

Science and Religious Belief

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A web page is under construction with sites allied to science and religion. It can be accessed at

<http://www.btinternet.com/~gouldstone/scirelig.htm>.

More information relevant to the above course will be added at a later date.

The Significance of the Proposed Course and its aims

The purpose of the course is to encourage spiritual reflection on the expansion of scientific knowledge from a broadly Christian perspective and enable students to avoid the twin pitfalls of capitulating to 'scientism' on the one hand and forms of religious obscurantism on the other.

The course will be taught in weekly classes which will involve face-to-face teaching and class discussion. Full lecture notes will be provided, releasing time for critical analysis and reflection. In addition, use will be made of multi-media teaching materials and students will also be encouraged to develop their independent learning and study skills through the use of library and Web resources. Interdependent learning will be built in to the programme through small group projects and presentations.

Dayschools will provide further opportunity for group activity and for the reinforcement of learning. One of these dayschool will involve a visit to the Lizard area of Cornwall. The twin foci of this dayschool will be the 'Earth Station' at Goonhilly Downs with its juxtaposition of archaeological remains and 21st century satellite communication, followed by a visit to St. Keverne parish Church. This is a fourteenth century Cistercian building and the emphasis will be placed on the place of creation in the prose and poetry of Thomas Merton.

The aims are as follows:

1. The first aim of the course is to attempt to integrate the scientific enterprise within the wider cultural traditions of the west. There has been a tendency to describe historical developments in science (and in other disciplines) in purely intellectual terms without relating the developments to their cultural constraints and stimulants. The course will be an integral part of an innovative BA degree in 'Theological and Cultural Studies'. Thus students will be able to set their study in this area within the wider context of critical analysis and reflection on the ways in which Christian theology interacts with the world of human ideas, endeavour and behaviour. Existing modules include Arts & Christian Belief, Practical & Pastoral Theology, Philosophy & Religion - as well as more conventional courses in biblical studies and theology. The inclusion of this new module will significantly extend the scope of the degree and help to achieve a balance with study in the more traditional areas of the humanities. The inclusion of items illustrative of the arts and music in the given bibliographies of the sessions serve to promote this aim. Also, the course points to the development not only of the 'outer world' of the physical cosmos but also the 'inner world' of mankind as a conscious biological species.

2. The second aim of this course is to reflect on the part played by science at the millennium in determining people's place in the universe. Many people are engaged in a quest for spiritual values in an age when traditional Christian language has lost much of its meaning. It no longer plays a relevant part in their personal development. One of the main reasons for this phenomenon is the rise of alternative descriptions of the universe using a different vocabulary. It is these descriptions that evoke wonder rather than those used by traditional religious language. The huge explosion of written material by writers such as Dawkins, Gould, Hawking etc. is a mark of the increasing interest in the place of mankind in the cosmos. In what ways does this public interest serve both the quest for knowledge and the sense of wonder which in former times was provided by Christian insights? What is the history of our contemporary view of the both the 'inner' and the 'outer' cosmos of the human world? What do controversies about the nature of human consciousness on the one hand and the nature of the cosmos on the other teach us about the place of science in the development of a coherent and helpful spirituality?

3. The third aim of the course is on what a revised vision of the spiritual life might be in the light of our contemporary understanding of the cosmos. The final sessions of the course will seek to address the question: What does it mean to re-form religious expression within a contemporary scientific understanding of the mankind's place in the cosmos? Modern developments in information technology and feminism carry implications for religious belief which have as yet not been taken on board by the churches but have been a considerable influence on spiritual developments in the west. The rise of 'cultural studies' of which this course forms an integral part, is in itself a challenge to older concepts of Christian revelation. In what ways can our understanding of the Christian tradition be developed so that we can express a humble faith in God in a pluralistic world?

Module description

Science and Religion

The progress of scientific knowledge in this century has been so vast that it has been a major contributory factor in making Christian doctrine and 'God-talk' isolated from other disciplines and of doubtful relevance to life. 'Christian theology' becomes parochial and inward and fails to respond and interact with the world of science, the world of technology and the associated ethical problems.

At the end of this course students will be able to:

Understand that science and religious faith relate to each other in several different ways

Express an awareness of the historical development of ideas about the cosmos and their relevance for Christian belief.

Discern the importance of advances in the biological and psychological sciences in formulating a viable understanding of what it means to be human.

Be aware of the role of gender in devising models of the cosmos and humanity.

Be able to understand the need for dialogue between the language of faith and the language of science and the relevance of this for a coherent theodicy.

Be aware of the power of cultural ideas (such as optimism about progress and the pessimism of degeneration) and their influence on both scientific and religious apologetic.

Transferable Skills

*Management of information *Clarify personal values with respect to the course material

*Use of appropriate strategies to manage set tasks *Argue and present a case

*Learning to work with others *Use of the WWW for information

*Deal with constructive criticism *Distil and present written seminar summaries

*Show intellectual flexibility *Awareness of gender issues

*Understand beliefs in their historical and cultural context

The sessions will not be straight lectures but will consist of a mixture of input of material with time for reflection and discussion by the students. It is hoped that the creative aspect of the science and religion debate can be fostered by encouraging students to participate with visual and literary contributions which highlight the relationship of human creativity with the cosmos.

Plus 2 associated day schools. It is hoped that one of the latter will be in the form of a field trip which will consist of a visit to a site of scientific or technological importance with associated religious and spiritual significance. (e.g. to Goonhilly Down Earth Station and associated archaeology and St. Keverne Parish Church)

'Information Technology' Project

The integration of the WWW with this course is part of a larger project the objective of which is to make the local theological libraries in the South-West of England available online to students of the university. This project, which is in its early stages, will hopefully make available much of the course material in WWW form. In a scattered rural area such as South-West England this will increase accessibility and will prove a valuable additional means of learning to use alongside tutor groups, lectures and discussions. A

website has been constructed for this 'Science and Religion' course and can be found at <http://www.btinternet.com/~gouldstone/scirelig.htm>

Assessment

Three essays (3000 words each) or equivalent (e.g. 1500-word essay plus unseen examination; seminar presentation assessed equally on written text and presentation).

Course Description

Note: in the assigned and supplemental readings, some resources from the WWW have been cited. The URLs have been given, but in case of the non-availability of the selected sites hardcopy has been taken.

Part 1 - Science, Culture and Religion - an Introduction

Session 1 - Introductory - The place of science at the millennium

'Science and technology' have become ambiguous concepts as we enter the next millennium. In mid-century they were widely hailed as ushering in a new age of plenty and wealth. The model was one of 'conquest' of recalcitrant nature and the 'taming' of the cosmos to 'serve' the needs of mankind. This would have beneficial effects in the health and wealth of all nations, leading to the eradication of disease and greater provision of material benefits. Supposed scientific descriptions were often regarded as superior to other forms of understanding derived from the arts and from world religious traditions. In Britain the Wilson government of 1964 was pervaded by much rhetoric about technological revolution which was allied with 'progress'.

The following decades witnessed a decline of optimism. For Britain the 'Torrey Canyon' tanker disaster (1967) was a defining moment in witnessing to technology's powerlessness in dealing with its own mishaps. In environmental studies Rachael Carson's 'Silent Spring' (1963) highlighted the ecological damage which was going hand in hand with environmental manipulation brought about by the increased use of chemical fertilizers. Later 'defining moments' included the Bhopal chemical plant disaster and the firing of the oil wells during the Gulf War of 1991. In addition, the constant threat of global war using atomic technology fuelled a sense of helplessness in many. The Chernobyl nuclear disaster and the fall of the Berlin Wall (1989) brought to light many ecological and environmental problems in the east as well as in the west - for example the depletion of the Caspian Sea.

These events are indicators that we live in a society which cannot live with scientific innovations, yet we cannot live without them. Life without the results of the technological innovations of the past century is inconceivable to most people in the developed West. Yet for the greater part of the world's population, these advances have brought a much more mixed picture.

Assigned Readings from:

Brockman, John, *The Third Culture*, Ch.1, pages 17-31, 'The Emerging Third Culture'

McGrath, Alister, *Science and Religion - An Introduction*, Ch. 2, pages 28-56, 'Religion - Ally or Enemy of Science?'

Davies, Paul, 'God and the New Physics', Ch. 1, pages 1 to 8, 'Science and Religion in a Changing World'.

Supplemental Readings from:

Dawkins, Richard, *Unweaving the Rainbow*, pages 1-37, 'The Anaesthetic of Familiarity' and 'The Drawing-Room of Dukes'

Peters, Ted (ed.), *Science and Theology - The New Consonance*, Ch. 1, pages 11-39, 'Science and Theology: Towards Consonance'

McGrath, Alister, *The Foundations of Dialogue in Science and Religion*, Oxford: Blackwell, 2000

'The Third Culture Bites Back', from 'Daily Telegraph', 30th September 1995 (article about John Brockman's book)

Peter Atkins, 'Religion - the antithesis to Science' at <http://ci.mond.org/9702/970218.html> and related links (9th February 2000)

Gibson, John, 'The Scapegoating of Science' LM Archives, 'Living Marxism', 48, October 1992 at http://www.informinc.co.uk/LM/LM48/LM48_Science.html (9th February 2000)

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Session 2 - Relating Science to Belief

The aim of this session is to examine four major avenues of relating science and belief using as a basic framework Barbour's theses of conflict, independence, dialogue and integration. These lead on to a reflection of what we mean when we say that God is a 'creator.'

In what sense do we speak of God 'interfering' in creation, and in what sense can we speak of God 'participating' in creation?

What are the relations of what we believe about God's present action in the world?

What effect do scientific beliefs have on the concept that God has future intentions for the cosmos?

Assigned Readings from:

McGrath, Alister, "Science and Religion - an Introduction," Chapter 2, pages 28-56, 'Religion - Ally or Enemy of Science.'

Barbour, I.G., Religion and Science - Historical and Contemporary Issues, Chapter 4, pages 77-105, 'Ways of Relating Science and Religion.'

Luscombe, Philip, Groundwork of Science and Religion, Chapter 1, pages 1-10, 'A Large Map - The Relation of Science and Religion', and Chapter 7, 'Relating Science and Religion'

Polkinghorne, J., Science and Theology - An Introduction, Chapter 1, pages 4-24, 'The Area of Interaction'

Southgate, Christopher, God, Humanity and the Cosmos, Chapter 1, Section A, pages 3-27, 'Outlines of the Debate',

Supplemental Readings from:

Peters, Ted (ed.) Science and Theology - the New Consonance, Chapter 1, pages 11-39, 'Science and Theology: Toward Consonance.'

Watts, Fraser, Science Meets Faith, Chapter 7, pages 95-119, 'Science and Religion - Contest or Confirmation?'

Brooke, John Hedley, Science and Religion - Some Historical Perspectives, Chapter 1, pages 16-51, 'Some Preliminary Considerations'.

Poems: G.M. Hopkins, God's Grandeur

R.S. Thomas, The View from the Window; The Echoes Return Slow.

William Wordsworth, A Night-Piece; Lines written a few miles above Tintern Abbey

Matthew Arnold, Dover Beach

Dylan Thomas, A Refusal to mourn, the death by fire, of a child in London

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Part 2 - Concepts of the Cosmos

Session 3 - Ideas of the Cosmos - from Static to Dynamic

The medieval cosmological picture was heavily dependent upon Aristotle. This was a cosmos of full perfection, subjected only to recurring cycles.

Is there a common understanding of the cosmos as essentially a static backdrop against which the drama of mankind's redemption is played out in human history? Have Christian interpretations of creation focussed so heavily on anthropocentric matters that the material world and our place as members of creation have been neglected?

Does this give a strongly anthropocentric perspective to religious thought and downgrade the material world?

Is this world-view still taken for granted in contemporary western culture?

Assigned Readings from:

Southgate, Christopher, *God, Humanity and the Cosmos*, pages 95-100

Barbour, I.G., *Religion and Science - Historical and Contemporary Issues*, 8:II, pages 199-203, 'Creation in Judaism and Christianity.'

Luscombe, Philip, *Groundwork of Science and Religion*, Chapter 2, pages 12-37, 'Religion and the Rise of Science'

McGrath, Alister, *Science and Religion - An Introduction*, Chapter 1, pages 1 to 27, 'Historical Landmarks'

Poems:

John Donne, *An Anatomy of the World*: from 'The First Anniversary', lines 205-219. ('a new philosophy calls all in doubt...').

William Blake, *Jerusalem* (15:11-20) ('For Bacon and Newton sheathd in dismal steel...')

Supplemental Readings from:

Trusted, Jennifer, *Physics and Metaphysics - Theories of Space and Time*, Material from Chapters 1 to 6 deal with matters covered in this session.

Kaiser, C., *Creation and the History of Science*, Material from Chapters 2 to 4 deal with matters covered in this session.

Fox, Matthew, *Original Blessing*, pages 1-56

Fergusson, D.A.S., *The Cosmos and the Creator*, passim.

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Session 4 - Ideas of the Universe - From redeemer to ruler

Mechanical metaphors for the universe became increasingly common after the beginning of the sixteenth century. There was a widespread rejection of teleological explanations. Objects no longer had an internal 'purpose' or telos. Despite this, mankind was excluded from the mechanical cosmos on the basis of arguments concerning the 'soul'. The severance of 'mind' from 'body' ('Cartesian dualism') became an important controlling metaphor. The universe operated according to immutable laws. Space and time were treated as 'absolutes.' God was immanent in creation and the means of transmitting force across space. God was effectively removed from direct participation in the cosmos and this culture gave rise to deism in European history.

The negative result of the Michelson-Morley experiment is an example of attempts to investigate the concept of 'absolute space and time.' The development of relativity led to a revised metaphysic (Trusted, pp.178ff.)

In such a universe, what is the significance and possibility for God to 'act' redemptively?

In what sense is this mechanistic understanding of the cosmos the received wisdom of the present day?

Does this affect our understanding of human spirituality?

Assigned Readings from:

Barbour, I.G., *Religion and Science - Historical and Contemporary Studies*, pages 17-48

Polkinghorne, J., *Science and Theology - An Introduction*, pages 84-95, 'Divine Action'

Brooke, J.H., *Science and Religion - Some Historical Perspectives*, Chapter IV, pages 117-151, 'Divine Activity in a Mechanical Universe'

Trusted, J., *Physics and Metaphysics - Theories of Space and Time*, Chapters 4 and 5, pages 60-106 'The search for a new order', 'The grand design'

Atkins, Peter, *Awesome Versus Adipose*, from *Free Inquiry Magazine*, vol. 18(2) (offprint from WWW at www.secularhumanism.org/library/)

Supplemental Readings:

Russell, C.A., Cross-Currents: Interactions between Science and Belief

Kaiser, C., Creation and the History of Science

Tilby, A., Science and the Soul - New Cosmology, the Self and God

article: Comte and Positivism (offprint)

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Session 5 - The Earth's History - The Shaking of the Foundations

The fact that the earth has had a definable history has greatly influenced our ideas of the universe during the past three hundred years. Discoveries in the fields of biology, geology and astronomy have transformed our understanding of the cosmos. The Cartesian concept of the individual, a detached mind-soul observing an alienated cosmos has been transformed into a view of mankind which involves our inseparability from the fate of the cosmos. The concept of uniformitarianism influenced our understanding of the past in terms of present processes.

The concept of evolution was one of the major areas of debate in the nineteenth century. This was not confined to the sphere of biology, but in the hands of thinkers such as Herbert Spencer was applied to every sphere of human endeavour.

Christians reacted in various way to this, but it was certainly not a simplistic picture of an all-out 'war' between 'science and religion'. Cultural factors, such as the rise of professions and the place of the Church in culture played an important part. The naturalistic mechanism of evolution was not understood at this period, so the Victorian concept of 'progress' was harnessed by some Christians to an optimistic reading of evolutionary theory. Aubrey Moore (1848-1890) and Frederick Temple (1821-1902) are highlighted as examples of this 'Non-Darwinian revolution.'

Assigned Readings from:

Barbour, I.G., Religion and Science - Historical and Contemporary Issues, Chapter 3, pages 49-76, 'Biology and Theology in the Nineteenth Century.'

McGrath, Alister, Science and Religion - an Introduction, pages 186-206

Luscombe, Philip, Groundwork of Science and Religion, Chapter 3, pages 38-66, 'Darwin's Century - Warfare and Harmony'

Elder, G.P., Chronic Vigour - Darwin, Anglicans, Catholics and the development of a Doctrine of Providential Evolution, Chapter 2, pages 53-84, 'Theological Responses to Darwin' (offprint for students)

Moore, Aubrey, 'The Christian Doctrine of God' in Gore, C., Lux Mundi
(offprints of selected pages for students)

Temple, Frederick, The Relations between Religion and Science (offprints of
selected pages for students)

Supplemental Readings from:

Dennett, D.C., Darwin's Dangerous Idea - Evolution and the Meaning of Life

Bowler, Peter J., The Non-Darwinian Revolution - Reinterpreting a Historical
Myth

Bowler, Peter J., The Eclipse of Darwinism - Anti-Darwinian Evolution Theories
in the Decades around 1900

Dawkins, R. The Blind Watchmaker

'Questioning Creation Theory - Your Reaction' at
http://newsvote.bbc.co.uk/hi/english/talking_point/newsid_580000/580127.stm
(13th February 2000)

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Part 3 - Matters of Life and Death

Session 6 - Belief and Biology today

Richard Dawkins, in *The Blind Watchmaker* states that the greatest mystery of all has been solved by the work of Darwin and Wallace. This attitude is part of Dawkins' anti-vitalist stance used as evidence against religious beliefs. Despite this, Dawkins has a self-confessed poetic vision of the cosmos.

Here we consider the poetic versions of the cosmos through the eyes of four 20th century thinkers, Teilhard de Chardin, Ruth Page, Sallie McFague and Richard Dawkins. Teilhard's ideas envisioned a social evolution of mankind which would move on from merely biological considerations. This would involve an evolution of the spiritual faculty converging on God. The material world is moving towards a cosmic redemption expressed in the parousia of Christ. Evil is represented as part of the growing pains of this process.

Dawkins' contribution is a study of his Dimbelby Lecture, 'Science, Delusion and the Appetite for Wonder' available on the www at <http://www.world-of-dawkins.com/> (Copy of this obtained 11 October 1999) and an 'Interview with Nick Pollard' at <http://www.csis.org.uk/> (Copy of this obtained 19th Sept. 1999)

Ruth Page set out some details of her understanding of God in a talk entitled 'Theology, the Biological Sciences and the Doctrine of Creation' given at the University of Exeter on 22nd May 1999. This will be used in conjunction with her book, *The Incarnation of Freedom and Love*. The biological world points to a God who is a God of possibilities rather than 'actualities'. 'Possibility is the gift of freedom to creation.'

Sallie McFague in her book *Models of God* (Philadelphia: Fortress Press 1987) seeks for a holistic view of reality; we are 'not our own' but belong with the intricate fullness of the cosmos. This will serve as an introduction to Session 7.

Assigned readings from:

Southgate, Christopher, *God, Humanity and the Cosmos*, Chapter 4, pages 137-172 'Theology and Evolutionary Biology.'

McGrath, Alister, *Science and Religion - an Introduction*, pages 221-225, 'Teilhard de Chardin', 216-218, 'Arthur Peacocke'

Richard Dawkins offprints:

'Science, Delusion and the Appetite for Wonder' available on the www at <http://www.world-of-dawkins.com>

'Interview with Nick Pollard' at <http://www.csis.org.uk>

Page, Ruth, *The Incarnation of Freedom and Love*, Chapters 1 and 2, pages 1-42.

McFague, Sallie, *Models of God - Theology for an Ecological, Nuclear Age*, Chapter 3, pages 59-87

Catholic Encyclopaedia article on Teilhard de Chardin on the WWW

Supplementary Readings:

Page, Ruth, *Theology, the Biological Sciences and the Doctrine of Creation*, offprint from talk given at the University of Exeter, 22nd May 1999

Peters, Ted (ed.), *Science and Theology: The New Consonance*, pages 189-210, Arthur Peacocke, 'A Map of Scientific Knowledge: Genetics, Evolution, and Theology'

Page, Ruth, *The Incarnation of Freedom and Love*, passim.

McFague, Sallie, *Models of God - Theology for an Ecological, Nuclear Age*, passim.

Lewontin, R.C. The Doctrine of DNA - Biology as Ideology

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Session 7 - Eco-Eschatology and 'Fin-de-Siecle'

This strange title is meant to indicate that eschatology is not to be confined to some distant time and space and to speculations about different orders of reality other than that which confronts us daily in our time-and-space.

The 1990s showed a similar interest in futurology to the 1890s. (Oscar Wilde - 'Fin de siecle seems like fin du globe.') The fin-de-siecle atmosphere expressed a growing crisis in late-Victorian questioning of progress. The concept of 'degeneration' was increasingly expressed in the literature of the period, especially in the science fiction of the day, such as H.G. Wells War of the Worlds and The Time Machine. The demonic aspect of science was emphasised in these works. Although there was outward triumphalism over the extent of the British Empire, works such as Conrad's Heart of Darkness expressed an atmosphere of frustration and futility.

This session will examine these aspects of this period and compare them with the 1990s. The two periods, separated in time by a century, both express a fear of technology and a scepticism about teleological explanations.

In what ways do our technological and scientific achievements affect our understanding of the cosmos?

Are entirely new models of spirituality needed for the new millennium?

How can we become reconciled to a world in which Darwin, Freud and their legacy have repeatedly emphasised our transience and fragility, what has been called 'the permanence only of change and uncertainty'?

Assigned Readings from:

Page, Ruth, 'Theology and the Ecological Crisis', in Theology, March/April 1996, pp.106-113

Jay, M, and Neve, M., 1900: A Fin-de-Siecle Reader, 'Introduction', pages xi-xvii; pages 65-67, 'The Time Machine'

Polkinghorne, J., Science and Christian Belief - Theological Reflections of a Bottom-Up Thinker, chapter 9, pages 162-175, 'Eschatology'

Tilby, Angela, Science and the Soul - New Cosmology, the Self and God, chapter 9, pages 208-231, 'God and the End-Time'

Supplemental Readings:

H.G. Wells, *The War of the Worlds*, *The Time Machine*

Conrad, Joseph, *Heart of Darkness*

Phillips, Adam, *Darwin's Worms*

Wright, Tom, *The Myth of the Millennium*

Jay, M. and Neve, M., 1900 - *A Fin-de-Siecle Reader*, passim.

Henry Sturt, *The Idea of a Free Church*, Chapter 1, pages 8-21, 'The Task' (published 1911)

Cupitt, Don, *After All -Religion without Alienation*, pages 1-12, 'Introduction'

Cupitt, Don, *The Time Being*, Chapter 3, pages 31-42, 'The Six Truths'

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Session 8 - Biotechnology

The application of scientific techniques to biology is seen as a 'boundary-crossing' project, in which ancient taboos concerning the nature of biological organisms are challenged. How many of these problems have arisen for religious people because we have not had a unified understanding of our place in the cosmos? The debate about genetic modification of crops is an example where economic considerations, ethical decisions, biological technology and future prediction all collide in what we believe to be 'natural'.

Assigned Readings from:

Southgate, Christopher, *God Humanity and the Cosmos*, Chapter 11, pages 355-387, 'Biotechnology - A New Challenge to Theology and Ethics.'

Peacocke, *op.cit.supra.*, under Session 6

Collins, Francis, *The Human Genome Project: Tool of Atheistic Reductionism or Embodiment of the Christian Mandate to Heal?* In 'Science and Christian Belief', (1999), 11, 99-111

Polkinghorne, J., *Science and Theology -an Introduction*, pages 49-65, 'Humanity'

Supplemental Readings:

Reiss, Michael J. and Straughan, Roger, Improving Nature? The Science and Ethics of Genetic Engineering

Zimmern, R.L. The Human Genome Project: a false dawn? In 'British Medical Journal', 13th November 1999 319:1282

Harris, John, Clones, Genes and Immortality -Ethics and the Genetic Revolution

Burke, Derek C., Genetically Modified Foods: Why So Much Concern?, in 'Science and Christian Belief', (1999), 11, 2-4

Moreland, J.P. and Rae, Scott B., Body and Soul - Human nature and the Crisis of Ethics, Downers Grove: IVP, 2000

Mark J. Hanson, The Depths of Reason: Biotechnology's Challenge to Public Policy, in 'Science and Spirit', January/February 2000, page 22.

Prendergast, Kate, Updating our Origins: Biology, Genetics and Evolution - An Interview with Steve Jones, 'Science and Spirit', January/February 2000, page 24

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Session 9 - Psychology and Religion

This is a field in which the nature of 'explanation' is often given the status of 'fact'. This is not to denigrate the findings of psychology; rather, it is necessary to make the attempt to examine the nature of the claims that are made for matters concerning human behaviour. What kind of statements are being made in psychology? How do they differ from statements found in a scientific discipline such as physics? Do our answers to these questions affect our understanding of theology? As in other branches of science, there is always the danger of what the late Donald MacKay called 'nothing buttery' - rampant reductionism which is a barely concealed attempt to legitimate the authority of scientific explanation over all other ideas. (An example of this would be a form of evolutionary psychology which believed that human beings are 'nothing but' survival mechanisms for genes.)

This section will look at some of the implications of the study of psychology for religious belief through two of the founding figures of psychology, Freud and Jung. There will be an emphasis on the status of psychological explanations and their testability.

Assigned Readings from:

Southgate, C., God, Humanity and the Cosmos, pages 173-198, chapter 5, 'Psychology and Theology'

Watts, Fraser (ed.), Science Meets Faith, London: SPCK 1998, pages 59-72, chapter 5, 'Brain, Mind and Soul'

McGrath, A.E., Science and Religion - An Introduction, pp.193-205

Supplemental Readings:

Priest, Stephen, Theories of the Mind, London: Penguin Books 1991 (mainly different philosophical models, but readable and illustrates the important interface between philosophy and psychology)

Information on Jung at <http://www.cgjung.com/> (viewed 19.11.99)

'Faith and Medicine' in Science and Spirit, Vol.9 No. 3

Deacon, Terrence, 'Giving up the Ghost: The Epic of Spiritual Emergence', in Science and Spirit, Vol. 10. No. 2, July/August 1999

Ramachandran, V.S., 'The Limbic Fire - Neuroscience and the Soul' in Science and Spirit, Vol. 10 no. 3, September/October 1999

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Part 4 - The Cosmos Revisited

Session 10 - The 'New Physics'

If the 1990s popular science debates have been dominated by the biological considerations considered in the previous session, the preceding three decades were a period in which the physical sciences captured the public imagination. In 1965 the discovery of the Cosmic Microwave Background Radiation (COBE) provided strong evidence for the popularly-called 'Big Bang' theories of the origin of the universe. Subsequent development of this model has refined our understanding of the early universe, a project typified by Steven Weinberg's book *The First Three Minutes*, published in 1977.

As in biology, so in physics: the immensity of the cosmos provides prime-time subject matter for TV popular presentations of cosmology. Against this cultural background, the cosmic stories told by the religious traditions seem either unbelievable, irrelevant or polemical.

This session will reflect on what it can mean to live in a universe which is incredibly larger than that inhabited by any previous generations. There are implications for our understanding what we mean by creation (see Session 2) and of the ability of our consciousness to comprehend the universe. How can we arrive at an interpretation of

ancient texts which enables us to view them constructively in the light of our contemporary cosmology?

Assigned Readings from:

Peters, Ted. (ed.) 'Physics and Faith' in Science and Theology: The New Consonance, pages 43-120

Southgate, Christopher, God, Humanity and the Cosmos, pages 95-136, 'Theology and the New Physics'

Polkinghorne, J., Science and Theology - an Introduction, pages 25-48, 'The Scientific Picture of the World'

McGrath, Alister, Science and Religion - An Introduction, pages 178-186, 'Physics and Cosmology'

Supplemental Reading -selected from:

Worthing, Mark W., God, Creation and Contemporary Physics, pages 7-32, Chapter 1 'Physics and Theology in Historical Perspective' and pages 199-206, 'The Impact of Modern Physics and Cosmology on the Theological Discussion of God'

Rees, Martin, Just Six Numbers - The Deep Forces that Shape the Universe.

Tilby, Angela, Soul - New Cosmology, the Self and God

Davies, Paul, God and the New Physics

Davies, Paul, The Mind of God

Weinberg, Steven, The First Three Minutes

Wertheim, M., Pythagoras' Trousers: God, physics and gender wars

Smoot, George, and Davidson, K., Wrinkles in Time

Barrow, J.D., Theories of Everything - The Quest for Ultimate Explanation

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Session 11 - Befriending Creation

From time to time there are accusations that ecological and environmental crises have religious origins. The mandate given in Genesis to 'subdue' the earth has become a

legitimation for domination and destruction of the 'natural' world. This exploitation has also been allied to a long-standing patriarchal tradition within western cultures.

The Christian concept of original sin and subsequent redemption, which has to be maintained by a rigorous discipline of the spirit can engender a negative and dark view of humanity and of the physical world. In recent years alternative spiritualities within the Christian tradition have affirmed the creation and the goodness of humanity.

This session will examine this approach through the eyes of the American writer Matthew Fox, the 17th century writer Thomas Traherne (1637-1674) and the contemporary English writer David Adam. The last-named is part of the revival of interest in 'Celtic Christianity'. Despite a good deal of speculative romanticising, this latter tradition points to a renewed interest in what is called 'creation spirituality.'

Immense interest has also been shown in the writings and music of Hildegard of Bingen (1098-1179) and this session will include a short introduction to her music and spirituality.

The session will consider:

How can a contemporary scientific understanding of the cosmos can inform our spiritual quest?

Why is it necessary to affirm the goodness of creation?

What can we gain in a greater understanding of our biological and physical unity with creation?

How can we be reconciled to 'this transitory life' and retain a coherent spiritual hope?

Assigned Readings and Listening from:

Hardy, Daniel W., 'The God who is with the World' in Watts, Fraser (ed.) ,
Science Meets Faith - Theology and Science in Conversation, chapter 9 pages
136-153

Haught, John F., 'Evolution, Tragedy and Hope' in Peters, Ted, Science and
Theology - The New Consonance, chapter 15 pages 228-244

offprint of Traherne's work, A.M. Allchin, 'Select Meditations', III.83 - Society of
Ordained Scientists

CD Music: Hildegard of Bingen, Canticles of Ecstasy,. Sequentia. Deutsche
Harmonia Mundi, 05472 77320 2

CD Music: Hildegard of Bingen, *A feather on the Breath of God*. Emma Kirkby and Gothic Voices. Hyperion CDA 66039

Supplemental Reading:

Fox, Matthew, *Original Blessing - A Primer in Creation Spirituality*

McFague, Sallie, *Super, Natural Christians - How we should love nature*, London: SCM 1997

Adam, David, *The Cry of the Deer - Meditations on the Hymn of St. Patrick* (and other books by David Adam)

Traherne, Thomas, *Centuries of Meditation* (and other editions)

Colebrook, Erna and Michael. *Earthsong: A Green Anthology of Poetry, Readings and Prayers*

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Session 12 - How masculine is the Universe?

Feminist studies have made us more aware of the one-sidedness of the debate between science and religion. Can further light be shed on this from the aspect of feminist studies? The work of Ruth Page and Sallie McFague has shown how this tradition has informed our understanding of the divine. In what ways do these revisions further our understanding of the physical world?

Assigned Readings from:

McFague, Sallie, *Models of God*, pages 97-180, 'Models of God for an Ecological, Nuclear Age.'

Lee, Dorothy A. 'Goddess Religion and Women's Spirituality: A Christian Feminist Response', in *Theology*, January/February 1999, pp.19-27

Supplemental Readings:

Merchant, Carolyn, *The Death of Nature: Women, Ecology and the Scientific Revolution*

McFague, Sallie, *Super, Natural Christians*

Page, Ruth, *The Incarnation of Freedom and Love*

Page, Ruth, *God and the Web of Creation*

(readings for this session still under review)

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Session 13 - Science and Space - The unbounded Galaxy of Knowledge

The mushrooming growth of travel and communication in the 20th century has revised our concepts of space and time. Our religious traditions were formed in localised global areas, often without our modern concepts of inclusivism and pluralism. Space and time are essential parts of the story of where humanity believes itself to be in the cosmos in any given epoch. Is there anything in the rapidly expanding cosmos of the 'world wide web' which can inform the spiritual aspect of what it means to be human? A critic of the possibilities of spiritual life in the new developments of cyberspace has said, 'Living human beings belong to the physical world, and without a body one cannot really be called human...!'

Is the ready availability of knowledge privileging those who have easy access to the technological power to utilise it?

Are there implications for ethics in this development which are peculiar to the millennial development of information technology?

Will this create a new underclass of intellectual deprivation?

Are there parallels with the development of printing technology?

What is the role of 'virtual reality' in our understanding of the cosmos?

Assigned Readings from:

Lyon, David, 'The Internet - Beyond Ethics?' in *Science and Christian Belief*, (9), 35-45, April 1997

'In Search of Time', in *Science and Spirit*, Vol. 9 no. 2, Spring 1998

Wertheim, Margaret, *The Pearly Gates of Cyberspace: A History of Space from Dante to the Internet*, chapter 7, 'Cyber Soul-Space', pages 253-182

Supplemental Reading:

Wertheim, op.cit.

Graham, Gordon, *The Internet: A Philosophical Inquiry*

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Session 14 - How far can we revise God?

There is a fierce debate about what the concept of the divine can mean. A fundamental question arises out of this course - How is it possible to speak of 'God' after Copernicus, Newton, Darwin and Freud?

There are those who have retreated into a very anthropocentric view of spirituality (e.g. Cupitt) in which we have to be completely reconciled to our transience and temporality. There are no objective grounds for belief in God. Others (e.g. Peacocke, Barbour) believe in the reality of divine personality, but also ask for a drastic revision of our concepts. Still others (Polkinghorne) maintain a more orthodox apologetic stance.

This session will investigate the 'remodelling' of God which has taken place in the thought of Don Cupitt, Arthur Peacocke and John Polkinghorne. Each has constructed an apologetic for a Christian faith which each believes is viable for the contemporary world, despite the manifest differences between them.

In what sense are we reconciled to pluralism and provisionality in our ideas of God?

In what sense are all our thoughts 'puzzling reflections in a mirror?' (1 Corinthians 13:12)

Assigned Readings from:

Cupitt, Don, 'A Future for Religious Thought' in *The Listener*, 4th October 1984

Luscombe, Philip, *Groundwork of Science and Religion*, Chapter 8, pages 193-223, 'Doing Theology in a world of Science'

Peacocke, Arthur, 'God's Action in the Real World', in *Zygon*, 26(4), December 1991, pp.455-476

McFague, Sallie, *Models of God - Theology for and Ecological, Nuclear Age*, chapter 1, pages 3-28, 'A New Sensibility'.

Peacocke, Arthur, 'New Wineskins for Old Wine: A Credible Theology for a Scientific World' in *Science and Spirit*, July/August 1999 page 30f.

Supplemental Reading:

Cupitt, Don, *Only Human*

Cupitt, Don, *Creation out of Nothing*

Polkinghorne, J., 'Taking Science Seriously' - *Farmington Papers SC1*

Polkinghorne, J., 'Taking Theology Seriously' - *Farmington Papers SC2*

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Session 15 - In which we conclude!

The aim of this final session is to reflect on the three sections of the course and attempt to find a personal synthesis of science and religious faith that makes sense for today. This will be different for each person, as the scientific enterprise affects people temperamentally as well as factually. What has the course taught us about what it means to be human at the turn of the millennium? What have we learnt about other ways of understanding the religious and scientific quest?

What factors influence the authority of our statements about God and the cosmos? Are we reflecting our own prejudice (or someone else's)?

Do we feel more at home in the cosmos or are there areas of alienation which we find difficult?

'Journeys into Science and Spirit - Muslim, Jewish, Hindu and Christian Perspectives', in *Science and Spirit*, Vol. 9 no.5 Winter 1998-9

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Library Provision

Students will have the use of the Phillpott Theological Library in Diocesan House at Truro and the Library of the University of Exeter.

Base texts for the Course:

Southgate, Christopher, *God, Humanity and the Cosmos*, T. and T. Clarke, 1999

Luscombe, Philip, *Groundwork of Science and Religion*, Peterborough: Epworth Press, 2000

Barbour, Ian, *When Science meets Religion*, London: SPCK, 2000

Polkinghorne, J., *Science and Theology -an Introduction*, SPCK/Fortress, 1998

McGrath, Alister, *Science and Religion - An Introduction*, Oxford: Blackwell, 1999

Trusted, Jennifer, *Physics and Metaphysics - Theories of Space and Time*, London: Routledge, 1991

Peters, Ted (ed.) *Science and Religion - The New Consonance*, Boulder: Westview Press, 1998