SERIOUSLY, BUT NOT LITERALLY: PRAGMATISM AND REALISM IN RELIGION AND SCIENCE

by J. Wesley Robbins

Abstract. Critical realists would have us believe that representations have a connection to the world, that of truth or reference for example, which is independent of their usefulness to us. They would have us believe further that knowledge about this connection serves to put religion and science in their proper places with respect to one another. This essay raises pragmatic objections to these beliefs.

Keywords: models; pragmatism; reference; scientific realism; world structure.

> This would be a [post-philosophical] culture in which neither the priests not the physicists nor the poets nor the Party were thought of as more "rational," or more "scientific" or "deeper" than one another. No particular portion of culture would be singled out as exemplifying (or signally failing to exemplify) the condition to which the rest aspired. There would be no sense that, beyond the current intra-disciplinary criteria, which, for example, good priests or good physicists obeyed, there were other, transdisciplinary, transcultural, ahistorical criteria, which they also obeyed. . . . A fortiori, such a culture would contain nobody called "the Philosopher" who could explain why or how certain areas of culture enjoyed a special relation to reality.
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> Richard Rorty, Introduction
> *Consequences of Pragmatism*

There are two different ways to react when, for example, what good scientists do seems to get in the way of what good priests do, or vice

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versa. The first is to look for guidance to the common thread that connects any and all practices to the world's own contours and, then, to arrange the interfering practices in their proper order, following that guiding thread. The second is to play it by ear, arranging and rearranging the interfering practices creatively and temporarily without any thought of being guided in the process by such a transcultural, ahistorical connection.

The first reaction, at least as old as Plato, is paradigmatically philosophical. The Philosopher, by virtue of having knowledge about knowledge, the nature of the connection of thought to reality, is in a position to say what does and what does not enjoy that status.

The second more recent reaction is a pragmatic one. It regards the rearrangement of interfering practices as a practical matter, one for which the Philosopher's purported knowledge about knowledge is quite useless. This reaction involves the belief that there is no global framework for a representation to world connection by which we can distinguish ideas that have real truth to them, in virtue of their connection to the world's own structure, from those that are called *true* merely as a courtesy, because of their conventional and practical acceptability. The insistence that such determinations are set in and constrained only by local contexts of practical familiarity and judgment is central to pragmatism.

Ian Barbour and Arthur Peacocke are representatives of the Philosophical reaction. Both contend that Christian practices are on a par with scientific practices in that the central theological ideas of the former are, like those of the latter, more or less reliable representations of the real structure of the world. As such, those theological ideas deserve to be taken seriously but not literally. This contention is based on a particular theory about the nature of the connection of our thoughts and/or words to reality, so-called *critical realism*.

My purpose is to find fault with the critical realism of Barbour and Peacocke and, by implication, the entire philosophical way of dealing with questions about the relationship between religion and science. In the process I want to recommend the pragmatic reaction to such questions as that has been articulated most powerfully in recent years by Richard Rorty.

After distinguishing between representational realist and pragmatist readings of the accomplishments of modern science, I raise objections to three ideas that figure pivotally in critical realist theory: first, models as representational entities that are distinct from sets of propositions (theories); second, reference as a minimal representation to world connection that is less full blown than that of truth; and third, the true shape of the world that any and all realistic representations—scientific, religious, or otherwise—are in the process of assuming.

Scientific Realism

The contention that Christian theological ideas deserve to be taken seriously but not literally is in direct opposition to the notion that Christianity is at best a subjective overlay on reality as we know it. According to advocates of this latter position, the central theological ideas of Christianity should be accepted, if at all, only with mental reservation. They deserve being accepted only for whatever usefulness they happen to have to us precisely because they lack the connection to reality that is enjoyed by scientific ideas.

Similar mental reservations have often been advocated with respect to modern scientific postulational theories, those that purportedly are about minutely unobservable physical entities and processes. Empiricists, of whom Bas van Fraassen is only one of the more recent examples, have long argued that such theoretical representations should be accepted only for whatever usefulness they may happen to have to us. They are to be treated quite differently in this respect from representations of observable physical entities and processes. These latter representations are supposed to have a connection to reality that is distinct from their serving our purposes:

> When a scientist advances a new theory . . . the anti-realist sees him as displaying this theory, holding it up to view, as it were, and claiming certain virtues for it. . . .This theory draws a picture of the world. But science itself designates certain areas in this picture as observable. The scientist, in accepting the theory, is asserting the picture to be accurate in those areas. This is, according to the anti-realist, the only virtue claimed which concerns the relations of theory to world alone. Any other virtues to be claimed will concern either the internal structure of the theory (such as logical consistency) or be pragmatic, that is, relate to specifically human concerns (van Fraassen 1980, 57).

Barbour and Peacocke are operating in the historical context of a revival of scientific realism. The motivation of such realism is to show that the postulational theories of modern microphysics do not deserve the sort of mental reservation that van Fraassen wants to attach to them. Even these theoretical representations, so scientific realists argue, stand in a connection to the world that is distinct from their usefulness to us.

Peacocke quotes Ernan McMullin approvingly in this regard:

> The basic claim made by scientific realism . . . is that the long-term success of a scientific theory gives reason to believe that something like the entities and structure postulated in the theory actually exist. There are four important qualifications built into this: (1) the theory must be a successful one over a significant period; (2) the explanatory success of the theory gives some reason, though not a conclusive warrant, to believe [it]; (3) what is believed is that the theoretical structures are something like the structures of the real; (4) no claim is made for a special, more basic, privileged form of existence for the postulated entities (Peacocke 1984, 24).

Understood in this way, scientific realism is "a quite limited claim which purports to explain why certain ways of proceeding in science have worked out as well as they (contingently) did" (Peacocke 1984, 24). Success is explained in terms of the theory-to-world relationship of being more or less true.

Both Barbour and Peacocke want to extend this sort of representational realism about the postulational theories of microphysics to the theological ideas of Christianity. They claim that the latter have many of the characteristics which, according to scientific realists, make it reasonable to conclude that microphysical theories have an extrapractical connection to reality. Given those similarities, Barbour and Peacocke contend that it is unreasonable to claim that the scientific theories have real truth to them while attaching the aforementioned mental reservations to the Christian theological ideas on the grounds that they do not. The crux of their argument is that our knowledge about what it is for representations to be connected to the world, a knowledge derived in large measure from recent post-empiricist reflection on the accomplishments of modern postulational science, puts Christianity in a much more favorable intellectual light than was the case when logical empiricism was the reigning philosophy of science.

The history of modern postulational science according to representational realists involves the modification of the propositions accepted by scientists over time so that those propositions more closely approximate the propositions that have the structure of the world itself or some portion thereof. As such, these scientific practices have a definite propositional structure underlying them. They involve some idea of the characteristics of the propositions that are being approximated (their clarity and distinctness or their simplicity, for example) and some idea of what must be done in order to conform currently accepted propositions more closely to those genuinely realistic ones (connect them as members in a progressive series, for example).

A theory of science renders these ideas that are implicit in scientific practices explicit. It is this sort of account of the propositional structure underlying scientific practices that is supposed to define what it is for representations to have real truth to them because of their connection to reality as opposed to their being merely being useful to us. It is this very sort of theory of science that in the hands of Barbour and Peacocke serves to put science in its place in relation to religion. According to their critical realism, the approximation of currently accepted propositions to those that have the structure of the world itself is not an accomplishment that is limited to scientific practices. The same sort of thing is to be found underlying religious practices as well, Christian ones in particular.

PRAGMATISM

There is another reading of the accomplishments of modern science—a pragmatic one. On this reading, those accomplishments involve an expansion of practical familiarity from ordinary objects such as apples, cats, and rocks to rather esoteric objects such as atoms, electrons, and fields of force. Practical familiarity is primarily a matter of know-how, the ability to do things with this, that, or another, portion of the world (Dreyfus 1985, 231-35). As such it has no determinate relationship to a definite set of propositions such as those that have the structure of the world itself. Consequently, the expansion of practical familiarity does not lend itself to being mapped out as a successive approximation upon any such propositional structure.

In terms of this pragmatic view, scientific practices have no definite propositional structure underlying them. There is, in the history of modern postulational microphysics for example, nothing for a theory of science to make explicit. There is no need to suppose that reflection on the accomplishments of modern science will provide us with anything similar to a description of the characteristics of those propositions that have the world's own structure, much less a description of the procedures that are involved in approximating such propositions. Consequently, there is nothing to be expected from such reflection in terms of which to distinguish those of our representations that have real truth to them in virtue of their extra-practical connection to the world from those that are merely of some use to us.

Apart from some specific, local, context of practical familiarity there simply is no way to decide which representations are connected to reality as opposed to being merely our own constructions. Knowing, in general, that practical familiarity is our primary connection to the world is useless for that purpose. This information, in and of itself, does not even begin to identify any definite set of propositions upon which our representations have to be focused and at which they have to aim if they are to be realistic.

It is precisely this sort of "no-theory theory of truth" that William James articulated in his definition of truth as "whatever proves itself to be good in the way of belief" (James 1963, 59). In Rorty's words:

> James's point . . . was that there is nothing deeper to be said: truth is not the sort of thing which has an essence. More specifically, his point was that it is no use being told that truth is "correspondence to reality." Given a language and a view of what the world is like, one can, to be sure, pair off bits of the language with bits of what one takes the world to be in such a way that the sentences one believes true have internal structures isomorphic to relations between things in the world. . . . James's point was that carrying out this exercise will not enlighten us about why truths are good to believe, or offer any clues as to why or whether our present view of the world is, roughly, the one we should hold. Yet

nobody would have asked for a "theory" of truth if they had not wanted answers to these latter questions (Rorty 1982, 162).

This pragmatic reading of the accomplishments of modern science carries with it its own way of putting science in its place in relation to religion. It is a specific instance of the pragmatist idea that our general "sense of" reality is a function of the ensemble of practices in and by which we live, in and by which we cope with the world (Dreyfus 1985, 233). According to this pragmatic view, there simply is no such thing as a representation to world connection that is distinct from the usefulness that a representation has to us. The only intellectual value that representations have is that of their usefulness to us in some respect or another.

Scientific ideas are no different from any others, religious or otherwise, in that respect. Their connection to reality is a function of their embeddedness within the practices in and by which we cope with the world. As such, scientific ideas have no more strenuous, no more serious, claim on our credence than do any other useful representations. Furthermore, microphysics has no corner on usefulness to us. It is by no means the only practice important to our coping with the world. Consequently, there is no basis whatever for claiming that it alone, of all our practices, involves representations which, distinct from being useful to us, are also connected to reality in their own right.

Disputes about the realism of the theological ideas of Christianity or the ideas of contemporary microphysics boil down according to this pragmatic view to questions about their usefulness to us. More exactly, they boil down to questions about how we want to cope with the world, what sorts of practices we want to have. In Rorty's words, again:

> it is the vocabulary of practice rather than of theory, of action rather than contemplation, in which one can say something useful about truth. Nobody engages in epistemology or semantics because he wants to know how "This is red" pictures the world. Rather, we want to know in what sense Pasteur's views of disease picture the world accurately and Paracelsus' inaccurately, or what exactly it is that Marx pictured more accurately than Machiavelli. But just here the vocabulary of "picturing" fails us. When we turn from individual sentences to vocabularies and theories, critical terminology naturally shifts from metaphors of isomorphism, symbolism, and mapping to talk of utility, convenience, and likelihood of getting what we want.... When the contemplative mind, isolated from the stimuli of the moment, takes large views, its activity is more like deciding what to do than deciding that a representation is accurate. James's dictum about truth says that the vocabulary of practice is uneliminable, that no distinction of kind separates the sciences from the crafts, from moral reflection, or from art (Rorty 1982, 162-63).

Or, we might add, from religion.

Models

According to both Barbour and Peacocke one of the crucial factors involved in the successes of modern postulational science is models. These are described as representational entities which unlike theories do not have a definite propositional structure to them. They cannot be equated with a definite set of propositions but rather are some sort of picturesque formation in thought and/or language. A model, states Barbour, "provides a mental picture whose unity can be more readily understood than that of a set of abstract equations. A model is grasped as a whole; it gives in vivid form a summary of complex relationships. It is said to offer 'epistemological immediacy' or 'direct presentation of meaning.' Because of its vividness and intelligibility it is frequently used for teaching purposes to help a student understand a theory" (Barbour 1974, 33).

Since models have no definite propositional structure of their own, they do not map directly onto the set of propositions that have the structure of the world itself. Thus, models by themselves do not stand in the representation to world connection of being approximately true. They have no determinate truth value of their own. This is why a model at best should only be taken seriously, but not literally.

Yet, when it comes to determining which models are deserving of this treatment, that is, which models are realistic as distinct from merely being useful to us in some way, they must be associated with a theory. A theory unlike a model has a definite propositional structure to it. As such, theories map directly onto the set of propositions that have the structure of the world itself and thus have a determinate truth value of *their own*. They are the representational entities that are appropriately taken literally.

Barbour makes this point about the primacy of theories in science when it comes to determining which representations are realistic as follows: "The 'intuitive intelligibility' of a model is no guarantee at all concerning its validity; deductions from the theory to which the model leads must be carefully tested against the data and, more often than not, the proposed model must be amended or discarded. Models are not advanced as guaranteed truths; they are used to generate promising hypotheses to investigate. They are a source of promising theories to test" (Barbour 1974, 34).

Barbour and Peacocke both make a point of asserting that models have a primacy in the case of religion that they do not have in scientific practice. According to Barbour, "as Frederick Ferré observes, religious models appear to be more influential than the formal beliefs and doctrines derived from them, whereas scientific models are subserviant

to theories, even though a model may outlast a series of theories of theories developed from it" (Barbour 1974, 69). And, according to Peacocke, "Models and their associated metaphors are crucial and critical for theology.... [The] biblical root-metaphor of God as the personal source of all being, 'in whom we live and move and have our being,' has a comprehensive role at the summit of a hierarchy of theological models and metaphors explicating religious experience. No scientific theory fills this role in science. Hence religious models and their associated metaphors are more influential than and less subservient to abstract theories (doctrines) than are models in relation to theories in science" (Peacocke 1984, 43).

Neither Barbour nor Peacocke describe what it is for models to be more or less like the world's own structure by themselves, apart from being associated with, and under the control of, a definite set of propositions. Unless they intend to say that religious models have a quite different representation to world connection than that of scientific models, the purported primacy of religious models leaves them in semantic limbo. As models they are not equivalent to any definite set of propositions. Given their primacy as religious models they are not under the control of any definite set of propositions through which they have a determinate truth value. However, then there would appear to be no way to distinguish a realistic religious model from one that is merely useful to us in some respect so as to determine which are deserving of being taken seriously but not literally.

The problem with the purported primacy of models in the case of religion is not just that we cannot do without them. Models are supposedly uneliminable in the case of science as well, where their likeness to reality is a function of the theories with which they are associated. The problem is that, in the case of religion, models are the representational entities that are supposed to be more or less like the world's own structure—regardless of whether they can be parsed out as a set of propositions.

Yet what is the underlying propositional structure of Christian religious practices? What is the theory of religion that would be comparable in this case to the theory of science? What, in short, are the representational entities involved in Christian practices that are to be taken literally?

In the absence of answers to these questions, we have only the hopelessly vague assertion that the models of Christianity stand in some sort of indefinite connection to the world's own structure such that they deserve to be taken seriously but not literally. This amounts to nothing more than Barbour and Peacocke's word that the central theological ideas of Christianity have something in the way of real truth to them rather than merely being of some use to us.

Apparently the only point that Barbour and Peacocke have to make about the realism of religious models is the negative one that the theological ideas of Christianity should not be dismissed out of hand, as subjective overlays on reality merely because they are models rather than theories. Peacocke admits as much: "But as this widespread use of metaphor [in the vocabulary of Christianity] is now seen to be also the case in science more than had previously been recognized, the theological enterprise is not thereby prematurely ruled out of court" (Peacocke 1984, 41).

This entire representational realist discussion of models is fraught with what is, from the pragmatist viewpoint, needless difficulty. We are left with the conclusion that Christianity, since it crucially involves models that are autonomous with respect to any definite theoretical expression, is semantically deficient in its truth connection to the world when compared with microphysics, which involves models that are attached to, and under the control of, definite theoretical structures. Those theological representations are less truthful in their connection to the world than their scientific counterparts precisely because of this lack of definite theoretical structure.

There is no reason to come to this conclusion if, as pragmatists claim, the truthfulness of our ideas is a function of the role(s) that they play in our coping with the world. There will be no general, invidious distinction to be discovered between representations that have a determinate truth connection to the world because of their definite propositional structure (i.e., theories) and representations that do not because they are only picturesque formations lacking such a structure (i.e., models).

At the same time there would not be any general extra-practical difference to be found between representations that it is proper to take literally and those that it is proper only to take seriously but not literally. The distinction between literal and metaphorical language will be, at most, an historical distinction between those sentences that do and those that do not have a fixed usage and acceptability in an ongoing practice.

If the representations of God that are involved in Christian practice are the sorts of things that Barbour and Peacocke call models, and nothing else, then what choice is there but to take those representations literally as the only available depictions of that with which believers are coping? Whether those representations should be taken seriously or not is another matter.

Barbour and Peacocke's repeated insistence that models, unlike theories, deserve to be taken seriously but not literally is only a misleading way of reminding us that currently accepted representations of any sort, picturesque or otherwise, are liable to be amended, revised, replaced, or otherwise improved upon over time. Beyond that indis-

criminate and truistic advice, their critical realism is utterly useless for distinguishing generally between representations that it is proper to take literally and those that it is proper only to take seriously but not literally.

Reference

Peacocke in particular tries to get some mileage out of the notion of reference. Reference is supposed to be a minimal representation to world connection. The idea is that representations may at least refer to reality even if they do not accurately depict the aspect of reality to which they refer. A description of this referential connection, a theory of reference, presumably would serve to discriminate those of our representations that are realistic, at least in this minimal referential respect, from those that are merely useful to us in some way.

In the terms that have been used heretofore, for representations to refer to reality is for them at least to select for description those very aspects of the world that are the subjects of depiction in the propositions that have the structure of the world itself. The accuracy of the selection, whether our representations are really referential, is a function of how closely they conform to those true propositions in what they select.

Reference is an attractive notion for a critical realist because even models might have this connection to reality, despite their apparent lack of independent truth value. A religious model might at least select a real aspect of the world for depiction even though its representation of what it refers to is fuzzy, given its lack of a definite propositional structure.

And so, Peacocke embraces the so-called *causal* theory of reference. This theory, developed by Hilary Putnam among others, is actually an account of the meaning of words in which what words refer to is a key factor. It is this referential factor in the meaning of words that is supposed to explain how it is that people manage to talk about the same things through changes in their ideas about, and descriptions of, those things (Putnam 1975, 269).

The causal theory describes a situation in which an initial baptism occurs. A naming takes place. The meaning of the representations that depict what was named in the initial baptism remains constant as the name is transmitted from speaker to speaker, and through changes in description, to the extent that the referent named at the initial baptism remains constant. This latter, referential, constancy is, according to the theory, a function of the world and not what speakers have in mind (Putnam 1975, 199-202). Thus, according to Peacocke, "scientists are committed, on the basis of past evidence and current experience, to

'believing in' electrons. . . . What they believe about electrons may well, and has in fact, undergone many changes, but it is electrons to which they still refer, by long social links that go back to the first occasions on which they were 'discovered' and the referring term 'electron' was introduced" (Peacocke 1984, 27).

This stipulation, that one factor in the meaning of representations is what they refer to, explains how the meaning of scientific terms can remain constant through scientific revolutions. However, it is completely useless when it comes to determining whether, in any particular case in which scientists admittedly are talking about the same thing, they are also talking about something real. The causal theory describes a historical continuity of naming. This continuity in no way guarantees that in any particular instance a real aspect of the world has been selected for description. As Ian Hacking notes, citing caloric as his example, "the language game of naming hypothetical [i.e., unobservable] entities can occasionally work well even if no real thing is being named" (Hacking 1983, 87).

Something more is needed if we are to distinguish those representations that are really referential from those that are merely useful to us. Peacocke recognizes this:

> the confidence of physicists in the existence of electrons, their confidence that the postulated entity "electron" is real, depends on much more than this continuous historical reference in a continuous linguistic community. It is also based on current experiments that they can perform, either in repetition of the original introducing experiments or, as Ian Hacking has recently emphasized, in the devising of new experiments, in which previously postulated entities are used as tools. Because of experimentation, the degree of attribution of reality to such postulated entities can change from doubt about their existence . . . to an assured confidence in their existence through knowing how to use them (Peacocke 1984, 27).

The trouble with this is that Peacocke has completely misunderstood Hacking's so-called entity realism. He takes Hacking to be providing a description of the representation to world connection of reference which, because of the way in which it takes experimentation into account as a crucial factor, distinguishes those instances in which reference to reality is accomplished from those in which it is not.

Yet, Hacking is not interested in isolating an extra-practical representation to world connection. What he describes under the heading of *entity realism* is a practical connection to the world, the experimental facility of scientists, their ability to manipulate and use portions of the world. Given that experimental facility, it is as natural for scientists to talk about electrons as it is for people to talk about apples given their practical familiarity with those things in the context of ordinary everyday life.

Such experimental facility in the realm of scientific practice is a special case of practical familiarity. As a skillful engagement with the world, it is not at all the same thing as having a set of representations that more or less accurately depict the world. This is precisely Hacking's point. His contention is that the realism of the postulational representations of microphysics is entirely a function of the practical familiarity that scientists have with such things as electrons. Their "hard-won sense of" electrons depends on what they do with, and to, electrons. It is not the result of an inference from the "explanatory success (i.e., from what makes our minds feel good)" of their theories to the conclusion that those theoretical representations stand in an extra-practical connection to the world (Hacking 1983, 272).

The moral of Hacking's story is that representational realist attempts to isolate the propositional structure that underlies science, and to establish its connection to the world independently of scientific practices, is a folly, a snare, and a delusion. Speaking of Putnam, Hacking says: "Once the most realist of philosophers, he [Putnam] tries to get out of representation by tacking 'reference' on at the end of the list of elements that constitute the meaning of a word. It was as if some mighty referential sky-hook could enable our language to embed within it a bit of the very stuff to which it refers" (Hacking 1983, 130).

Peacocke, like Putnam, ends up relying on a "mighty referential sky-hook" to get out of representation and into contact with reality. As he describes his candidate for this magical connection, in the case of religion, "Reference is grounded in the seminal, initiating experiences of individuals and communities when references to God were first made in the 'introducing events'—and the community then, and continuously since, provides the links of referential usage and repeated and new experiences that enable us to refer to what the initiators referred to, even though we may have revised our models through continuous reinterpretation . . ." (Peacocke 1984, 47).

What Peacocke has done is to displace the burden of distinguishing realistic connection to the world from linguistic representations to experience. This move, of course, leaves us with the problem of distinguishing those experiences that are realistic from those that are merely subjective overlays on reality. When it comes to solving that problem, the causal theory of reference is absolutely useless.

Unless Peacocke means that certain sorts of experience are in some way or another self-validating indicators of the realistic reference of linguistic representations, all of his talk about reference degenerates into singularly unenlightening handwaving about religious experience. What a seminal initiating experience is and how it connects Christian theological ideas to reality so that they can at least select a real

aspect of the world is anyone's guess. Yet this is precisely what Peacocke offers as the guarantor of realistic reference, knowledge about which is supposed to provide our deliverance from the ". . . babble of conflicting voices asking 'What's for real?'" (Peacocke 1984, 12).

If this is the best that we can do in the way of knowledge about the connection of our representations to the world, then surely we are at least as well off to adopt the pragmatist view that "language is more than talking," but is "embedded in a wide range of doings in the world," so that "assuring reference is not primarily a matter of uttering truths, but of interacting with the world" (Hacking 1983, 105; 107-8).

To take this step is to accept practical familiarity as our principal intellectual connection to the world. This involves disabusing ourselves of all vestiges of the notion that our practices, scientific or religious, have an underlying representational structure to them that is linked to the contours of the world itself, by seminal initiating experience or anything else, independently of our practical engagements with the world.

When it comes to putting science in its place in relation to religion, we neither have nor need anything better than our practical familiarity with the world to distinguish those of our thoughts and words that are realistic from those that are not. It is this coping with the world that provides us with the "sense" that our representations are in touch with reality regardless of how "unobservable" the aspect of the world that we are dealing with in any particular case may be. The only pertinent questions about the intellectual value of our representations then, whether in the case of science or of religion, concern their usefulness to us in the context of our practical interactions with the world.

The Structure of the World

According to Peacocke, the Christian and the contemporary scientific representations of the world respectively map onto each other. Both have a hierarchical structure that is asymmetrical in a certain respect. In the Christian representation the creation is subordinate to, dependent upon, and sustained by the creator. There is "an ineradicable asymmetry in the God-world relation which resides in the distinction between the Creator and what he has created . . ." (Peacocke 1979, 139). In the scientific representation the world is a hierarchical structure of distinctive levels of complexity. This structure also exhibits an asymmetry between all of its lower, impersonal levels and its highest level which is characteristically personalistic, self-transcending, and finally divine. Contemporary science, in Peacocke's words, depicts the world as, ". . . a hierarchy of levels of systems each requiring its own conceptual schemes for understanding and articulation, as well as experimen-

tal tools for investigation . . ." (Peacocke 1979, 131). Furthermore, "the theological enterprise refers to the highest level in the hierarchy of the complexities that constitute reality, namely the relation nature-man-and-God, and so some, at least, of the concepts, models, and metaphors appropriate to it may well not be reducible to those applicable to lower levels in the hierarchy of natural systems" (Peacocke 1984, 54).

This purported structural similarity is significant because science falls into its proper place in relation to religion, given the character of the propositional structure around which the practice of science is organized and which it is in the process of approximating. On Peacocke's reading, contemporary science is in the process of discovering a hierarchical organization with a level of complexity to it that cannot be represented accurately in terms of the typically physicalistic vocabulary of science. It is precisely in virtue of the world's having this structure to it that the Christian theological vocabulary is demonstrably realistic. As Peacocke states it, "I am suggesting that the perspective of the world that science has in our age engendered raises acutely questions about the world and our relation to it which by their very nature cannot be answered from within the realm of discourse of science alone. That is why we have, willy-nilly, found ourselves moving into theological language and using terms such as 'God', 'Creator', and 'transcendent' " (Peacocke 1979, 75). Given this hierarchical structure, "the sciences . . . will have to be more willing than in the past to see their models of reality as partial and applicable at restricted levels only in the multiform intricacies of the real and always to be related to the wider intimations of reality that are vouchsafed to mankind" (Peacocke 1984, 51).

The weak link in this line of argument is the notion that contemporary scientific practice has a single definite propositional structure to it, one which is an approximation to the hierarchical order described by Peacocke. There are two problems. The first is the idea that various, apparently disparate, scientific practices are united by a single propositional structure at all. The second is the idea that such a propositional structure has the sort of hierarchical order to it that Peacocke claims.

The first problem just is the disagreement between representational realists who believe that there is such a thing as the theory of science and pragmatists who believe that modern science has no such underlying theoretical order to it. On the pragmatist reading, the expansion of practical familiarity from apples and oranges to atoms and electrons involves the accumulation of a hodge-podge of skills and procedures, bits and pieces of incompatible theories and pictures. There is not a reason in the world, outside the fantasies of representational realists, to suppose that this accumulation of skills has any particular, overall,

theoretical structure to it, hierarchical or otherwise. In that case, science does not automatically fall into its proper place in relation to religion in virtue of the propositional structure that it is approximating.

Speaking of the idea that the success of science has to be explained in terms of its successive approximation to the set of propositions that have the structure of the world itself, Hacking makes the following observations: "The phenomenon of growth is at most a monotonic increase in knowledge, not convergence. This trivial observation is important, for 'convergence' implies that there is one thing being converged on, but 'increase' has no such implication. There can be heapings up of knowledge without there being any unity of science to which they all add up. There can also be an increasing depth of understanding, and breadth of generalization, without anything properly called convergence. Twentieth-century physics is a witness to this" (Hacking 1983, 55-56).

Along similar lines, Arthur Fine describes the process of decision making over existence claims that occurs in a science like quantum mechanics as involving,

> a truly exquisite balance between experimental and theoretical work. . . . The most important feature of the whole process . . . is that every stage . . . involves significant matters of judgment. These matters are not closed by experiment or theory or by any of the modalities that the realist might want to subsume under the rubric of "contact with reality." These judgments express norms, and often transient ones, for pursuing the scientific craft. . . . When we view this activity without prejudice we do not discern . . . the working through of the realist project for external-world correspondence. . . . Rather, what we see at work is the critical elaboration of tentative truth claims arising out of locally constrained practical reason and judgment (Fine 1986, 152-53).

There is ample motivation to accept these pragmatic readings of the accomplishments of modern science. It is enough to consider the complete failure of representational realists to arrive at anything remotely resembling a consensus about the nature of the propositions that have the structure of the world itself, and upon which scientific practices are supposedly converging. There are in fact wildly different and conflicting descriptions of that purported world order.

Peacocke's ambition is to supervise the cacophony of cultural voices that are claiming to put us in touch with reality by means of just such a description of the order that any, and all, realistic representations, scientific, religious, or otherwise, are in the process of taking on (Peacocke 1984, 12-14). However, his description of this order is nothing more nor less than the voice of Christian theism in disguise. In his account our thoughts and words are connected to reality just in case

they select, and more or less accurately depict, some level of the hierarchical world order, the highest level of which is divine.

One need only compare this theistic description of the world order that underlies any and all realistic representations with a physicalistic description. In the latter account there is no such hierarchical structure. Instead our thoughts and words are connected to reality just in case they select, and more or less accurately depict, some up-to-date counterpart of atoms and the void (Rorty 1982, 132-35).

So, instead of having a single supervising voice to order the cultural cacophony, we have at least two more voices, one theistic, the other materialistic, each claiming for itself the right to occupy that position of cultural overseer. If anything is clear in this matter, it is that representational realist notions such as approximate truth and reference are of no use whatever when it comes to adjudicating between these Christian theistic and Democritean "intuitions" about the true shape of the world itself. These notions of extra-practical representation to world connection are articulated out of those conflicting intuitions. They are in no position to rule over them.

Pragmatism has the virtue of eliminating the need to adjudicate between such intuitions about the true shape of the world itself. It does so in the belief that science is a special case of our coping with the world rather than the prime example of our copying it. As such, there is no reason to suppose that it has an underlying propositional structure to it, theistic, Democritean, or otherwise.

These pragmatic notions of practical familiarity and coping carry with them a broader cultural vision. It is that of a culture whose activities are not supervised by a global theory of truth or reference that makes explicit the underlying representational structure in virtue of which those activities are connected to reality.

In such a "post-philosophical" culture it would be recognized that the place of science in relation to religion is determined temporarily as part of our practical struggle to cope. In this setting, there would be no place for "the Philosopher" who, by knowing what it is for representations to be extra-practically connected to the world, is in a position to put science and religion into their places with respect to one another, once and for all. Such a pragmatic culture would be free of the clamor of competing, conflicting claimants to this position of cultural overseer. That, surely, is one thing in its favor.

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