

Reflections on Religion, Intelligent Design, and Ambiguity in the Universe

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Abstract: This paper uses an historical perspective to illustrate the ambiguous way scientific data, that has implications for understanding our place in the universe, has been interpreted. It is shown that the data can be interpreted from a theistic or atheistic perspective. Scholars of the history and philosophy of science have concluded that theism can never be derived from the argument of design, including the recent proposal of intelligent design. It is also shown that while ambiguity appears fundamental to certain scientific and biblical concepts this need not be a cause for alarm. While it is argued that religious experience can never be derived from scientific knowledge and draws upon deeper issues than intelligence, recent scientific understandings give us no reason to doubt the value of religious experience. In fact, it could be argued that there might be a case for treasuring religious experience.

Introduction

For Christians living in the early centuries of their movement there was no question about how the world or indeed the universe came to be. According to Scripture in which was contained all truth God was the creator of all things. Augustine emphasized the thought that God not only brought into existence the matter of the universe but formed or designed the objects that we see and touch. "The matter of heaven and earth is one thing, the form of heaven and earth another. You have created the matter out of almost nothing, but the form you have created out of formless matter" (Augustine 1993, p.286). Since the onset of the scientific revolution in the 17th century when the authority

of Scripture came to be questioned believers have tried to find evidence for the existence of God from nature itself. More modest attempts have endeavoured to demonstrate only the existence of intelligence behind the creation. Within the last two years the topic of *intelligent design in nature* has become part of the political and education agenda in the United States and certainly part of the education agenda here in Australia. Parents and teachers associated with some Christian schools advocate that equal time should be given to intelligent design and evolution in a discussion of origins and others, including some academic scientists, maintain that intelligent design has no place in a science curriculum. It is argued that intelligent design belongs more ap-

appropriately to the religious education curriculum. Some science educators (Symington & Tytler 2005) have weighed in on the debate and have argued that we should not be in the business of precluding a discussion of social or religious issues in science classes otherwise we will continue to isolate students and exacerbate the problem already present, that is, declining enrolments in science across secondary and tertiary education. Nonetheless science educators are concerned with the trends in some US states in relation to incorporation of intelligent design in curricula and have adopted it as a serious topic of research (Colburn & Henriques 2006). This paper deals with some recent insights into the notion of intelligence and design in scientific and religious understanding, gives an historical perspective to the inherent ambiguity in the way people have interpreted scientific data that impacts upon the design concept, and offers some reflections on the place of religion in human experience in the light of scientific data. We will begin with a historical perspective on the way certain pieces of scientific data have been interpreted.

Historical Perspectives

We will confine ourselves here to arguments that were advanced from the 17th century keeping in mind that some of the arguments discussed

here go back to early Greek philosophy but were revived at a later period. What is evident in historical studies is that design arguments became increasingly challenged from the 17th century onwards by atheistic perspectives. Part of the reason for this was the increasing specialisation of science particularly in the 19th century with the result that fewer clergy became involved in the practice of science. From 1831-1865 there were 41 Anglican clergymen presiding over sections of the British Association for the Advancement of Science. From 1866-1900 there were only 3 Anglican clergymen in such positions. In addition to this factor theistic belief was associated with the ruling class so that with the rise of the working class and its challenges to authority there was a natural challenge to theism. In what follows it is apparent that for every argument advanced for theism there was a corresponding counter argument for atheism. We will briefly illustrate this for the mechanical philosophy, early geology and biology, Newtonian philosophy, the property of Irritability, Laplacian and Lagrangian mechanics, the fossil record, and evolution. Apart from specific references given, the following historical insights were gleaned from a review of works by John Hedley Brooke (1990) and David Knight (1989).

Mechanical Philosophy⁽¹⁾ -17th century-Descartes

Atheistic Perspective

The world is a product of the organisation and motion of particles called atoms. Organisation and motion are described by the laws of nature and there is no need to resort to a deity. No further explanation is needed beyond the laws. Matter and motion are all that is essential for understanding the world.

Theistic perspective

Laws of organisation and motion of atoms suggest there must be an intelligent designer. God started the motion and sustains it. The ability to move our limbs (power of mind to move matter) is analogous to God's activity in the world.

Early Geology and Biology-17th and 18th century

Atheistic Perspective

Irregularly shaped mountains, the presence of volcanoes, desirable and undesirable animals like snakes suggest that blind natural forces, rather than those of a perfect designer, are the cause of the features of our planet.

Theistic perspective

Mountains existed to excite noble thoughts, volcanoes were designed as safety valves as their eruptions prevented worst catastrophes, and the presence of snakes was a reminder to the believer to avoid temptation.

Newtonian Philosophy-18th century

Atheistic Perspective

Planets in the solar system kept in place by forces inherent in matter. No need to employ God since the law of gravitation is sufficient to explain the motion and position of the planets.

Theistic perspective

The law of gravitation is a signature of design. The planets would not have gone into closed orbits in the first place had not the deity calculated the correct transverse component of their velocity with which to impel them. God occasionally intervened in the system to keep the planets moving.

Property of Irritability-18th century-muscle fibre automatically contracts when stimulated	
<i>Atheistic Perspective</i>	<i>Theistic perspective</i>
Matter has intrinsic power to move itself. No need to invoke the power of a deity.	Analogous to Newton’s gravitational force. Ultimately a manifestation of God’s causal agency in the world.

Laplacian and Lagrangian mechanics-18th century	
<i>Atheistic Perspective</i>	<i>Theistic perspective</i>
Newton’s solar system was self-stabilising and did not require the reformations that Newton had proposed. Really no need to invoke God at all in sustaining this system.	A self-stabilising system was evidence of even greater ingenuity on the part of the Creator than one which required a service contract.

Fossil Record-19th century	
<i>Atheistic Perspective</i>	<i>Theistic perspective</i>
Extinctions of species occur naturalistically and hardly portray a God who supposedly cared for each creature he created.	The fossil record shows that organic forms and the earth’s physical history had been synchronised magnificently in the past. This synchronisation indicates the influence of design.

Evolution-19th to 21st centuries	
<i>Atheistic perspective</i>	<i>Theistic perspective</i>
Chance(random mutations) and natural selection, aided by long periods of time, are enough to account for all the diverse species of life, including ourselves. A divine designer is no longer needed. According to Richard Dawkins (1986), “All appearances to the contrary, the only watchmaker in nature is the blind forces of physics, albeit deployed in a very special way”. Elsewhere Dawkins (1995) makes the point that, “The universe	John Haught ⁽²⁾ (1995) gives a theistic perspective in these words. “While a skeptic might interpret evolution’s long history of trial and error experimentation to be incontrovertible evidence of an impersonal universe, the emerging cosmic story corresponds just as readily with the infinitely elusive God of religious experience..... God’s role in evolution is not only that of being the stimulus that stirs the cosmos toward deeper novelty

Evolution-19th to 21st centuries (continued)	
<i>Atheistic perspective</i>	<i>Theistic perspective</i>
we observe had precisely the properties we should expect if there is, at bottom, no design, no purpose, no evil and no good, nothing but blind pitiless indifference”.	and beauty. Our religious faith tells us that the same God who creates the universe also promises to save it from all its travail, suffering , and death”.

These dual perspectives extend to the Design Argument itself. There are natural theologians who have, historically, identified features of the natural world such as the vertebrate or invertebrate eye as independent evidence for the existence of a God who is powerful, wise, and good. The problem with such an argument, as William Dembski (2001, p.1) has observed, is that it can be turned on its head. “Thus far every instance where the natural theologian finds reasons to sing God’s praises, the natural anti-theologian finds reason to lament nature’s cruelty. Darwin, for instance, thought there was too much misery in the world to find solace in natural theology. ‘I cannot persuade myself that a beneficent and omnipotent God would have designedly created the Ichneumonidae with the express intention of their feeding within the living bodies of caterpillars...’”. John Hedley Brooke (1990) identifies these bipolar arguments about nature as evidence for the “ambivalence” of factual discoveries and John Hick (1989) identifies them as evidence of a genuine theistic-atheistic ambiguity. Hick elaborates

as follows. “It seems, then, that the universe maintains its inscrutable ambiguity. In some aspects it invites whilst in others it repels a religious response. It permits both a religious and a naturalistic faith, but haunted in each case by a contrary possibility that can never be exorcised. Any realistic analysis of religious belief and experience, and any realistic defence of the rationality of religious conviction, must therefore start from this situation of systematic ambiguity” (Hick 1989, p.124).

What is meant exactly by the “ambivalence of factual discoveries” and “the universe maintains its inscrutable ambiguity”? Are these terms simply two different ways of saying the same thing? Nicholas Saunders (2002) draws attention to the fact that philosophers of science generally agree that there is a fundamental difference between the laws of nature and the laws of science. According to Saunders (2002, p.60), “Laws of nature have an ontological basis such that their existence is claimed to be independent of whether humans have discovered them or not. They

are thus not necessarily symbolically cast into the usable form of laws of science. Accordingly, it is perfectly possible for the laws of science, our working tools, to be limited or modified in their validity whilst leaving the more fundamental laws of nature untouched". The laws of nature thus have ontological significance while the laws of science have epistemological significance. Ontology and epistemology are philosophical terms that describe reality from different vantage points. Ontology refers to what is actually the case or ultimate reality while epistemology refers to reality as constructed by human beings through theory, observation, or experiment. Thus when Brooke (1990) refers to the "ambivalence of factual discoveries", he is referring to the fact that the laws of science as epistemological constructions do not lead to a unique interpretation as far as theism or atheism is concerned. Hick's (1989) reference to the universe and its "inscrutable ambiguity" seems to be implying that the laws of nature as ontological entities are in essence ambiguous as far as theism or atheism is concerned but he is not clear on this point. While there is historical evidence for the ambiguous interpretation of the laws of science, as shown in the previous table, the implication that the laws of nature are also ambiguous in this respect is more controversial. In fact, the extent to which the laws of science mirror the laws of nature

is deeply controversial and there would appear to be little prospect of clarifying this issue.

It was partly a growing recognition of epistemological ambiguity in the laws of science and a reminder from David Hume (Honderich 1995, pp.377-381), the Scottish philosopher, that an intelligent designer might not of necessity be a benevolent one, that design theorists gradually became more modest in their claims. For example, William Whewell (1862, pp.v-vi) records in the 1862 edition of his *Bridgewater Treatise*⁽³⁾ that "my prescribed object is to lead the friends of religion to look with confidence and pleasure on the progress of the physical sciences, by showing how admirably every advance in our knowledge of the universe harmonizes with the belief of a most wise and good God". That is, the argument from design was not meant to make theists out of atheists but to confirm a faith already established for other reasons. In a more recent context, John Hedley Brooke and Geoffrey Cantor (1998, p.235) conclude that, "Arguments drawn from nature, and from nature as reconstructed through the sciences, simply cannot decide the question between theism and naturalism". This may be why some Intelligent Design Theorists of the current era are concerned not to make any claims about theism from their Intelligent Design Theory (IDT). For example, William Dembski (2001, p.5), a leading figure in the modern

Intelligent Design (ID) movement, is adamant that, “We are not employing science as evidence for the existence of a designer. We are merely trying to rehabilitate design as a fruitful concept for science”. Howard van Till (2005, p.239), however, remains sceptical of the ID movement as a whole when he says, “to suggest that ID is a purely scientific enterprise that would exist even if the religious agenda of its most vocal advocates were absent would, in my judgment, be seriously to distort reality by presenting a small portion as if it were the whole”. This will give the reader some idea of the debate that is currently raging as to the status of IDT as a scientific enterprise. If we forget for a moment van Till’s assessment of ID and focus on Dembski’s assessment, where does Dembski’s version of IDT fit into the scheme of things? This leads us into looking at different ways of reading design in nature.

Reading the design text

John Haught (2003, pp.90-91) suggests that there are at least four parties interested in reading the text of design in nature. These are:

1. evolutionary biologists
2. evolutionary materialists
3. IDT proponents and
4. evolutionary theists.

These are defined as follows. “Evolutionary biologists (Group 1) are

simply interested in laying out the historical, material or mechanical causes of living design, using such notions as variation, adaptation and selection. The evolutionary materialists (Group 2) are those who, by mixing physicalist metaphysics⁽⁴⁾ with evolutionary biology, take several Darwinian categories as the *ultimate* explanation of design. IDT disciples (Group 3), also fusing science with metaphysics, try to force the category of “intelligence” into the *scientific* arena of explanations, a set of disciplines that methodically excludes notions of intelligence, intentionality or purposiveness. Group 4, evolutionary theists, are those who consider Darwinian explanations to be appropriate to biology, but who firmly reject, as an instance of premature metaphysical gratification, the evolutionary materialist enshrinement of Darwinian categories as the deepest explanation of life’s design. But no less emphatically, they object to IDT’s insertion of the concept of “intelligence” into a (scientific) level of reading that methodically precludes such intentional factors. Evolutionary theists do not deny that, *at a deeper level* of explanation than science itself can ever plumb, the appeal to divine intelligence is essential to a rich understanding of life. At some point, though not at a scientific level of understanding, theology is obliged to view the whole universe as a consequence of divine wisdom”. However, while the

scientific movement has precluded the admission of *intelligence* and *purposiveness* to its methodology, it has had to deal with the notion of ambiguity in order to understand certain fundamental concepts of nature. So just as the laws of science can be interpreted ambiguously in terms consistent with theism or atheism, scientists have had to wrestle with the notion of ambiguity within their own discipline. We turn now to look at some of these cases.

Ambiguity in the science text

Science has been able to model ambiguity successfully using the language of mathematics and I am thinking particularly here of the wave/particle nature of matter and electromagnetic radiation and the notion of order and chaos in physical and chemical systems. In the case of the wave/particle nature of matter and electromagnetic radiation the Planck equation ($E=hc/\lambda$) and the de Broglie relationship ($\lambda=h/(mv)$) each successfully link wave and particle concepts together in the one equation. In the Planck equation, E refers to the energy of photons, particles or packets of energy, and λ to their wavelength. In the de Broglie equation, mv refers to the momentum of particles and λ to their wavelength. If one thinks of particles and waves as classical concepts it doesn't seem to make sense that an entity can behave as both a particle and a wave and it is in this sense that one can think of the wave/particle idea as

an ambiguous one. The advent of quantum mechanics however helped to resolve this ambiguity provided that one was prepared to think of an entity in a non-classical sense. Fritz Rohrlich (1987, p.143) makes this point as follows. "The classical physicist was confronted with the puzzle 'how can an electron be both a particle and a wave?' With this question he had in mind the classical notions of particle and wave. The quantum mechanical answer is: 'The electron is neither; it is neither a classical particle nor a classical wave. It is a quantum particle and as such it has some properties that resemble certain classical particle properties and others that resemble those of a classical wave'".

In the case of the order/chaos concepts the one mathematical expression, $[x_{n+1} = Ax_n(1-x_n)^2]$, can be used to illustrate both order and chaos depending on the values selected (Scott 1991, pp.20-25). In the latter case " x " must be confined to values between 0 and 1 and the idea is that once a value of " x_{n+1} " is calculated by substituting a value of " x " for a given value of A , the result is fed back into the right-hand side of the equation to generate another value of x . This process is repeated a large number of times until no change in the value of x occurs. The process is known as iteration. As the value of A is increased gradually from 3 to 5.3 the stationary values of x obtained by iteration are single and unique until A equals 4.

For example, when A equals 3 and say a value of x equal to 0.5 is substituted into the equation and a process of iteration commenced, eventually a stable value of x equal to 0.4226497.... is obtained. If the same process is investigated when A equals 4.5 then the iteration ultimately leads to two stable values being obtained, 0.33333..... and 0.66666.... This is known as a period-2 oscillation because a number is repeated every second iteration. When A equals 5 the iteration ultimately leads to four stable values. The four stable values when A equals 5.121122.... are 0.758685..., 0.226254....., 0.693671....., and 0.33333.... and these are known as period-4 values since they are repeated every fourth iteration. The transition from period-1 to period-2 to period-4 is known as period doubling. These oscillations are also produced by the pendulum and oscillating chemical reactions under certain conditions and, in addition, combinations of oscillating period patterns are observed in these systems. This period doubling continues until a position is reached where no stable values are obtained and the values obtained from the iteration procedure become unpredictable and a region of chaos is reached. Gradual increase of A is analogous to a gradual increase in flow rate for oscillating chemical reactions with a similar result. There is an occasional return to stable values but then a descent into chaos again. Thus both

predictability and unpredictability reside within the framework of the one equation. The ambiguity here, of course, depends upon the framework in which the equation is viewed. The initial conditions, the value of A for example, determines the outcome of the iteration procedure. If A is kept constant then the outcome will be either predictable or unpredictable. It is when A changes gradually that iteration leads to both outcomes.

Ambiguity in the biblical text

Ambiguity is handled in biblical literature not through the use of mathematical equations but through the use of narrative, poetry, and apocalyptic. Recent scholarship in the book of Genesis, for example, illustrates how the biblical author wove together the concepts of divine purpose and human randomness. According to Laurence Turner (2004, pp.73-74), this has been accomplished in the primeval history (Genesis 1-11) through the use of genealogies and narratives. "The repeated schematic patterns and design of the genealogies indicate that God is in control of human history. The broad sweep of history and the successive generations are understandable and to a degree predictable. We can see a guiding hand directing history in a certain direction, rather than a mere random collection of events. When God created the heavens and the earth he demonstrated his sovereignty, and the Genesis account of creation underlines that.....The pat-

tern established in that introductory genealogy of the heavens and the earth, where the seventh element is the most significant, is then adopted

in the human genealogies that follow. As God showed his sovereignty over creation, he demonstrates it in human history”.

Genealogy of heavens and earth	Genesis 4:17-24	Genesis 5:1-32
1 st day – day, night	1. (Adam)	1. Adam
2 nd day – sea, sky	2. Cain	2. Seth
3 rd day – land, vegetation	3. Enoch	3. Enosh
4 th day – sun, moon, stars	4. Irad	4. Kenan
5 th day – fish, birds	5. Mehujael	5. Mahalalel
6 th day – land creatures, humans	6. Methushael	6. Jared
7th day – sabbath	7. Lamech	7. Enoch
		8. Methuselah
		9. Lamech
		10. Noah

Note the significance of the seventh element in the above table. The seventh day sabbath is the climax of the genealogy of the heavens and the earth. Turner (2004, p.30) describes this climax in these words: “This holy seventh day is not part of the heavens and earth that can be comprehended by the senses. Holy time is a spiritual, not a physical matter. It can only be experienced, not observed. By concluding with God resting, blessing and sanctifying, the account makes it clear that any view of the world that excludes the spiritual is totally inadequate”. John Haught (1995, p.201) draws attention to the current significance of the sabbath in view of the earth’s ecological crisis and links it, as follows, to the past and the future. “The Jewish idea of Sabbath is an especially significant instance of the *apophatic* habit of letting things be. Sabbath means many things, of

course, but at its center there is the injunction to let creation be-at least for the Sabbath’s duration. While the sabbath lasts, we allow creation to be what it was originally intended to be, and what we hope it will be again”. The seventh generation from Adam through the line of Cain (Lamech) is distinguished from all the others in that more space is given to his description than to any other and he is said to be avenged seventy-seven times if Cain is avenged seven times. The seventh generation from Adam through the line of Seth (Enoch) is distinguished from all the others in that Enoch walked with God and did not taste death which is the common lot, of course, of the other generations.

In contradistinction to the genealogies, the narratives “indicate..... that not everything in life is predictable

or understandable. Life contains mystery and ambiguity and the uncertainty of not knowing how we ourselves, let alone others, will react in a situation. So, genealogies and narratives are quite different and seem to make conflicting points. The *genealogies*: life is under the guidance of God and is predictable and understandable. The *narratives*: life is open-ended and how it works out depends on all kinds of factors. These apparent contradictions actually make a significant point about God's ways in the world" (Turner 2004, p.74). The point to make here is that to the Hebrew mind even though life's circumstances appear to lack direction and purpose at times God is still sovereign overall. This theme is again taken up in the ancestral history (Genesis 12-50) and is clearly delineated in the life story of people like Joseph. When Joseph, as prime minister of Egypt, embraced his brothers for the first time since being sold as a slave to the Ishmaelites, he addressed them with these words: "...do not be distressed and do not be angry with yourselves for selling me here, because it was to save lives that God sent me ahead of you" (Genesis 45:5). And on the death of Jacob, Joseph said to his brothers, "Don't be afraid. Am I in the place of God? You intended to harm me, but God intended it for good to accomplish what is now being done, the saving of many lives" (Genesis 50:19-20). In much Hebrew literature, then, God's

purposes are shown to prevail despite life's difficult circumstances.

The supreme biblical example of ambiguity is of course the life and ministry of Jesus himself. Jesus, viewed by New Testament authors as Son of God and Son of Man both attracted and repelled his followers. According to Mark 9: 14-32, when a man brought his son to Jesus for healing, asked Jesus to have pity on them, and enquired if it was at all possible to heal his son, Jesus reminded him that "Everything is possible for him who believes". The boy's father appeared to be simultaneously attracted and repelled by this idea for he exclaimed, "I do believe; help me overcome my unbelief" (Mark 9:24). Jesus as Son of Man dies a crucifixion death but as Son of God becomes the firstfruit of a resurrection. The divine-human nature of Christ has been the topic of much theological debate much like the wave-particle nature of the electron has been the topic of much scientific debate. While it is dangerous to extend this analogy too far it is instructive to note that in both debates the problem probably resides in the inadequacy of the common language used to describe divine and human entities on the one hand, and particle and wave entities on the other, in trying to understand unique entities such as the electron and the person who was proclaimed to be the Christ. Whether the ambiguity is fundamental, that is, ontological, or a reflection of the inadequacy

of the human mind to understand, that is, epistemological, remains a point of debate. From a human perspective the observed ambiguity at the core of religious experience may at first be difficult to reconcile but the literature of the Old and New Testaments offers the believer the assurance of divine purpose mediated, however, in a life which retains its openness. Scientific experience has also presented its challenges but both the quantum world and the world of chaotic dynamics have revealed rich insights into the ways nature has been put together.

Intelligent Design, Science and Christianity

There are some scholars such as Michael Denton (1998) and Paul Davies (1983, 1992) who embrace the notion of purpose and design in the universe; Denton from a biological perspective and Davies from a physics perspective; but who believe that this does not necessarily lead one to a belief in the Christian God of the Old and New Testaments. There are affirmed atheists like Richard Dawkins (1986) who believe that the so called purpose and design in the universe are not real but only apparent. There are some who wish to deal with the concept of ID purely as a scientific construct with no religious underpinnings. Others believe that it is impossible to speak about intelligence and design without reference to a God as Creator. A significant number of Christians affirm the ID

movement for this reason. Other Christians are more sceptical for various reasons. John Haught (2003, pp.101-102) expresses his scepticism this way: ".....the depth of the universe is not adequately represented by the metaphor of *intelligence*, nor is the alleged intelligence underlying the life-world appropriately represented by the notion of *design*. Life is too rich and mysterious to be captured by the notion of *intelligent design*. In living processes there is the constant presence of novelty along with design. And there is a creative as well as tragic depth in nature that we can intimate only through the symbolic language of poetry and religion. The explanatory role of theology, then, is to formalize the intuitions of this depth that first erupt in metaphor and religious symbol. Such explanation, at least to those who have become aware of nature's subterranean depth, in no way displaces science but instead leads us toward levels of being that science alone cannot reach". So, the response to the notion of intelligence and design in nature has been an ambiguous one somewhat similar to the theistic and atheistic arguments outlined earlier in response to various scientific findings.

Conclusion

If the history and philosophy of science, history and philosophy of religion, biblical scholarship, and personal experience are to be taken seriously, it seems that the notion of

ambiguity lies at the core of our scientific understanding of nature, religious experience, and general human experience. Charles Darwin himself experienced this when he exclaimed, "I am conscious that I am in an utterly hopeless muddle. I cannot think that the world, as we see it, is the result of chance; and yet I cannot look at each separate thing as the result of Design" (in Brooke 1994, p.47). It is recognized that monographs could be written on the various topics addressed in this paper and so the title has been a somewhat ambitious one. However, our task has been to provide a thumbnail sketch of the topics in order to show how the interpreters of nature (the scientific text) and the interpreters of religious experience (the biblical text) have both had to confront the notion of *ambiguity* and to articulate it, albeit in different ways. This, we believe, is helpful for those in the practice of science and/or religion. Triumphalism in science or religious experience would appear to be a dangerous playing field for the reason of ambiguity. The scientific data and religious experience data are never so revealing as to compel theism or atheism and this is likely to remain the case even if *Intelligent Design* was to eventually be accepted within the scientific paradigm. For those of us who have come to value religious experience for whatever reason, it would appear that current scientific progress

gives us no reason to devalue it. To the contrary, there would appear to be good reason to continue to value it even more seriously⁽⁵⁾. In 1989 John Polkinghorne, a Cambridge physicist and Anglican priest, was invited by the Royal Society of Chemistry to deliver the Joseph Priestley lecture on the topic, "A Scientist's View of Religion". Apart from expressing surprise that a group of chemists would invite a physicist to address them, his concluding remarks on the personal ambiguity associated with human suffering is one with which I resonate very much and which I repeat here in conclusion. "Even if the free-will and free-process defences offer some insight, they do not operate at levels sufficiently profound to meet fully the agonizing challenge of evil. We encounter it in the depths of our being and it demands a more than cerebral response. It is central to my own religious belief that the Christian God is not just a spectator of the world's suffering, however benevolent, but that he has also been a participant. In that lonely figure, hanging in the darkness and desolation of Calvary, the Christian sees God himself opening his arms to embrace the suffering of the strange world that he has made, and by that act of acceptance offering the hope of an overcoming. That is an insight that moves me most profoundly" (Polkinghorne 1990).

Questions/Discussion

1. Discuss John Hought's view of the Sabbath as a time for "letting things be" and how this might be relevant to your own experience of holy time.
2. Is the presence of ambiguity a good reason to doubt the authority of scripture and the authority of science?
3. Would you agree or disagree with the comment that, 'life is too rich and mysterious to be captured by the notion of design'? Discuss.

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Notes

1. Aristotelian philosophy was dominant before the 17th century and the church had managed to incorporate it into its liturgy. All matter was considered to consist of earth, air, fire, water, hot, cold, wet, and dry and to consist of a substantial form and an accidental form. In the taking of the sacraments the substantial form of the bread and wine was miraculously changed into the body of Christ whereas the accidental form was unchanged.
2. John Haught is the Distinguished Research Professor of theology at Georgetown University and was invited to give the 2003 Boyle Lecture. Robert Boyle left money in his will for eight sermons per year to be delivered in London to 'prove the Christian Religion against notorious infidels'.
3. The Earl of Bridgewater died in 1829 and left £8000 in his will for the completion of a major work on the topic, "On the Power, Wisdom and Goodness of God as manifested in His Creation". Eight authors were given the task. William Whewell was one of the authors and chose the topic, "Astronomy and General Physics considered with respect to Natural Theology".
4. Metaphysics has to do with ultimate meaning.

5. Alistair McGrath has written a book on this topic entitled, *The Twilight of Atheism: The Rise and Fall of Disbelief in the Modern World*. The book was published in 2004 by Double-

day in New York and suggests that there are sound reasons for adopting a life of faith, reasons that are receiving increasing confirmation from the findings of science.