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We present in this number a selection of articles which explore a range of important theological and practical issues. We commence at the broadest level with an authoritative review of the relation between theology and science by Lutheran theologian, Dr Ted Peters of The Center for Theology and the Natural Sciences, in Berkeley California. Then Dr Rolf Hille of Albrecht Bengel Haus, Tübingen, discusses philosophical aspects of Modernity and Post-modernity, with a focus on the understanding of humanity. Finally, in this section, Dr Gordon Lewis of Denver Seminary, Colorado advances an argument to show how cross-cultural communication is made possible by general revelation.

This leads us to a more detailed examination of the question of culture and the life and mission of the church at the local level, provided by Dr Eshetu Abate who reflects on the situation in his homeland of Ethiopia. A similar study by Andrew Lord of the United Kingdom focuses on hermeneutical and cultural aspects of the Christian mission in Israel–Palestine. Rounding off this group, New Zealander, Dr John Roxborogh, draws attention to the importance of understanding minority Christianity, not only because of recent dramatic changes in the geography of Christianity, but also for various strategic reasons.

The last two articles are detailed Bible studies addressing fundamental issues. Dr John J. Davis of Gordon-Conwell Theological Seminary revisits a key text on the role of ministry leaders to argue that recent dominant interpretations are exegetically questionable and need correction, resulting in a sharpened role for these leaders. James Chacko of India reflects on the significance of the apostle Paul's collection of money from his missionary churches for the church in Jerusalem, suggesting that the contemporary collection should have less to do with the worship service and more with the restoration of the unity of the church.

From science and philosophy to missions, theology and exegesis, these articles are indicative of the range of concerns and interests of this journal as we move into the new century. The letter to the Hebrews presents a vivid picture of our Lord Jesus as the 'pioneer and perfecter of our faith' and a call for us who are 'surrounded by so great a cloud of witnesses' to be inspired and empowered so we can 'run with perseverance the race that is set before us' (12:1–2). While the context of this passage is the pressure of persecution and the danger of discouragement, the global challenges we face today in intellectual, social and spiritual terms are no less demanding. We are called upon to 'consider Jesus' and apply our mind as well as our will and faith to understand the times in which we live, and, like the wise scribe of the parable, bring out of our storeroom 'new treasures as well as old' (Mt. 13:52).

David Parker, Editor

Theology and Science: Where are We?

Ted Peters

Keywords: Natural science, scientism, evolution, scientific creationism, consonance, New Age, critical realism, natural theology, revelation

Is the war being fought between evolution and creationism characteristic of the larger relationship between science and theology? Is warfare the best extended metaphor for

understanding how scientific knowledge and Christian faith get along? The battle metaphor goes back to the late nineteenth century, most probably due to the influence of the notorious book by A.D. White, *A History of the Warfare of Science with Theology*.[1] But, we will ask here: does the image of a declared state of war accurately describe the current interaction between theological thinking and natural science? No, not completely.

We could say that a revolution is underway. But this revolution is turning us toward greater peace, not toward new battles. It is a revolution that adds complexity and nuance so that it is no longer accurate to see science and theology merely as pitched enemies. The revolution is being led by an unpredicted and astounding intellectual trend, namely, the re-asking of the God-question within the orbit of scientific discussion about the natural world. The raising of theological questions within the scientific camp does not fit neatly into the warfare model.

The warfare model is not the only one. Some of us work with a model of separation. We assume that science and religion are separate, unable to conflict because they are sovereign in different spheres. They allegedly speak different languages. So we erect a high wall of separation between church and laboratory. Yet, now as the peaceful revolution is beginning to take hold, this separation is increasingly recognized as most unfortunate. It is unfortunate because we all are aware that there is but one reality. So sooner or later we will become dissatisfied with consigning our differences to separate ghettos of knowledge.

The pre-revolutionary separatists and the revolutionary scientists represent only part of the picture. There is another group of quiet revolutionaries who since the 1960s have been looking for parallels, points of contact, consonance, crossovers, and conflations. Their emerging new discipline, as yet without a name, is studying developments in natural science—especially physics and the life sciences—and is engaging in serious reflection on various loci of Christian doctrine. Scientists and theologians are engaged in a common search for shared understanding. The search is not merely for a shared discipline. They are not looking merely for rapprochement between separate fields of inquiry. Rather, scientists and theologians are aiming for increased knowledge, for an actual advance in the human understanding of reality. Until a name comes along, we will refer to this new enterprise as *Theology and Natural Science*.

In this article I will briefly outline eight different ways in which science and religion are currently thought to be related.[2] I will note that the dominant view—the truce by separation view—in academic circles is what I label the 'two-language theory', but I will go on to point out that the advancing frontier is taking us in the direction of hypothetical consonance. Then I will turn to the central methodological issue, namely, the classic concern for the relation between faith and reason. I will conclude with my own observations regarding the merits of hypothetical consonance and the value of making a theological interpretation of nature so that we can see the natural cosmos as divine creation.

Who are the key partners in this emerging conversation between natural science and Christian theology? Rather than sharply contrasting what we can know by faith and what we can know by reason, Nancey Murphy and Wentzel van Huyssteen along with others are maximizing the overlap. Those looking for consonance in cosmology, evolutionary theory, genetics, and such subject areas include frontier thinkers such as Ian Barbour,

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[1] 1. A.D. White, *A History of the Warfare of Science with Theology*, 2 volumes (New York: Dover, 1896; 1960).

[2] 2. The lineup of contending forces I offer here is revised from that sketched previously in my Preface to *Cosmos as Creation* (Louisville: Westminster/John Knox, 1989), pp. 13–17. For a detailed explanation, see extended note at end of this article.

Willem Drees, Philip Hefner, Wolfhart Pannenberg, Arthur Peacocke, John Polkinghorne, Robert John Russell, and Thomas Torrance. In Australia, we must note that Paul Davies, Mark Worthing, and Denis Edwards are emerging as world leaders in this growing field.

EIGHT WAYS OF RELATING SCIENCE AND THEOLOGY

Not everyone views the relationship between science and religion in the same way. If we extend the metaphor of warfare, we can see that relationships vary from pitched battle to an uneasy truce.

1. Scientism

Scientism, sometimes called 'naturalism' or 'scientific materialism' or 'secular humanism', seeks war with total victory for one side. Scientism, like other ' … isms', is an ideology, this one built upon the assumption that science provides all the knowledge that we can acquire. There is only one reality, the natural, and science has a monopoly on the knowledge we possess about nature.[3] Religion, which claims to purvey knowledge about things supernatural, provides only pseudo-knowledge—that is, false impressions about *non-existent fictions*.

Some decades ago, British philosopher and atheist Bertrand Russell told a BBC audience that 'what science cannot tell us, mankind cannot know'. At mid century astronomer Fred Hoyle argued that the Jewish and Christian religions have become outdated by modern science. He explained religious behaviour as escapist, as pursued by people who seek illusory security from the mysteries of the universe.[4]

More recently, physicists Stephen Hawking and the late Carl Sagan have teamed up to assert that the cosmos is all there is or was or ever will be, and to assert that there was no absolute beginning at the onset of the Big Bang. Why no beginning? Had there been an absolute beginning, then time would have an edge; and beyond this edge we could dimly glimpse a transcendent reality such as a creator God. But this is intolerable to scientism. So, by describing the cosmos as temporally self-contained, Sagan could write confidently in the introduction to Hawking's *A Brief History of Time* about 'the absence of God' on the grounds that there is 'nothing for a Creator to do'.[5] In the warfare between science and theology, scientism demands elimination of the enemy.

2. Scientific Imperialism

Scientific Imperialism is Scientism in a slightly different form. Rather than eliminating the enemy, scientific imperialism seeks to conquer the territory formerly possessed by theology and claim it as its own. Whereas scientism is atheistic; scientific imperialism

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[3] 3. Langdon Gilkey, *Nature, Reality, and the Sacred: The Nexus of Science and Religion* (Minneapolis: Fortress, 1993), p. 14.

[4] 4. Fred Hoyle, *The Nature of the Universe* (New York: Mentor, 1950), p. 125.

[5] 5. Stephen Hawking, *A Brief History of Time* (New York: Bantam, 1988), p. 136; see: Carl Sagan, *Cosmos* (New York: Random House, 1980). Co-discoverer of the double helix structure of DNA, Francis Crick reduces what religious people used to believe to be the disembodied soul to 'nothing but a pack of neurons'. All of our joys and sorrows, our memories and ambitions, our sense of personal identity and free will, 'are in fact no more than the behavior of a vast assembly of nerve cells and their associated molecules'. *The Astonishing Hypothesis: The Scientific Search for the Soul* (New York: Charles Scribner's Sons, 1994), 3. For aggressive anti-religious secular humanism see Paul Kurtz, The Transcendental Temptation (Buffalo: Prometheus, 1985) and the journal published by the Committee for the Scientific Investigation of Claims of the Paranormal, *The Skeptical Inquirer*.

affirms the existence of something divine but claims knowledge of the divine comes from scientific research rather than religious revelation. 'Science has actually advanced to the point where what were formerly religious questions can be seriously tackled . . . [by] the new physics', writes Adelaide physicist Paul Davies.[6] What Davies does is to demonstrate how the field of physics transcends itself, opening us in the direction of the divine reality. 'I belong to a group of scientists', he writes, 'who do not subscribe to a conventional religion but nevertheless deny that the universe is a purposeless accident. … There must, it seems to me, be a deeper level of explanation. Whether one wishes to call that deeper level "God" is a matter of taste and definition.'[7]

Physicist Frank Tipler takes imperialism to the academic extreme. Claiming that quantum theory combined with Big Bang and thermodynamics can provide a better explanation than Christianity for the future resurrection of the dead, Tipler declares that theology should become a branch of physics.[8]

3. Ecclesiastical Authoritarianism

Ecclesiastical Authoritarianism is the defensive tactic followed by some in the Roman Catholic tradition who perceive science and scientism as a threat. Presuming a two step route to truth in which natural reason is followed by divine revelation, theological dogma is here ceded authority over science on the grounds that it is founded on God's revelation. In 1864 Pope Pius IX promulgated *The Syllabus of Errors*, wherein item 57 stated it to be an error to think that science and philosophy could withdraw from ecclesiastical authority. A century later the Second Vatican Council dropped the defences by declaring the natural sciences to be free from ecclesiastical authority and called them 'autonomous' disciplines (*Gaudium et Spes*: 59). Pope John Paul II, who has a serious interest in fostering dialogue between theology and the natural sciences, is negotiating a new peace between faith and reason.[9]

4. Scientific Creationism

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[6] 6. Paul Davies, *God and the New Physics* (New York: Simon and Schuster, Touchstone, 1983), p. ix.

[7] 7. Paul Davies, *The Mind of God* (New York: Simon and Schuster, 1992), p. 16. In reviewing Davies' new book, *The Fifth Miracle: The Search for the Origin and Meaning of Life* (New York: Simon & Schuster, 1999), Philip Hefner alerts us to the manner in which Davies challenges science to go beyond its current limits. '*The Fifth Miracle* has an important subtext, which presses the claim: the current understanding of nature's laws is insufficient to understand the origin of life. Religious people have perennially perceived such insufficiencies as occasions to invoke the action of God.' 'Mysterious Beginnings', *Christian Century*, 116:17, pp. 522–623 (June 2–9, 1999), p. 622. Davies does not invoke a religious God-of-the-gaps to fill the insufficiency, of course, but rather presses science to expand to fill this gap with a fuller understanding of nature.

[8] 8. Frank Tipler, *The Physics of Immortality* (New York: Doubleday, 1994), pp. ix, 10, 17, 247. Tipler borrows some eschatological theology from Wolfhart Pannenberg and places it within the scientific eschatology of physicist Freeman Dyson, *Infinite in All Directions* (New York: Harper, 1988).

[9] 9. *John Paul II On Science and Religion: Reflections on the New View from Rome*, ed. by Robert John Russell, William R. Stoeger, and George V. Coyne (Notre Dame: University of Notre Dame Press, and Vatican City State: Vatican Observatory Publications, 1990). In October 1992 the pope completed a 13 year study of the Galileo affair, proclaiming that the church erred in condemning the astronomer for disobeying orders regarding the teaching of Copernicus' heliocentric theory of the universe. John Paul II described Galileo as 'a sincere believer' who was 'more perceptive [in the interpretation of Scripture] than the theologians who opposed him'. Because in the myths of scientism Galileo is touted as a martyr for truth over against the narrow-mindedness of theology, Owen Gingerich took the occasion to write to clear up the facts. One noteworthy fact is that Galileo was never condemned for heresy, only disobedience. 'How Galileo Changed the Rules of Science', *Sky and Telescope*, 85:3 (March 1993) pp. 32–26.

Scientific Creationism, sometimes called 'creation science', is not a Protestant version of church authoritarianism even though it is frequently so mistaken. The grandparents of today's scientific creationists were fundamentalists, to be sure, and fundamentalism appealed to biblical authority in a fashion parallel to the Roman Catholic appeal to church authority. Yet there is a marked difference between fundamentalist authoritarianism and contemporary creation science. Today's creation scientists are willing to argue their case in the arena of science, not biblical authority. They assume that biblical truth and scientific truth belong to the same domain. When there is a conflict between a scientific assertion and a religious assertion, then we allegedly have a conflict in scientific theories. The creationists argue that the book of Genesis is itself a theory which tells us how the world was physically created: God fixed the distinct kinds (species) of organisms at the point of original creation. They did not evolve. Geological and biological facts attest to biblical truth, they argue.

With regard to theological commitments, scientific creationists typically affirm (1) the creation of the world out of nothing; (2) the insufficiency of mutation and natural selection to explain the process of evolution; (3) the stability of existing species and the impossibility of one species evolving out of another; (4) separate ancestry for apes and humans; (5) catastrophism to explain certain geological formations, e.g., the flood explains why sea fossils appear on mountains; and (6) the relatively recent formation of the earth about six to ten thousand years ago.[10]

Establishment scientists typically try to gain quick victory over creationists by dismissing them. Stephen Jay Gould, the colourful Harvard paleontologist, says the very term 'scientific creationism' is meaningless and self-contradictory.[11] Although the battle between scientific creationists and established scientists appears to be all out war, this is not the case. The creationists, many of whom are themselves practising scientists, see themselves as soldiers within the science army.[12]

5. The Two-Language Theory

The Two-Language Theory might appear to be the way to establish a truce with an enduring peace. This is because it respects the sovereign territory of both science and theology and because it is advocated by highly respected persons in both fields. Albert Einstein—remembered for his remark that 'science without religion is lame and religion without science is blind'—distinguished between the language of fact and the language of value. 'Science can only ascertain what *is*, but not what *should be*', he once told an audience at Princeton; 'religion, on the other hand, deals only with evaluations of human thought and action.' Note the use of 'only' here. Each language is *restricted* to its respective domain.

As of this writing, the current president of the American Association for the Advancement of Science, anthropologist Stephen Jay Gould, advocates the two language view. Responding to Pope John Paul II's elocution on evolution, Gould argues that science

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[10] 10. See: Duane T. Gish, *Evolution: The Fossils Say No!* (San Diego: Creation-Life Publishers, 1973) and Roger E. Timm, 'Scientific Creationism and Biblical Theology', in Peters, *Cosmos as Creation*, pp. 247–264.

[11] 11. Stephen Jay Gould, *Hen's Teeth and Horse's Toes: Reflections on Natural History* (New York: Norton, 1983), p. 254.

[12] 12. One could describe the war as a battle between atheistic science and theistic science. Langdon Gilkey suggests that scientism (what he calls scientific positivism) goes beyond the limits of science to propound an atheistic cosmology, and this initiates the reaction that results in scientific creationism. See: Gilkey, *Nature, Reality, and the Sacred*, p. 55.

and religion need not be in conflict because their teachings occupy different domains. Their respective *magisteria* (teaching authorities) are 'nonoverlapping'.[13]

Neoorthodox theologian Langdon Gilkey has long argued for the two language approach. Science, he says, deals only with objective or public knowing of *proximate origins*, whereas religion and its theological articulation deals with existential or personal knowing of *ultimate* origins. Science asks '*how*?', while religion asks '*why*?'.[14] What Gilkey wants, of course, is for one person to be a citizen in two lands—that is, to be able to embrace both Christian faith and scientific method without conflict.[15] To speak both languages is to be bilingual, and bilingual intellectuals can work with one another in peace.

The modern two-language theory of the relation between science and theology ought not to be confused with the premodern concept of the two books. In medieval times, revelation regarding God could be read from two books, the *book of nature* and the *book of scripture*. Both science and theology could speak of things divine. Both natural revelation and special revelation pointed us in one direction: toward God.[16] The two-language theory, in contrast, points us in two different directions: either toward God or toward the world.

A problem I have with the two language theory is that it gains peace through separation, by establishing a demilitarized zone that prevents communication. In the event that a scientist might desire to speak about divine matters or that a theologian might desire to speak about the actual world created by God, the two would have to speak past one another on the assumption that shared understanding is impossible. Why begin with such an assumption? The method of hypothetical consonance makes just the opposite assumption, namely, there is but one reality and sooner or later scientists and theologians should be able to find some areas of shared understanding.

6. Hypothetical Consonance

Hypothetical Consonance is the name I give to the frontier that seems to be emerging beyond the two language policy. The term 'consonance', coming from the work of Ernan McMullin, indicates that we are looking for those areas where there is a correspondence between what can be said scientifically about the natural world and what the theologian understands to be God's creation.[17] 'Consonance' in the strong sense means accord, harmony. Accord or harmony might be a treasure we hope to find, but we have not found it yet. Where we find ourselves now is working with consonance in a weak sense—that is, by identifying common domains of question asking. The advances in physics, especially

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[13] 13. Stephen Jay Gould, 'Nonoverlapping Magisteria', *Natural History* 106 (March 1997), pp. 16–22.

[14] 14. Langdon Gilkey, *Creationism on Trial* (San Francisco: Harper, 1985), pp. 49–52; 108–113.

[15] 15. In his more recent works, Gilkey has pressed for a closer relationship—a mutual interdependence—between science and religion. Gilkey attacks scientism (what he calls naturalism or scientific positivism) when it depicts nature as valueless, determined, and void of the sacred, on the grounds that these are supra-scientific or philosophical judgments that go beyond science itself. Science, therefore, must be supplemented by philosophy and religion if we are to understand reality fully. *Nature, Reality, and the Sacred*, pp. 3, 11, 75, 111, 129.

[16] 16. The 'two books' approach is embraced today by the organization, Reasons to Believe, a publishing house that 'examines how the

[17] 17. Ernan McMullin, 'How Should Cosmology Relate to Theology', in *The Sciences and Theology in the Twentieth Century*, ed. by Arthur Peacocke (Notre Dame: University of Notre Dame Press, 1981) p. 39. See: Peters, Cosmos as Creation, pp. 13–17.

thermodynamics and quantum theory in relation to Big Bang cosmology, have in their own way raised questions about transcendent reality. As Paul Davies has shown, the God question can be honestly asked from within scientific reasoning. Theologians and scientists may now be sharing a common subject matter, and the idea of hypothetical consonance encourages further cooperation.

Mark William Worthing at Luther Seminary in Adelaide challenges theologians to be theologically responsible by investigating what science is saying about the world, the world of which we believe God to be the creator and redeemer. 'Theology … has the responsibility to demonstrate to what extent and in what ways Christian faith is compatible with cosmologies that may in fact prove to be an accurate description of the universe.'[18] Princeton theologian Wentzel van Huyssteen puts it this way: 'As Christians we should therefore take very seriously the theories of physics and cosmology; not to exploit or to try to change them, but to try to find interpretations that would suggest some form of complementary consonance with the Christian viewpoint.'[19]

Hypothetical consonance asks theologians to view their discipline somewhat differently. Rather than beginning from a rigid position of inviolable truth, the term 'hypothetical' asks theologians to subject their own assertions to further investigation and possible confirmation or disconfirmation. An openness to learning something new on the part of theologians and scientists alike is essential for hypothetical consonance to move us forward. Canberra systematic theologian, Stephen Pickard, 'suggests a more modest and humble theological task, willing to admit uncertainty and an appropriate provisionality in the results of theological enquiry, perhaps more so than has occurred in the past'.[20]

The new book by Flinders University/Adelaide School of Divinity theologian Denis Edwards, *The God of Evolution*, presumes hypothetical consonance when putting together evolutionary biology with Christian theology. As the 'of' in the book's title indicates, *The God of Evolution* does not hold that science and faith speak separate and untranslatable languages. Quite the contrary. The scientific theory of evolution provides actual knowledge about the way in which God works in nature to achieve divine purposes. 'There is every reason for a Christian of today to embrace *both* the theological teachings of Genesis *and* the theory of evolution. But holding together the Christian view of God and the insights of evolutionary science does demand a rethinking of our theology of the trinitarian God at work in creation'.[21]

It is my judgment that, at least for the near future, the model of hypothetical consonance should lead the conversation between natural science and Christian theology. Scientists are already recognizing the limits to reductionist methods and peering into the deeper questions about the nature of nature and the significance of all that is real. Theologians are mandated to speak responsibly about the natural world we claim to be the creation of a divine creator; and natural science has demonstrated its ability to increase our knowledge and understanding of this wondrous world. If God is the creator,

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[18] 18. Mark William Worthing, *God, Creation, and Contemporary Physics* (Minneapolis: Fortress Press, 1996), p. 193.

[19] 19. Wentzel van Huyssteen, *Duet or Duel? Theology and Science in a Postmodern World* (Harrisburg, Pennsylvania: Trinity Press International, 1998), p. 78.

[20] 20. Stephen Pickard, ' "Unable to See the Wood for the Trees": John Locke and the Fate of Systematic Theology', *The Task of Theology Today*, ed. by Victor Pfitzner and Hilary Regan (Adelaide: Open Book Publishers, 1998), p. 145.

[21] 21. Denis Edwards, *The God of Evolution* (New York: Paulist, 1999), p. 13.

then we should expect growth in our understanding of God as we grow in understanding of the creation. Conversely, we should expect that, if the world is a creation, then it cannot be fully understood without reference to its creator.

7. Ethical Overlap

Ethical Overlap refers to the recognized need on the part of theologians to speak to the questions of human meaning created by our industrial and technological society and, even more urgently, to the ethical challenges posed by the environmental crisis and the need to plan for the long range future of the planet. The ecological challenge arises from the crisis-crossing forces of population overgrowth, increased industrial and agricultural production that depletes nonrenewable natural resources while polluting air and soil and water, the widening split between the haves and the have-nots around the world, and the loss of a sense of responsibility for the welfare of future generations. Modern technology is largely responsible for this ecological crisis, and theologians along with secular moralists are struggling to gain ethical control over technological and economic forces that, if left to themselves, will drive us toward destruction.

An advocate of hypothetical consonance, I belong also to the ethical overlap camp and I believe that, at root, the ecological crisis poses a spiritual issue, namely, the crying need of world civilization for an ethical vision. An ethical vision—a vision of a just and sustainable society that lives in harmony with its environment and at peace with itself—is essential for future planning and motivating the peoples of the world to fruitful action. Ecological thinking is future thinking. Its logic takes the following form: *understanding*-decision-control. Prescinding from the scientific model, we implicitly assume that to solve the ecocrisis we need to understand the forces of destruction; then we need to make the decisions and take the actions that will put us in control of our future and establish a human economy that is in harmony with earth's natural ecology.

In order to bring theological resources to bear on the ecological challenge, most theologians have tried to mine the doctrine of creation for its wealth of ethical resources. It is my judgment that we need more than creation; we need also to appeal to eschatological redemption—that is, new creation. God's redeeming work is equally important when we begin with a creation that has somehow gone awry.

I believe the promise of eschatological renewal can provide a sense of direction, a vision of the coming just and sustainable society, and a motivating power that speaks relevantly to the understanding-decision-control formula. We need to combine creation with new creation. Theologians can make a genuine contribution to the public discussion if, on the basis of eschatological resources, we can project a vision of the coming new world order—that is, announce the promised kingdom of God and work from that vision backward to our present circumstance. This vision should picture our world in terms of (a) a single, worldwide planetary society; (b) united in devotion to the will of God; (c) sustainable within the biological carrying capacity of the planet and harmonized with the principles of the ecosphere; (d) organized politically so as to preserve the just rights and voluntary contributions of all individuals; (e) organized economically so as to guarantee the basic survival needs of each person; (f) organized socially so that dignity and freedom are respected and protected in every quarter; and (g) dedicated to advancing the quality of life on behalf of future generations.[22]

8. New Age Spirituality

[22] 22. See: Ted Peters, *GOD—the World's Future: Systematic Theology for a Postmodern Era* (Minneapolis: Fortress, 1992), chapter 12, and *Futures—Human and Divine* (Atlanta: John Knox Press, 1978).

New Age Spirituality is the next and final in our list of parties interested in the science-religion struggle. The key to New Age thinking is holism—that is, the attempt to overcome modern dualisms such as the split between science and spirit, ideas and feelings, male and female, rich and poor, humanity and nature. New Age artillery is loaded with three explosive sets of ideas: (1) discoveries in twentieth-century physics, especially quantum theory; (2) acknowledgement of the important role played by imagination in human knowing; and (3) a recognition of the ethical exigency of preserving our planet from ecological destruction.

Fritjof Capra and David Bohm, who combine Hindu mysticism with physical theory, are among the favourite New Age physicists. Bohm, for example, argues that the explicate order of things that we accept as the natural world and that is studied in laboratories is not the fundamental reality; there is under and behind it an implicate order, a realm of undivided wholeness. This wholeness, like a hologram, is fully present in each of the explicate parts. Reality, according to Bohm, is ultimately 'undivided wholeness in flowing movement'.[23] When we focus on either objective knowing or subjective feeling we temporarily forget the unity that binds them. New Age spirituality seeks to cultivate awareness of this underlying and continually changing unity.

A recent *Christian Century* article on science and religion promulgates such holism with a pantheistic overtone. 'When I am dreaming quantum dreams', writes Barbara Brown Taylor, 'the picture I see is more like a web of relationships—an infinite web, flung across the vastness of space like a luminous net. … God is the web … I want to proclaim that God is the unity—the very energy, the very intelligence, the very elegance and passion that make it all go.'[24]

By adding evolutionary theory to physics and especially to Big Bang cosmology, New Age theorists find themselves constructing a grand story—a myth—regarding the history and future of the cosmos of which we human beings are an integral and conscious part. On the basis of this grand myth, New Age ethics tries to proffer a vision of the future that will guide and motivate action appropriate to solving the ecological problem. Science here provides the background not only for ethical overlap but also for a fundamental religious revelation. Brian Swimme and Thomas Berry put it this way: 'Our new sense of the universe is itself a type of revelatory experience. Presently we are moving beyond any religious expression so far known to the human into a meta-religious age, that seems to be a new comprehensive context for all religions. … The natural world itself is the primary economic reality, the primary educator, the primary governance, the primary technologist, the primary healer, the primary presence of the sacred, the primary moral value.'[25]

Now, I happen to find the ethical vision of the New Age inspiring. But I cannot in good conscience endorse its meta-religious naturalism. I find it contrived and uncompelling.

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[23] 23. David Bohm, *Wholeness and the Implicate Order* (London: Routledge and Kegan Paul, 1980), p. 11. See: Fritjof Capra, *The Tao of Physics* (New York: Bantam, 1977). See: Ted Peters, *The Cosmic Self: A Penetrating Look at Today's New Age Movements* (San Francisco: Harper, 1991), chapter four.

[24] 24. Barbara Brown Taylor, 'Physics and Faith: The Luminous Web', *Christian Century*, 116:17, pp. 612–619 (June 2–9, 1999), p. 619.

[25] 25. Brian Swimme and Thomas Berry, *The Universe Story* (San Francisco: Harper, 1992), p. 255. A variant would be the team work of physicist Joel R. Primack and musician Nancy Ellen Abrams who are trying to construct a myth out of big bang inflationary cosmology and medieval Jewish Kabbalah, not because the myth would be true but because our culture needs a value orienting cosmology. 'In the Beginning … Quantum Cosmology and Kabbalah', Tikkun, 10:1 (January–February 1995), pp. 66–73.

Nearly the same ecological ethic with an even stronger emphasis on social justice can be derived from Christian eschatology.

Returning to the more theoretical tie between science and theology, I earlier recommended hypothetical consonance as the most viable option for the near future. Hypothetical consonance takes us beyond the limits of the two-language theory without initially violating the integrity of either natural science or Christian theology. Where the leading scholars find themselves, to my interpretation, is with one foot in the two-language theory and the other stretched for a stride to go beyond. That stride means we need to step back into an age-old theological concern, namely, the relation of faith to reason.

FAITH AND REASON IN SCIENCE AND THEOLOGY

The key development among those scholars who either strive for consonance or who are at least in partial sympathy with consonance is the attempt to demonstrate overlap between scientific and theological reasoning. Two insights guide the discussion. First, scientific reasoning depends in part on a faith component, on foundational yet unprovable assumptions. Second, theological reasoning should be recast so as to take on a hypothetical character that is subject to testing. What is a matter of some dispute, however, is whether or not theological assertions refer—that is, is theology a form of realism? Do theological statements merely give expression to the faith of a religious community or do they refer to a reality beyond themselves such as God? Theologians are asking to what extent *critical realism* in the philosophy of science should be incorporated into theological methodology.

Langdon Gilkey has long argued the point that science, every bit as much as theology, rests upon faith. Science must appeal to some foundational assumptions regarding the nature of reality and our apprehension of it, assumptions which themselves cannot be proved within the scope of scientific reasoning. In its own disguised fashion, science is religious, mythical. 'The activity of knowing', he writes, 'points beyond itself to a ground of ultimacy which its own forms of discourse cannot usefully thematize, and for which religious symbolization is alone adequate.'[26] Scientific reasoning depends upon the deeply held conviction—the passion of the scientist—that the world is rational and knowable and that truth is worth pursuing. 'This is not "faith" in the strictly religious and certainly not in the Christian sense', he observes. 'But it is a *commitment* in the sense that it is a personal act of acceptance and affirmation of an ultimate in one's life.'[27]

On the scientific side, Paul Davies acknowledges the faith dimension to science in terms of assumptions regarding rationality. Presumed here is a gnostic style connection between the rational structure of the universe and the corresponding spark of rationality in the human mind. That human reasoning is generally reliable constitutes his 'optimistic view'.[28] Yet he acknowledges that the pursuit of scientific knowledge will not eliminate all mystery, because every chain of reasoning will eventually hit its limit and force on us the meta-scientific question of transcendence. 'Sooner or later we all have to accept something as given', he writes, 'whether it is God, or logic, or a set of laws, or some other

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[26] 26. Langdon Gilkey, *Religion and the Scientific Future* (San Francisco: Harper, 1970), p. 41.

[27] 27. Ibid., p. 50.

[28] 28. Paul Davies, *The Mind of God* (New York: Simon and Schuster, 1992), 24; see p. 232.

foundation of existence. Thus "ultimate" questions will always lie beyond the scope of empirical science.'[29]

On the issue of faith at the level of assumption, theologians and scientists, at least philosophers of science, agree. This raises a second related issue: does theology, like science, seek to explain? If so, then theology cannot restrict itself to individual or even communal subjectivity or to authoritarian methods of justification that isolate it from common human reasoning. This is what Philip Clayton argues: 'Theology cannot avoid an appeal to broader canons of rational argumentation and explanatory adequacy.'[30] Clayton proceeds to argue for inter subjective criticizability and to view theology as engaged in transcommunal explanation.

If theology seeks to explain, does it also refer? This is the question of critical realism to which we now turn.

CRITICAL REALISM AND THEOLOGICAL REFERENCE

Wentzel van Huysteen, professor in the first chair in the United States designated for Theology and Natural Science at Princeton, believes that theological statements about God refer to God. He advocates 'critical-theological realism' and a method for justifying theories in systematic theology that parallels what we find in natural science. Justification occurs through progressive illumination offered by a theological theory, not as traditionally done by appeal to ecclesiastical or some other undisputable authority. Van Huyssteen recognizes the relativistic and contextual and metaphorical dimensions of human speech that flood all discourse, theological and scientific alike. Progress toward truth requires constructive thought, the building up of metaphors and models so as to emit growing insight.[31] And, most significantly, theological assertions refer. They refer to God. They are realistic. 'Theology', he writes, 'given both the ultimate religious commitment of the theologian and the metaphoric nature of our religious language, is scientifically committed to a realist point of view. … Our theological theories do indeed refer to a Reality beyond and greater than ours.'[32]

On the one hand, critical realism should be contrasted with nonliteralist methods such as positivism and instrumentalism, because it recognizes that theories represent the real world. On the other hand, critical realism should be contrasted also with 'naive realism', which invokes the correspondence theory of truth to presume a literal correspondence between one's mental picture and the object to which this picture refers. Critical realism, in contrast, is nonliteral while still referential. The indirectness comes from the conscious use of metaphors, models, and theories. Ian Barbour notes that 'Models and theories are abstract symbol systems, which inadequately and selectively represent particular aspects

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[29] 29. Ibid., 15. See Paul Davies, *Are We Alone?* (London and New York: Harper Collins, Basic Books, 1995).

[30] 30. Philip Clayton, *Explanation from Physics to Theology* (New Haven and London: Yale, 1989), p. 13; see Peters, *GOD—The World's Future*, pp. 74–76.

[31] 31. The criterion for evaluating the progressive strength of a theory is fertility, and this constitutes the chief argument on behalf of critical realism for Ernan McMullin, 'A Case for Scientific Realism', in Jarret Leplin, *Scientific Realism* (Berkeley: University of California, 1984), p. 26. See Arthur D. Peacocke, *Intimations of Reality: Critical Realism in Science and Religion* (Notre Dame: University of Notre Dame, 1984).

[32] 32. Wentzel van Huyssteen, *Theology and the Justification of Faith* (Grand Rapids: Eerdmans, 1989), pp. 162–163. 'I advocate a critical realism', writes Ian Barbour, 'holding that both communities [scientific and religious communities] make cognitive claims about realities beyond the human world.' *Religion in an Age of Science*, p. 16.

of the world for specific purposes. This view preserves the scientist's realistic intent while recognizing that models and theories are imaginative human constructs. Models, on this reading, are to be taken seriously but not literally.'[33] Urging the adoption of critical realism by theologians, Arthur Peacocke maintains that 'Critical realism in theology would maintain that theological concepts and models should be regarded as partial and inadequate, but necessary and, indeed, the only ways of referring to the reality that is named as "God" and to God's relation with humanity'.[34]

Not all theological voices chime in with harmony here. Nancey C. Murphy recommends that theologians avoid critical realism on the grounds that it remains modern just when we need to move toward postmodern reasoning. Critical realism remains caught in three restrictive elements of the modern mind: (1) epistemological foundationalism which attempts to provide an indubitable ground for believing; (2) representational thinking with its correspondence theory of truth; and (3) excessive individualism and inadequate attention to the community. The postmodern elements she lifts up for the theological agenda are (1) a non-foundationalist epistemological holism and (2) meaning as use in language philosophy.[35] What counts for Murphy is the progressive nature of a research programme; and this is a sufficient criterion for evaluating theological research regardless of its referentiality.

CONCLUSION: SEEING COSMOS AS CREATION

We in the Christian tradition are used to speaking glibly of the natural world as God's creation. On what basis do we do this? It is not immediately obvious from observing the natural realm that it is the product of a divine hand or the object of divine care. Since the Enlightenment we in the modern scientific world have been assuming that no footprints of the divine can be discerned in the sands of the natural world. Western science assumes that if we study natural processes with the intention of learning the laws by which nature operates, what we will end up with is just a handful of natural laws. If we study natural processes with the intention of wondering about the magnificent mysteries that surround us, we will end up where we started, namely, with an imagination full of spectacular puzzles. If we study nature for her beauty, we will see beauty. If we study nature to see her violence, we will see her as did Tennyson, blood 'red in tooth and claw'. Nature, we have been assuming for a century or so now, does not seem to take the initiative to disclose her ultimate foundation or even her existential meaning. What natural revelation reveals is simply nature, not God. If we want to know more, we have to ask more questions. And we have to go beyond our natural relationship with nature to find the answers.

Christian theologians, seeing the limits to natural revelation in a modern world replete with naturalism, find they need to go to the historical events of the death and resurrection of Jesus Christ, the events that stand at the heart and centre of God's special revelation. Good Friday and Easter do not provide the ritual revelation of God as the world's creator,

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[33] 33. Barbour, *Religion in an Age of Science*, p. 43; see: Ian Barbour, *Myths, Models, and Paradigms* (San Francisco: Harper, 1974), p. 38; and Sallie McFague, *Metaphorical Theology* (Minneapolis: Fortress, 1982), pp. 133–134.

[34] 34. Arthur D. Peacocke, *Theology for a Scientific Age* (Oxford: Basil Blackwell, 1990, and Minneapolis: Fortress, enlarged ed., 1993), p. 14.

[35] 35. Nancey C. Murphy, 'Relating Theology and Science in a Postmodern Age', *CTNS Bulletin*, 7:4 (Autumn 1987), pp. 1–10; see her Templeton Book Prize winning work: *Theology in an Age of Scientific Reasoning* (Ithaca: Cornell, 1990).

of course. But these events do confirm what had already been suspected in ancient Israel, namely, that the creation of the world was the necessary first act in God's continuing drama of salvation. The world in which we live is not merely a conglomeration of natural laws or puzzles; it is not merely the realm of beauty or violence. The cosmos exists because it plays a part in the divine scenario of redemption. It is on the basis of what we know about the God who raised Jesus from the dead that St. Paul can perceive how creation has been 'subjected to futility', that it 'has been groaning in travail', and that God has furthermore 'subjected it in hope' because it 'will be set free from its bondage to decay and obtain the glorious liberty of the children of God' (Rom. 8:18–25).

Special experiences of God reveal special knowledge. We need to know—or at least need to hypothesize—that there is a God with divine intentions before we can see clearly that the world around and in us is in fact a creation. It is primarily on the strength of Israel's experience with the liberating God of the Exodus that the Old Testament writers could depict the world as God's creative handiwork. It is on the strength of our experience with the incarnate Lord that Christians in today's world can say that 'God so loved the world . . .' (John 3:16). The New Testament promise of an eschatological new creation tells us something essential about the present creation. Theologically, it is God's promised kingdom that determines creation, and creation is the promise of the kingdom. Whether we interpret nature through the symbol of the Exodus, the incarnation, the kingdom or some other similar religious symbol, we find that we are dependent upon some form of revelation of God's purposes if we are to put nature into proper theological perspective—that is, if we are to think of nature as a creation.

So, curiously enough, we might consider the possibility of a reversal in natural theology. Traditionally the aim of natural theology has been to ask what our study of nature can contribute to our knowledge of God. But might it work in reverse? Might we ask what our knowledge of God can contribute to our knowledge of nature? To know that God is the creator is to know that the world in which we live and move and have our being is *creation*.

We may not have to choose between the two methods, of course. We could begin with nature and then ask about God; or we could begin with what we think we know about God and then ask how this influences what we think about nature. Or, we could do both. Both should be on the agenda of those working in the field of Theology and Natural Science.

EXTENDED NOTE
(SEE FOOTNOTE 2 ABOVE)

My position here is also a more nuanced lineup compared to the one offered by Ian Barbour in his Gifford Lectures, *Religion in an Age of Science* (San Francisco: Harper, 1990), pp. 3–30, wherein he identifies four ways: conflict, independence, dialogue, and integration. My categories of scientism and church authoritarianism fit his conflict category; and the two-language theory is a model of independence in both schemes. Yet Barbour's notions of dialogue and integration lack the nuance that I believe is operative under the notion of consonance. Consonance involves dialogue, to be sure, but it acknowledges that integration may be only a hope and not an achievement. Also, Barbour thinks of scientific creationism in terms of 'biblical literalism' and thereby places it in the conflict category, overlooking the fact that the creationists think of themselves as sharing a common domain with science; they see themselves in conflict with scientism but not with science itself.

John Haught offers up an alliterative four unit typology: conflict, contrast, contact, and confirmation in his new book, *Science and Religion* (New York: Paulist, 1995). Mark

Richardson offers us a three part typology: (1) integration, typified by the work of Lionel Thornton, William Temple, Austin Farrar, Arthur Peacocke, and John Polkinghorne; (2) romantic, typified by poets Whitman or Wordsworth and by contemporary New Age figures such as Briane Swimme, Thomas Berry, and Matthew Fox; and (3) scientific constraint, wherein one speaks univocally about the natural and transcendent worlds, typified by Paul Davies, Freman Dyson, Stephen Hawking, and Frank Tipler. See: Mark Richardson, 'Research Fellows Report', *CTNS Bulletin*, 14:3 (Summer 1994) pp. 24–25.

Philip Hefner cuts the pie six ways: (1) modern option of translating religious wisdom into scientific concepts; (2) post-modern/new age option of constructing new science based myths; (3) critical post-Enlightenment option of expressing truth at the obscure margin of science; (4) post-modern constructivist option of fashioning a new metaphysics for scientific knowledge; (5) constructivist traditional option of interpreting science in dynamic traditional concepts; and (6) Christian evangelical option of reaffirming the rationality of traditional belief. (Unpublished to date)

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From Modernity to Post-Modernity: Taking Stock at the Turn of the Century

Rolf Hille

Keywords: Hegelianism, knowledge, revelation, history, Pre-modernism, Modernism, Post-modernism, egoism, Humanism, Idealism, freedom, individualism.;

THE INTERPRETATION OF HISTORY AS PROPHETIC GIFT AND WORK

'The task of philosophy is to understand what exists, for that which exists is reason. Concerning the individual, just as each is, as it were, a child of his own times, so also philosophy grasps its time in thoughts.' This is how Hegel, in his *Philosophy of Law* defines the task of philosophy. Philosophy in the Hegelian sense thereby claims that through this analysis reality is taken into consciousness as comprehended reality. In this article, though, we would like to ask whether it is possible or desirable on the part of the theology of history, to carry out the kind of analysis which Hegel attempted in his entire philosophy, viz, to comprehend time in thought and thereby to define it philosophically. This is an incredibly audacious claim to make.