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The Foundations of Dialogue in Science & Religion, Blackwell 1998

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<i>Science & Religion. An Introduction</i>	Blackwell 1999
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1 Starting All Over Again

Science and Religion: The Challenge and Opportunity (1-4)

The relation of religion and the natural science is one of the most complex, fascinating, controversial and potentially enriching subjects it is possible to study (1)

a "science" as "any systematic field of study or body of knowledge that aims, through experiment, observation and deduction, to produce reliable explanation of phenomena with reference to the material or physical world" In general terms, the natural sciences are neutral towards religion, requiring neither a priori or consequent acceptance or rejection of any religious beliefs. (1)

the interaction of religion and the natural sciences has become one of the most significant areas of intellectual research in the last decade. opened up new possibilities of dialogue (2)

A further development of major importance is the general abandonment of what might be called "Whiggish" or "presentist" modes of historiography.

The past is interpreted from the standpoint of the present

the plausibility of scientific approaches is significantly affected by prewailing social, religious, and economic assumptions. religious beliefs have influenced and continue to influence scientific thinking, irrespective of whether this is considered to be a proper or improper influence. (2)

The 1960s fostered the belief that religion was in permanent decline, with secularized world

Yet the revival of religion worldwide since then has made the need for such a dialogue imperative.... The perpetuation of the simplistic "warfare of science and religion" metaphor is now not merely historically and intellectually questionable. ... a subtle yet unmistakable change (3-4)

The Genesis of a Project (4-7)

Throughout this period of twenty years, I continued to work at the general theme of "science and religion," (7)

Starting all over again (7-29)

my growing conviction of the need to start things all over again (7)

a major revision of the state of the relationship between the religions and natural science is required. a growing realization of the insecurity of the inherited assumptions on which prevailing understandings rest.

historical scholarship, significant cultural and intellectual shifts (8)

The four considerations

A Cultural Shift: The Inexorable Rise of Postmodernism (9-11)

A Philosophical Shift: The Lingering Death of Foundationalism (11-14)

The Perpetuation of Outdated Stereotypes (14-26)

Science as the Enemy of Religion (26-27)

Towards Conflict Resolution ? (28-29)

Postmodernism is generally taken to be something of a cultural sensibility without absolutes, fixed certainties or foundations, ... the radical "situatedness" of all human thought.... as a conscious and deliberate reaction against the totalization of the Enlightenment. To give a full definition of postmodernism is virtually impossible. (10)

the rise of postmodernism must raise questions for both science and religion, and especially their mutual relationship, (10)

the entire Enlightenment worldview, founded on a belief in the existence of certain foundational universal rational beliefs,..... Foundationalism can be thought of as the pervasive western philosophical doctrine that every non-basic belief must ultimately be accepted on the basis of universally compelling beliefs or realities, which are themselves in need of no support, and which transcend the particularities of culture, chronology, and geography.

which were self-evidently true, or which related directly to one's sense-experience, or which were evident to the senses.

Descartes (12)

The specific form of foundationalism associated with the Enlightenment has had a deep impact on modern theology

postmodernism its rejection of Enlightenment paradigms of knowledge, and especially its

appeal to "universal and necessary" truth as oppressive or illusory (13)

I propose to avoid using them in this text, and instead deploy more meaningful and appropriate terms such as "justification," "warrant," and "entitlement"

a non-foundationalist epistemology requires a non-realist metaphysics, just as there is a clear association between epistemological foundationalism and metaphysical realism (14)

urban myth

the legendary encounter between Bishop Samuel Wilberforce and T. H. Huxley

Popular versions of this encounter

One such major obstacle, in Russell's view, was Christian theology.

this account of Calvin's simplistic dismissal of scientific advances

the alleged opinion is quite incompatible with Calvin's exegetical principles (Hooykaas) (17)

With the appearance of the "professional scientist" a struggle for supremacy began, to determine who would gain the cultural ascendancy in the second half of the century. The "conflict" model can be understood in terms of the specific conditions of the Victorian era, in which an emerging professional intellectual group sought to displace a group which had hitherto occupied the place of honour. The rise of Darwinian theory appeared to give added scientific justification to this model: it was a struggle for the survival of the intellectually most able. (22)

Draper, White

These images "conflict" and "warfare" have become embedded in the popular consciousness the ideology of the Enlightenment

a quest for liberation from the political, religious, social and intellectual ancien régime

modern thought was born in a crisis of authority (22)

the rise of a number of significant images of liberation

Prometheus: Beethoven, Shelly (24)

The plausibility of warfare imagery is especially linked with a style of North American Protestant Christianity which is generally known as "fundamentalism." (26)

the infamous Scopes Trial of 1925

it must be recalled that many leading conservative evangelical writer adopted positive or conciliatory attitudes towards Darwinism (27)

The imagery "dialogue"

The precondition for further advance in understanding and mutual appreciation is the creation of a climate, both in the academy and in the wider culture, which believes that such a dialogue is proper and profitable. (28)

The Approach to be Adopted (29-35)

the critically important area of methodology

method --- including such issues as the way in which knowledge is gained and confirmed, the manner in which evidence is accumulated and assimilated, and particularly the manner in which the world is represented.

a clearing of the ground

the question of how religion is to be defined. (29)

reductionist, the type of holistic linguistic interpretative approach

functionally / substantially (30)

The decision to focus primarily on Christianity (31)

the contribution of Christianity to this dialogue

Which science is to be examined

the science and the religion selected for study (32)

the risk seemed worth taking.

The minimalist affirmation that dialogue is an inherently excellent and potentially illuminating process does not involve a precommitment to any one way of conceptualizing the grounds of this dialogue. (33)

My intention is to explore the areas in which science and religion can be seen to converge, and those in which they diverge,

to set out the possibilities for dialogue

using philosophy and history as catalysts to and participants in that dialogue (33)

I have gradually come to the following conclusions (33)

1 the distinction between "science" and "religion"

2 those working in the fields of science and religion find themselves facing similar issues, especially in relation to issue of representation and conceptualization

3 the methods and theories of the natural sciences are genuinely illuminating to those concerned with religious matters.... mutually enlightening and significant (34)

Thomas F.Torrance, Theological Science

The agenda set by Torrance remains significant,

The three major points of the investigations ... are the following.

1 The explicability of the world

there is or appears to be, some form of ordering

human beings are capable of uncovering such an order.

2 The way in which our reflection on the nature of things is controlled or modulated by the way things are.

experimentation

There is an extra-systematic reality which modulates responsible discourse

3 The way in which the external world is represented.

the way in which human words can in some way point to or represent something which goes far beyond those words. (34-35)

2 The Quest for Order (36-80)

One of the most significant parallels between the natural science and religion is this fundamental conviction that the world is characterized by regularity and intelligibility.

This perception of ordering and intelligibility, cosmic order
the belief in a rational God

This insight is directly derived from the Christian doctrine of creation, (36)

secularization

this modern shift in the social function or corporate plausibility of foundational religious belief

A Christian doctrine of creation can be shown to remain a significant element in the thinking of many natural scientists (36-37)

Richard Swinburne

The orderliness of the universe in this respect is a very striking fact about it.

Regularity is an imposition of the human observer, rather than a feature of the world which is being observed.

Kant, Hume

Pagels

on the basis of contemporary cosmological theories, it can reasonably be argued that the laws of physics operated long before human minds evolved in order to notice them. the hidden order of the world has only proved amenable to interpretation in the last three centuries; this cannot by any stretch of the imagination be taken to mean that they were not present before then. (38)

The Doctrine of Creation (39-51)

the emergence of the "big bang" theory of the origin of the universe

That there are religious dimensions to this debate will be self-evident

the implications of the "new physics" for thinking about God (Paul Davies)
did the universe happen --- or was it created?

Einstein's theory, Hubble, the red shifts of galactic spectra, background radiation

Hawking's conclusion (Carl Sagan): the absence of God

this is not accurate summary (40)

he "had left the question of the existence of a Supreme Being completely open" (41)

The dominant form of the doctrine of creation is that associated with Judaism, Christianity, and Islam. the basic features of this doctrine from a specifically Christian perspective

the creation narratives found in the first two chapters of the book of Genesis

the wisdom and prophetic literature

creation as ordering

an engagement with and victory over forces of chaos

in two different ways

an imposition of order on a formless chaos / conflict with a series of chaotic forces
parallels between the Old Testament and Ugaritic and Canaanite mythology
The theme of "conformity" to the order of the world
righteousness as ethical conformity to the world-ordering established by God
truth as its physical counterpart
Anselm : rectitude
Calvin's positive attitudes towards the close study of nature as a means of learning
more about God (42)

Creation: A Brief Theological Analysis(42-43)

the doctrine of God the creator has often been linked with the authority of the Old Testament (43)

The Challenge of Gnosticism(43-44)

Gnosticism, a sharp distinction between the God and a somewhat inferior deity (the demiurge)
belief in God as creator and in the authority of the Old Testament came to be interlinked at
early stage. Irenaeus of Lyons

ex nihilo, an increasingly sophisticated reading of the Old Testament creation narratives
it became the received doctrine within the church (43)

the early Christian tradition affirmed that the natural order possessed a goodness, rationality and
orderedness which derived directly from its creation by God

the truth, goodness, and beauty of God could be discerned within the natural order, in
consequence of that order having been established by God.

Origen (44)

Three Models of Creation (44-46)

Three main way of conceiving the creative action of God
by the end of the fifth century

1 Emanation

many artistic writers sympathetic to the various forms of Platonism
a natural or organic connection between God and the creation
weakness, involuntary emanation, (44)
a personal God , decision

2 Construction

a master builder, the skill of the creator
deficiency, involving preexistent matter
a degree tension with the doctrine of creation ex nihilo

3 Artistic expression

the handiwork of God, a work of art
Jonathan Edwards

the idea of personal expression
the self-expression of God in the creation, beauty (46)

Creation and Time (46-47)

Augustine of Hippo
time as created
Time is an aspect of the created order
the new insight offered by modern cosmology
a positive and critical re-reading of the Christian (47)

Creation and Ecology (48-51)

Lynn White, human domination
the paper had a profound impact
stewardship
to notice how the creation narratives can function as the basis of a rigorously-grounded approach to ecology

Calvin B. DeWitt , four fundamental ecological principles
earthkeeping principle, sabbath principle, (48)
fruitfulness principle, fulfilment and limits principle

Moltmann, Trinitarian defence of a distinctively Christian ecological ethics

A fundamental theme of modernism
its desire to control, will-to-power, Prometheus
this desire to master, the deification of humanity (49)

the rise of the "machine"
the possibility of changing nature (50)
this ability to dominate and control nature
the deification of technology

the ecological debate is one clear example of a modern discussion in which science and religion interact. (51)

Aspects of Creation: Order (51-73)

Oliver O'Donovan
the close connection between the theological notions of "creation" and "order" (51)
the perception of such order cannot be explained simply by an appeal to an order-loving mind, but is a publicly observable matter, open to empirical analysis by the scientific community. Regularity exists within nature, prior to our observation of its patterns. (52)

Created Order and the Uniformity of Nature (53-55)

Foster,
the developments of the seventeenth and eighteenth centuries

the "meraphysical implications of Christian dogma"

the scientific method is obliged to assume the uniformity of nature in order to
proceed, implicit assumption (Russell) (53)

much scientific analysis is predicated on an assumption of uniformity which cannot itself be
demonstrated

the principle itself cannot, without circularity, be inferred from observed uniformities (54)

every well-grounded inductive generalization is either a law of nature, or a result of laws of
nature,

John Stuart Mill, J.R.Lucas

an affirmation "uniformity through ordering" (55)

Ordering and the Laws of Nature (55-56)

Stephan Hawking,

the existence of God is easily and naturally correlated with the regularity and ordering of
the world

religious conviction

Order and Chaos (56-59)

Newton and his followers, voluntarist approach

the laws of nature as dependent upon the continual exercise of God's will

Newton's mechanical conception of the universe, yet with a generation was seen as
rendering such a concept unnecessary. (57)

Newton's work could also be interpreted in another manner.

the existence of what appeared to be self-sustaining principles within the world

the discovery of the laws of conservation

a critique of the notion of teleology

Deism, God as the watchmaker, a certain self-sustaining design (57)

chaos theory

a major challenge to deism

unpredictability, non-linear equation (58)

non-equilibrium is "the source of order" (Ilya Prigogine)

The religious implications of chaos theory

a new awareness of the profound religious dimensions of the natural order (59)

The Laws of Nature: The Theoretical Foundations (59-60)

It (the phrase " laws of nature") remains a concept with profound theological implication.
(59)

laws of nature: to have the following features (Davies)

1 universal 2 absolute 3 eternal 4 omnipotent

remarkable affinities with those which are traditionally applied to God in theistic religious

systems, such as Christianity (60)

God and the Laws of nature (61-63)

its relevance to the relation of God and the laws of nature

Averroes

Ockham,

The "absolute power of God (potentia Dei absoluta)" refers to the theoretical possibilities prior to commitment to any course of action or world ordering. The "ordained power of God (potentia Dei ordinata)" refers to the way things now are, which reflects the order established by God their creator. (61)

a realm in which God's power is restricted ,by virtue of God's own decision. Ockham's point is that by choosing to actualize some potentialities, God has implicitly chosen not to do something else. (62)

it is quite misleading to posit a tension between God and the laws of nature, as if the latter were somehow independent of the former, or in some way contradicted each other.

a fundamental line of continuity between the creator, the regularity of the creation, and the human perception and expression of this regularity in the form of "laws of nature." (63)

Philosophical Approaches to the Laws of Nature (63-65)

Three somewhat different approaches the "laws of nature"

Humean approach, only describe what is observed, and nothing more

Ernst Mach, concise abridged descriptions of reality, pure heuristic (63)

David Lewis, John Stuart Mill

the fewest and simplest assumptions

Armstrong

to be thought of as relations between universals

The Humean suggestions ... is widely regarded as implausible within the scientific community (64)

a religious approach to the debate

this ordering can be understood to be related to the doctrine of creation

there is no reason why such an insight should not be reapprached by those natural scientists sensitive to the religious aspects of their work. (65)

The Analysis of Order: The Case of Linnaeus (65-67)

Linnaeus is an important witness to a potentially creative and illuminating mode of interaction between theological beliefs and empirical analysis. (65)

Linnaeus's taxonomic system is grounded in the assumption that creation is fixed and rational. (66)

Ordering and Mechanism: From Newton to Paley (67-69)

one of the most distinctive features of British intellectual life from the late seventeenth to the late nineteenth centuries was a pervasive belief that science was allied to the cause of religion.

the use made of Newton's Principia by the Anglican apologists of the late seventeenth and early eighteenth centuries

there is agreement

Yet it was not long (67)

The Newtonian system seemed to many to suggest that the world was a self-sustaining mechanism

Laplace, Shelley (68)

Paley

to transform the "clockwork" metaphor from an icon of scepticism and atheism to an apologetic affirmation of the existence of God.

mechanism implies contrivance. (68)

On Symmetry in Physics and Mathematics (69-71)

The importance of symmetry in physics (69)

Curie's argument involves the assertion that symmetry is transmitted from a cause to its effect. (70)

The Religious Significance of Natural Order (71-73)

an immediate affinity between the notions of "symmetry" and "order"

the metaphysical and theological dimensions of "Curie's Principle"

Thomas Aquinas

causality

a fundamental "likeness (similitudo) to God" within the created order as a consequence of God being the cause (71)

Aquinas regards creation as perhaps the clearest example of a purposeful causation, in which qualities of the agent are to be found in the generated outcome.

perfection,

moral and aesthetic connotations

a long association between "perfection" and "symmetry" in Christian thought

Origen (72)

The Curie Principle affirms that effects cannot be more symmetric than their causes; symmetry are transmitted from a cause to its effect. The fundamental Christian conception of God as the creator and giver of order resonates with this kind of thinking about symmetry.

Aquinas' general line of argument

this observed symmetry owes its origins to the perfection of God

vulnerable, not that there is only one God

Symmetry can be seen as an aspect of the ordering of the world; it can also be seen as an

aspects of its beauty. (73)

Aspects of Creation: Beauty (73-79)

the linkage between theology and aesthetics

the notion of beauty has come to play a significant role within the philosophy of science itself. (74)

The Religious Aspects of Beauty (74-76)

the beauty of God

Calvin, Jonathan Edwards,

Balthasar, Platonis triad of truth, goodness and beauty

a feature of the writings of pseudo-Dionysius (75-76)

Beauty in the Natural Sciences (76-79)

The beauty of theories

simplicity

Einstein's theory of general relativity

elegance and simplicity

the prediction of a solar gravitational redshift of light

the experimental evidence did not support it

it was not until the 1960s that final confirmation was forthcoming

the early history of quantum theory

interpretation of atomic spectra (77)

by pure thought (Schrödinger)

The quest for beauty and the quest for truth met at a common point.

the expectation of a fundamental convergence of truth and beauty in the investigation and explanation of the world, precisely on account of the grounding of that world in the nature of God. The correlation in question is not arbitrary or accidental

there is clearly convergence between the sciences and a religious worldview. (79)

Conclusion (79-80)

My intention is not, in fact, to draw such a conclusion (some kind of proof of the existence of God), but rather to stress the convergence or complementarity of scientific and religious viewpoints at this point.

reappropriation of the ethos of an earlier age, which saw knowledge of God and an understanding of the world as natural partners. (80)