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# Science and Religion:
# The Immersion Solution

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**Introduction: Two Ways to Handle Contradictions**

This essay focuses on the cognitive tension between science and religion, in particular on the contradictions between some of the claims of current science and some of the claims in religious texts. My aim is to suggest how some work in the philosophy of science may help to manage this tension. Thus I will attempt to apply some work in the philosophy of science to the philosophy of religion, following the traditional gambit of trying to stretch the little one does understand to cover what one does not understand.

My own views on science and religion are hardly views from nowhere. My scientific perspective is that of a hopeful realist. Scientific realism is the view that science, though fallible through and through, is in the truth business, attempting to find out about a world independent of ourselves, and it is the view that business is, on the whole, going pretty well. My religious perspective is that of a progressive Jew. The problem I am worrying in this essay is my own problem. I take my other philosophical problems seriously too, but for the me the question of the relationship between science and religion has a personal edge I do not feel in my other philosophical obsessions with the likes of the problems of induction or the content of *ceteris paribus* laws. My reply to a charge of self-indulgence would be that my cognitive predicament is, I believe, widely shared.

How do we manage contradictions? The White Queen famously gave Alice excellent advice:

> 'I can't believe *that*,' said Alice.
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> 'Can't you?' the Queen said in a pitying tone. 'Try again. Draw a long breath and shut your eyes.'
>
> Alice laughed. 'There's no use trying,' she said, 'One can't believe impossible things.'
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> 'I dare say you haven't had much practice,' said the Queen. 'When I was your age I always did it for half an hour a day. Why sometimes I believed as many as six impossible things before breakfast.'[1]

The White Queen has nothing on me. I believe many more than six impossible things before breakfast and I do it effortlessly, since my beliefs include many contradictions I have not noticed. Some of them are obvious in retrospect. When I lived in rural northwest Massachusetts, I preferred one route walking to my office and another route coming home, believing in each case that I was taking the shortest route. For an unconscionable time, I failed to put these beliefs together and so failed to deploy my sophisticated geometrical knowledge that the length of a path does not depend on the direction travelled. It is, however, more challenging to believe contradictions once you are made aware of them. Few of us aspire to the White Queen's level of cognitive control in such cases, but there are plenty of other options available. Ignoring the contradiction very often works. Another option is to find a way of compartmentalizing beliefs, effectively preventing contradictory beliefs from coming into contact with each other. But suppose that we wish squarely to face up to a contradiction and manage it directly. In many cases we will try to show that the contradiction is only apparent. One of the maxims in the professional philosopher's tool kit is: confronted with a contradiction, make a distinction that will dissolve it. *In extremis*, however, we might just face the music and give up some of our claims or our beliefs to restore consistency.

When claims form contradictions it is impossible for them all to be correct. Consistency is of course no guarantee of truth, but it is a necessary condition. In this

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[1] Lewis Carroll, *Through the Looking Glass* (1896), in *The Annotated Alice* (New York: New American Library, 1960), p. 251.

essay I am particularly interested in the choice between two strategies for managing contradictions so as to restore consistency, especially as those contradictions arise between science and religion. This choice is between *adjusting content* and *adjusting attitude*. Adjusting content means giving up some claims. Adjusting attitude means keeping the claims but changing one's epistemic attitude toward at least some of them. It is the second strategy that I am going to favour in the particular context of science and religion. The general contrast between these strategies can be brought out in the context of the astronomer Arthur Eddington's memorable discussion of his two tables:

> I…have drawn up my chairs to my two tables. Two tables! Yes; there are duplicates of every object about me – two tables, two chairs, two pens…One of them has been familiar to me from earliest years… It has extension; it is comparatively permanent; it is coloured; above all it is substantial…. Table No. 2 is my scientific table….It does not belong to the world previously mentioned…. My scientific table is mostly emptiness. Sparsely scattered in that emptiness are numerous electric charges rushing about with great speed; but their combined bulk amounts to less than a billionth of the bulk of the table itself. Notwithstanding its strange construction it turns out to be an entirely efficient table. It supports my writing paper as satisfactorily as table No. 1; for when I lay the paper on it the little electric particles with their headlong speed keep on hitting the underside, so that the paper is maintained in shuttlecock fashion at a nearly steady level.[2]

My subject is the tension between science and religion, not between science and commonsense, but Eddington's tables help to clarify the contrast between the two ways of managing contradictions, the contrast between adjusting content, and leaving content alone but adjusting attitude. In the case of my strange beliefs about walking to and from my office, you will be pleased to hear that I reacted to the contradiction by adjusting content: I simply gave up the claim that one route was the shorter in one direction and the other route was shorter in the other direction (though I never did work out which route was the shorter). In the case of the two tables, to adjust content

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[2] Arthur Eddington, *The Nature of the Physical World* (Cambridge: Cambridge University Press, 1928), pp. xi -xii.

would be to give up on some of the claims of science, of everyday life or both, insofar as there are genuine contradictions between them. But unlike the case of the two routes, in the case of the two tables adjusting content is not the natural option. In particular, we are not going simply to give up our claims about the everyday table. Unlike the White Queen perhaps, we just can't do it. But however deeply we are immersed in our everyday view of the world, we may admit that certain parts of it systematically attribute more than is really there, and these parts are a kind of projection of our own experience that may contradict the scientific story which we take to be closer to the truth about the table. If this is the line we take, then we might nevertheless continue to use our everyday conceptions since, after all, we have no option, but not fully believe them, at least not when we are doing philosophy (or science). Through this adjustment of attitude, although the contradiction between the scientific and the everyday *claims* would not be removed, our philosophical attitude toward the everyday claims would leave us with a set of *beliefs* that are consistent. Thus we keep the full set of claims, the full content, contradictions and all, but adjust our attitude to avoid having to believe yet more impossible things before breakfast. We use more claims than we believe.

**Science and Religion: The Usual Suspects**

What now about science and religion? There are a number of familiar points of apparent tension between the claims of science and the claims of religion – you can provide your own list. For example, there are various tensions between scientific accounts of the development of the universe and of life in it on the one hand, and the accounts of these matters in Genesis on the other. There are tensions between a scientific view of the world and the miracles and wonders described for example in the book of Exodus. There are tensions between the results of the secular historical study of the origins of the Bible and what that text says about its own origins. And there are apparent tensions between what science and religion seem to tell us about the status and indeed the existence of God. (Although the only religious text I refer to by name in this essay is the Bible, my hope is that my discussion applies more widely.)

Before I consider how tensions of these sorts might be managed, I issue two health warnings. Both are in effect warnings against identifying the tension problem

with the much broader topic of the relations between science and religion. First, although I am focusing on the apparent incompatibility between various religious and scientific claims, I do not want to encourage the common and primitive practice of presenting a picture of religious life that would reduce it to religious doctrine. My intention is closer to the opposite: I want to make more room for a religious form of life in the discussions of the relation between science and religion, and I do not suppose for a minute that religion is reducible to religious claims: there is much more to religion than that.

The second health warning is that although I am here focusing on tensions between science and religion, I would not wish to give the impression that the histories of science and religion have been histories dominated by conflict. That is another surprisingly common view but it too is fundamentally mistaken. The constantly retailed story about Galileo and the Church notwithstanding, science and religion have often been seen as complementary. Indeed a great deal of science has been driven by religious motivations and has performed essential religious functions. Thus science has been taken to reveal the majesty of creation and the will of God, to illuminate religious doctrine, and to provide the technologies to support religious observance by, for example, providing for more accurate chronology. Conversely, it has often been held that religion is indispensable for science, for example because it underwrites the reliability of scientific methods.

These extensive cooperative relations show that the tension problem is only one part of the much broader issues of the relations between science and religion. But it is the part that concerns me in this essay. How are we going to manage these tensions between science and religion, arising from incompatible content? Recall that the general choice I wish to discuss is between changing content and changing attitude. There are a number of familiar ways of managing the tension by changing content, and in particular by diminishing content. Let me begin by putting three such views to one side, with unseemly haste. First, one could take the view that religious discourse is through and through figurative or metaphorical, so for example talk about God is really just an oblique way of referring to nature. That will eliminate much of the tension between science and religion; but I do not find this route attractive. The problem with the metaphor view is not with the idea that a religious text might contain metaphor. Some of the writing in the Bible certainly does appear to be metaphorical. For example, when God is described in Exodus as liberating the Jews

from Egypt with a mighty hand and an outstretched arm the text is not I think making an anatomical point. But nor is all of the text metaphorical, and in my view not enough of it is to solve the tension problem without extensive semantic violence. Thus the story in Exodus is of a personal God who liberated the Jews from slavery, fed them in the wilderness and gave them the Torah. This material seems clearly written as a literal narrative, not as a metaphor. Of course we can choose to read any text as a pervasive metaphor, but in the case of the Bible this would be to go against the plain meaning, and it would in my view so diminish the value of that text and of the religious traditions it supports that we should try to find a less disruptive way of resolving the tension.

A second route I will not follow is the value view. Instead of saying that science is literal and religion metaphorical, you might say the following. There can be no real tension between science and religion because science is in the fact business and religion is in the value business. They are in such different lines of work that there can be no incompatibility between them. Fact claims and value claims can bear no logical relations (the maxim is that one cannot derive an 'ought' from an 'is'), so they cannot contradict each other, so they cannot generate the tension problem.[3] But like the appeal to wholesale metaphor, the value view is unattractively diminishing, and for a parallel reason. Of course religious texts and traditions include value claims, but they make factual claims as well. To this one might add that the suggestion that science is a value-free zone is difficult to defend, and that the assumption that there is no logical contact possible between fact and value is dubitable. But my main objection to the value view is that it would force us to eliminate or ignore too much of the plain factual content of our religious texts. So the value solution is not for me.

Third, there is the selection view. On this view, science and religion both deliver factual claims and, taken together, these claims form a multiply inconsistent set. So we should weed out claims, until we have a consistent subset. The claims we remove should be those which we judge to have the weakest warrant, or anyway a weaker warrant than the claims they contradict. In some cases, this means the claim that goes is religious; in other cases it will be scientific: we have to decide on a case-

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[3] Cf. Stephen Jay Gould, *Rock of Ages: Science and Religion in the Fullness of Life* (New York: Ballantine Books, 1999).

by-case basis.[4] This selection view is epistemically responsible, but in my view it would leave far too many holes in the religious text.

The metaphor, value and selection views all would deal with contradictions by diminishing content. The metaphor view does this by eliminating the literal meaning of the religious text, the value view by eliminating the factual content of the religious text, and the selection view by removing claims from both religion and from science. The admirable motivation in all three cases is to avoid saddling ourselves with contradictory beliefs. If diminishing content were the only way to avoid contradictory beliefs, one of these three approaches might be our best option, anyway for those who are not willing to give up on religion altogether. But diminishing content is not the only way: it is also possible to maintain content and adjust our attitude towards it.

**Antirealism**

Philosophers of science have explored several ways to keep content while adjusting attitude. The content in question for them is the content of scientific theories, but some of their proposals may be adaptable to religious discourse. That is the possibility I wish to explore. Scientific realists take a stand on both the question of content and the question of belief. They maintain that theories are to be interpreted literally – given their full content – and that the best ones should be believed to be at least approximately true. Some antirealists agree with realists about content, but disagree about belief. This may provide us with ways to relieve the tension between science and religion. We may preserve content, what a scientific theory says, because that content serves various valuable purposes, yet at the same time we can forbear believing that content to be revelatory of a mind-independent reality. In so doing, we can manage contradictions without dropping content.

Descartes provided a striking example of how this adjustment of attitude towards science is possible, and specifically in the context of the relation between science and religion:

> For there is no doubt that the world was created right from the start with all the perfection which it now has…. This is the doctrine of the Christian faith, and

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[4] Cf. Alvin Plantinga, 'When Faith and Reason Clash: Evolution and the Bible', in David L. Hull & Michael Ruse (eds), *The Philosophy of Biology* (Oxford: Oxford University Press, 1998), pp. 674-97.

our natural reason convinces us that it was so…. Nevertheless, if we want to understand the nature of plants or of men, it is much better to consider how they can gradually grow from seeds than to consider how they were created by God at the very beginning of the world.  Thus we may be able to think up certain very simple and easily known principles which can serve, as it were, as the seeds from which we can demonstrate that the stars, the earth and indeed everything we observe in this visible world could have sprung.  For although we know for sure that they never did arise in this way, we shall be able to provide a much better explanation of their nature by this method than if we merely describe them as they now are or as we believe them to have been created.[5]

Was Descartes sincere, or was he just protecting himself from religious persecution? My own view is that he was sincere and that his religious belief ran very deep.  If you do not really believe in God, you do not make him the lynchpin of your great philosophical system; but that is exactly what Descartes did.  He was thus a realist about religion and an antirealist about certain parts of science, but he preserved the content of both realms.  A scientific theory may be valuable even if we know it is false. Descartes took it that the theory of development from seeds must be false because it contradicted religious doctrine he knew to be true. Nevertheless, he maintained that the theory is valuable because it improves our understanding by providing a potential though not the actual explanation of how the world came about. That understanding requires that we take the scientific theory literally, but not that we believe it.

My own preference is the opposite of Descartes' –  I want to consider how one might be a realist about science but an antirealist about religion –  but like Descartes I want to be an antirealist who preserves literal content on both sides.  And work on antirealism in the philosophy of science gives us a number of models for what such a position in religion might look like.  There are two I would like to explore here, one associated with Thomas Kuhn[6], the other with Bas van Fraassen[7].

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[5] René Descartes, *Principles of Philosophy* (1644), in John Cottingham, Robert Stoothoff & Dugald Murdock (trans.) *The Philosophical Writings of Descartes*, Volume I (Cambridge: Cambridge University Press, 1985), p. 256

[6] Thomas Kuhn, *The Structure of Scientific Revolutions*, 2nd edition (Chicago: Chicago University Press, 1970).

**The Many Worlds Solution**

I understand Kuhn's antirealism through Immanuel Kant, as Kuhn himself sometimes did.[8] Kant held that the empirical world, the world that science investigates, is not even in its inanimate parts a world entirely independent of us.[9] Rather this 'phenomenal' world is a joint product of a 'noumenal' world – the things in themselves as they are entirely independent of us (but for that reason unknowable) – and the organising activity of the human mind. According to Kant, the human contribution to the phenomenal world is very substantial, since it includes space, time and causation. It is only in virtue of the active contribution of the mind that we are able to experience or represent an external world at all, and we do this by creating a stage on which we can then view the appearances of the noumena, though not the noumena themselves.

Kuhn agrees with Kant that the world that scientific theories represent is not entirely independent of the scientists: it is a phenomenal world, a joint product of the things in themselves and the intellectual activities of the scientists. But there is an important difference. Kuhn is Kant on wheels. Whereas Kant thought that the human contribution that goes into the construction of the phenomenal world was generic and invariant, Kuhn maintained that the scientific contribution is quite specific and varies across the history of science. Scientific revolutions, on this view, are episodes where the human contribution to the world changes. One of the virtues of this interpretation of Kuhn as a dynamic Kantian is that it makes sense of his notorious claim that, after a scientific revolution, scientists work in a different world,[10] a claim that otherwise seems either trivial or crazy. If 'different world' just means different *beliefs* about the world, then the claim is trivial; if it means different *noumena*, so that the world as it is quite independently of us changes, then the claim is crazy. But we can make sense of the claim that the *phenomenal* world changes, because after a scientific revolution the scientists' contribution to that world has changed. On this view, scientific theories are

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[7] Bas van Fraassen, *The Scientific Image* (Oxford: Oxford University Press, 1980).

[8] Thomas Kuhn, 'The Road since *Structure*', in his *The Road since Structure* (Chicago: Chicago University Press, 2000), pp. 90-104, esp. pp. 101-4.

[9] Immanuel Kant, *Prolegomena to any Future Metaphysics* (1783) (Indianapolis: Hackett Publishing Company, 1977).

[10] Kuhn, *Structure*, ch. X.

to be construed literally, but what they describe is a world that is partially the scientists' own construction.

The semantic reflection of Kuhn's doctrine of multiple worlds appears in his development of the idea that theories on either side of a scientific revolution are 'incommensurable'. In his earlier work,[11] this was a blanket term for any feature that makes theory comparison complicated because scientists are not comparing like with like. Compare they must, but where there is incommensurability then intelligent and well-informed practitioners may disagree about the winner. The features that generate incommensurability extend from the relatively mundane fact that in a scientific revolution one is comparing achievement (the old theory) against promise (the new theory), all the way to the claim of different worlds that we have just considered. But in his later work,[12] Kuhn came to focus on a different sense of the term: incommensurability as untranslatablility. Theories that are incommensurable in this semantic sense do not just conflict: the conceptual resources of the one do not even allow full expression of the claims of the other. One reason for this semantic disassociation, according to Kuhn, is that the two theories divide the world up in such different ways that they do not simply make conflicting claims about the same things, but are talking about different things. This is the way in which incommensurability ends up for Kuhn as the linguistic reflection of the metaphysical plurality of phenomenal worlds. One world can not be characterised in the terms applied to the other.

Kuhn's multiple worlds and incommensurability have suggestive application to the relationship between science and religion. It might give us a way of reconciling literal interpretation with incompatible content by taking science and religion to be describing different phenomenal worlds in incommensurable languages. These worlds would share their noumenal component – the things in themselves are in common – but the human contribution would differ. Thus at one level the Kuhnian account suggests how science and religion, though incompatible, might in a sense be offering descriptions of a common world, the noumenal world. And at another level, it suggests how the incompatible descriptions could both be correct, since they describe different worlds, different phenomenal worlds. Each set of descriptions, the scientific and the religious, are to be taken literally. Those descriptions are in deep

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[11] Kuhn, *Structure*, ch. IX.
[12] Kuhn, 'Road since Structure'.

conflict: they do not simply make incompatible claims about the same things, since they are talking about fundamentally different things, and indeed the claims of the one cannot even be fully expressed in the language of the other. Nevertheless, although those sets of descriptions could not be jointly true of any one world, they might each be a more or less correct characterisation of different worlds, worlds that are equally real and have noumena in common. Kuhn thus appears to offer everything some of us could want. We acknowledge the deep differences and incompatibilities between science and religion, we understand both discourses literally, and indeed we could even take both to be true of their respective worlds. We can retain the conflicting content without impossibly supposing that the world as it is in itself, independently of us, is somehow self-contradictory.

Would this appropriation of Kuhn's account of science in order to give an account of religion and its relationship to science do mortal violence to Kuhn's ideas? Certainly Kuhn would not endorse the wholesale application of his account of science to religion, because he held that science is a distinctive human activity and that his account helps to locate its distinctive feature. But Kuhn does not find this in his claims about incommensurability and multiple phenomenal worlds. Rather, according to him, what is distinctive about science is the way it supports an empirical puzzle-solving tradition during periods of normal science between scientific revolutions.[13] This sort of puzzle solving may not have a close counterpart in the case of religion, but nor do the notions of incommensurability and multiple worlds seem to depend on it. Indeed, although he does not himself seek to apply his account beyond science, Kuhn in effect acknowledges this broader applicability when for example he suggests that ordinary human languages (e.g. English and French) are incommensurable, on the grounds that the concepts they deploy carve up the world differently.[14]

Another obvious difference between Kuhn's account as applied to science alone and the attempt to extend it to apply to both science and religion concerns competition. When Kuhn talks about incommensurable theories, he is talking about problematic choices, choices where there is 'no common measure' and where intelligent and well informed investigators may disagree; but he is talking about cases

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[13] Thomas Kuhn, 'Logic of Discovery or Psychology of Research?', in Imre Lakatos & Alan Musgrave (eds), *Criticism and the Growth of Knowledge* (Cambridge: Cambridge University Press, 1970), pp. 1-23, esp. pp. 6-9.

[14] Thomas Kuhn, 'Commensurability, Comparability, Communicability', in his *Road since Structure*, pp. 33-57, esp. pp. 48-9.

where choices must be made. This is clearly different from the extension of Kuhn's ideas we are here exploring, since the point is not to analyse a forced choice between science and religion but rather to see how one could have them both, while yet admitting that they are in some ways incompatible. But here again Kuhn's willingness to apply his notion of incommensurability to different human languages suggests that the extension would be permissible. (Kuhn would I think also allow that certain non-competing scientific theories in different disciplines are incommensurable.) If this analysis were correct, one might expect there to be particular challenges in holding on simultaneously to both the scientific and religious worlds, but this is indeed what we find. Moreover, Kuhn makes an observation about incommensurability which suggests that the challenges, though real, need not be insuperable. He claims that although incommensurable theories or languages are untranslatable, this does not exclude bilingualism: you may be able to speak and understand both languages without being able to translate the claims of one into the claims of the other.[15]

Kuhn thus offers us a suggestive resource for a distinctive account of the nature of religious discourse and its relation to science, of particular interest to those who wish to have their cake and eat it, with literal interpretation and acknowledgement of conflict, yet no forced choice. At the same time, I do have reservations about this resolution of the tension problem between science and religion. One is a general ambivalence about the metaphysics of constructed worlds, whether in science or in religion. In what sense is a Kuhnian world really a world? As I have noted, 'different worlds' had better not reduce to 'different beliefs', lest we trivialise Kuhn's claims. Moreover, in the context of applying this view to the relationship between science and religion, such a reduction would undo my attempt to find a way to accept conflicting claims while avoiding conflicting beliefs. The promise that Kuhn's many worlds account offers is that, while my descriptions are incompatible, there is a sense in which my beliefs are not, because they are beliefs about different worlds. If 'different worlds' is just a hyperbolic expression for 'different beliefs', then we seem back to square one.

I can think of two philosophical models that might help us to articulate the nature of these phenomenal worlds. They only provide approximations to Kuhn's

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[15] Kuhn, 'Road since Structure', p. 93.

metaphysics, but they may be helpful nevertheless. The first is the model of a traditional philosophical view of secondary qualities such as colours. According to this view, colours are dispositions of the surfaces of objects to cause certain sensations in us.[16] Thus colours are not simply sensations – they are properties of physical objects – but they are peculiarly anthropocentric properties, since they are dispositions defined in part in terms of our sensations. Colours are on this view phenomena, a joint product of the things in themselves (the surfaces of objects) and the nature of our mind. (Kant himself uses secondary qualities as a model for his view of the phenomena.[17]) And if we imagine people who react to the same electro-magnetic radiation reflected off surfaces with systematically different sensations, as in classic philosophical thought experiments about 'spectrum inversion', we capture a sense in which those people live in different worlds.

The second model is a kind of nominalism about the noumena.[18] On this view, in order to represent the world we must suppose it to consist of objects with various properties. But while the objects are out there independently of us, the properties are not: the world does not come pre-divided into kinds. So on this view the phenomenal world – which is the only world we can represent – includes properties, but these properties are our contribution, and indeed different people might divide up the world differently, might contribute different and incompatible properties. Here too we capture a sense in which the differences are not merely differences in belief but differences in the world, since unless we suppose them to be features of the phenomenal world, we would not be able to see our beliefs about the world as representing anything, which would be to say that they are not beliefs.

Both these models help to make sense of how some feature could be both of the world and put there by our cognitive activity. And I think this leaves us with an approach to science and religion well worth developing. But now I must confess that I am not myself entirely happy with the application of the Kuhnian metaphysics either to science, or to religion, for pretty much opposite reasons in the two cases. The Kuhnian approach gives too little cognitive credit to science and too much cognitive credit to religion for my taste. On the science side, as I have already confessed, I hold

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[16] John Locke, *An Essay Concerning Human Understanding* (1689) (Oxford: Oxford University Press, 1979), bk. II, ch. VIII.

[17] Kant, *Prolegomena*, First Part, Remark II.

[18] Ian Hacking, 'Working in a New World: The Taxonomic Solution', in Paul Horwich (ed.), *World Changes* (Cambridge, MA: MIT Press, 1993), pp. 275-310.

out the hope for a realist model, according to which properties and natural kinds are not put there by us but are features of the noumenal world that science may disclose. Kuhn is unwilling to go this far. And if applied to religion, Kuhn's ideas seem to go too far. What is attractive about Kuhn's account of science is that Kuhn combines a kind of relativism with the insistence (even if this is not seen by all his readers) that science is empirically constrained. For Kuhn, the fact that scientists believe something does not make it so, even for 'their' world. Science is a game against nature, an attempt to meet the relentless constraints that observation and experiment impose. Indeed on Kuhn's view nature always wins, because every normal science tradition is eventually overthrown by an overload of recalcitrant anomalies.

I do not see religion thus empirically constrained (though it may be constrained by our needs and desires). I see religious texts as human productions which, although obviously inspired by experience, have nothing like the close responsiveness to the nature of the natural world to which empirical science aspires. This does not absolutely rule out seeing those texts as providing descriptions of Kuhnian worlds. For God might exist, have created the world in a certain way, and then informed us about that creation. At the same time, it might be that, our intellects being what they are, we are unable to take information about the noumena straight, so God descriptions are laden with a conceptual structure that both makes them comprehensible to us and generates a phenomenal world that is their subject. In other words, although the epistemology of religion might be non-empirical and thus radically different from the epistemology of science, what is required for a Kuhnian world is not that we know about it in a certain way, but that it include the appropriate noumenal and conceptual components.

But I still cannot go this far. For me, religious texts are much more akin to imaginative writing than to scientific theories, different not only in their epistemology but in what they are about, and they do not in my view satisfy the noumenal constraints that a Kuhnian world requires. Novels do not create Kuhnian worlds; they create fictional worlds. Religious texts do purport to describe the actual world – they are not presented as fiction – but I maintain that the worlds they described are significantly closer to imagined worlds than to the worlds of science. At the same time, I hold fast to the view that religious texts may have the deepest value, and that this is best understood by finding a way of giving them a literal interpretation. So I

turn now to another antirealist model from the philosophy of science, to see whether it suggests a religious analogue that may be, for me anyway, more congenial.

**The Immersion Solution**

This approach to retaining the literal content of both science and religion is inspired by a position in the philosophy of science known as constructive empiricism, a position developed and championed by Bas van Fraassen (1980, esp. ch. 2). Constructive empiricism has three core components: semantic, methodological and epistemic. The semantic component is that scientific theories are to be understood in the same way a scientific realist understands them. They are to be given a literal interpretation: they are not metaphors, and they are not shorthand for statements about observable states of affairs. If a theory seems to be talking about invisible subatomic particles, then it is talking about invisible subatomic particles. Moreover, these are descriptions of a possible noumenal world, of the things as they might be in themselves, not of a phenomenal world partially constituted by our concepts, as we have seen Kuhn to have it. So that is the first component: a literal semantics.

The second and methodological component of constructive empiricism is 'immersion'. To immerse oneself in a theory is to enter into the world of that theory and to work from within it. This is not to believe that the theory is true, but it is to enter imaginatively into its 'world'. In some ways this is like Eddington's familiar table. Even if as a physicist one does not believe that tables literally have the qualities of colour and solidity that commonsense attributes to them, one may immerse oneself in the world of the everyday table: for everyday purposes we think about the table as if it were as commonsense supposes it to be. Indeed we cannot help but do this. The constructive empiricist makes the parallel suggestion for the scientific table. Here we do have a choice, but the suggestion is that even though we are not to believe everything physics tells us about the table, we are to do our science from within that model, almost as if we did believe in those invisible atoms. Indeed one may wonder whether immersion is in the end distinct from belief. On behalf of van Fraassen's claim that it is, we might focus on incompatible models, such as Eddington's two tables. One may consistently immerse in both, but not consistently believe both. And incompatible models are common within science itself. Thus a fluid is sometimes modelled as a continuous liquid, sometimes as a collection of discrete particles,

depending on which sorts of phenomena one is attempting to predict or explain. Those are incompatible models, but the scientist may well use both, in some context immersing (as it were) in the one and in other cases in the other, though she does not believe both.

Immersion is distinct from belief, and this is important, because the third, epistemic component of constructive empiricism is the suggestion that scientists  not believe even their best theories.  Scientists should only 'accept' them. To accept a theory, in van Fraassen's neologistic sense, is not to believe that the theory is true but only that it is empirically adequate, that what the theory says about observable things is true.  As for the balance of the content of the theory – all that talk about unobservable entities and processes – one is agnostic.  So in accepting a theory one is believing only a part of it, and the suggestion is that acceptance is the strongest cognitive attitude one should take towards a scientific theory.  There is neither warrant nor need to believe more than this.  This brings out the contrast between the constructive empiricist and the realist, for while they share their literal semantics, the realist is willing to believe more, in some cases the entire content of the theory, even where that theory speaks of unobservable entities, properties and processes.

How much of a theory is one believing when one accepts it, in van Fraassen's sense?  Along one dimension, a great deal, though still only a small part of the full content of a high-level theory.  For to accept a theory is not only to believe the part of the theory that one has actually observed, but everything the theory says about what could in principle have been observed, whether it is ever actually observed or not. Thus in accepting a theory about dinosaurs one believes what it says about the skin colour of long dead dinosaurs, because skin colour is observable, though never observed by palaeontologists.  At the same time, along another dimension the part of the theory one believes  by accepting that theory is very limited, according to van Fraassen, because for him observable means naked-eye observable.  A distant planet is observable, because although it may never be so observed, it would be visible by the naked eye if one were close enough.  By contrast, a small amoeba is unobservable, because even though it may be 'seen' clearly through a powerful light microscope, it cannot be seen by our eyes without the instrumentation, however close we get to it.

What would it be to appropriate the ideas of constructive empiricism to religion? We may consider the three core ideas: literal interpretation, immersion and acceptance.  First, literal interpretation.  This would be to hold that the Bible means

what the Bible says: it is not an entirely metaphorical document. Thus when the Bible says that God parted the Red Sea, what that means is that God parted the Red Sea. Second is immersion. The idea here is that just as a scientist may immerse herself in the world of the theory, so we may immerse ourselves in a religious text. But here we might go even further than in the scientific case. We might understand religious immersion as entering the form of life of religious practice and religious thought. It involves a kind of participation and a kind of commitment to action. It also involves a kind of identification and solidarity with co-religionists.

What about acceptance? This is the most difficult of the components to bring across to religion, and it will require modification along the way. The governing idea behind acceptance is the idea of partial belief, in the sense of believing some but not all the consequences of a claim and remaining agnostic about the rest. But as the immersion component of constructive empiricism makes clear, this is a committed agnosticism: scientists are to deploy the theory as a whole, not just those parts of it they believe. In the scientific case, the part of the theory to be believed is that part that makes claims about observable states of affairs. Could we say that same thing in the case of religious texts? Like scientific theories, religious texts seem to make claims both about observable and unobservables states of affairs, for example about the nature of an invisible God and about the observable consequences of God's will and activity. So we might attempt to keep the notion of acceptance constant as we carry it over from science to religion. On this view, we are enjoined not to believe that the Bible is true, but only that what it says about observable states of affairs is true.

This may be a coherent position, but from my point of view it is both too liberal and too strict. It is too liberal, because it would require belief in the observable factual content of miracles the Bible describes – for example a belief that the Red Sea did part, a conspicuously observable state of affairs – though not the supernatural aetiology. But I myself cannot believe that the miracles in the Bible occurred, whatever their supposed causes and even if described in purely observable terms. More importantly, this interpretation of acceptance would not solve the tension problem between science and religion, because I take it that the factual claims about some of the miracles contradict what our best science tells us about how the world has behaved. Thus acceptance of religion in this sense and belief or even just acceptance of science would still leave us with contradictory beliefs. That is why the observability criterion is too liberal for my purposes. It is also too strict, because it

would removes from the believed part all the normative content of the Bible, since norms are not observable, yet some of these I do believe.

This suggests an alternative account of religious acceptance, which would be to mandate belief not in the observable content of the text, but rather in its normative content. But here too I think we would end up both with too much and too little. Too much, because I do not wish to endorse the entire normative content of the Bible; too little, because I want to take more, in terms of belief, from the bible than its normative content. For example, I think that a religious text may be a powerful resource for working out what to believe about one's own nature and one's relations to other people, and these results seem to go well beyond the strictly normative content of the text.

To provide the epistemic flexibility I desire requires a third construal of acceptance, where the class of consequences to be believed is given an extrinsic characterisation or, to avoid euphemism, where the characterisation is more ad hoc. The reason this is necessary is because, for the most part, I take it that the warrant for those aspects of our religious text and tradition that we believe must come primarily from outside the religious text. I say 'for the most part' and 'primarily', because I give the text itself independent epistemic weight in certain areas, for example where it enjoins certain forms of ritual behaviour and where it in effect characterises certain group values. The source of that weight requires no divine role: in choosing to identify with a religious tradition, I choose to give that tradition this weight. But for most of the claims of my tradition, belief must be earned largely from outside the text itself, and this includes most of the moral claims. That is, I do not accept that in general something is made the right thing to do because the Bible says it is the right thing to do; nor do I accept that the Bible has a moral authority (whatever the source of values) that automatically trumps independent reflection and evaluation.

Accepting a religious text thus means believing some but not all of its claims, but which claims we believe is largely externally determined, by moral reflection, and in some cases by science. So the epistemology of religious acceptance as I am construing this notion is importantly different from the epistemology of scientific acceptance as the constructive empiricist construes it. For in the case of a scientific theory, while we are only to believe its observable claims, we are to believe those (in cases where we have not actually made the observation) because they follow from the theory, which has itself empirically tested. Here the warrant for the observable

consequences flows from the warrant for the empirical adequacy of the theory, which flows from observation and experiment. By contrast, in religious acceptance, as I have ended up construing it, the warrant comes mostly from other places. We are thus moving quite far from van Fraassen's notion of acceptance. In at least one respect, I would move even farther, since 'agnosticism' does not describe my own cognitive attitude towards the supernatural claims of the Bible. For it is not just that I don't believe them true, I believe them false. Where they contradict scientific theories I believe, I have no choice; but even if there are some supernatural claims compatible with that science, my epistemic attitude towards those claims will be determined by what I take to be their warrant or lack of it. The question then must be whether I have now have left constructive empiricism so far behind as to make the analogy worthless.

I think not. In part that is because I wish to emphasise the other two components of constructive empiricism, the insistence on literal construal and the advice to immerse oneself in the world of the text. But the notion of acceptance also helps me to articulate the religious attitude I wish to adopt. It captures the idea that one may define an epistemic attitude of partial belief, involving the belief in some but not all the content of a text. But as I have already indicated *en passant*, there is more to acceptance than this, as Van Fraassen characterises it, though the additional element is closely related to immersion. Acceptance is not just partial belief; it is also a kind of commitment to use the resources of the theory. In the scientific case, 'acceptance involves a commitment to confront any future phenomena by means of the conceptual resources of this theory'.[19]

The religious case is not quite the same, but what I have in mind is that in accepting a religious text we not only believe parts of it; we also commit ourselves to using the text as a tool for thought, as a way of thinking about our world. The scientist accepts her theory and her techniques and for van Fraassen that means she takes the stand of using the theory and the techniques as tools that help her to come to grips with the phenomena. Adapting constructive empiricism to religion yields a perspective from which religious people accept their tradition and their texts as tools for thinking through their lives, their projects, and their attitudes. For those inside the tradition, the Bible is good to think with and to grapple with, and not just in the parts

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[19] Van Fraassen, *Scientific Image*, p. 12.

of it that are antecedently believed. On this view, acceptance and immersion are not passive activities, nor are they matters of all or nothing. In my view one sometimes has to struggle with one's religious text, not just in order to understand it but in order to come to terms with its moral content. In some cases we may find this content morally unacceptable. As a progressive Jew this will sometimes lead me to reject clear moral content present in my religious text, but here too I would continue to preserve its literal meaning. Nor is rejection to be taken lightly if we are to preserve the constructive attitude of immersion in the text, but in my view the difficult material is there to be struggled with, not to be bowdlerised or ignored.

The signal advantage of the immersion solution over the metaphor, value and selection solutions is that it is preserves the integrity and hence the useful power of the religious text. Recall that the metaphor view would have us construe all religious claims in conflict with belief-worthy science figuratively, the value view would have us construe the religious claims as without descriptive content, and the selection view would have us excise whatever conflicts with the science. If a religious form of life is of no interest to you, this may not matter. But for those of us to do wish so to engage, the trouble with those three views is that they allow science to mangle the text, and this would deprive it of much of its value. On the immersion view, by contrast, we have the text to use in its full, unexpurgated form, the form in which I believe it can do us the most good as a tool for thinking and for living.

**Conclusion: Religion without Belief**

This completes my sketch of what it might look like to adapt constructive empiricism to religion. We construe our religious text literally, we believe only parts of it but we use all of it and we immerse ourselves in the world it describes. The point of exploring this approach is not to persuade those hostile to religious activity that they should repent, but to consider a way those who find themselves with a commitment both to a religion and to science might have it both ways. But while the immersion solution will clearly help relieve the tension of incompatible beliefs, are literalism, acceptance and immersion enough to do justice to religious commitment? The immersion solution involves no distinctive religious faith and no belief in supernatural power. Indeed isn't it tantamount to treating the Bible as a *novel*? After all, novels often invite literal interpretation, includes some claims the reader believes,

and may support a kind of immersion into a fictional world. Richard Braithwaite, whose work has influenced my development of the immersion solution, bit the bullet. He thought of religious texts as stories with morals, where 'it is not necessary…for the asserter of a religious assertion to believe in the truth of the story involved in the assertions'.[20]

The immersion solution would have been enough for Braithwaite, but it is obviously not enough for everyone with religious commitments. Many religious people have difficulty seeing the point or value of religion without belief in God. If that is what you need, the immersion solution is not for you. But the immersion solution can provide a great deal, more than even the most enthusiastic book group. The religious story has its life in the context of ritual observance and more generally as part of a religious form of life. It is a story in which the reader herself is also a participant, and it may provide extraordinary support for communal identification and moral reflection. Consider the natural worldly benefits that religious activities provide for the religiously committed, benefits that can be characterised independently of the question of a supernatural source. The immersion solution will not support the belief that their source is in fact supernatural, but it may support the benefits themselves. For some religious people, the satisfaction they derive from their religion would evaporate if they ceased to believe in the existence and influence of God. But for others, it is not belief that is doing the work, but rather intense and communal engagement with religious text and with religious practice. For those people, the immersion solution may be enough.

On the immersion solution to the tension problem, religious commitment and religious identification flow from the contents of the texts of one's religion literally construed. Some of the claims of religion may conflict with the claims of science. The immersion solution does not aim to remove that inconsistency, but by distinguishing acceptance from belief it finds a way to achieve consistency of belief without effacing incompatibility of content. On this approach, we preserve content by adjusting our attitude towards it. We have literalism without fundamentalism; inconsistency without irrationality. There is conflict between some of the claims we invoke, but not in what we believe. To some this may smack of hypocrisy, but in the context of the relation between science and religion I myself think it is one route to personal and

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[20] Richard Braithwaite, 'An Empiricist's View of the Nature of Religious Belief' The Eddington Lecture (Cambridge: Cambridge University Press, 1955), p. 25.

intellectual integrity, a route which tries to preserve as much as possible from both religion and science without ignoring the tensions between them.[21]

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