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ARE SCIENCE AND RELIGION IN CONFLICT?

by Fraser Watts

Abstract. The widely held legend of historical conflict between science and religion cannot be sustained on the basis of research. Different sciences show different relationships to religion; the physical sciences show rapprochement, whereas the human sciences often are antagonistic to religion. Reconciling science and religion by regarding each as applicable to a different domain is rejected in favor of seeing them as complementary perspectives on the same phenomena. The science and theology of human nature represents a fruitful arena for the development of this approach. A key general requirement is the epistemological reconciliation of science and religion.

Keywords: complementary perspectives; conflict; epistemology; human sciences; reductionism.

THE LEGEND OF HISTORICAL CONFLICT

For the last hundred years it has been widely believed that science and religion are in conflict. That was the position set out for the first time in J. W. Draper's influential book *History of the Conflict between Religion and Science* (1875) and followed up by A. D. White's (1896) *History of the Warfare of Science with Theology in Christendom*. Sadly, this idea that science and religion are in conflict is still widely accepted by the public, and by some professional scientists.

The endowment of the Starbridge Lectureship brought a sharp response from several academics who hold this view, prominent among them the distinguished Oxford biologist Richard Dawkins. To Dawkins,

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it is so clear that religion is obsolete, and that science has replaced it as the guiding light of modern life, that it must be incomprehensible that anyone should want to endow a post concerned with the relationship between the two. Dawkins, like Draper and White a hundred years ago, apparently thinks that science and religion have been at war, that science has won the battle, and that religion should recognize its defeat and walk away.

However, a careful examination of the history of the relationship between science and religion (for example, Brooke 1991) makes clear that the story that they have been in conflict, and that science has been winning, is unsustainable. The relationship has been too complex, with too many twists and turns, to be summarized in that way. Indeed, some, such as Jaki (1978), have suggested the contrary thesis: that religion has facilitated the development of science in the modern world. Various lines of argument can be adduced in support of that idea, although I suspect the idea that religion has given rise to science is as tendentious a view of the history of science and religion as the conflict story. However, the fact that it is possible to write two such different accounts itself shows that the relationship has been a complex one. I think it would be true to say that no serious scholar of the history of science, regardless of religious affiliation, would now tell the history of the relationship between science and religion in terms of conflict and victory.

The conflict story generally revolves around two key figures, Galileo Galilei and Charles Darwin. The two key scientific discoveries that are supposed to have aroused most conflict between scientists and religious authorities are the Copernican idea that the earth moves round the sun, and the Darwinian idea that *Homo sapiens* has evolved from other species. Historians of science have made us increasingly aware of the complexity of the religious reaction to these new ideas—and rightly so. Galileo's condemnation by the Roman Catholic Church was far from inevitable; it was almost a product of chance events in internal Catholic politics. Equally, there was a good deal of positive religious reaction to Darwin, alongside the opposition.

Rather than elaborate on this point, I want to make a different one. It is very strange that these two particular ideas should have such pride of place in the history of the supposed conflict between science and religion. Neither the Copernican idea that the earth moves round the sun nor the Darwinian idea that *Homo sapiens* has evolved from other species raises issues that are central to biblical theology or to Christian doctrine generally. There is, for example, no reference to them in any Christian creed, and they would not have a central place in any systematic theology. Of course, the doctrine of God as Creator *is* fundamental

to Christian belief, but theologians have increasingly seen it as stating a more general dependence on God, rather than relating to the detailed origins and development of this planet and *Homo sapiens*.

How is it that two ideas of such peripheral doctrinal importance have played such a key part in the supposed conflict between science and religion? One of the key reasons is undoubtedly that they raised issues about biblical authority. However, as I believe Freud suggested, these two ideas have something conspicuous in common. In different ways they both appear to challenge conventional assumptions about *our* central place in the scheme of things: first the centrality of our planet and then the centrality and importance of our own species. Was the challenge, not so much to religion as to humanity's view of itself? The conflict, such as it was, may have been mislabeled. Despite first appearances, the challenge posed by science to accepted beliefs may really have focused primarily on what humanity believed about itself and only secondarily on religion.

In fact, historically this interpretation can be sustained better for Darwin than for Freud. It is doubtful whether the Copernican revolution really did bring about a general sense of the earth's being less central in the cosmos than the sun. However, Darwin's theory certainly challenged treasured assumptions about the human race; the main resistance to accepting Darwin's theory focused on the evolution of humanity, not the evolution of other animals.

The Variety of Sciences

One of the important points to be made about the relationship between science and religion is that there is not just one relationship. There are many different sciences, and each has its own history, methods, and assumptions. Each also has a different relationship to religion. I particularly want to draw attention to the very different relationship to religion of physics and cosmology on the one hand and of biology and psychology on the other.

The initial scientific challenges to religion came, of course, from cosmology. Problems about the compatibility of secular cosmology and the Bible go back to the Patristic period, although they came into particular prominence in the Renaissance. Later, the mechanistic approach to the physical sciences, represented by people such as Laplace, seemed to leave no room for God. It espoused a closed, fully deterministic model of the world.

This has all changed enormously. There has been widespread recognition that the laws of nature allow a degree of openness in the world, and quantum mechanics explicitly allows for indeterminacy. Also, in cosmology, the so-called anthropic principle, roughly that the universe was

made for man (Barrow and Tipler 1986), has been used as a basis for a revival of natural theology. I have to say that I am far from happy with some popular reconciliations of religion and the physical sciences, such as those of F. Capra (1975) and D. Zohar (1990). I am also concerned about the way in which the scientific facts underlying the anthropic principle are frequently overinterpreted, and can lead to a bizarre futurology (Watts 1995). Nevertheless, the physical sciences have given us a view of the world that is remarkably more compatible with theology than could have been imagined 150 years ago.

Biology and psychology were slower to present a challenge to religion, but they now present a more serious one. The problems center mainly on the human sciences, where mechanistic and reductionist approaches have been common in recent decades. Mechanistic ideas about animals were developed as far back as Descartes but were initially regarded as eccentric. Descartes himself, of course, made a sharp distinction between people and animals, but subsequently others sought to apply his mechanistic ideas not just to animals but to people.

Mary Midgley (1992), in her recent Gifford Lectures, drew attention to the origin of many of our assumptions about the nature of science in early modern Puritanism. It seems to me that the reductionist ideology so powerful in the human sciences is one particular outcropping of this Puritan strand in the ideology of science. As Midgley points out, the high priests of early modern science were determined to banish a sense of wonder and mystery from nature. Robert Boyle, for example, complained about "the veneration wherewith men are imbued for what they call nature" (1772, vol. 5, p. 165).

There was, of course, a positive side to this program of demystification. It laid the foundations for modern science, with its dual aims of seeking objective truth and bettering the human lot. It also arose, in part, from an association in people's minds between pagan religion and mystery; so demystification was something almost required by Christianity. We find it hard to credit now that one of the attractions of a mechanistic view of nature in the early modern period was that, by espousing such a limited view of nature, it seemed to strengthen the case for the necessity of God.

Incidentally, it is intriguing what changes in intellectual alliance have occurred over the last three hundred years. Mechanistic science was initially seen as an ally of religion but soon—as Buckley (1987) has shown—helped to give birth to modern atheism. Nowadays, it would be almost universally assumed that mechanical science sat very uneasily with religion. A sense of wonder about nature was initially associated with paganism and then, in the late nineteenth century, with the scientistic atheism of Huxley and his circle. Now it tends to be seen as a

natural ally of theology.

Reductionist human science can perhaps be seen as a continuation of the commitment in the early modern period to the banishment from the subject matter of science of anything that might arouse wonder, a commitment that has now been applied, not just to what Boyle called "the inferior creatures of God," but to people themselves. People, after all, represent the ultimate challenge to this program of demystifying the objects of scientific study.

Another source of reductionism in the human sciences is the search for simple, elegant, powerful theories. However, there is an important difference between theorizing in the physical sciences on the one hand and the biological and human sciences on the other. The search for elegant theories in the physical sciences has unquestionably been scientifically productive; the truth about the physical world really does seem to be elegant. That has produced a sense of wonder in some physical scientists, creating a mood that is at least compatible with faith if not a foundation for it.

Reductionist tendencies in the human sciences feed off this drive for simple, powerful theories. However, the truth about the living world and especially about people seems invariably to be complex and multifaceted. Searching for simple, elegant theories in the human sciences, though tempting, is almost always a mistake. Also, such theories generally emerge in a form that leaves no place for the spiritual aspects of human nature. Oversimple theories in the human sciences are both bad science and bad for the relationship between science and religion.

Reductionist Ideology

There has been a series of reductionist approaches to human beings in twentieth-century science. Between the wars, psychology went through a phase of saying that the only thing about people that could be studied properly was their behavior and that all theories about people must therefore be theories of behavior. Sociobiology has developed analyses of altruism and other cultural phenomena in terms of their survival value. Similar reductionist approaches are to be found in neuroscience and artificial intelligence. There is a good deal of exciting scientific work going on in each of these fields, perhaps particularly in neuroscience in the "decade of the brain." However, the study is often accompanied by a curiously narrow "nothing but" ideology.

Many different things sail under the banner of reductionism, not all of them bad. The most important distinction is between what I would call strong and pragmatic reductionism. There is nothing wrong with trying to explain higher-level phenomena in terms of lower-level ones *insofar as this is possible*. However, the ideologically motivated determination of reductionist science to explain away, *without exception*, any

higher-level qualities that people might have, to cut the mystery about people down to size, cannot go unchallenged.

First, in sociobiology there seems to be a tendency to argue that people are "nothing but" mechanisms for the survival of the genes. The words "nothing but," as the late Donald M. Mackay (1974) used to point out, are a danger sign. They usually represent an attempt to treat one line of explanation as though it were the whole story. Given the complexity of explanations in the human and life sciences, this is usually both unscientific and misleading to the general public. Several disturbing simplifications can be found in sociobiology (Bowker 1995), including a significant lack of interest in how the phenotype develops from the genotype, a tendency to imply that genetic survival constitutes the *whole* explanation of particular personal qualities, and a worrying failure to produce any firm evidence in support of proposed genetic explanations of human qualities.

There are other unhelpful sleights of hand in the popularization of sociobiological analyses of altruism. Dawkins (1976) describes genes as "selfish"; they will do anything to ensure their survival, even to the point of leading a proportion of gene carriers to engage in life-sacrificing "altruistic" behavior. Moral concepts such as selfishness and altruism are here used in a discourse in which they do not properly belong, and that enables sociobiologists to appear to be debunking human moral qualities (Midgley 1985, chap. 15).

There is a parallel reductionist ideology in neuroscience. Francis Crick has recently published a book called *The Astonishing Hypothesis* (1994). He is interested in how the brain processes that support visual perception lead to our being aware of something, to actually seeing it. Can we localize in the brain the processes that underpin conscious awareness? This is a good scientific question, although one that we do not currently know how to answer. Crick grafts onto this purely scientific question a kind of creed about the relationship between the mind and the brain (see Watts 1994). His so-called astonishing hypothesis is that each one of us is "nothing but a pack of neurones." This is biological reductionism in earnest.

Within the discipline of psychology, there have been repeated assertions that one part of the discipline is all that exists. Biologically oriented psychologists are particularly inclined to claim that their approach has all the answers. However, there also are developmental, affective, social approaches—and many others—each of which also makes an important contribution. In my presidential address to the British Psychological Society (Watts 1992), I made a plea that people in different corners of the discipline would recognize the potential contribution of others. Human beings are many faceted, and they cannot be adequately

understood by a narrow and exclusive approach that claims one approach has all the answers.

The ideas about mind associated with "strong" artificial intelligence (AI) are another outcropping of reductionist ideas about people. (Incidentally, I am suspicious of any program with the word *strong* in its title. The term usually signifies an attempt to pass off a simple-minded approach as something bold and noble. The truth is usually more complex than "strong" programs are prepared to acknowledge.) A core concept of strong AI is that the human mind is nothing but a computer. In manufactured computers programs run on silicon. In the human mind essentially the same programs run on the biological stuff of the brain.

As often with reductionist science, there is a valuable core to this enterprise, but the central premise may become misguided if pushed too far. It really has been helpful to try to cast psychological theories about how cognitive operations are performed in computational terms. This approach has introduced a previously unavailable rigor. I expect computational theories to prove as important in psychology as mathematical ones have been in the physical sciences.

However, the fact that a computer program can be devised that will perform a particular cognitive operation that people also perform does not prove that a computer performs the operation in exactly the same way a person does. One useful thing to watch out for is whether the computer makes the same kind of mistakes people do—and for the same reasons. Current programs, based on connectionist principles, work more the way people do than programs once did. However, whether there is a good match between the two is an empirical matter. The answer cannot be assumed in advance, nor has AI in any sense proved that the human mind is nothing but a computer program.

Though reductionist, "nothing but" ideas crop up at a number of points in the biological and human sciences, there is, I believe, no scientific evidence for any of them. Indeed, it is not clear how there could be. The hypotheses are not the kind that can be verified. The idea that the human mind is nothing but a computer program is not a straightforward descriptive statement about the human mind, certainly not a conclusion that can be verified through simple observation. This view of the mind as computer program is more of a basic underlying assumption about the nature of mind, what might be called a metaphysical assumption. The same is true of the idea that we are nothing but our neurones and the idea that our behavior is wholly determined by the survival needs of our genes.

Religious ideologies have a tendency to infiltrate ostensibly secular enterprises, including politics and science, and one of the reasons reductionist ideas are used as a launching pad for an atheist crusade is precisely

that some essentially religious ideas have taken an atheist turn. Fred Hoyle used to take the steady-state theory of the origin of the universe as supporting atheism. Scientific theories, paradigms, and methodologies are not always what they seem. Indeed, religious issues probably affect science much more than is commonly recognized. One aim of the theological study of science is to bring this fact out into the open so that it is seen for what it is. The theological analysis of scientific ideas ought to be able to contribute to the study of science just as much as history, philosophy, and the sociology of science do.

Although these ideologically rooted, "nothing but" ideas have no proper basis in science, they certainly affect science. The case for seeking to banish reductionism from science is at least as much scientific as religious. The strong reductionist assumption that we are survival mechanisms for our genes would, if taken seriously, get in the way of sensible inquiry into how genes and environment interact. Crick's strong assumption that we are nothing more than our neurones would interfere with the interesting study of how the brain shapes experience while experience also shapes our physical brains. The assumption that states of mind are *just* computational states would get in the way of an adequate consideration of how our thoughts also reflect their autobiographical, social, and somatic context. My intolerance of strong reductionism is based on scientific as well as religious principles.

Fortunately, the climate is changing. The bad old days in psychology, when it was fashionable to say that people are nothing but their behavior, are long gone. Over the last twenty-five years there has been a great advance in openmindedness in the human sciences, not universally, but among most working scientists. There also has been a welcome growth in willingness to entertain a broad range of hypotheses and to consider a broad range of empirical data collected in diverse ways. The kind of reductionist, antireligious tirade to be found in the popular writings of Dawkins and Crick is increasingly seen as anachronistic.

Science and Theology as Converging Perspectives

I am cautiously hopeful that the myth that the human sciences support an antireligious "nothing but" position is on the way out. What kind of relationship between theology and the human sciences can we look forward to then?

It would be a mistake to see science and religion as making directly comparable empirical claims between which a choice has to be made. This misunderstanding is one of the things that has fueled the sense of conflict between science and religion. For example, it is sometimes thought that there are two incompatible stories, scientific and biblical, about the origin of the world, one of which must be rejected in favor of the other. How-

ever, the considerable volume of philosophical work that has been devoted to examining the nature of religious discourse has established that religion is not a straightforward competitor with science. Its discourse operates in subtle ways, and not everything that appears at first sight to be a factual claim should properly be taken as such.

I would also be displeased with the solution, stemming from Kant and implicitly adopted by many religious scientists, of dividing up the world into those parts that are the province of science and those that are the province of religion or morals. In the end, that apartheid solution is not satisfactory to either science or religion. Whatever we look at, science and religion each potentially has something to say. Everything, for the theologian, falls within God's world, and there is at least that to be said about it. Equally, there are no bounds to what can be studied scientifically. Everything, including religion, can be examined from a scientific point of view. Science may not be able to say *everything* that is worth saying, but it has *something* legitimate to say about everything.

Dividing up the territory between science and religion is like classifying medical complaints as either physical or psychological. Things just do not divide up neatly like that. *Every* medical complaint has physical aspects. Equally, there is always a psychological side, even if it is only how people cope with being ill and in pain. The physical and psychological sides of medicine are complementary. The territory cannot be partitioned discretely. It is the same with scientific research and religious belief.

We need to see science and religion as contributing potentially complementary perspectives on the world. They are not necessarily in conflict, but neither are they so distinct that the question of compatibility does not even arise. Within science itself there are often different perspectives that complement each other. Take going to sleep, for example. On the one hand, we can study the changes in the electrical rhythms of the brain that take place as people go to sleep. They go through several stages, gradually becoming slower, larger, and more regular. We can also study how thought processes change as people go to sleep. People stop attending, first to the outside world and then even to their own bodies. Finally they are left just with their own thoughts, which become more fragmentary and uncoordinated, receding to what is called the "back of the mind." My point is that the mental and physical aspects of going to sleep both tell us something important and complementary. Science and religion are complementary in a similar way.

More study is needed on how this complementarity applies in practice. The minimum requirement is, of course, that science and religion not conflict at any point. For the two to be complementary, they must at least be consonant with one another. However, a fuller degree of integration, where this is possible, would be ideal. There are two features of such inte-

gration: One is a conceptual mapping of one discourse onto another. It is sometimes possible to link particular concepts in science to parallel concepts in theology, without assuming that either is primary. In this vein, for example, Wolfhart Pannenberg (1993) has often written about the link between the concept of fields in physics and that of Spirit in theology, although others have had reservations about attributing such close association between theological and scientific ideas (Hesse 1982).

It may be possible to go yet further and use considerations in one domain to guide or constrain theorizing in another. Science is often faced with too many possible explanations for particular phenomena. Which approach is taken is influenced by what seems most plausible in the broad context of other theories. Equally, in Christian doctrine, there are often various ways of approaching particular topics, such as soteriology or theodicy. Which approach is chosen is affected in systematics by the general approach to other doctrinal issues that is being taken and by broad philosophical considerations.

There is no reason why science and theology should not begin to use each other to help choose between alternative approaches. Might it be fruitful in science deliberately to choose a theoretical path that is consonant with theology? Similarly, might it be fruitful in systematic theology to choose an approach that is consonant with science? If the world studied by theology and science is one world, that might guide both toward the truth. Let us not give any kind of encouragement here either to bad science or bad theology. The question is whether we might not have better science and better theology if each took the other into account.

Perspectives on Human Nature

As someone with a background in the human sciences, I will be particularly concerned in the Starbridge Lectureship with how science and theology provide complementary perspectives for understanding human nature. My hope is that theological anthropology can be reinvigorated by a new dialogue with the human sciences. Sadly, theological anthropology has never been a really central part of Christian doctrine and, given its considerable importance for the practical aspects of Christianity, that is regrettable. The considerable advances that have been made in the scientific study of human nature in this century make this the right time for a fruitful integration of science and the theology of human nature. The "nothing but" ideologies of the human sciences should not be regarded as an obstacle to such study because, as I have argued, they are not an authentic part of the scientific enterprise.

I hope that a study of human nature that integrates scientific and theological perspectives will affirm the complementary truths that human beings are both natural and spiritual creatures; they face both

ways. It is, of course, this emphasis in the theology of human nature that brings it so sharply into conflict with reductionist views of humanity in science. Holding complementary natural and spiritual perspectives on human nature together will need to be a central feature of an approach to human nature that grows out of the complementarity of science and theology.

This complementarity is important to understanding what has been meant when theologians talk about the human soul. Theology sometimes scarcely seems to know what it means by the *soul*. A helpful starting point is provided by the Jungian psychologist James Hillman (1975), who has suggested that soul "makes meaning possible, turns events into experiences, is communicated in life, and has a religious concern."

Looked at from one perspective, our qualities of soul arise out of our whole natural being as a kind of emergent property. I would see soul, like mind, as being grounded in and emerging from the whole person rather than as tacked on as an extra. Looked at from another perspective, the soul is given by God and points toward him. "Soul talk" captures what we want to say about the transcendence of people, their uniqueness and value, their creation in the image of God, their capacity for union with him, and potential immortality.

The scientific study of religion has a uniquely important part to play in bringing science and theology into creative dialogue about humanity. It is a key place where science and theology can bring their different perspectives to bear on a common focus. Here we can set alongside each other scientific and theological understandings of, say, prayer and conversion. Sadly, much psychology and sociology of religion is currently disappointing. It lapses into either unsubstantiated armchair speculation or a mindless empirical study of who believes in God, who goes to church, and so on. The study of religion I want to see will be rigorously theoretical, grounded scientifically in all the relevant aspects of the human sciences and grounded theologically in the range of areas of systematics that bear on the doctrine of man.

The novels of Susan Howatch, who endowed the Starbridge Lectureship, have some interesting things to say about the complementarity of spiritual and psychological perspectives. Through her fictional character Lewis Hall, whose approach to these thing in both *Mystical Paths* (1992) and *Absolute Truths* (1994) I greatly admire, she clearly shows that it is often helpful to tell both a psychological and a religious story about the same phenomenon. Neither story can say everything that there is to be said; we need both. Some things can be couched in the terminology of either discourse; others are untranslatable and can be said only one way. The fictional Hall is an able practitioner of the complementary-perspectives approach.

Toward Epistemological Reconciliation

Perhaps the key requirement, if there is to be fruitful dialogue between science and theology, is mutual respect between the methods and epistemologies of science and theology. That is not something that currently obtains. On the contrary, there is considerable methodological suspicion.

The scientific critique of religious epistemology can be simply stated. It is roughly that religion is a tissue of fantasies and fables, whereas science gives us the facts. The critique of scientific method, often adopted by theologians though not confined to them, is that science is part of a naively empiricist "modern" enterprise, a search for universal, permanent knowledge that has little place in a postmodern intellectual culture that recognizes that all knowledge is dependent on the subjectivity of the knower and on cultural context.

If this mutual epistemological suspicion is sustained, there will be little scope for constructive dialogue. Of course, the contrast between science and theology, in the form I have just given, is heavily overstated. The two disciplines have much more in common than is often recognized. One of the oddities of the way Dawkins (1995, chap. 2) contrasts the certainties of science with the fantasies of religion is that he betrays no awareness of the way in which the old confident, positivist philosophy of science has been abandoned over the last twenty-five years. Does not everyone now know that all knowledge, including scientific knowledge, is interpreted knowledge? In the words of N. R. Hanson's (1958) popular slogan, "All data are theory laden." The idea that science consists of a collection of objective facts is untenable; scientific data are collected only within a particular theoretical context or paradigm. Above all, the development of a particular scientific picture is a matter of interpretation, not just of the accumulation of facts. All scientific knowledge is, in this sense, provisional and open to reinterpretation.

All this makes scientific knowledge appear a little more like religious understanding than was imaginable when a positivist philosophy of science held sway. However, there are dangers in pressing the similarity too far. If we are looking around for an epistemological analogue to religious knowing, science is probably not the best one. I have suggested elsewhere (Watts and Williams [1988] 1994, chap. 5), that better ones would be self-understanding or the empathic understanding of other people. "Reading" a work of art also has interesting points of similarity to religious insight. Religious knowing is not completely nonrational, but it comes closer than science to employing processes of discernment that go beyond what is obviously true.

Although I would resist too close an analogy between the epistemologies of science and religion, I would also take issue with too extreme a distancing of religion from empirical knowledge. There is sometimes a

tendency to argue even within theology that, because all religious insight is subjectively interpreted and culturally dependent, there is no truth or objectivity in religion at all.

The fact that subjectivity is involved surely does not mean that objectivity is impossible to achieve. This idea that subjectivity and objectivity are polar opposites is part of our intellectual inheritance from the early modern period, a holdover that I believe we need to shake off. Objectivity can just as well be based on a subjectivity that has trained itself to be disciplined and faithful to what it is studying as on an attempt to don what N. Lash (1988) has called a "spectorial" mode of observation. There are various places to look for models of disciplined subjectivity, including early Romantic science such as that of Goethe, introspectionist psychology, psychoanalysis, phenomenology, and the qualitative research methods of the social sciences such as participant observation.

Along this path it may be possible to evolve an epistemology that belongs to neither the sciences nor the humanities but to a third culture that is a synthesis of the two. This epistemology would be neither the traditional detached scientific approach nor that of much contemporary theology that eschews any concept of empirical knowledge, or what scientists call "discovery."

I wish that theologians would show more interest, not just in the philosophy of science, but in the content of science, in scientific discovery. A dialogue with science would help theology to escape from a world that often seems too self-contained. The conservative theology of this century, based solely on revelation, seems to have stemmed from the frightened idea that the only way in which theology can be secure is for it to withdraw inside its own territory and stand on its own foundations. Theologians need to have the courage to emerge from this bunker mentality and continue the enterprise of working toward a synthesis of knowledge, something that has characterized the finest periods of theology.

Equally, I wish that scientists would reflect a great deal more on the personal and cultural context of their work and on how that bears on what they discover. I wish too that they would consider how to cultivate the personal qualities of wisdom and integrity that contribute to any search for truth. A dialogue with theology could raise the profile of such issues. It could also help science to place more accurately the ideological elements that often encroach into its work and help it to work toward a broad synthesis of knowledge.

Then perhaps there could be a really fruitful collaboration between the epistemologies of the two cultures. Owen Barfield puts the point like this: "Perhaps each needs the clasp and support of the other in his half-blinded staggering towards the light. Perhaps there is not one prison cell but two: the 'non-objectifying' subjectivity in which the

humanities are immured, and the adjoining cell of subjectless objectivity, where science is locked and bolted; and maybe the first escape for the two prisoners . . . is to establish communication with one another" (Barfield 1977, 140).

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