.*

1. Introduction[1]

There has been valuable work done toward teasing out the philosophical affinities between Michael Polanyi and Charles Peirce (e.g. Innis 1999; Mullins 2002; Sanders 1988:16-18, 1999:5). In connecting Polanyi's theory of tacit knowing with Peirce's theory of abduction, Mullins (2002:211) suggests that both Peirce and Polanyi held similar views about the philosophical value of doubt. The aim of this paper is to pursue this suggestion by clarifying two parallel criticisms of the critical method (or "the method of doubt') put forward by Peirce and Polanyi. The first criticism is that if the critical method is rigorously pursued as a starting point for philosophy, then its consequence is pure skepticism and not positive philosophy. Peirce and Polanyi both argue that if positive philosophy is to be the goal, then its primary method cannot be one that makes doubt its primary tool. The second criticism is that if the critical method is separated from previous cognition or acritical personal beliefs, then it has absolutely no use for inquiry. Traction in inquiry is often made possible by the development of one's personal beliefs and not by robust skepticism. Thus, in the stead of the critical method, Polanyi and Peirce suggest that the role doubt plays in inquiry ought to be significantly diminished (although not eliminated), and the upshot of limiting its role involves a commitment to post-critical philosophies that incorporate personal beliefs, fallibility, and a notion of truth and objectivity in scientific inquiry while avoiding naïve dogmatism and mere subjectivism.[2]

The structure of this essay is as follows. In section 2, I articulate the key components of the critical method by pointing to one particular instantiation in Descartes. I contend that the critical method is a philosophical method that starts philosophical inquiry by subjecting all beliefs to a severe test: any proposition for which there is a reason to doubt ought to (at least temporarily) be expelled from one's set of beliefs until it can be shown that that proposition is somehow indubitable. In section 3, I present Peirce's argument (and then Polanyi's) that the critical method has not been pursued rigorously, and if it were, the result would be pure skepticism. Finally, in section 4, I present Peirce's argument (and then Polanyi's) that the critical method is not particularly useful when divorced from acritically-held beliefs.

2. The Critical Method

In the Synopsis to the *Meditations*, Descartes says that the first Meditation provides reasons which "give us possible grounds for doubt about all things" but that these reasons are invoked for a particular purpose: the usefulness of such doubt is in "freeing us from all our preconceived opinions" so that any propositions we find to be true are ones that it will be "impossible for us to have any further doubts about" (CSM2:9). This gives the impression that the key feature of the critical method is to engage in a procedure of extreme and systematic doubting to determine which beliefs are not capable of being doubted and so can be regarded as certain. In fact, Descartes sometimes casts his whole project in this way. For example, in the *Discourse*, he writes that "my whole aim was to reach certainty—to cast aside the loose earth and sand so as to come upon rock or clay" (CSM1:125; AT6:29).[3] But, the explicit aim of the *Meditations* is more circumscribed. He writes that the importance of the arguments in the *Meditations* is not that they "prove what they establish" since no one seriously (practically) doubts the existence of the world, the self, or that human beings have bodies (CSM2:11).[4] Instead, Descartes writes,

> The point is that in considering these arguments [for the existence of material things], we come to realize that they are not as solid or as transparent as the arguments which lead us to knowledge of our own minds and of God, so that the latter are the most certain and evident of all possible objects of knowledge for the human intellect. Indeed, this is the one thing that I set myself to prove in these Meditations (CSM2:11).

Thus, Descartes' primary aim is to show that knowledge of our minds and of God are more certain and less open to doubt than knowledge of the existence of the material world. In order to achieve this end, Descartes sets out to subject his beliefs to a rigorous test and he does this with a multi-stage deployment of skeptical scenarios that provide reasons why certain beliefs that had been acritically-held are susceptible to doubt and therefore not certain. For those which there is some reason to doubt, Descartes contends we should suspend our judgment rather than believe them willy-nilly. Descartes writes, "Reason now leads me to think that I should hold back my assent from opinions which are not completely certain and indubitable just as carefully as I do from those which are patently false" (CSM2:12; AT VII:17). After this negative phase has passed, only those beliefs for which there is no reason to doubt (i.e., those that we cannot suspend our judgment concerning) should we not withhold our judgment concerning (i.e., those that indubitable).

One key feature of the critical method is that we ought to engage in a systematic investigation of our beliefs, withhold judgment concerning any view for which we either lack evidence or for which there is room to doubt, and build our positive philosophy upon those beliefs for which there is adequate evidence or which are indubitable. Such a view is, no doubt, not unique to Descartes. William Clifford, for example, writes "It is wrong, always, everywhere, and for anyone to believe anything upon insufficient evidence" (Clifford 1877:295). Bertrand Russell agreeing with Descartes' use of doubt writes, "Descartes (1596–1650), the founder of modern philosophy, invented a method which may still be used with profit—the method of systematic doubt" (Russell 1912:18). Kant, in the first *Critique*, insists upon subjecting pure reason to the utmost criticism when he writes, "[r]eason must in all its undertakings subject itself to criticism; should it limit freedom of criticism by any prohibitions, it must harm itself, drawing upon itself a damaging suspicion. Nothing is so important through its usefulness, nothing so sacred, that it may be exempted from this searching examination, which knows no respect for persons" (A738/B766). Finally, even certain rigid forms of contemporary evidentialism demand that we ought not to believe a proposition if we lack evidence for that position. Richard Feldman

(2000:679), for example, writes "if a person is going to adopt any attitude toward a proposition, then that person ought to believe it if his current evidence supports it, disbelieve it if his current evidence is against it, and suspend judgment about it if his evidence is neutral (or close to neutral)." [5] Each privileges the method of doubt for doing positive philosophy, and the result of each project is a normative position on doxastic attitudes. Namely, we ought not to believe any proposition if there is a possible reason to doubt it or if we lack adequate evidence for it being true.

3. The Method of Doubt as an Impossible Starting Point for Philosophy

I think that the critical method is faced with a serious dilemma: either the critical method *is* used rigorously, in which case it leads to absolute skepticism, or the critical method *is not* used rigorously, in which case it leads to admitting uncertain or unjustified beliefs. The consequence of the second horn of this dilemma is certainly undesirable, for the stated purpose of the critical method is to filter out those beliefs that are potentially dubitable so as to make our beliefs objective.[6] Practitioners of the critical method are thus more likely to reject the first horn of the dilemma by arguing that we can reap positive philosophical results by subjecting our beliefs to a severe skeptical test. In this section, however, I argue that Peirce and Polanyi both argued that no such positive benefits can be salvaged when the critical method is used rigorously.

3.1 Peirce

For Peirce, the positive results of Descartes' use of the critical method come about for two reasons. First, Descartes does not employ his critical method (method of doubt) in a rigorous fashion and so he leaves unscathed a variety of beliefs about the contents and powers of his own mind. Despite claiming to subject all of his beliefs to scrutiny, Descartes has no reservations about saying that he is a thing that "doubts, understands, affirms, denies, is willing, is unwilling, and also imagines and has sensory perceptions" (CSM2:19). Second, Descartes makes use of a faculty of intellectual intuition (and introspection) which allows him to intuit a variety of additional propositions about God, the possibility of error, the material world.

In 1868 and 1869, Peirce vehemently argued against the view that we have a special faculty of intuition and introspection. Instead, Peirce argued that there is no necessary reason to suppose the existence of a faculty of intuition or introspection for any fact that the former faculties seemed necessary to explain could be explained by a faculty of inference. Peirce's argument for this position took a case-by-case examination of a number of facts concerning our knowledge of space, our ability to distinguish being awake from being in a dream, our knowledge of self, the appearance of blind spots in vision, etc. In each case, Peirce argued that each cognition could be explained by the mode of inference (mediate cognition) rather than intuition (direct cognition).

Along with criticisms of intellectual intuition, introspection, and any type of direct cognition of objects, Peirce also argued that Descartes' method of doubt cannot be the starting point for any successful positive philosophy. Peirce writes,

> We cannot *begin* with complete doubt. We must begin with all the prejudices which we actually have when we enter upon the study of philosophy. These prejudices are not to be dispelled by a maxim for they are things which it does not occur to us *can* be questioned" (W2:212 [1868], emphasis added).

This remark by Peirce has generated a lot of criticism by Peirce scholars toward Peirce. Some Peirce scholars object that Peirce fails to interpret Descartes correctly, for Peirce, in claiming that we cannot simply dispel our beliefs with a variety of skeptical scenarios conflates *what someone does doubt* with *what someone can doubt*. What Peirce seems to be saying is that the method of doubt is impossible because we cannot muster the *psychological power* needed to actually doubt certain propositions or that, at the end of the day, we just *won't* doubt everything the critical method tells us we can doubt. If this is the case, his critics argue, then Peirce's objection fails for two different reasons. Either Peirce is *misinformed* for he does not recognize that Descartes thinks that such skeptical worries are *theoretical* (metaphysical) in nature rather than *practical* (moral) in nature *or* Peirce's objection is merely a *linguistic dispute* for Peirce's notion of what counts as a genuine doubt (one that involves a psychological component) is different from Descartes' notion (one which does not seem to have serious psychological aspects). For example, Meyers (1967:19), Johanson (1972), and Haack (1983:244-249) argue that Peirce misunderstands the necessary condition for Cartesian skepticism. Meyers (1967:19) claims that Peirce's objection is misplaced because a belief is dubitable only if it is possible for S to doubt *p*, not only if S does (in fact) doubt *p*. In other words, the necessary condition for Cartesian skepticism is that a belief is theoretically (logically) rather than descriptively (psychologically) dubitable. Johanson (1972:218-219) argues that Descartes is free to draw a distinction between "philosophical doubts" and "heartfelt doubts," confine the scope of the former to philosophy and not to life, and then put the onus on Peirce to show that philosophical (theoretical) doubts are not sufficient in the practice of philosophy.[7] In a similar fashion, Susan Haack (1983:246) objects by claiming that Descartes' use of methodological doubt is tied to a rational policy that aims at avoiding believing anything that is false, and so "does *not* require deliberate doubt." In each case, criticisms are directed at Peirce's claim that Cartesian skepticism is impossible because Descartes' method of doubt does not require its practitioner to muster genuine, real, practical doubt.[8]

What is additionally troubling is that given this diagnosis, it appears that Peirce's objection is not very original since Gassendi, Hobbes, and Mersenne all took Descartes to task in the *Objections* to the *Meditations* for not truly doubting what he claims to doubt.[9] And, Descartes seems to have given them the same answer that Meyers, Johanson, and Haack accuse Peirce of overlooking. For example, at the beginning of the first *Meditation*, Descartes' explicit proposal is to suspend judgment on any opinion which there is "at least some reason for doubt," not on the condition that the belief can be genuinely doubted (AT VII, 18), and in a 1643 letter to Buitendijck, Descartes claimed that the scope of *intellectual doubt* is greater than the scope of *willful doubt*.[10]

Arguing against the above strain of critical literature, Lesley Friedman (1999:729) contends that while Peirce and Descartes both agree that inquiry is a struggle to eradicate doubt, they disagree on the *nature of doubt* and what qualifies as a successful reason for doubt. For Peirce, doubting is something that is not within our will but something beyond our control, something that interferes with our action, something we feel, and something whose conclusion we care about (see R828 [1910]:1-2; R288:6; CP7.109).[11] Given this definition of doubt, Friedman (1997:733-738) argues that Peirce's objection has real merit since (i) real doubt must be an emotional experience that stimulates the mind to inquiry and not pretending to doubt, (ii) real doubt is not an act of will and so we have no choice about what we doubt, (iii) real doubt is tied to some internal or external experience that leads us to doubt and the mere possibility of error is not sufficient to cause doubt, and (iv) real doubt produces real hesitancy but Descartes' notion of doubt cuts the connection between belief-doubting and action. Unfortunately, however, this makes Peirce's complaint look more like a linguistic dispute since Descartes is free to argue that he does not use the notion of doubt in this highly naturalized way.

Let's take stock. On the one hand, we have the view that Peirce's claim that the method of doubt is impossible *is not* legitimate because Descartes does not make it a requirement that individuals *do* doubt what they claim to doubt. All that is necessary is that there is a reason for an individual to doubt a given proposition. In short, on this line of criticism, Peirce's criticisms miss their target. On the other hand, we have the view that Peirce's claim that the method of doubt is impossible *is* legitimate because (i) part of the critical method involves imagining whether it is possible to doubt a proposition (even though it is not necessary to doubt it in everyday life) and (ii) Peirce argues that in this context, no one really doubts (using Peirce's conception of doubt). In short, Peirce's criticisms hit their target but involve his particular understanding of doubt and belief, and so his disagreement with Descartes seems to be nothing more than a linguistic dispute.

In the remaining part of this section, I argue that Peirce's claim concerning the impossibility of the method of doubt is not a statement about the possibility or impossibility of the method in its own right. Peirce's claim is rather one about the viability of using the method as a starting point for positive philosophy. I claim that, for Peirce, any *rigorous* use of the method would lead to *absolute skepticism* and so we ought to begin philosophy with an alternative method that makes use of an alternative definition of doubt. On this approach, Peirce's complaint is not misinformed and not built on an alternative definition of "doubt." Instead, I argue that Peirce's primary objection pertains to Descartes' failure to use the method rigorously. Namely, Peirce argued that Descartes never applied the critical method to the *activity of doubting itself*, i.e., he never applied his method to ask "what are the conditions under which an individual truly doubts as opposed to simply claims to doubt?" Descartes, Peirce claims, just takes it for granted that if we believe we doubt *p* and then muster some reason why *p* might be false (e.g., we might be dreaming or an evil demon might be tricking us), then we have succeeded in showing that *p* is dubitable. Peirce argues that this is not sufficient for showing that one does, in fact, doubt.

Peirce voiced this objection in at least two different ways. The first way I will call the *Linguistic Criticism*. The general form of the criticism is that Descartes uses linguistic information as evidence for when an individual actually doubts. For instance, Peirce complains that just because we can take our belief that *p* and put it in the interrogative mood (*is p the case*?) or write "I doubt p" does not mean that we actually doubt *p*. This type of doubting Peirce calls "paper doubt" for there is no necessary link between the capacity to express *p* in the interrogative mood or being able to utter a set of words that literally expresses *I doubt p* to actually doubting *p*. It may well be the case that an utterance of "I doubt p" is false (see EP2:336 [1905]). So, Peirce's linguistic criticism is that Descartes' use of the critical method is not rigorous enough for we can doubt the linguistic basis that Descartes uses to claim that there is a reason to doubt some belief.

The second kind of criticism, I call the *Subjective Criticism*. The general form of the criticism is that Descartes uses subjective information as sufficient for determining whether one in fact doubts. For Peirce, this violates one of the conditions put on a rigorous use of the critical method because it makes the sole criterion for whether an individual doubts the individual's belief that she doubts. Peirce raised this objection in a variety of different forms. One way in which Peirce vocalized this objection is through a more general critique of the *a priori* method. Peirce argued that the *a priori* method (the method that settles belief on a particular issue by appealing to what seems *agreeable to reason*) tends to suffer from too greatly relying on merely subjective considerations.

Peirce writes that for Descartes,

> Self-consciousness was to furnish us with our fundamental truths, and to decide what was agreeable to reason. But since, evidently, not all ideas are true, he [Descartes] was led to note, as the first condition of infallibility, that they must be clear. The distinction between an idea *seeming* clear and really being so, never occurred to him (W3:259 [1878]).

Peirce criticizes the critical method by arguing that the subjective basis on which the critical method rests lends itself to problems since an idea may *seem* clear or distinct to an individual (there may seem to be a reason to doubt *p*) but it might not actually be so (there might not actually be a reason to doubt *p*).[12] This criticism is repeated in his 1906 review of Elizabeth Haldane's *Descartes: His Life and Times* (1905) where Peirce characterized his dissatisfaction with Descartes' use of the method by arguing that at no time in the *Meditations* does Descartes give any *objective evidence* that his skeptical scenarios are genuinely capable of producing doubt in anyone's (even Descartes') mind. Peirce writes,

> As long as this universal and absolute doubt lasted (for he apparently had no doubt at all that in a month or two, at the most, it would be over), he decided that it would certainly be best for him to continue in all respects to conduct himself as if he retained his old belief; as if it were possible for a man for days to keep up, without fail, a line of conduct about all things without the slightest belief in the advantage of such conduct—always, for example, using the tongs to stir his fire, instead of his fingers, though he had utterly dismissed all belief that fire would burn his fingers (1906).

In the above passage, Peirce criticizes Descartes' use of the critical method not simply because he does not think Descartes actually doubts the propositions he says he doubt, but also because his use of the critical method is *radically incomplete*. Proponents of the critical method do not apply the method to the conditions under which an individual actually doubts but rather takes whether an individual does doubt at face value. Peirce's linguistic and subjective criticisms of Descartes' use of the critical method support Peirce's claim that Descartes simply failed to use the method in a rigorous way. According to Peirce, it is not that we cannot doubt all of our beliefs nor is it the case that Descartes' notion of doubt is unacceptable; rather, Peirce's argument is that Descartes' choice of what he does doubt is curiously selective and unrigorously deployed.

Finally, since the criticism of Peirce as engaging in a type of linguistic dispute has been so prevalent, it is helpful to diagnose why this interpretation has caught hold. I think proponents of this view fail to recognize that Peirce's alternative definition of doubt is formed because of an effort to avoid the problems he saw with Descartes' definition that seemed to depend upon subjective and linguistic criteria. Here is one way of looking at the genesis of this notion. Consider that between 1868 and 1869, Peirce published three essays in the *Journal of Speculative Philosophy* (JSP). In the first essay, "Questions Concerning Certain Faculties Claimed for Man," one of the principal claims was that there is no evidence for the existence of a faculty of intuition (direct cognition) over and above hypothetical inference (mediate cognition). In the second essay, "Some Consequences of Four Incapacities," Peirce notes that a consequence of not having intuition as a faculty is that we cannot begin with complete doubt, suggesting that Peirce thinks the critical method is impossible. However, in the third and final essay of the series, "Grounds of Validity of the Laws of Logic," Peirce qualifies this statement by claiming "[i]t has often been argued that absolute scepticism is self-contradictory; but this is a mistake: and even if it were not so, it would be no argument against the absolute sceptic, inasmuch as he

does not admit that no contradictory propositions are true" (W2:242 [1869]).[13] What this passage signifies is that given the absence of a faculty of intuition, we are left with two options concerning the use of doubt in philosophy. The *first* is that it can be pursued as a starting point for philosophy, in which case, Peirce argues, it leads to the negative result of absolute skepticism. Since a rigorous application of the method of doubt demands that we apply the method not only to our beliefs about the external world, sensory perception, mathematics but *also* to the *criteria* that determines when an individual actually doubts, Peirce argues that the skeptical method is parasitic upon itself. The method not only eats at the familiar topics of Descartes' *Meditations*, but also those that he uses methodologically or as criteria, e.g., doubt, belief, thinking, clear, distinct, etc. The *second* is that it can be pursued in some restricted form but more severe conditions need to be put on what constitutes a genuine doubt about a proposition. Real doubt, for Peirce, cannot be one that makes language or a subjective feeling the sole arbiter of when an individual does doubt. Instead, Peirce adopts a naturalized notion of doubt, one that stimulates the mind to inquiry, is emotionally distressing, is tied to action and not merely a matter of the will, and one that Peirce suggests we ought to devise experiments to help determine whether one actually doubts.

Thus, Peirce's principal complaint with the critical method is *not with its theoretical viability* nor is he arguing that it is impossible to start one's philosophical project by using the Cartesian notion of doubt. His turn to a more naturalized notion of doubt is motivated by the fact that a rigorous use of the method of doubt leads to an absolute skepticism where we don't even know what we doubt. So, when Peirce writes that "prejudices are not to be dispelled by a maxim for they are things which it does not occur to us *can* be questioned" what he is saying, given the context of his other arguments, is that "prejudices *cannot* be questioned *at the starting point of any positive inquiry*."[14]

Despite the theoretical viability of absolute skepticism, Peirce did raise a practical consideration against a fully rigorous use of the critical method. That is, Peirce claimed that there are no intelligent beings who are absolute skeptics (W2:242 [1869]). Along this line of argument, Peirce seemed to indicate that given a definition of belief in terms of a willingness to act, a being would have to be caught in a state of perpetual hesitation, entirely uncertain about how to act. However, this line of argument is independent from his purely theoretical critique of the method of doubt, which only demands that it be comprehensive.

3.2 Polanyi

One of the major aims of *Personal Knowledge* is to characterize a post-critical philosophy. Part of what it means for a philosophy to be "post-critical" is that it makes personal belief an integral part of the epistemological program (see Polanyi 1952:230; Cannon 2008). While unpacking what this means is a complex affair, involving critiques of objectivism, reductionism, the centralized control of science and economy, metaphysical dualisms,[15] part of Polanyi's turn to post-critical philosophy involves a rejection of the unrestricted use of the method of doubt by (i) arguing that it has never been rigorously pursued and (ii) arguing that if it were to be rigorously pursued, the consequence would be absolute skepticism.

Polanyi writes that during the critical period, it is not the case that "this method has been always, or indeed ever, rigorously practised—which I believe to be impossible—but merely that its practice has been avowed and emphatic" (PK:270). Instead, Polanyi argued that the method's proponents were typically guilty of an unwillingness to pursue the method to its logical conclusion or guilty of an unwitting commitment to

dogmatism in their functional (instrumental) employment of concepts. He claimed that the wholesale use of the method of doubt is a corollary of objectivism, and its employment assumes that "uprooting of all voluntary components of belief will leave behind unassailed a residue of knowledge that is completely determined by objective evidence" (PK:269).[16] Polanyi voiced a number of reasons why a full-scale use of the method of doubt was impossible for a positive philosophy, and his criticisms extend Peirce's line of thought in a more explicit fashion.

There are at least two lines of criticism. First, proponents of the method tend to restrict the application of critical assessment to *explicit* or *focal* beliefs and not to those that play a *tacit*, *subsidiary*, *non-focal*, or *functional* role. In the use of the critical method, the latter concepts are necessary not only for a skeptical assessment of a given belief but also in the very formulation and bringing into focus of such beliefs.[17] According to Polanyi, in order for a proponent of the method to claim that a given proposition *p* is explicitly dubitable, tacit presuppositions are made concerning the skeptic's instrumental use of concepts needed for attending to *p*, e.g., the use of language, the capacity for sustained cognitive attention, and memory, etc. For example, in Polanyi's 1967 "Sense-Giving and Sense-Reading," Polanyi writes

> [w]e must realize that to use language is a performance of the same kind as our integration of visual clues for perceiving an object, or as the viewing of a stereo picture, or our integration of muscular contractions in walking or driving a motor car, or as the conducting of a game of chess—all of which are performed by relying on our subsidiary awareness of some things for the purpose of attending focally to a matter on which they bear (KB: 193).

One aspect of Polanyi's critique then is that a rigorous, complete, and in-depth use of the critical method requires an application to the non-focal, subsidiary, or instrumental features that make explicit belief and doubt possible. That is, just as an account of knowing must acknowledge all the factors a person relies upon in order to bring the topic of interest into focus, so must various accounts of doubting. This criticism is closely related to Peirce's own, but is more general in nature, for while Peirce points out that Descartes uses the notion of doubt without subjecting it to critical scrutiny, Polanyi notes that a rigorous use of the method of doubt requires that we subject *even* the concepts we tacitly employ to scrutiny.

A second criticism by Polanyi involves his claim that the use of the critical method toward an explicitly held belief that *p* tacitly commits us to a framework from which *p* can be evaluated. Polanyi's objection here is, however, more general than Peirce's objection against Descartes' use of *linguistic* and *subjective* evidence to determine whether someone can genuinely doubt a proposition. To see this more clearly, consider, as Polanyi does, the distinctions between the different explicit forms of disbelief and doubt.[18] There is *contradictory doubt* (or disbelief) where S believes the negation of a proposition. In addition, there is *agnostic doubt* where S believes that a proposition is not proven or that there are sufficient grounds for choosing between *p* and *not-p* (PK:272-3). Polanyi further characterizes *agnostic doubt* as being one of two forms: (1) *final agnostic doubt* where S believes that *p* cannot be proven and (2) *temporary agnostic doubt* where the possibility as to whether *p* can be proven is left open (see PK:273). Polanyi claims that even though there are cases where "the agnostic suspension of belief in respect to a particular statement says nothing about its credibility, it still has a fiduciary content. It implies the acceptance of certain beliefs concerning the possibilities of proof" (PK:273). The fiduciary content of the agnostic attitude is found in a framework which is responsible not only for assessing beliefs but also for bringing such beliefs into focus. Concerning the former, Polanyi argues that when S doubts *p*, S is making a statement concerning the future state of *p*, i.e. whether it cannot be proven (in

the form of a final agnostic doubt) or whether it may be proven (in the form of a temporary agnostic doubt). Thus, the inconclusive status of *p* is not equivalent to simply "S doubts *p*" but something closer to "*p* may or may not be proven in the future" or, more strongly, "*p* can never be demonstrated" (see PK:273). This sort of account of doubt is problematic for someone who advocates the method of doubt for in analyzing which beliefs are and are not dubitable, the user of the method of doubt appears to be making a number of unchecked assumptions about the current or future dubitability of *p*. In other words, the mere expression of agnosticism is already expressive of a tacit commitment to a framework about how *p* is to be assessed.[19]

The end result for Polanyi and Peirce is very similar. Both claim that if the critical method were applied to both instrumental concepts that either bring belief into focus or that suppose a framework of evaluation, the consequence would be a *pure skepticism* rather than a solvent for error or a positive philosophy. Polanyi writes that we can "imagine an indefinite extension of the [critical] process of abandoning hitherto accepted systems of articulation, together with the theories formulated in these terms or implied in our use of them" (PK:295). Such an extension of the critical process consists of a wiping out "all such preconceived beliefs" (PK:295), and such a theoretical position demands "[w]e must accept the virgin mind, bearing the imprint of no authority, as the model of intellectual integrity" (PK:295). However, much like Peirce, despite acknowledging pure skepticism as a theoretical alternative, Polanyi voiced a practical objection against this view. Polanyi claimed that no such creature instantiates this position. Such a being, Polanyi, notes would be "frantic and inchoate," could only be pursued by "blotting out my eyesight" and "reducing ourselves to a state of stupor" (PK:296-297; see also PK:314).[20]

4. The Method of Doubt is Useless

While the method of doubt might not be the primary method for establishing the starting point of philosophy, Polanyi and Peirce also directed arguments against its utility for philosophical, scientific, and social purposes. In particular, both argued that if the method is divorced from previous cognition and personal commitment, it was useless (see PK:269).[21]

4.1 Peirce

Peirce rejected the view that the method of doubt could be useful without the requisite prejudices and previously formed beliefs upon which to interact. In the case of Descartes, Peirce writes,

> no one who follows the Cartesian method will ever be satisfied until he has formally recovered all those beliefs which in form he has given up. It is, therefore, as useless a preliminary as going to the North Pole would be in order to get to Constantinople by coming down regularly upon a meridian. (W2:212).[22]

Peirce's general point is that if Descartes' reconstructive project is to be admitted, it will only be accepted if it validates the bulk of prejudices already accepted. In other words, Peirce claims that the results of the critical method simply won't be accepted if they stray too far afield from our commonsense beliefs and so the method is guided by beliefs that are not really criticized. The whole project then amounts to a "whitewashing" since the outcome of using the method of doubt is already determined at the outset.[23] As evidence, Peirce cites a variety of claims that Descartes claims to have positively established through the reconstructive stage after applying the method of doubt but which are actually products of Descartes' formal education. In a 22 March

1906 review of Haldane's *Descartes*, Peirce writes,

> Thus, he [Descartes] plainly regarded himself as the only philosopher worthy of that name that ever lived; and yet it seems impossible that, after eight years in perhaps the most admirable Jesuit college there ever was, he should not have been perfectly aware that his famous Je pense, donc je suis was taken entire[ly] out of St. Augustine's "De Civitate Dei,' or 'De Anima,' or 'De Quantitate Animæ,' for its substance, as the form of the 'Discours de la Méthode' and of the 'Meditationes' is imitated from the 'Confessiones'; nor that he should have been totally unconscious of how far he availed himself of the results of Galileo, of Thomas Harriotts, and others whom he ignores.[24]

Peirce's main point here is that if various uses of the critical method are tacitly, unconsciously, or antecedently determined by acritical beliefs, then the method of doubt loses any pretentions it might have to being an objective method for securing certainty. For if in the application of the method, practitioners are guided by beliefs that they had before applying the method, what positive contribution does the method make to inquiry? For Peirce, the answer is none and the method is useless.[25]

Despite this criticism, Peirce claimed that doubt could have a useful role for inquiry if used in concert with previously established beliefs. It seems that for Peirce, doubt plays an effective role only if it operates within a system of prejudices and personal commitments, and its primary function is to spur the investigator to the resolution of a problem. The idea is that doubt is a type of irritant and individuals seek to remove it in any way (some more acceptable than others) they can. As such, doubt formed an important part of his Critical Common-Sensism "provided only that it be the weighty and noble metal itself, and no counterfeit nor paper substitute" (EP2:353 [1905]). Further, he claimed that the inductive method "springs directly out of dissatisfaction with existing knowledge" and the concept is central to his account of the fixation of belief (EP2:48 [1898]; W3:242-257 [1877]).

4.2 Polanyi

Polanyi was also critical of whether the method of doubt could be recognized as the primary tool for scientific discovery. In his 1952 essay "The Stability of Beliefs" and later in *Personal Knowledge* (1962 [1958]), Polanyi writes that there is no existing heuristic maxim or defensible a priori rule that recommends doubt as the primary path to scientific discovery.[26] Polanyi cites Columbus's discovery of America, Newton's work in the *Principia*, Max von Laue's discovery of the diffraction of x-rays by crystals, and J.J. Thompson's discovery of the electron as examples where knowledge was expanded not by a methodological use of doubt but by a creative power to expand scientific beliefs into more concrete or practical form and a conviction that existing beliefs were lacking in some capacity (1952:226-7; PK:277).[27] The absence of a rule that we can apply when faced with the decision whether or not to believe *p* undermines the usefulness of the method of doubt because it suggests that (1) the method should not be applied in all circumstances (as the history of science shows), and (2) it cannot be determined in advance when the method of doubt should be applied in restricted form.

Not only did Polanyi criticize the utility of the method of doubt for scientific inquiry, but he was also critical of its utility as a safeguard to various forms of religious or cultural thinking. Instead, he regarded the method as a backhanded way of propagating personal beliefs. In criticism of Russell, Polanyi writes that

Russell's intention was "to spread certain doubts which he believes to be justified" but his claim that doubt is a safeguard for tolerance does not apply to his own beliefs (PK:297). Polanyi continues,

> Philosophic doubt is thus kept on the leash and prevented from calling in question anything that the septic [sic] believes in, or from approving of any doubt that he does not share. The Inquisition's charge against Galileo was based on doubt: they accused him of "rashness'. The Pope's Encyclical "Humani Generis', issued in 1950, continues its opposition to science on the same lines, by warning Catholics that evolution is still an unproven hypothesis. Yet no philosophic sceptic would side with the Inquisition against the Copernican system or with Pope Pius XII against Darwinism. Lenin and his successors have elaborated a form of Marxism which doubts the reality of almost everything that Bertrand Russell and other rationalists teach us to respect, but these doubts, like those of the Inquisition, are not endorsed by Western rationalists, presumably because they are not "rational doubts' (PK:297).

Polanyi thus criticizes practitioners of the method of doubt as applying a double standard by only using the method upon beliefs they find disreputable and rejecting its application on those they find rational.[28] To some extent, we can accuse Descartes of this as well since his skeptical project attacks beliefs that are obtained by the senses but never questions certain cognitive abilities like thinking or doubting. The latter undergird his project to make knowledge of the self, God, and mathematics epistemologically more certain than knowledge of the external world and material objects.

Despite these criticisms, Polanyi recognized a certain place for the method of doubt. He characterized a heuristic form as essential to Christian faith (PK:281, 285) and while not "the universal solvent of error", Polanyi appears open to a contexualized and restrained use of doubt insofar as it stirs inquirers to creative solutions (PK:266; TD:57). In addition, the role of doubt plays an important but not primary role in Polanyi's epistemological theory. Polanyi writes that "the exercise of special caution is not peculiar to the scientist. The practice of every art must be restrained by its own form of caution. […] Caution is commendable in science, but only in so far as it does not hamper the boldness on which all progress in science depends" (1952:227).

5. Conclusion

In short, Peirce and Polanyi criticized the use of the method of doubt from two different directions. First, they criticized practitioners of the method of doubt for failing to use it rigorously enough and argued that a thoroughgoing use of the method would amount to a pure skepticism, of which no creature instantiates.[29] Second, they criticized said practitioners for extolling its scientific and practical utility without considering that it only plays a limited role in scientific discovery and social arbitration.[30] Without the use of the critical method to fall back on, both Peirce and Polanyi argued for post-critical philosophies whose focus was on appropriating traditional philosophical concepts (e.g., truth, objectivity) into epistemologies that situate such terms in an already ongoing project of inquiry that is rife with acritical beliefs.

Acknowledgments

Thanks is owed to Phil Mullins, Vincent Colapietro, Bob Innis, Dale Cannon, Ryan Pollock, Toby Svoboda, and Daniel Brunson, Marco Stango, and Francesco Poggiani for comments on drafts of this essay.

References

Cannon, Dale. 1999. Polanyi's 'Invitation to Dogmatism'? A Response to Andy Sanders' 'Polanyian Puzzle'. *Polanyiana* 8(1-2).

———. 2008. Beyond Post-Modernism via Polanyi's Post-Critical Philosophy. *The Political Science Reviewer* XXXVII:68-95.

Chisholm, Roderick M. 1956. Epistemic Statements and the Ethics of Belief. *Philosophy and Phenomenological Research* 16(4):447-460.

Clifford, William. 1877. The Ethics of Belief. *Contemporary Review* 29:289-309.

Descartes, R. 1897-1913. *Oeuvres*. Edited by C. Adam and P. Tannery. 12 vols. Paris: Cerf.

———. 1985. *Philosophical Writings*. Translated by John Cottingham, Robert Stoothoff and Dugald Murdoch. 2 vols. Cambridge: Cambridge University Press.

———. 1991. *The Philosophical Writings of Descartes: The Correspondence*. Translated by John Cottingham, Robert Stoothoff, Dugald Murdoch and Anthony Kenny. Vol. 3. Cambridge: Cambridge University Press.

Feldman, Richard. 2000. The Ethics of Belief. *Philosophy and Phenomenological Research* 60(3):667-695.

Friedman, Lesley. 1999. Doubt & Inquiry: Peirce and Descartes Revisited. *Transactions of the Charles S. Peirce Society* 35(4):724-746.

Grene, Marjorie. 1999. Descartes and Skepticism. *The Review of Metaphysics* 52(3):553-571.

Haack, Susan. 1983. Descartes, Peirce and the Cognitive Community. In *The Relevance of Charles Peirce*, edited by Eugene Freeman. La Salle, Illinois: Monist Library of Philosophy, pp.238-263.

Hanfling, Oswald. 1984. Can There Be a Method of Doubt? *Philosophy* 59(230):505-511.

Innis, Robert E. 1999. Peirce and Polanyi: Perceptual Consciousness and the Structures of Meaning. In *Proceedings of the International Colloquium on Language and Peircean Sign Theory*. New York: Burghahn, pp.531-560.

Jacobs, Struan, and Phil Mullins. 2012. Michael Polanyi and Karl Popper: The Fraying of a Long-Standing Acquaintance. *Tradition & Discovery: The Polanyi Society Periodical* XXXVIII(2):61-93.

Johanson, Arnold E. 1972. Paper Doubt, Feigned Hesitancy, and Inquiry. *Transactions of the Charles S. Peirce Society* 8(4):214-230.

Kane, Jeffrey. 1984. *Beyond Empiricism: Michael Polanyi Reconsidered*. New York: Peter Lang.

Kant, Immanuel. 2003. *Critique of Pure Reason*. Translated by Norman Kemp Smith. New York: Palgrave Macmillan.

Laue, Max von. 1998 [1915]. Concerning the detection of X-ray interferences: Nobel Lecture, November 12, 1915. In *Nobel Lectures: Physics 1901-1921*. Singapore: World Scientific Publishing, pp.347-355.

Mullins, Phil. 2001. The 'Post-Critical' Symbol and the 'Post-Critical' Elements of Polanyi's Thought. *Polanyiana: The Periodical of the Michael Polanyi Liberal Philosophical Association* 10(1-2):77-90.

———. 2002. Peirce's Abduction and Polanyi's Tacit Knowing. *The Journal of Speculative Philosophy* 16(3):198-224.

Meyers, Robert G. 1967. Peirce on Cartesian Doubt. *Transactions of the Charles S. Peirce Society* 3(1):13-23.

Peirce, Charles S. 1906. Haldane's Descartes. *The Nation* 82(2125):242-243.

———. 1960. *The Collected Papers of Charles Sanders Peirce*. Edited by Charles Hartshorne and Paul Weiss (vols. 1-6) and Arthur Burks (vols. 7-8). Cambridge, MA: Harvard University Press.

———. 1963-1966. *The Charles S. Peirce Papers*. Cambridge, MA: Harvard University Library, Microreproduction Service. 30 microfilm reels.
———. 1966-1969. *The Charles S. Peirce Papers (microfilm)*. Cambridge, MA: Harvard University Library, Microreproduction Service.
———. 1967. Manuscripts in the Houghton Library of Harvard University, as Catalogued by Richard Robin. In *Annotated Catalogue of the Papers of Charles S. Peirce*. Amherst: University of Massachusetts Press.
———. 1970. *Supplement to the Microfilm Edition of the Charles S. Peirce Papers*. Cambridge, MA: Harvard University Library, Microreproduction Service. 2 microfilm reels.
———. 1977. *Semiotic and Significs: The Correspondence Between Charles S. Peirce and Lady Victoria Welby*. Edited by Charles S. Hardwick and James Cook. Bloomington: Indiana University Press.
———. 1982-2000. *Writings of Charles S. Peirce: A Chronological Edition*. Edited by Peirce Edition Project. Vol. 1-6. Bloomington and Indianapolis: Indiana University Press.
———. 1985. *Historical Perspectives on Peirce's Logic of Science*. Edited by Carolyn Eisele. 2 vols. Berlin: Mouton Publishers.
———. 1992a. *The Essential Peirce*. Edited by Nathan Houser and Christian Kloesel. Vol. 1. Indianapolis: Indiana University Press.
———. 1992b. *Reasoning and the Logic of Things: The Cambridge Conferences Lectures of 1898*. Edited by Kenneth Laine Ketner. Cambridge, MA: Harvard University Press.
———. 1998. *The Essential Peirce: Selected Philosophical Writings*. Edited by The Peirce Edition Project. Vol. 2. Indianapolis: Indiana University Press.
Polanyi, Michael. 1952. The Stability of Beliefs. *The British Journal for the Philosophy of Science* 3(11):217-232.
———. 1962 [1958]. *Personal Knowledge*. Chicago: University of Chicago Press.
———. 1964 [1946]. *Science, Faith and Society*. Chicago: The University of Chicago Press.
———. 1966. *The Tacit Dimension*. Garden City, NY: Doubleday & Company.
———. 1969. *Knowing and Being: Essays by Michael Polanyi*. Edited by Marjorie Grene. Chicago: The University of Chicago Press.
Russell, Bertrand. 1912. *The Problems of Philosophy*. London: Oxford University Press.
———. 1950 [1946]. Philosophy for Laymen. In *Unpopular Essays*. New York: Simon and Schuster, pp.21-33. Original edition, 1946. Philosophy for Laymen. *Universities Quarterly* 1.
Sanders, Andy F. 1988. *Michael Polanyi's Post-Critical Epistmeology: A Reconstruction of Some Aspects of 'Tacit Knowing'*. Amsterdam: Rodopi.
———. 1999. Dogmatism, Fallibilism and Truth: A Polanyian Puzzle. *Polanyiana* 8(1-2) (in *Pollanyiana* archive at http://www.kfki.hu/chemonet/polanyi/9912/sanders.html).

Endnotes

[1] Abbreviations for Peirce's work follow these conventions: CP#.# = (Peirce 1960); HPPS:#: (Peirce 1985); EP1:# = (Peirce 1992a); EP2:# = (Peirce 1998); SS:# = (Peirce 1977); RLT:## = (Peirce 1992b); W#.# = (Peirce 1982-2000); R#:# = (Peirce 1963-1966, 1966-1969, 1967, 1970). In addition, rejected manuscript pages will have an 'x' after the manuscript page number. Abbreviations for Descartes's work follow these conventions: AT = (Descartes 1897-1913); CSM = (Descartes 1985); CSMK = (Descartes 1991). Abbreviations for Polanyi follow these conventions: KB: (Polanyi 1969); PK: (Polanyi 1962 [1958]); SFS: (Polanyi 1964 [1946]); TD: (Polanyi 1966).

[2] For a positive overview of Polanyi's post-critical philosophy, see (Cannon 2008). For further discussion on Polanyi's relation to post-critical philosophy, including a history of Polanyi's use of the term, see (Mullins 2001).

[3]Descartes' own narrative casting of the *Meditations* also gives this impression. At the beginning of the first Meditation, he writes that "it was necessary, once in the course of my life, to demolish everything completely and start again right from the foundations if I wanted to establish anything at all in the sciences that was stable and likely to last" (CSM2:12).

[4] It is important to point out that since Descartes' skepticism does not range over practical life, he is able to push his skepticism to the extreme. As Marjorie Grene (1999:556) puts it,

> Practical skepticism does not question of the external world; it just wonders if we have good reason to claim to have certain knowledge or even reasonable beliefs, about it. Meantime, get on with life and relax. Stop straining for a knowledge you don't know whether you can have. Descartes can go further in doubting just because it is not practice he's concerned with.

[5] This is in contrast to less rigid versions of evidentialism that do not make agnosticism the primary doxastic attitude when there is a lack of evidence. One example of this less rigid evidentialism is put forward by Chisholm (1956:449), who writes concerning W. K. Clifford that "His ethics was something more rigid than that suggested here, for he held that, for each of us, there is a large class of hypotheses concerning which we ought to withhold both assent and denial. But I have suggested in effect, that an hypothesis is innocent until proven guilty. It is only when we have adequate evidence for the contradictory of an hypothesis that it is wrong for us to accept the hypothesis."

[6] For example, see the beginning of Descartes' first *Meditation* (CSM2:12; see also CSM1:193).

[7] Further, Johanson (1972:227) claims that "Descartes has open the possibility of saying that what he is doing is subjecting his indubitable (and dubitable) beliefs to criticism and imaginary experimentation, to see which of them can withstand the test of feigned hesitancy."

[8] This interpretation of Descartes' method of doubt is supported by Oswald Hanfling (1984:504-505) who writes, "Descartes' method is a logical and not a psychological one. […] What I need to make me believe or doubt a proposition is not an incentive but reasons for thinking that the proposition *is true* or *is doubtful*."

[9] Gassendi writes, "what you claim, or rather pretend, is not something you are really in doubt about" (CSM2:219). Hobbes writes, "Further, it is not only knowing something to be true that is independent of the will, but also believing it or giving assent to it. If something is proved by valid arguments, or is reported as credible, we believe it whether we want to or not. It is true that affirmation and denial, defending and refuting propositions, are acts of will; but it does not follow that our inner assent depends on the will" (CSM2:134). Mersenne writes, "may we remind you that your vigorous rejection of the images of all bodies as delusive was not something you actually and really carried through, but was merely a fiction of the mind, enabling you to draw the conclusion that you were exclusively a thinking thing" (CSM2:87).

[10] On the other hand, throughout the *Meditations* Descartes notes that the strength of his habitual beliefs requires extraordinary resources to undermine. He writes that his habitual beliefs "capture my belief" and that without the use of the evil demon, there are some beliefs that he "shall never get out of the habit of confidently assenting to these opinions" (AT VII, 22). Another example is found in his unpublished *The Search for Truth* (c.1641). There, Descartes' Eudoxus argues that just as a painter who—having made a number of mistakes in a portrait—ought to make a fresh start with a new canvas, philosophers ought to commit fully to the method of doubt. However, Epistemon and Polayander reply that this astonishing proposal would be

possible only "by calling on the assistance of powerful reasons" (AT X, 508-9). To this challenge, Eudoxus responds with the unreliability of the senses, the lack of a distinction between a waking state and a sleeping state, and the possibility of an evil demon (AT X, 510-512). All three of these cases are claimed to produce the necessary resources to get us out of the habit of confidently assenting to our habitual beliefs. Finally, in response to Gassendi's objection that the use of methodological doubt amounts to philosophical artifice because one cannot compel himself to believe that he is not awake or that his senses are untrustworthy, Descartes responds by claiming that is no reason why such beliefs should not—or could not—be called into doubt (AT VII, 258). After the publication of the *Meditations*, Gassendi published his *Metaphysical Enquiry: Doubts and Counter-Objections* (1644), which rearticulated his original objection that the method of doubt was *descriptively impossible*; we simply lack the psychological ability to doubt certain beliefs. Descartes responded by claiming that all of the beliefs in the *Meditations* are capable of being doubted because they were directed at "opinions which we have continued to accept as a result of previous judgments that we have made" and since our making of these judgments is an act of will, and since our will is in our power, it follows that it is possible that S can doubt p, even though S does not doubt p. (AT IXA, 204

[11]Concerning the view that doubt is not within our will, Peirce writes (R828 ([1910] 'Logic'), "Inquiry, that is activity animated by a desire to know something, is a place full of admirable curiosities,—a labyrinthine palace of palaces at whose every threshold there stands one of its lackeys, called 'doubts.' Most often it is the urgency, the teazing [sic] sollicitation [sic] of this lackey doubt that forces one to enter, but if one enters of one's own volition one will be accosted by one of them before one has advanced one step, or if one powers by one of them, one will find one has to return and deal with him." In addition, Peirce (R288) writes "*Questioner:* Why does he not make a clean sweep of them [beliefs]? *Pragmaticist*: You talk as if beliefs were under the belief's immediate control. If they were, they would not be beliefs. No other habits are capable of being so instantaneously shattered by the proper means but "some others are so like many tumbler locks. They open only to a key that fits. The original beliefs are like rusty locks that do not open *even* to those proper keys without working them repeatedly and wearing down the rust. But let us return to the criticism. He, like you, shows the unfounded belief of Descartes that to change belief to doubt, all one has to do is to take a sponge and rub the belief out as if it were written with soapstone on a school slate, instead of with talc on the glassy consciousness" (cf. CP5.519). In the above passage, Peirce wrote (but crossed out) "They [original beliefs] are graven in the heart wood of the mind. They won't come out without much greater difficulty than ordinary beliefs." In addition, Peirce contends that doubt is "not the same as ignorance, nor as the consciousness of being ignorant, for if one does not care to know one cannot be said to be in doubt" and "that what we call "doubt" is an *emotion*" (R828 [1910] 'Logic'). Elsewhere (R288), Peirce writes that "[a] true doubt is an uneasy state of mind in which one wavers between two opinions. It cannot exist unless there is a reason or what is mistaken for a reason for each of the two opinions. I do not doubt whether the inhabitants of Saturn have red hair; for I do not think there is the slightest indication one way or the other."

[12] Peirce's criticism is thus similar to that of Bourdin who argues that Descartes, who counsels us to treat whatever is doubtful as if it were false, balks when it comes to doubting whether ideas are clear and distinct. Bourdin (CSM2:306) writes,

> If someone doubts whether he is awake or asleep, it is not certain that what appears clear and certain to him is in fact clear and certain. Should I therefore say and believe that if something appears clear and certain to one who doubts whether he is awake or asleep, then it is not clear and certain but obscure and false? Why do you hesitate? You cannot possibly go too far in your distrustful attitude. Has it never happened to you, as it has to many people, that things seemed clear and certain to you

while you were dreaming, but that afterwards you discovered that they were doubtful or false?

[13]Peirce makes a number of statements that support his belief in the theoretical viability of any belief being subject to doubt. For example, he writes that even "twice two is four" is not absolutely certain (see R829). "You have heard of hypnotism. You know how common it is. You know that one man in *twenty* is capable of being put into a condition in which he holds the most ridiculous nonsense for unquestionable truth. How does any individual here know but that I am a hypnotist and that when he comes out of my influence he may see that twice two is four is merely his distorted idea; that in fact everybody knows it so" (CP3.150). He writes that "no empirical proof can entirely free its conclusion from rational doubt" (R288).

[14] Susan Haack (1983) addresses two objections leveled by Peirce against the method of doubt. The first is that Peirce thinks the method of doubt is impossible. The second, argues Haack (1983:252-3), is that Peirce's objection to the method of doubt is *not* rooted in the view that Descartes is *too skeptical*. Instead, Haack (1983:252) claims that when the method of doubt is tied to Descartes' rational policy of admitting only indubitable beliefs, Descartes is *not skeptical enough* for a wholesale employment of the method of doubt should "leave no residue of indubitable beliefs to form the basis of reconstruction" (Haack 1983:253). On Haack's account, since Peirce regards theoretical skepticism as consistent, Peirce's objection to Descartes's use of methodological doubt is that its employment is a backhanded way of introducing dogmatic claims already accepted before the method of doubt was applied. My claim is that Haack's first objection is a misreading of Peirce. Further, her account of the second objection lends support to my interpretation of the first.

[15] For these other aspects of a post-critical philosophy, see Mullins (2001:83-89).

[16] Concerning the claim that the critical method is a corollary of objectivism, the idea appears to be that since objectivism requires belief in a proposition only on the condition that the proposition is demonstrated, the critical method follows since it pursues knowledge by regarding any personal (or subjective) contribution as potentially dubitable (see PK:286: see also Sanders 1988:38-39).

[17] In (SFS:85), Polanyi notes that any inquiry involves the functional use of concepts and that such concepts are manifested in the practice of inquiry (see Kane 1984:18-19).

[18] As Phil Mullins has pointed out to me, Polanyi draws a distinction between the explicit and wide (or tacit) forms of doubt and there is perhaps a connection between the tacit form of doubt—which Polanyi characterizes as a "moment of hesitancy," "present in all articulate forms of intelligence," and in the behavior of animals—and Peirce's notion of "genuine doubt" (PK:272).

[19] Polanyi seemed to even claim at times that proponents of the method were already tacitly committed to (i.e., disposed for or against) any proposition put forward in their discipline. Polanyi writes, "[i]f he ignores the claim he does in fact imply that he believes it to be unfounded. If he takes notice of it, the time and attention which he diverts to its examination and the extent to which he takes account of it in guiding his own investigations are a measure of the likelihood he ascribes to its validity" (PK:276).

[20] Polanyi immediately follows this remark by writing that "the *programme* of comprehensive doubt collapses and reveals by its failure the fiduciary rootedness of all rationality" (PK:297, my emphasis). Polanyi's critique then is that a rigorous use of the method of doubt is impossible for rational purposes since the application of the method to the subsidiary or non-focal concepts that allow for the rational use of doubt requires an abandonment of rationality altogether. In particular, Polanyi writes, "to acknowledge tacit thought as an indispensible element of all knowing and as the ultimate mental power by which all explicit knowledge is endowed with meaning, is to deny the possibility that each succeeding generation, let alone each member of it, should critically test all the teachings in which it is brought up" (TD:60-1). Thus, while pure skepticism is theoretically possible, it cannot be adopted by a rational agent. Perhaps compounding the problem for the skeptic is whether subsidiary features are even capable of undergoing critical scrutiny (see KB:139, 147; TD:15; Sanders 1988:8-9).

[21] For example, in the synopsis to the *Meditations*, Descartes writes "the usefulness of such extensive doubt is not apparent at first sight, its greatest benefit lies in freeing us from all our preconceived opinions, and providing the easiest route by which the mind may be led away from the senses" (AT VII 12). In replying to Gassendi's objections to the *Meditations*, Descartes claimed that it is often "*useful* to assume falsehoods instead of truths in this way in order to shed light on the truth, e.g. when astronomers imagine the equator, the zodiac, or other circles in the sky, or when geometers add new lines to given figures" (AT VII, 349, my emphasis). In terms of the method of doubt being a safeguard for tolerance, one example is Russell who emphasized its practical usefulness in arguing that it was the solvent for dogmatism infecting political and religious life. In *Personal Knowledge*, Polanyi references at least two pieces by Russell to this extent (PK:271, 297). In the first, Russell writes, "Arians and Catholics, Crusaders, and Moslems, Protestants and adherents of the Pope, Communists and Fascists, have filled large parts of the last 1,600 years with futile strife, when a little philosophy would have shown both sides in all these disputes had any good reason to believe itself in the right. Dogmatism is an enemy to peace, and an insuperable barrier to democracy. In the present age, at least as much as in former times, it is the greatest of the mental obstacles to human happiness." (1950 [1946]:26).

[22] Peirce writes "[n]othing can be gained by gratuitous and fictitious doubts" (W2:189 [c.1868]). Also, he writes, "Defense against sham doubt is but a blank-cartridge action. It is of no use. On the contrary, humbug is always harmful in philosophy" (CP2.196).

[23] Peirce writes, "in cases where no real doubt exists in our minds inquiry will be an idle farce, a mere whitewashing commission which were better let alone" (CP5.376n3 [1893]).

[24] See also CP6.498, where Peirce writes, "Descartes convinced himself that the safest way was to "begin" by doubting everything, and accordingly he tells us he straightway did so, except only his *je pense,* which he borrowed from St. Augustine. See also (CP4.71 [1893]). That even the "cogito ergo sum" is dubitable, see R891 [c. 1880-82].

[25] To some extent, this is not fair to Descartes since he concedes that the specific propositions he claims as certain have historical antecedents. What Descartes claims is novel to the *Meditations* is that our knowledge of our self as a thinking thing and God's existence are more certain than our knowledge of the objects of the material world, which are obtained through the senses (see CSM2:11)

[26] For the context of Polanyi's article "The Stability of Beliefs," see (Jacobs and Mullins 2012:74-81)

[27] For a list of more examples, see Sanders (1988:121-122). For von Laue's account of the discovery of x-ray interferences, see Laue (1998 [1915]:351-2).

[28] For a related discussion on the use of doubt, see Sanders's (1988:118-124) discussion of Polanyi's rejection of instrumentalism.

[29] Polanyi even hints that the invitation to dogmatism is built upon our ability to take the critical method to its logical conclusion (see PK:268). For an alternative reading of this passage, see (Cannon 1999:2). Polanyi is thus characterized as accepting a form of fallibilism. However, it should be noted that Polanyi gave fallibilism a very positive ring when he claimed that scientists must remember that a particular theory is not only capable of being false but a theory is also capable of being true, even in the face of adverse evidence. He illustrated this position by noting that features of argon, potassium, tellurium, and iodine in relation to the periodic system of elements and aspects of optical diffraction for Einstein's quantum theory of light (see SFS:29-31). He summarizes this point in writing "We may conclude that just as there is no proof of a proposition in natural science which cannot conceivably turn out to be incomplete, so also there is no refutation which cannot conceivably turn out to have been unfounded" (SFS:31).

[30] Quite obviously, the respective attitudes of Peirce and Polanyi is only one of many points of similarity between them for both were informed scientists, both adopted a form of fallibilism, both made hypothetical

inference (abduction) an essential feature of scientific development, both accepted a form of common-sensism (methodological believing), and both appeared to explain the possibility of knowledge along evolutionary lines. For a comparison of Peirce and Polanyi on abduction and tacit-knowing, see Mullins (2002), and for a Peirce-Polanyi connection on perception, meaning, and semiosis, see Innis (1999).

Notes on Contributors

David W. Agler (dwa132@psu.edu) received his M.A. in American Philosophy from IUPUI in 2010, where he worked as a research assistant for the Peirce Edition Project. He recently completed his PhD in Philosophy at Pennsylvania State University and currently works on topics in the philosophy of language (vagueness, proper names, semantic and pragmatics) and on Peirce's philosophy. He has written two book reviews for *Tradition and Discovery*: one covered Robert Brandom's *Perspectives on Pragmatism* (this issue) and another treated Laura Weed's *The Structure of Thinking* (38:1).

Vincent Colapietro (vxc5@psu.edu) is Liberal Arts Research Professor in the Department of Philosophy at Pennsylvania State University. He has written extensively on the classical American pragmatists, above all, C. S. Peirce. But his interests extend beyond philosophy, narrowly conceived, to such topics as cinema, music (especially jazz), historiography, and psychoanalysis. In recent years, he has devoted himself to exploring questions concerning the nature and forms of articulation as well as the intersections between pragmatism and psychoanalysis. Especially in his investigation of articulation, he has found Peirce and Polanyi to be sources of illumination and guidance.

Robert E. Innis (rinnis41@gmail.com) is Professor Emeritus of Philosophy at the University of Massachusetts Lowell. His interests encompass aesthetics, comparative theories of knowledge, semiotics and the philosophy of language, and the philosophy of religion. In addition to publications reviewed in *TAD* that were noted in the introduction to this issue, he has published *Karl Bühler: Semiotic Foundations of Language Theory*, dedicated to a theorist whose work lies behind the chapter in *Personal Knowledge* titled "Articulation," and *Semiotics: An Introductory Anthology*, a widely used source book, as well as many articles and chapters dealing with his focal interests, most recently, with reference to the relations between Peirce and Polanyi. He also has a chapter, "Meaningful Connections: Semiotics, Cultural Psychology, and the Forms of Sense," in *The Oxford Handbook of Culture and Psychology*, edited by Jaan Valsiner. He has been Humboldt Fellow at the University of Cologne, twice Fulbright Professor at the University of Copenhagen, and University Professor at the University of Massachusetts Lowell, where he still teaches in the Fall semester.

Phil Mullins (mullins@missouriwestern.edu), Professor Emeritus at Missouri Western State University in St. Joseph, MO., has taken a lively interest in Peirce's thought since the early seventies. He has been the *TAD* editor since 1991.