IAN BARBOUR ON RELIGION AND THE METHODS OF SCIENCE: AN ASSESSMENT

by Nancey Murphy

Abstract. Two aspects of Ian Barbour's position on the relation between religion and science are considered. First is his preference for comparing *religions* as a whole to scientific *paradigms*. It is suggested that the concept of a *tradition* as defined by Alasdair MacIntyre is more useful than Thomas Kuhn's paradigm. Thus, the Christian tradition could be compared to the Aristotelian or Newtonian scientific traditions. Within traditions, both religious and scientific, we find schools with enough agreement on fundamentals to be designated *research programs*, as defined by Imre Lakatos; here fruitful comparisons between theology and science are possible.

Barbour's critical realism is intended as a compromise between highly rationalistic and sociological accounts of science. However, rationalism and sociology of science are answers to two different sets of questions rather than extremes on a spectrum of answers to the same question. Thus, there is no middle position between them, and no compromise need be found.

Keywords: Ian Barbour; critical realism; paradigm; research program; the strong program; theology.

In recent years I have come to hold the opinion that Ian Barbour is not merely one among many authors in the relatively new field of theology and science; not even one among the few notable scholars in the field. Rather, he has the distinction of being one of the founders of this new and growing scholarly community. My reason for this judgment is the fact that on every topic I have had occasion to pursue, it has always been necessary to check first to see what Ian has already written and to pick up the discussion from there.

Ian's primacy is due both to the historical fact that he began to

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write on religion and science early on, before many others joined in, and to the encyclopedic style of his work: Ian tends to canvass a topic thoroughly, treating all of its related aspects and surveying the range of positions on each issue before setting forth his own views.

This style of scholarship makes a summary of his books difficult; they are already summaries of a vast literature. Nonetheless, I owe my readers a brief overview of the work I have been asked to appraise: Part 1 of Volume 1 of his Gifford Lectures, titled *Religion in an Age of Science* (1990). The book as a whole incorporates the best from his two earlier books, *Issues in Science and Religion* (1966) and *Myths, Models and Paradigms* (1974), bringing the discussion of those earlier topics up to date and also delving into new areas.

Chapter 1 of Part 1 provides a typology of ways of relating Christianity and science: conflict, independence, dialogue, and integration. The least attractive options, as Barbour sees them, are the conflict model and, at the opposite extreme, the independence model—the view that religion and science are so different that they cannot possibly conflict. I believe some change can be noted in Barbour's views here. I believe he has moved from a primary emphasis on dialogue between religion and science to a greater interest in a systematic synthesis of science and Christian theology, using process thought as a medium.

Chapter 2, Models and Paradigms, chiefly updates Barbour's earlier book on these topics, but incorporates into the discussion the recent emphasis on narrative, which has been furthered by such theologians as James McClendon and Michael Goldberg. This discussion replaces his earlier focus on the anthropological category of *myth*, which often has been misunderstood.

Chapter 3, Similarities and Differences, delves into some new areas: the historical character of both science and Christianity; the question of objectivism or relativism; and the problem of religious pluralism.

BARBOUR'S STYLE: VIA MEDIA

I have already characterized Ian's style of scholarship as encyclopedic. He has a gift for surveying the body of literature on a contested topic, sorting the positions into categories, and presenting brief, clear accounts of the scholarship on both sides. I believe Ian's irenic style of scholarship reflects his personal character, as he strives to appreciate the varied points of view and establish a position of his own—a *via media*—that takes into account the strengths and weaknesses of all of the contenders, as he does, for instance, in taking

a stand on religious truth between absolutism and relativism. However, I do not mean to suggest that in his attempt to find moderate positions, Barbour is simply a compromiser, with no significant positions of his own. As I read this recent work and think of how to position Barbour in the field, two characteristics stand out in Part 1 and give definitive shape to his work.

First, Barbour continues to argue for a critical realist position on the truth and language of both science and religion. He sees this as a middle position between what is now termed "naive realism" and relativistic interpretations of all sorts.

The second significant issue has to do with the sort of parallels Barbour pursues between Christianity and science. In my own writing I have argued that if one wants to find close parallels with science, one needs to look not at religion as a whole but rather at the academic discipline of theology. I have also argued that a more useful account of the structure and progress of science than Kuhn's paradigm analysis is Imre Lakatos's account of competing research programs. Thus, I was gratified to see in the present volume Barbour's attention to Lakatos and also to the question of the proper level of analysis for relating Christianity to science. Barbour's decisive return to a consideration of religion as a whole (as opposed to the narrower focus on theology) must be seen as a significant characteristic of his approach. This focus on religion as a whole will be one of the objects of my reflections in what follows; another will be what I have called his irenic style of scholarship and in particular its result in Barbour's position on critical realism.

RELIGION VERSUS THEOLOGY

Barbour raises a question, at several points, regarding the scale at which we ought to seek parallels between religion and science. "Would it be illuminating," he asks, "to consider all of Christianity as one paradigm and refer to 'the Christian paradigm'?" (Barbour 1990, 57). Or, in connection with his discussion of my work:

How broad a set of ideas should be thought of as a *theological program*? An interpretation of a single doctrine, such as one view of the atonement, is perhaps too limited to consider as a "core belief" to which enduring commitment is given. Perhaps a school of Christian thought, such as neo-orthodoxy, Thomism, or process theology, can fruitfully be portrayed as a program. Alternatively, in the context of religious pluralism, one might think of Christianity as a program whose core is belief in a personal God and the centrality of Jesus Christ—with all other beliefs as auxiliary hypotheses that can be modified to maintain that core. Gary Gutting goes even further in proposing that belief in the existence of a personal God constitutes the Lakatos[ian] core to which decisive assent

should be given, but this seems too broad to define an identifiable religious community. (Barbour 1990, 61–62)

The ongoing disagreement between Barbour and myself as well as Barbour's own questions regarding the issue of scale suggest that we have found an area that requires further clarification. We need a more detailed account of the structure of religious thought than that provided either by Barbour's suggestion in *Myths, Models and Paradigms* that whole religions are akin to paradigms or by my earlier suggestion that schools of theological thought be construed as scientific research programs.

In the present volume Barbour tends to speak not of Christianity as a paradigm but of the Christian tradition as containing paradigms. This seems to me to be an improvement. However, Kuhn has been criticized from the beginning for the lack of precision in this definition of a scientific paradigm. Despite his later distinction between a disciplinary matrix and an exemplar, I believe his terms are still difficult to apply. Thus, rather than attempt to push the analogies between religions or theologies and paradigms (see Küng 1989), I suggest that we use the concept of a *tradition*, as explicated by Alasdair MacIntyre, for describing the structure of a religion and for developing an account of parallels between science and religion as well.

MacIntyre developed his account of traditions in order to make sense of the history of ethics. However, he was much influenced by issues in the philosophy of science as well. According to MacIntyre, traditions always begin with an authority of some sort, usually with an authoritative text or set of texts. As examples, MacIntyre includes the Homeric epics as formative texts for the virtue tradition in ethics, Newton's *Principia* for the Newtonian tradition. Of course, the Hebrew and Christian scriptures are formative texts as well. A tradition, now, can be defined as a historically extended, socially embodied argument about how best to interpret and apply a set of formative texts.

I wish to highlight several aspects of this definition of a tradition and comment on their bearing on the present discussion. First, a tradition is socially embodied. That is, it provides the basis for a community's way of life. This means that academic theology alone is not, in this sense, a tradition; however, a religion, being by its very nature socially lived-out, is.

Second, a tradition is defined as an *argument* about how to interpret and embody the texts. Thus, a tradition should not be expected to manifest the agreement on fundamental issues that characterizes a Kuhnian paradigm—quite the contrary, in fact. So it seems clear

that MacIntyre's definition of a tradition fits religions better than does Kuhn's definition of a paradigm.

A third point that becomes apparent, not from MacIntyre's definition of a tradition but from his use of the term, is that traditions can be contained within other traditions. Among the cases that MacIntyre has discussed, the Thomist tradition is part of the Augustinian tradition, which in turn is part of the Christian tradition. But the containment relation is not a simple one like a set of Russian nesting dolls. Thomas and his followers are also a subtradition within the moral tradition that takes the concept of virtue as its starting point and which traces its origin to the Homeric texts.

So a large-scale tradition will be made up of a variety of entangled subtraditions, and there will be a variety of ways to cut those tangled streams of thought into discrete entities.

Now, within Christian subtraditions, working toward an even finer scale, we find theological schools with a great deal of agreement on fundamentals. At this fine scale, the concept of a tradition no longer applies, since the *differentia* between two theological schools are generally not socially embodied. For example, process theologians do not form a distinct community in any other sense than that of an intellectual community and have no way of life that distinguishes them from, say, Schleiermacherians.

However, I have argued that Lakatos's concept of a research program applies quite well here. A research program is a network of theories, unified by a central theory that is quite resistant to change and therefore called the hard core. The rest of the network comprises auxiliary hypotheses, which are subject to change in order to adjust the whole to a growing body of data. The data for Christian theology would come from scripture, experience, history, and elsewhere. A research program has a positive heuristic, that is, a plan for the development of the program. I have suggested that the positive heuristic for a theological research program would be, for instance, the plan to treat all of the standard Christian doctrines from the point of view of the writings of Martin Luther or from the perspective of existentialist philosophy. (On Lakatos, see Worrall and Currie 1978; for application of Lakatos's concepts to theology, see Murphy 1990).

So it appears necessary and useful to have both concepts, that of a *tradition* and that of a *research program*, in order to describe the large- and fine-scale structures, respectively, of religious thought. And while the two concepts are distinct, there will be borderline cases where it is not clear which applies. For example, Thomism has certainly grown into a full-fledged tradition, even containing a variety of its own subtraditions. But early in its history it would have lacked

the social embodiment and diversity that characterize a tradition and would better have been considered a theological research program.

Notice that research programs, like traditions, admit of containment. For instance, we might locate Whiteheadian process theology within the broader program of process theology; and there also might be a research program in process Christology contained within Whiteheadian process theology. Speaking metaphorically, then, we can say that both traditions and research programs have a "fractal" structure. That is, when we examine the parts of a research program we find that the part also has the "shape" of a research program. Thus, we do not need to decide among some of the alternatives Barbour presents; for example, we do not need to decide whether the term *research program* should be applied to sustained treatments of a single doctrine or only to entire systematic theologies. It may well be both.

The point of the foregoing is that it is only with this complex account of the structure of religious thought that we can describe parallels between religion and science without the danger of making category mistakes. It is probably clear enough now where I am heading with all of this. Either apt comparisons will be between research programs in science and research programs in theology or, if one wishes to compare a religion as a whole to science, the correct scale on the scientific side will be something like the Aristotelian tradition, with its social embodiment in the *polis*, or the whole of Newtonian science along with its related worldview. When we look at science on this large scale, it bears a closer resemblance to religion than Barbour admits. Newtonian science "writ large" has indeed been socially embodied—it is quite remarkable to see the extent to which Newtonian physics has served as a source of ideas for modern psychology, ethics, and political thought.

CRITIQUE OF BARBOUR'S *VIA MEDIA*

I return now to the issue of Barbour's style of scholarship. While I always appreciate the irenic spirit of Ian's work, I am sometimes uneasy about the results to which it leads. I am taking the opportunity of this presentation to try to get clear on what is the source of the uneasiness. I believe it can be expressed this way: In some instances (and I want to emphasize that this is only sometimes) I believe that Ian is seeking a midpoint between positions that are not in any sense on a spectrum. To illustrate, consider the position that he takes vis-à-vis the objectivity of science versus its social conditioning. I suspect that it is a mistake to treat as opposing positions (1)

claims for the objectivity of science and (2) claims that science can be explained sociologically and then to seek to find a compromise between them, as Ian does. For instance, after describing the strong program in the sociology of science, he says:

These various delineations of extrascientific factors are a valuable corrective to the "internalist" view of an autonomous, rational, scientific community. But . . . I believe these authors lean too far toward relativism and underestimate the constraints placed on theories by the data arising from our interaction with nature. Their interpretation of science fails to account for its success in making predictions and generating applications. Ideologies and interests are often present, but their distorting influence can be reduced by using the criteria mentioned earlier, especially the testing of theories against data. (Barbour 1990, 75)

So here Barbour is attempting to give the sociologists their due but also to "lean back" in the other direction toward the internalist account.

We can tell that there is something wrong with this way of setting up the opposition, for Barbour goes on to say of the sociologists that:

the extreme relativists are inconsistent, for they assert that their own analysis is valid for all cultures. Their own claims somehow escape the charges of cultural relativism of which everyone else is accused. (Barbour 1990, 75)

Now, this charge may be true of some of the thinkers Barbour has in mind here, but David Bloor, one of the foremost proponents of the "strong program," states explicitly that his analysis does apply to his own position. Bloor is at some pains to explain that social conditioning does not invalidate either his own theories or anyone else's (see Bloor 1991). So what is going on here?

I suggest that we look at Bloor's analysis not as a position opposed to accounts of science in terms of truth, objectivity, etc., but rather as a position pertaining to a different level of analysis. It is the answer to a different set of questions.

To illustrate my point, let us return to the issues I raised in my previous section. Barbour claims that religions are like scientific paradigms. Why does he make this claim rather than saying that it is academic theology that is like science? If he made the latter move, he would not have to devote so much attention to how religions differ from science. For example, summing up (Barbour 1990, 88), he notes that religion is a way of life and that religious language serves a variety of functions that have no parallel in science. There is the affective dimension of religion; religions offer salvation; religions require more total involvement than does science; religions fulfill psychological needs.

The question can be sharpened by noting that there is a scientific culture that has grown up around science proper. Barbour himself notes the religious trappings of science advocated by the likes of Carl Sagan in *Cosmos*: "Sitting at the instrument panel from which he shows us the wonders of the universe, he is a new kind of high priest, not only revealing the mysteries to us but telling us how we should live" (Barbour 1990, 5). Scientific language is used by Sagan to express awe and reverence for the ultimate, Nature with a capital *N*. Scientific knowledge offers salvation from our self-destructive urges. So, more specifically, why does Barbour choose to focus on religion in the *broad* sense (i.e., as opposed to professional theology) and to focus on science in the *narrow* sense, as opposed to the penumbra of scientistic culture?

I propose some hypotheses: First, Barbour developed his ideas while teaching in a college religious studies department. There is presently a great deal of bias against theology in religious studies departments. I am not attributing any such bias to Ian, just noting that a concentration on religion is appropriate in some social locations, a concentration on theology in others. Second, Barbour is a physicist. The world of science is strongly influenced by atheism. These two factors together may well have caused him to be concerned about an *apologia* for religion. Third, since the scientistic culture is thoroughly atheistic, it stands to reason that he should seek to avoid legitimizing it by comparing it with the venerable religions of the world.

Notice what I have done. I have given a causal explanation for Barbour's position over against my own, based on his social location. Now, does that mean his position is wrong? No. His position is wrong for the reasons I have given in the previous section.

Then is my position undermined by the fact that I accept causal explanations of beliefs? Or am I going to claim that my position is somehow exempt from social conditioning because it happens to be *true*? No. I am as socially located as the next person. My location was the Graduate *Theological* Union, a multidenominational consortium of Christian seminaries; my interest was to argue for the cognitive content of theology over against what George Lindbeck has called the experiential-expressivist account.

The moral of this little story is that there is no necessary opposition between sociological accounts of knowledge and more traditional epistemological accounts. They are analyses on different levels, and thus there *is* no place halfway between them, which critical realism intends to fill. It is important to distinguish the different questions each is intended to answer rather than to see each as half of the answer to a single question.

CONCLUSION

I conclude by saying what a pleasure and honor it has been to have the opportunity to respond to Barbour's Gifford Lectures. But I also want to end with a *complaint* about how difficult it is to criticize his work. This is for a variety of reasons: I have already mentioned the difficulty of summarizing an encyclopedic work such as Barbour's. I hope it also is clear from what I have said or implied that I agree with much of what he has written and in fact see his work as setting the parameters within which the discussion of theology and science must take place; thus I've had to hunt diligently for points of disagreement.

Yet another difficulty for the reviewer is the irenic style of scholarship that I have focused on above. This feature makes it hard to criticize Barbour's work, since any complaint to the effect that he has not given enough attention to one side of an issue will almost inevitably make the reviewer come across as an extremist. For example, had I argued directly that Barbour gives too little to the historical conditioning of knowledge, it would have made me appear more of a ranting relativist than in fact I am. So it has seemed appropriate not to engage issues *within* the scope of Barbour's work but rather to attempt to step back and place his work as a whole against a broader range of possibilities. I have commented on two features, his general style of scholarship and the question of how to describe the structure of religious thought when attempting to compare it to science. I hope in so doing I have made a positive contribution to the scholarly endeavor that Ian has done so much to establish.

REFERENCES

Barbour, Ian. 1966. *Issues in Science and Religion.* Englewood Cliffs, N.J.: Prentice-Hall.
————. 1974. *Myths, Models and Paradigms.* New York: Harper and Row.
————. 1990. *Religion in an Age of Science: The Gifford Lectures 1989-1991, Vol. One.* San Francisco: HarperCollins.
Bloor, David. 1991. *Knowledge and Social Imagery.* 2d ed. Chicago: Univ. of Chicago Press.
Küng, Hans. 1989. "Paradigm Change in Theology." In *Paradigm Change in Theology,* ed. Hans Küng and David Tracy, 3-33. Edinburgh: T & T Clark.
Lakatos, Imre. 1978. "Falsification and the Methodology of Scientific Research Programs." In *The Methodology of Scientific Research Programs: Philosophical Papers.* Vol. 1, ed. John Worrall and Gregory Currie, 8-101. Cambridge: Cambridge Univ. Press.
Murphy, Nancey. 1990. *Theology in the Age of Scientific Reasoning.* Ithaca, N.Y.: Cornell Univ. Press.