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GAMMADELTA

Forum on our role in the evolutionary process

Foundation Teilhard de Chardin

promoting
'the Convergence of Science and Religion'

Forum on our role in the evolutionary process

The magazine is a continuous online publication of new articles. The magazine welcomes anyone who is willing to contribute ideas about the future of our world. With his evolutionary philosophy Teilhard de Chardin (1881-1955) gave a major impetus to thinking about this future.

Society for promoting the Convergence of Science and Religion

This society consists of a group of people who sympathize with Teilhard's work, but by extension are willing to also present new ideas.

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We welcome contributions to our online magazine, with the proviso that the length of an articles should preferably not exceed 3,000 words. The editors reserve the right to abridge of refuse articles.

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Introduction

On the occasion of the 25th anniversary of our foundation and its magazine GAMMADELTA this month's issue will not only be published in its regular Dutch version, but also in German and English ones. Our magazine's name refers to the point in the evolutionary process where we consider ourselves to be. According to Teilhard de Chardin's evolutionary philosophy evolution is a process evolving toward its final stage that he called the Omega-point. In this final stage we will all be united with the creator in our individuality as persons. Teilhard's starting point is that all particles that came into being from the Alpha-point onward (i.e. at the Big Bang) have a more or less conscious 'within' (French: *le dedans*). From the first moment after the Big Bang the elementary particles that exploded started to attract other particles and bond with them, resulting in an increase in complexity and consciousness on the way to this final stage.

Till 1994 our magazine was called GAMMA. It is our hope that our foundation will soon have a new board, which, in 2019, will publish a magazine bearing the name DELTA, thereby symbolizing the next step on the way to the final stage. In this way, this next step will be made visible in the present developments in science, technology and our ability to achieve cooperation on a global scale and to effect rapprochement between ideologies and religions.
Those interested in serving on this new board can send their written application to our foundation's address. We do hope that among the applicants there will also be young people from a variety of scientific and religious fields. After all, they also have a part to play in shaping the world's future.

By November at the latest there will be a meeting of the old and the new board at which it will be decided how our foundation and our magazine will be able to contribute to this future. We hope that the very content of the articles in this issue will inspire many to send in their application.

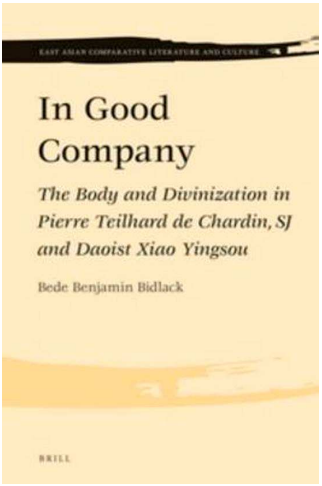
On behalf of the board I thank all of you for your attention.

Joke Even,
secretary

Content:

Teilhard de Chardin in China: Challenge and Promise

Bede Benjamin Bidlack [1]



Pierre Teilhard de Chardin was a Jesuit, geologist and theologian, who spent the years 1923-1946 in China.[2] His letters, journal entries, and one of his most well known books, *The Human Phenomenon*, express his interest in Eastern religions in general and Chinese religion in particular.[3] But what did he know about Chinese religion? Did his twenty-year's activity in that land provide him with a particular understanding of Chinese people and their culture? Does this Jesuit offer any inspiration for a Christian's relationship to other religions? The answers provide both a challenge and a promise.

Teilhard and Chinese Religion

In his lifetime, Teilhard was most known for his contributions to geology and paleontology. Of his many expeditions and responsibilities in China, what put him in the scientific spotlight was his role in discovering Peking Man, the remains of a human who lived about 400,000 years ago. Perhaps his most extreme undertaking, however, was the 'Yellow Expedition' in which he served as the geologist on a research team that travelled across the

[1] The author is a doctoral candidate at the ‘ Theology Department Boston College, We took this article from: *CHINA HERITAGE QUARTERLY* - China Heritage Project, The Australian National University ISSN 1833-8461, No. 23, September 2010. He thanks Ursula King and Catherine Cornille for their comments on earlier versions of this paper, and to editorial revisions suggested by China Heritage Quarterly.

[2] These were not continuous years, but included numerous trips out of the country including Africa, India, Java, and Burma.

[3] I use 'Chinese religion' in the singular, because the three great traditions found in China — Confucianism, Daoism, and Buddhism — have been intentionally integrated without losing their distinguishing characteristics since the Song Dynasty (960-1280).

Gobi Desert in 1931 and into 1932. They worked partly to re-discover the Silk Road and partly — if not the greater part — to test the vehicles provided to them by Citroën, the French car manufacturer.[4] These and other achievements earned him the esteem of the scientific community. In 1937, he was awarded the Gregor Mendel Medal in Philadelphia for his scientific achieve-ments. He was asked to stand as chair at the prestigious Collège de France, a position that he was prohibited by his superiors from accepting.

In addition to his field studies, Teilhard also composed his great theological work — *The Human Phenomenon* — during his confine-ment to the European zone of Beiping (as Beijing was then known) during the Japanese occupation. His life was so restricted compared to his research adventures during those years that he referred to his campus as his 'monastery': 'I am still in my monastery, to the north of Fujen'[5]. *The Human Phenomenon* was written for his scientific colleagues in order to introduce them to his theological speculation, which itself was born out of his interests in evolution.

Fig.1 Pierre Teilhard de Chardin (centre) in China

[4] The official name of the expedition was, in fact, 'Citroën Centre-Asie Expedition.' I thank Ursula King for pointing this out to me.

[5] Teilhard de Chardin, Pierre, SJ, *Letters from a Traveller*, translated by René Hague, New York/Evanston: Harper & Row Publishers, 1962, p.258. Letter dated 16 February 1940.

In the book, he presents a cosmogony that begins with an infinite dispersal that — over billions of years — comes together to create the universe. Next he takes his readers from the present and launches them into the future where — based on the evidence of the past — the cosmos further converges towards a singular point, Christ, whom he simply names Omega, out of deference for his intended scientific audience.

Along with geology and Christian theology, he was also very much interested in 'Eastern religions', which for him included Hinduism, Buddhism, Confucianism and Daoism.[6] However, in 'The Spiritual Contribution of the Far East' he admitted that he really had no command of these traditions. [7][6] In this 1947 essay he reveals the long intellectual trek that he had made from his early, negative impressions of Eastern religions to his later appreciation of them. Nonetheless, his early judgments on Eastern belief systems appear scandalous to the modern reader. Take for example a note from a letter written upon his early arrival in China in October 1923:

> Nowhere, among the men I met or heard about, have I discerned the smallest seed whose growth will benefit the future of mankind. Throughout my whole journey I have found nothing but absence of thought, senile thought, or infantile thought. A missionary from Tibet returning from Koko-Nor on the Himalayan border, assured me that out there there still survived, to his knowledge, two or three solitaries who nourish their interior life by contemplating the cosmic cycles and the eternal re-birth of Buddha. But a chance passer-by like myself is not in a position to recognize these infrequent heirs of a venerable tradition of thought whose fruit is reserved for some new season.[8]

[6] The historian of Teilhard can include Islam, which he encountered partly in Egypt but mostly through his friend Louis Massingnon and other scholars of religion with whom he was familiar.
[7] Teilhard de Chardin, Pierre, SJ, *Toward the Future*, translated by René Hague, New York: Harcourt Brace Jovanovich, 1975, p.134.
[8] *Letters from a Traveller*, p.100.

Setting aside his dismissal of the Chinese, the contemporary Sinologist may cringe at his very use of 'the East', a notion rightly criticized by Edward Said many years ago.[9] Similarly, he takes his (mistaken) understanding of Buddhism as representative of the religions of the East: 'The great appeal of Eastern religions (let us, to put a name to them, say Buddhism) is that they are supremely universalist and cosmic'.[10] Buddhism is a radical split from Hinduism, and the staunch sinologist will state that Confucianism and Daoism are the two religions of China, while Chinese Buddhism is a foreign import stamped with the Chinese seal. From the point of view of the contemporary understanding of China and of the religions of the world, to criticize Teilhard is easy, but not particularly fruitful. To discover Teilhard's contributions to how we think of the interaction of religions, one must look at Teilhard's thought as a whole, and not expect too much from direct study of his inter-religious reflections. Considering his situation and that of China at the beginning of the twentieth century, one can find his limitations understandable.

Teilhard arrived only twelve years after the 1912 dawn of the Republic of China. The new Republic wanted to replace the 'superstitions' of the past with the analytic precision of modern, western thought. Religion itself was shunned in the China Teilhard knew, so he would have had to take great measures to go out and discover Chinese religion. Furthermore, he lacked the intellectual tools to do so. He had no knowledge of Chinese — either spoken or literary — nor did he have an understanding of the methods used in anthropology for engaging another culture. He had little motivation to change this situation, because his primary interest was scientific, which focused his activities to that end. His orientation in China upon his arrival in 1923 was comparable to that of his time in Cairo years earlier:

> This was the East, I caught glimpses of it, and drank it in avidly, with no concern for its peoples and their histo-

[9] Edward W. Said, *Orientalism*, New York: Pantheon Books, 1978.
[10] Teilhard de Chardin, Pierre, SJ, *Christianity and Evolution*, translated by René Hague, New York: Harcourt Brace Jovanovich, 1971, pp.121-122.

> ry…but under the attraction of its light, its vegetation, its fauna and its deserts.[11]

Accordingly, his scientific colleagues comprised his small circle of Chinese conversation partners. Such men could be secondarily labeled Confucian, in the sense that to be Chinese was to be culturally Confucian. However, this Confucianism isn't especially religious. Religious aspects of the Confucian life are only now being rediscovered by New Confucians, like Tu Weiming or his student John Berthrong.[12] Instead, his Chinese interlocutors included men like Weng Wenhao, who was educated in the Belgium at the University of Louvain, or Yang Zhongjian who studied in Munich.[13] These friendships were warm and long lasting. One of the giants Teilhard worked with was V.K. Ting (Ding Wenjiang), who was appointed director of the esteemed Academia Sinica. A scholar of Ting's distinction had his finger on the pulse of the intellectual life in the Republic of China. Teilhard wrote of a conversation they had in 1924:

> Ting is a very intelligent man, in constant touch with all the 'leaders' of young China, and I had a really interesting conversation with him about the intellectual state of modern China. We came to the following conclusions: at present there is nothing that can properly be called Chinese thought. Their philosophical traditions have been broken, and they are still too much under the influence of western teachers. In the end, however, they will 'find their own feet' again. From the religious angle they need, as every man needs, something to 'justify (sic) life', but at the present moment they are going through a reaction against a religions that has been found wanting — rather like France in the eighteenth century.[14]

Without a knowledge of Chinese, Teilhard was restricted to his immediate colleagues, the scientific elite, with regards to his contact

[11] Teilhard de Chardin, Pierre, SJ, *The Heart of Matter*, translated by René Hague, 1st Harvest/HBJ ed., New York: Harcourt Brace Jovanovich, p.23.
[12] However, the New Confucian movement began about the time Teilhard arrived in China.
[13] Claude Cuénot, *Teilhard De Chardin: A Biographical Study*, translated by Vincent Colimore, edited by René Hague, Baltimore: Helicon, 1965, pp.168-69.
[14] Letters from a Traveller, pp.108-9.

with and understanding of the religious life in China. These were western-educated scientists who did not even consider Chinese religion themselves, much less have an insider's view of the subject. They viewed religion as part of China's past, and they were creating a new future based on reason, upon which they could firmly 'find their own feet'.

Intellectuals like Wong, Young, and Ting were thinkers of their time. So was Teilhard. To be critical of his approach to Chinese religion, one must remember how recent the academic study of religion is even now. The secular study of religion began in the late-nineteenth century on the coattails of colonialism. And no one, not even the Chinese, had seriously studied Daoism. The first scholar to crack a Daoist text was the historian and philosopher, Liu Shipei in 1911. In the west, Henri Maspero (1883-1945) continued the work of a few French Sinologists, but the momentum behind the scholarly study of Daoism comes decades later with scholars like Kristofer Schipper in Europe and Livia Kohn in the United States. In other words, Teilhard did not know much about Daoism, but neither did any other western scholar in the early twentieth century.[15]

A Theology of Religions

Nonetheless, Teilhard's knowledge of Eastern religions should not be dismissed entirely. He did learn and contribute to western thought upon Eastern religions in his later years. During his five-year residence in Paris (1946-1951), he had the opportunity to continue his correspondence and conversations with specialists in Asian Studies,

[15] I make the same point with regards to Thomas Merton: 'Merton's Way of Zhuangzi', in Merton and Taoism: Dialogues with John Wu and the Ancient Sages, Louisville, KY: Fons Vitae, forthcoming, northern autumn 2010. A few Japanese scholars also began looking at the Daoist influence on Buddhism, but the interest followed the work of Liu. See T.H. Barrett, 'Daoism: History of the Study', in Encyclopedia of Religion, Lindsay Jones, ed., New York: Macmillan, 2005, pp.2212-16. For studies of the unintended confluence of Teilhard's thought with Daoism, see my 'In Good Company: The Body and Divinization in the thought of Teilhard de Chardin and Daoist Alchemy', PhD diss., Boston College, forthcoming 2011; Baudry, Gèrard-Henry, Teilhard De Chardin Et L'appel De L'orient: La Convergence Des Religions, Saint-Etienne: Aubin, 2005; Bergeron, Maria-Ina, La Chine Et Teilhard, Paris: Aubin, 2003; Stikker, Allerd. 1986. Tao, Teilhard En Westers Denken, Amsterdam: Bres, 1986, later published in an abridged, English version as The Transformation Factor: Towards an Ecological Consciousness, Rockport, MA: Element Books, 1992.

such as Solange Lemâitre, Louis Massignon and the historian René Grousset, as well as spending time contemplating the Asian collection at the Musée Guimet. Notes in his diary include comments on Buddhism and Daoism from one of Grousset's books. And Grousset himself read Teilhard's 1947 essay to the French branch of the World Congress of Faiths, an essay Louis Massignon would call 'an outstanding text'.[16] Given his time in China, his (albeit incidental) encounter with Daoist temples, and his later study of the Asia, one may surmise that Teilhard had some grasp of Chinese religion. Although his limitations are widely acknowledged, he eventually developed an understanding of Eastern thought that was sufficient for him to write 'The Spiritual Contribution of the Far East' where he envisions the future confluence of the religious insights of East and West.[17]

This mystical bent, along with the fact that Teilhard was not a specialist in Eastern traditions albeit with some skill in the topic, is presented in Ursula King's *Towards a New Mysticism*.[18] This book remains the most thorough exploration of Teilhard's reflection upon Eastern religions, and on Teilhard's theology of religions in English. Even though one can identify a theology of religions in Teilhard's work, as a theological discipline of study, this area of research only began after his time. Theology of religions seeks to understand the meaning of one tradition upon another. Although it is theoretically not restricted to Christianity, in practice the theology of religions has been driven largely by Christian interests. As such, it pursues an inquiry into how other traditions fit into the narrative of the salvific birth, death and resurrection of Jesus Christ.[19]

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[16] Ursula King, *Towards a New Mysticism: Teilhard de Chardin and Eastern Religions*, London: Collins, 1980, pp.90-94.

[17] *Toward the Future*, pp.134-147.

[18] A revised edition of *Towards a New Mysticism* will appear under the title *Teilhard de Chardin and Eastern Religions: Spirituality and Mysticism in an Evolutionary World*, Mahwah, NJ: Paulist Press, forthcoming 2011. See also King's 1995 paper, *'Teilhard's Reflections on Eastern Religions Revisited'*, Zygon 30 (1): 47-72.

[19] A highly praised introduction to this growing field is Paul Knitter's *Introducing the Theology of Religions*, Maryknoll, NY: Orbis, 2002.

The person only casually acquainted with Teilhard may come to the conclusion that he viewed all religions merging into Christia-nity.[20] More precisely, he saw the religions merging into Christ, or Christ Omega, who is beyond Christianity as it is normally under-stood. As King notes:

> It was (in the context of the Church as an axis of development) that he first spoke of 'a general convergence of religions upon a universal Christ who fundamentally satisfies them all: that seems to me the only possible conversion of the world, and the only form in which a religion of the future can be conceived.'[21] However, it would be wrong to conclude from this that Christianity is the fulfill-ment of the world religions. Teilhard's symbol of the 'uni-versal Christ' is by no means identical with Christianity but far transcends its limits.[22]

I will conclude this essay by proposing a theology of religions influenced by this convergent view propounded by Teilhard, while also building upon another theme of his — what he terms 'union differentiates' — as I believe it holds the key to a theology of diversity without slipping into insipid relativism on the one hand, or narrow fundamentalism on the other.

Union Differentiates: A 'New' Theology of Religions

'Union differentiates' is a theme that runs through the evolutionary work of Teilhard de Chardin, but best expressed in *The Human Phenomenon*. Briefly, 'union differentiates' is the notion that all things join to become more complex structures. In doing so, each part does not lose its identity in the new structure but becomes most

[20] Christian theology of religions is usually presented in a tripartite nomenclature of 'exclusivist/replacement', 'inclusivist/fulfillment', 'pluralist/acceptance.' An exclusivist denies any salvific possibilities outside of Christianity; an inclusivist believes that there is truth in other religions, but that those religions truly seek salvation through Christ; the pluralist states that other traditions are salvific by virtue of the faith and practices within that tradition. Today, however, theologies of religions are more sophisticated and refuse easy placement within these broad categories. Therefore, I try to avoid using these terms.

[21] *Christianity and Evolution*, p.131.

[22] *Towards a New Mysticism*, p.162.

truly itself by contributing beyond itself within the structure. The union happens because the individuals are different, not despite of their differences. The theory applies to everything in the universe: 'Whatever the domain — whether it be the cells of the body, the members of society, or the elements of a spiritual synthesis — "union differentiates".[23]

In *The Human Phenomenon*, Teilhard looks backward in cosmic time. He noticed that the initial particles of the universe did not remain infinitely multiple, but that they slowly came together. A simple electron and nucleus became the first Helium atom; other subatomic particles joined to form new elements. Furthermore, these atoms did not continuously bounce off each other, but joined to form molecules that became more complex, and so on, in a process that continues today. The important thing here is that for an atom to be an atom — to take an example — the subatomic particles must remain subatomic particles, and these must be different from each other. They converge and come to their fulfillment by joining in the greater thing — the atom — but they can only do so by virtue of their difference. The atom is a simple example, but this holds true for the components of the material universe, life, complex beings, societies, and even religions. The energy driving this cosmic wave of convergence is Christ of 'the Ahead.' This Christ is the future and not simply the Jesus of Nazareth of the past, or one limited to His Church. This is the Universal Christ, Christ Omega.

Of what value are these reflections to theology of religions? Teilhard's theory is one that requires differences across religions. Similarly, S. Mark Heim in his 1995 Salvations formulates a theology of religions that finds differences in religious traditions to be good. Instead of assuming that only one religious fulfillment is possible and discussing the possibilities of religions reaching that fulfillment (or not), he turns the discussion around and postulates multiple religious ends. In other words, instead of taking Christian Heaven as the only religious end — even for, say, a Confucian or Daoist — he

[23] Teilhard de Chardin, *The Human Phenomenon*, translated by Sarah Appleton-Weber, Brighton/Portland: Sussex Academic Press, 2003, p.186.

postulates that Confucians and Daoists will enjoy their own religious fulfillments. Furthermore, they can only reach their distinguished fulfillments if they adhere to their religious commitments. By viewing religions in this way, says Heim, we can appreciate religious differences as values and not liabilities in interreligious discussions, because we are not trying to make a Daoist fit into a Christian salvation.[24]

Applying this to Teilhard's 'union differentiates': the only way religions will enjoy any kind of ultimate fulfillment is if they remain true to what makes them different from each other. Religions have only been around for thousands of years; cosmically speaking, they are new. What is needed now is a continued appreciation and development of those theologies unique to each tradition. Ultimate union in Christ Omega remains far ahead in the future. Fourteen and a half billion years was needed for the disparate particles of the cosmos to converge into the universe we know today. Such a span of time requires a rich imagination to appreciate how long that is. Just so, the future in Omega lies in a mysterious distance.

The answer to interreligious challenges today is a faith in the future. Exercising that faith means growing in one's own religious tradition. Fulfillment in Christ will only happen if members of each tradition are true to their religious commitments and develop their traditions from within. Precisely how that will happen and what this convergence will look like will appear surprising and unexpected from our present point of view. If one religion absorbs another, then all of the religions will suffer for it. Teilhard gives the example of white light:

> Like the countless shades that combine in nature to produce a single white light, so the infinite modalities of action are fused, without being confused, the one single color under the mighty power of the universal Christ.[25]

[24] In *The Depth of the Riches, his sequel to Salvations*, Heim explores whether his theory is cogent for Christian theology. Ultimately, all religions relate in difference within a singular Reality, as the Persons of the Trinity are Three in One. See S. Mark Heim, *Salvations: Truth and Difference in Religions*, Maryknoll, NY: Orbis, 1995; and, *The Depth of the Riches: A Trinitarian Theology of Religious Ends*, Grand Rapids, MI: Eerdmans, 2001.

[25] Teilhard de Chardin, Pierre, SJ, *Science and Christ*, translated by René Hague, New York/Evanston: Harper & Row, pp.170-171.

Only if every shade is present will light appear, should one shade be lost to another, then no white light will shine.

My proposal is not to call for a prohibition on interreligious learning, but a challenge to have modest goals when considering other religions.[26] Rich theological speculation at its best can only tole-rate learning of one's own tradition and one other. And learning from another tradition complements the experience and understan-ding of one's home tradition.[27] The theology of religions I sug-gest, in fact, encourages learning across religious boundaries, while at the same time discourages facile syncretism.

Challenge and Promise

In this essay I have described the context of Teilhard de Chardin's time in China. Following this I proposed a theology of religions that Teilhard never explicitly formulated himself, but one that builds upon his theme of 'union differentiates'. By so doing, I read in Teilhard a challenge and a promise. A study of Teilhard's religious speculations, especially in regard to Chinese religion, challenges scholars not to judge religions from a distance. Deep understanding of and learning about another religious tradition can result through bibliographic study, but the texts one reads should be primary sources from that tradition, preferably in the original language.[28] Secondary sources from outside the tradition should only serve to give the reader some tools for understanding the primary sources. In addition, reading should be supplemented with interreligious dialogue with members from within the tradition being studied. Teilhard's speculation on Chinese religion was too broad, dependent upon western sources, and devoid of religious insiders.

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[26] Nor does it require an end to Christian mission. On the contrary spreading the Gospel is part of being Christian. Christians must not reduce evangelism's success to baptism.

[27] Francis X. Clooney, SJ, makes this point in his many works. See, for example, *Comparative Theology: Deep Learning across Religious Borders*, Malden, MA: Wiley-Blackwell, 2010.

[28] As scripture scholar, Joseph Jensen, OSB, says: 'A translation is something you can understand with the help of the original' (personal communication).

The promise of Teilhard de Chardin's approach, however, is that convergence of religions lies far ahead in the future and is beyond the religious institutions that we know today. The way to arrive at this future is to lay aside interreligious competition in favor of interreligious dialogue that appreciates difference, while at the same time, studying one's own tradition and growing there from. Naturally, we may be attracted by resemblances between religions, but honoring difference means refusing hasty judgments that mistake similarities for sameness or difference for deficiencies. What is required of us is a faith in the future and a great deal of patience.

Cover of the book, published at The Teilhard de Chardin Centenary Exhibition, London Westminster Abbey June 16 – July 30, 1983 – Chapter House, and Edinburgh, New College Martin Hall, August 16- September 10, 1983

Scientific Proof of the Existence of God – Has physics found a way to demonstrate that consciousness creates the material world?

An interview with Amit Goswami

by Craig Hamilton

Before you read any further, stop and close your eyes for a moment. Then open them and consider the following question: For the moment your eyes were closed, did the world still exist even though you weren't conscious of it? How do you know? If this sounds like the kind of unanswerable brainteaser your Philosophy 101 professor used to employ to stretch your philosophical imagination, you might be surprised to discover that there are actually physicists at reputable universities who believe they have answered this question—and their answer, believe it or not, is no.

Now consider something even more intriguing. Imagine the entire history of the universe. According to all the data that scientists have been able to gather, it exploded into existence some fifteen billion years ago, setting the stage for a cosmic dance of energy and light that continues to this day. Now imagine the history of planet earth. An amorphous cloud of dust emerging out of that primordial fireball, it slowly coalesced into a solid orb, found its way into gravitational orbit around the sun, and through a complex interaction of light and gases over billions of years, generated an atmosphere and a biosphere capable of not only giving birth to but sustaining and proliferating life.

Now imagine that none of the above ever happened. Consider instead the possibility that the entire story only existed as an abstract potential — a cosmic dream among countless other cosmic dreams — until, in that dream, life somehow evolved to the point that a conscious, sentient being came into existence. At that moment, solely because of the conscious observation of that individual, the entire universe, including all of the history leading up to that point, suddenly came into being. Until that moment, nothing had actually ever happened. In that moment, fifteen billion years happened. If

this sounds like nothing more than a complicated backdrop for a science fiction story or a secular version of one of the world's great creation myths, hold on to your hat. According to physicist Amit Goswami, the above description is a scientifically viable explanation of how the universe came into being.

Goswami is convinced, along with a number of others who subscribe to the same view, that the universe, in order to exist, requires a conscious sentient being to be aware of it. Without an observer, he claims, it only exists as a possibility. And, as they say in the world of science, Goswami has done his math. Marshalling evidence from recent research in cognitive psychology, biology, parapsychology, and quantum physics, and leaning heavily on the ancient mystical traditions of the world, Goswami is building a case for a new paradigm that he calls "monistic idealism," the view that consciousness, not matter, is the foundation of everything that is.

A professor of physics at the University of Oregon and a member of its Institute of Theoretical Science, Dr. Goswami is part of a growing body of renegade scientists who, in recent years, have ventured into the domain of the spiritual in an attempt both to interpret the seemingly inexplicable findings of their experiments and to validate their intuitions about the existence of another dimension of life. The essence of Goswami's theory is presented in his book *The Self-Aware Universe: How Consciousness Creates the Material World* (1995). Rooted in an interpretation of the experimental data of quantum physics (the physics of elementary particles), he weaves together myriad theories and findings in fields from artificial intelligence to astronomy to Hindu mysticism in an attempt to show that the discoveries of modern science are in perfect accord with the deepest mystical truths. Quantum physics, as well as a number of other modern sciences, he feels, is demonstrating that the essential unity underlying all of reality is a fact that can be experimentally verified. He asserts that because science is now capable of validating mysticism, much that previously required a leap of faith can now be empirically proven, and hence the materialist paradigm that has dominated scientific and philosophical thought for over two hundred years can finally be called into question. By attempting to bring

material realism to its knees and to integrate all fields of knowledge in a single unified paradigm, Goswami hopes to pave the way for a new holistic worldview in which spirit is put first.

Yet for all the important and valuable work Goswami and others are doing to reconcile the long-divorced domains of science and spirituality, thinkers such as Huston Smith and E. F. Schumacher have pointed to what they feel is an arrogance, or at least a kind of naïveté, on the part of scientists who believe that they can expand the reach of their discipline to somehow include or explain the spiritual dimension of life. These critics suggest that the very attempt to scientifically validate the spiritual is itself a product of the same materialistic impulses it intends to uproot. Because of this, they claim, such efforts are ultimately only capable of reducing spirit, God, and the transcendent to mere objects of scientific fascination.

Is science capable of proving the reality of the transcendent dimension of life? Or would science better serve the spiritual potential of the human race by acknowledging the inherent limits of its domain? The following interview confronts us with these questions.

WIE: In your book The Self-Aware Universe, you speak about the need for a paradigm shift. Could you talk a bit about how you conceive of that shift? From what to what?

AMIL GOSWAMI: The current worldview has it that everything is made of matter, and everything can be reduced to the elementary particles of matter, the basic constituents — building blocks — of matter. And cause arises from the interactions of these basic building blocks or elementary particles; elementary particles make atoms, atoms make molecules, molecules make cells, and cells make brain. But all the way, the ultimate cause is always the interactions between the elementary particles. This is the belief — all cause moves from the elementary particles. This is what we call "upward causation". So in this view, what human beings — you and I — think of as our free will does not really exist. It is only an epiphenomenon or secondary phenomenon, secondary to the causal power

of matter. And any causal power that we seem to be able to exert on matter is just an illusion. This is the current paradigm.

Now, the opposite view is that everything starts with consciousness. That is, consciousness is the ground of all being. In this view, consciousness imposes "downward causation". In other words, our free will is real. When we act in the world, we really are acting with causal power. This view does not deny that matter also has causal potency — it does not deny that there is causal power from elementary particles upward, so there is upward causation — but it insists that there is also downward causation. It shows up in our creativity and acts of free will, or when we make moral decisions. On those occasions, we are actually witnessing downward causation by consciousness.

WIE: In your book, you refer to this new paradigm as "monistic idealism". And you also suggest that science seems to be verifying the truth of oneness that mystics have described throughout history — that science's current findings seem to be parallel to the essence of the perennial spiritual teaching.

AG: It is the spiritual teaching. It is not just parallel. The idea that consciousness is the ground of being is the basis of all spiritual traditions. In the West, there is a philosophy called "idealism" that is opposed to the philosophy of "material realism," which holds that only matter is real. Idealism says no, consciousness is the only real thing. But in the West, that kind of idealism has usually meant something that is really dualism — that is, consciousness and matter are separate. I don't mean that dualistic kind of Western idealism, but really a monistic idealism, which has existed in the West, but only in the esoteric spiritual traditions. Whereas in the East, this is the mainstream philosophy. In Buddhism, or in Hinduism where it is called Vedanta, or in Taoism, this is the philosophy of everyone. But in the West this is a very esoteric tradition, only known and adhered to by very astute philosophers, the people who have really delved deeply into the nature of reality.

WIE: So you are saying that modern science, from a completely different angle — not assuming anything about the existence of a spiritual dimension of life — has somehow come back around and is finding itself in agreement with that view as a result of its own discoveries?

AG: That's right. And this is not entirely unexpected. Starting from the beginning of quantum physics, which began in the year 1900 and then became full-fledged in 1925 when the equations of quantum mechanics were discovered, there have been indications that our worldview might change. Staunch materialist physicists have loved to compare the classical worldview and the quantum worldview. Of course, they wouldn't go so far as to abandon the idea that there is only upward causation and that matter is supreme, but the fact remains that they saw in quantum physics some great paradigm-changing potential. And then in 1982, results started coming in from laboratory experiments in physics. That is the year when, in France, Alain Aspect and his collaborators performed the great experiment that conclusively established the veracity of the spiritual notions, and particularly the notion of transcendence. Should I go into a little bit of detail about Aspect's experiment?

WIE: Yes, please do.

AG: To give a little background, what had been happening was that for many years quantum physics had been giving indications that there are levels of reality other than the material level. How it started happening first was that quantum objects — objects in quantum physics — began to be looked upon as waves of possibility. Now, initially people thought, "Oh, they are just like regular waves". But very soon it was found out that, no, they are not waves in space and time. They cannot be called waves in space and time at all — they have properties that do not jibe with those of ordinary waves. So they began to be recognized as waves in potential, waves of possibility, and the potential was recognized as transcendent, beyond matter somehow.

But the fact that there is transcendent potential was not very clear for a long time. Then Aspect's experiment verified that this is not just theory; there really is transcendent potential, objects really do have connections outside of space and time! What happens in this experiment is that an atom emits two quanta of light, called photons, going opposite ways, and somehow, these photons affect one another's behavior at a distance, without exchanging any signals through space. Notice that: without exchanging any signals through space but instantly affecting each other. Instantaneously.

Now Einstein showed long ago that two objects can never affect each other instantly in space and time because everything must travel with a maximum speed limit, and that speed limit is the speed of light. So any influence must travel, if it travels through space, taking a finite time. This is called the idea of "locality." Every signal is supposed to be local in the sense that it must take a finite time to travel through space. And yet, the photons emitted by the atom in Aspect's experiment influence one another at a distance, without exchanging signals, because they are doing it instantaneously — they are doing it faster than the speed of light. And therefore, it follows that the influence could not have traveled through space. Instead, the influence must belong to a domain of reality that we must recognize as the transcendent domain of reality.

WIE: That's fascinating. Would most physicists agree with that interpretation of his experiment?

AG: Well, physicists must agree with this interpretation of his experiment. Many times, of course, physicists will take the following point of view: they will say, "Well, yeah sure, experiments. But this relationship between particles really isn't important. We mustn't look into any of the consequences of this transcendent domain — if it can even be interpreted that way". In other words, they try to minimize the impact of this and still try to hold on to the idea that matter is supreme.

But in their hearts they know, as is very evident. In 1984 or '85, at the American Physical Society meeting at which I was present, one

physicist was heard saying to another physicist that after Aspect's experiment, anyone who does not believe that something is really strange about the world must have rocks in his head.

WIE: So what you are saying is that from your point of view, which a number of others share, it is somehow obvious that one would have to bring in the idea of a transcendent dimension to really understand this.

AG: Yes, it is. Henry Stapp, who is a physicist at the University of California at Berkeley, says this quite explicitly in one of his papers written in 1977 — that things outside of space and time affect things inside space and time. There's just no question that that happens in the realm of quantum physics when you are dealing with quantum objects. Now of course, the surprising thing is that we are always dealing with quantum objects because it turns out that quantum physics is the physics of every object. Whether it's submicroscopic or it's macroscopic, quantum physics is the only physics we've got. So although it's more apparent for photons, for electrons, for the submicroscopic objects, our belief is that all manifest reality, all matter, is governed by the same laws. And if that is so, then this experiment is telling us that we should change our worldview because we, too, are quantum objects.

WIE: These are fascinating discoveries that have inspired a lot of people. A number of books have already attempted to make the link between physics and mysticism. Fritjof Capra's *The Tao of Physics* and Gary Zukav's *The Dancing Wu Li Masters* have both reached many, many people. In your book, though, you mention that there was something that you felt had not yet been covered, that you feel is your unique contribution to all of this. Could you say something about what you are doing that is different from what has been done before in this area?

AG: I'm glad that you asked that question. This should be clarified, and I will try to explicate it as clearly as I can. The early work, like *The Tao of Physics*, has been very important for the history of science. However, these early works, in spite of supporting the

spiritual aspect of human beings, all basically held on to the material view of the world. In other words, they did not challenge the material realists' view that everything is made up of matter. That view was never put to any challenge by any of these early books. In fact, my book was the first one that challenged it squarely, and that was still based on a rigorous explication in scientific terms. In other words, the idea that consciousness is the ground of being, of course, has existed in psychology as transpersonal psychology, but outside of transpersonal psychology, no tradition of science or scientist has seen it so clearly.

It was my good fortune to recognize that all the paradoxes of quantum physics can be solved if we accept consciousness as the ground of being. So that was my unique contribution, and of course, this has paradigm-shifting potential because now we can truly integrate science and spirituality. In other words, with Capra and Zukav — although their books are very good — because they held on to a fundamentally materialist paradigm, the paradigm is not shifting, nor is there any real reconciliation between spirituality and science. Although these books acknowledge our spirituality, the spirituality is ultimately coming from some sort of material interaction.

But that's not the spirituality that Jesus talked about. That's not the spirituality where a mystic recognizes and says, "I now know what reality is like, and this takes away all the unhappiness that one ever had. This is infinite, this is joy, this is consciousness". This kind of exuberant statement could not be made on the basis of epiphenomenal consciousness. It can be made only when one recognizes the ground of being itself, when one cognizes directly that One is All.

As long as science remains on the basis of the materialist worldview, however much you try to accommodate spiritual experiences in terms of parallels or in terms of chemicals in the brain, you are not really giving up the old paradigm. You are giving up the old paradigm and fully reconciling it with spirituality only when you establish science on the basis of the fundamental spiritual notion that consciousness is the ground of all being. That is what I have done in

my book, and that is the beginning. But already there are some other books that are recognizing this, too.

WIE: So there are people corroborating your ideas?

AG: There are people who are now coming out and recognizing the same thing, that this view is the correct way to explain quantum physics and also to develop science in the future. In other words, the present science not only has shown quantum paradoxes but also has shown real incompetence in explaining paradoxical and anomalous phenomena, such as in parapsychology, the paranormal — even creativity. And even traditional subjects, like perception or biological evolution, have much to explain that these materialist theories don't explain.

However, if we do science on the basis of the primacy of consciousness, then we can see real creativity of consciousness. We can truly see that consciousness is operating creatively even in biology, even in the evolution of species.

WIE: This brings to mind the subtitle of your book, *How Consciousness Creates the Material World.* This is obviously quite a radical idea. Could you explain a bit more concretely how this actually happens in your opinion?

AG: Actually, it's the easiest thing to explain because in quantum physics, as I said earlier, objects are not seen as definite things, as we are used to seeing them. Newton taught us that objects are definite things: they can be seen all the time, moving in definite trajectories. Quantum physics doesn't depict objects that way at all. In quantum physics, objects are seen as possibilities, possibility waves. Right? So then the question arises: What converts possibility into actuality? Because when we look, we only see actual events. That's starting with us. When you see a chair, you see an actual chair; you don't see a possible chair.

WIE: Right — I hope so.

AG: We all hope so. Now this is called the "quantum measurement paradox". It is a paradox because who are we to do this conversion? Because after all, in the materialist paradigm, we don't have any causal efficacy. We are nothing but the brain, which is made up of atoms and elementary particles. So how can a brain, which is made up of atoms and elementary particles, convert a possibility wave that it itself is? It itself is made up of the possibility waves of atoms and elementary particles, so it cannot convert its own possibility wave into actuality. This is called a paradox. Now in the new view, consciousness is the ground of being. So who converts possibility into actuality? Consciousness does, because consciousness does not obey quantum physics. Consciousness is not made of material. Consciousness is transcendent. Do you see the paradigm-changing view right here — how consciousness can be said to create the material world? The material world of quantum physics is just possibility. It is consciousness, through the conversion of possibility into actuality, that creates what we see manifest. In other words, consciousness creates the manifest world.

WIE: To be honest, when I first saw the subtitle of your book, I assumed you were speaking metaphorically. But after reading the book and speaking with you about it now, I am definitely getting the sense that you mean it much more literally than I had thought. One thing in your book that really stopped me in my tracks was your statement that, according to your interpretation, the entire physical universe only existed in a realm of countless evolving possibilities until at one point, the possibility of a conscious, sentient being arose, and at that point, instantaneously, the entire known universe came into being, including the fifteen billion years of history leading up to that moment. Do you really mean that?

AG: I mean that literally. This is what quantum physics demands. In fact, in quantum physics this is called "delayed choice". And I have added to this concept the concept of "self-reference", Actually the concept of delayed choice is very old. It comes from a very famous physicist named John Wheeler, but Wheeler did not see the entire thing correctly, in my opinion. He left out self-reference. The question always arises: The universe is supposed to have existed for

fifteen billion years, so if it takes consciousness to convert possibility into actuality, then how could the universe be around for so long? Because there was no consciousness, no sentient, biological, carbon-based being in that primordial fireball, the big bang, that is supposed to have created the universe. But this other way of looking at things says that the universe remained in possibility until there was self-referential quantum measurement — so that is the new concept. An observer's looking is essential in order to manifest possibility into actuality, and so only when the observer looks does the entire thing become manifest — including time. So all of past time, in that respect, becomes manifest right at that moment when the first sentient being looks.

This idea has existed in cosmology and astronomy under the guise of a principle called the "anthropic principle" — the idea that the universe has a purpose. It is so fine-tuned, there are so many coincidences, that it seems very likely that the universe is doing something purposive, as if the universe is growing in such a way that a sentient being will arise at some point.

WIE: So you feel that there's a kind of purposiveness to the way the universe is evolving, that, in a sense, it reaches its fruition in us, in human beings?

AG: Well, human beings may not be the end of it, but certainly they are the first fruition, because here is then the possibility of manifest creativity, creativity in the sentient being itself. The animals are sentient, but they are not creative in the sense that we are. So human beings certainly seem to be an epitome right now, but this may not be the final epitome. I think we have a long way to go, and there is a long evolution yet to occur.

WIE: In your book, you even go so far as to suggest that the cosmos was created for our sake.

AG: Absolutely. But that means sentient beings — for the sake of all sentient beings. And the universe is us. That's very clear. The universe is self-aware, but it is self-aware through us. We are the

meaning of the universe. We are not the geographical center of the universe, but we are the meaning center of the universe.

WIE: Through us the universe finds its meaning?

AG: Through sentient beings.

WIE: This human-centered — or sentient-being-centered — stance seems quite radical at a time when so much of modern progressive thought, across disciplines from ecology to feminism to systems theory, is going in the opposite direction. These perspectives point more toward interconnectedness, in which the significance of any one part of the whole — including one species, such as the human species — is being de-emphasized. Your view seems to hark back to a more traditional, almost biblical kind of idea. How would you respond to proponents of the prevailing "nonhierarchical" paradigm?

AG: It's the difference between the perennial philosophy that we are talking about, monistic idealism, and what is called a kind of pan-theism. That is, these views — which I call "ecological worldviews" and which Ken Wilber calls the same thing — are actually denigrating God by seeing God as limited to the immanent reality. On the face of it, this sounds good because everything becomes divine — the rocks, the trees, all the way to human beings. They are all equal and they are all divinity. It sounds fine, but it certainly does not adhere to what the spiritual teachers knew. In the *Bhagavad Gita*, Krishna says to Arjuna, "All these things are in me, but I am not in them". What does he mean by that? What he means is that "I am not exclusively in them".

So there is evolution in manifest reality. Evolution happens. That means that the amoeba is, of course, a manifestation of consciousness, and so is the human being. But they are not in the same stage. And these ecological-worldview theories don't see that. They don't rightly understand what evolution is because they are ignoring the transcendent dimension, and they are ignoring the purposiveness of the universe.

WIE: So you would say that they have part of the picture but without this other aspect that you are bringing in, their view is very —

AG: It's very limited. And that's why pantheism is very limited. When Westerners started going to India, they thought it was pantheistic because it has many, many gods. Indian philosophy tends to see God in nature — they worship rocks sometimes, that kind of thing — so Westerners thought it was pantheistic, and only later did they realize that it has a transcendent dimension. In fact, the transcendent dimension is developed extremely well in Indian philosophy, whereas in the West, it is hidden in a very few esoteric systems, such as those of Gnostics and of a few great masters like Meister Eckhart. In Jesus' teachings, you can see it in the Gospel according to Thomas. But you have to really dig deep to find that thread in the West. In India, in the *Upanishads*, the *Vedanta*, and the *Bhagavad Gita*, it is very explicit.

Now, pantheism sounds very good, but it's only part of the story. It's a good way to worship; it's a good way to bring spirituality into your daily life because it is good to acknowledge that there is spirit in everything. But if we just see the diversity, if we just see the God in everything, but don't see the God which is beyond every particular thing, then we are not realizing our potential. We are not realizing our Self. And so, truly, Self-realization involves seeing this pantheistic aspect of reality, but also seeing the transcendent aspect of reality.

WIE: In addition to being a scientist, you are also a spiritual practitioner. Could you talk a little bit about what brought you to spirituality?

AG: Well, I'm afraid that is a pretty usual, almost classic, case. When I was about thirty-seven, the world started to fall apart on me. I lost my research grant, I went through a divorce, and I was very lonely. And the professional pleasure that I used to get by writing physics papers stopped being pleasure.

I remember one time when I was at a conference and all day I had been going around, beating my own drums and arguing with people. Then in the evening when I was by myself, I felt so lonely. And I realized that I had heartburn and I had already exhausted a full bottle of Tums, and still it would not go away. I discovered suffering, literally. And it is that discovery of suffering that brought me to spirituality, because I couldn't think of any other way — although I had given up the idea of God entirely and had been a materialist physicist for quite some time. That particular world — where God didn't exist and where the meaning of life just came from brain-pursuits of glory in a profession — just did not satisfy me and did not bring happiness. So I came to meditation. I wanted to see if there was any way of at least finding some solace, if not happiness. And eventually great joy came out of it, but that took time.

WIE: It's interesting that while you turned to spirituality because you felt that science wasn't really satisfying your own search for truth, you have nevertheless remained a scientist throughout.

AG: That's true. It's just that my way of doing science changed. The reason that I lost the joy of science was that I had made it into a professional trip. I lost the ideal way of doing science, which is the spirit of discovery, the curiosity, the spirit of knowing truth. So I was not searching for truth anymore through science, and therefore I had to discover meditation, where I was searching for truth again, truth of reality. What is the nature of reality after all? You see my first tendency was nihilism — nothing exists. But in meditation I had a glimpse that reality really does exist. Whatever it is I didn't know, but I saw that something exists. So that gave me the prerogative to go back to science and see if I could now do science with new energy and new direction, and really investigate truth instead of investigating for the sake of professional glory.

WIE: How then did your newly revived interest in truth, this spiritual core to your life, inform your practice of science?

AG: What happened was that I was not doing science anymore for the purpose of just publishing papers. Instead, I was doing the really

important problems, which are very paradoxical and very anomalous.

For example, the quantum measurement problem is supposed to be a problem which forever derails people from any professional achievement because it's a very difficult problem. People have tried it for decades and have not been able to solve it. But I thought, "Well, I have nothing to lose and I am only going to investigate truth, so why not see?" Quantum physics was something I knew very well. I had researched it all my life, so why not do the quantum measurement problem? So that's how I came to ask this question: What agency converts possibility into actuality? It still took me from 1975 to 1985 until, through a mystical breakthrough, I came to recognize this.

WIE: Could you describe that breakthrough?

AG: Yes, I'd love to. It's so vivid in my mind. You see, the conventional wisdom was that consciousness must be an emergent phenomenon of the brain. And despite the fact that some people, to their credit, were giving consciousness causal efficacy, no one could explain how it happened. That was the mystery because, after all, if it's an emergent phenomenon of the brain, then all causal efficacy must ultimately come from the material elementary particles. So this was a puzzle to me — this was a puzzle to everybody — and I just couldn't find any way to solve it. David Bohm talked about hidden variables, so I toyed with his ideas of an explicate order and an implicate order, but this wasn't satisfactory because in Bohm's theory, again, there is no causal efficacy that is given to consciousness. It is all a realist theory. It is a theory in which everything can be explained through mathematical equations. There is no freedom of choice, in other words, in reality. So I was just struggling and struggling because I was convinced that there is real freedom of choice.

So then one time — and this is where the breakthrough happened — my wife and I were in Ventura, California, and a mystic friend, Joel Morwood, came down from Los Angeles and we all went to hear a talk by J. Krishnamurti. And Krishnamurti, of course, was extremely

impressive, a very great mystic. So we heard him, and then we came back home. We had dinner and we were talking, and I was giving Joel a spiel about my latest ideas of the quantum theory of consciousness, and Joel just challenged me. He said, "Can consciousness be explained?" I tried to wriggle my way through that, but he wouldn't listen. He said, "You are putting on scientific blinders. You don't realize that consciousness is the ground of all being". He didn't use that particular word, but he said something like, "There is nothing but God". And something flipped inside me that I cannot quite explain. This is the ultimate cognition, that I had at that very moment. There was a complete about-turn in my psyche, and I realized that consciousness is the ground of all being. I remember staying up that night, looking at the sky, and having a mystical feeling about what the world is, and having the complete conviction that this is the way the world is, this is the way reality is, and one can do science. You see, the prevalent notion was: How can you ever do science without assuming that there is reality and material? But I became completely convinced that one can do science on this basis.

WIE: So that night something really did shift for you in your whole approach. And everything was different after that?

AG: Everything was different.

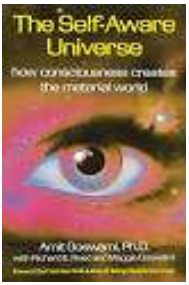
WIE: Did you then find, in working out the details of what it would mean to do science in this context, that you were able to penetrate much more deeply or that your own scientific thinking was transformed in some way by this experience?

AG: Yes, exactly. What happened was very interesting. I was stuck with this question before: How can consciousness have causal efficacy? And now that I recognized that consciousness was the ground of being, within months, all the problems of quantum measurement theory, the measurement paradoxes, just melted away. Ever since that night in 1985, I have been blessed with idea after idea, and lots of problems have been solved — the problem of cognition, of

perception, of biological evolution, of mind-body healing. It has been a wonderful adventure in creativity.

WIE: So it sounds pretty clear that taking an interest in the spiritual, in your case, had a significant effect on your ability to do science. Looking through the opposite end of the lens, how would you say that being a scientist has affected your spiritual evolution?

AG: Well, I stopped seeing them as separate, so this wholeness, this integration of the spiritual and the scientific, was very important for me. Mystics often warn people, "Look, don¹t divide your life into this and that". For me, it came naturally because I discovered the new way of doing science when I discovered spirit. Spirit is the natural basis of my being. So since that time, whatever I do, I don't separate them very much.



Dr. Amit Goswami is a retired full professor from the University of Oregon's Department of Physics where he served from 1968 to 1997. He is a pioneer of the new paradigm of science called "science within consciousness," an idea he explicated in his seminal book, The Self-Aware Universe, where he also solved the quantum measurement problem elucidating the famous observer effect.

Interview with John Haught
Robert Wright

John Haught is professor of theology at Georgetown University and director of the Georgetown Centre for the Study of Science and Religion. He's the author of "What is Religion?" "Responses to 101 Questions on God and Evolution" and "God after Darwin." I interviewed him at Georgetown University.

Wright: Well Jack, thanks for letting me come into your office here and talk to you today.

***John Haught*:** It's a great pleasure.

Wright: I have to tell you I was I was reading your book *God after Darwin* on a train a couple of months ago and I looked over and the man sitting immediately next to me was reading Nietzsche. And I thought that's kind of an interesting juxtaposition because Nietzsche thought that you really couldn't take the concept of God seriously in the modern age. Certainly a premise of your book is that we can take the concept of God seriously in a modern age but you do argue that in light of Darwinian theory, in light of the intellectual evolution that Darwin ushered in, we may need the concept of God and in fact to some extent you kind of take other theologians to task for not reckoning sufficiently with Darwin and the Darwinian evolution what what can you summarize what your...

John Haught: Yes I think after Darwin but also after Galileo, Copernicus and Einstein we can't have exactly the same thoughts about God that we had before because our conception of what we consider to be God's creation is inevitably going to changed by scientific information and what I would argue especially in the case

of Darwin is that theology has not yet generally speaking caught up with the revolution that Darwin brought about.

Wright: What's an example of a change you think needs to be made in the conception and we're taking particularly about Christian theologians here I guess...

John Haught: Well we have to remember that the whole idea of God and divine providence originated from what from our perspective was a relatively small time and space, a relatively small universe, and that what Darwin did in effect was initiate a revolution which in combination with geology and now big bang physics has given us a 15 billion year old universe in which life appears gradually out of matter and mind appears gradually out of life and what that seems to have done is to have flattened the hierarchical view within which the concept of God came about in the first place.

Wright: By hierarchical view you mean...

John Haught: The hierarchical view I mean the view in which reality consists of levels of reality moving from less important to more important but with discontinuity between them: you have the level of inanimate matter, then plant life, then animal life, then human life and then God and whatever levels there are between us and God and that's a rather vertical hierarchical view of things. And what happens in the post-Darwinian period is that that whole hierarchy as it were gets pushed over on its side and its contents sort of spills out in the 15 billion year river of time which is dominated by what the hierarchical view had considered to be the least important, the purely inanimate material realm and it seems that life, just gradually life, is in no hurry to come out of this material background nor is mind in the sense of human intelligence in a great hurry to come out of life, and so what happens is that we have a problem and I think this is one of the big problems in science and religion of how to map the new 15 billion year old horizontal type picture of nature onto the hierarchical view of nature. And that's the great task of theology in our time and I don't think that we've really

yet begun to do that as vigorously and in a sophisticated way as we need to.

Wright: Ok. Now one issue you kind of touched on is issue there that that I think is central to our figuring out how you would integrate evolution into any theology which is how to what extent was the evolution of intelligent life kind of in the cards from the beginning and that's a a subject you touch on a little in the book and it's a subject of great contention...

John Haught: Yes.

Wright: You seem in what you just said to be kind of down playing the prospects for intelligent life a little, am I wrong about that?

John Haught: Well I don't want to downplay them but I do think that we have to make a distinction between the chronological place of intelligence and its ontological place. And what we have to do from a theological point of view -- and I think it can be done -- is to salvage the ontological primacy of intelligence...

Wright: And can we have a quick definition of ontology for those of us who need it?

John Haught: Ontology is a Greek word that simply refers to being, what kind of being so when we use the term ontological we are referring to the kind of being that something has and I use the term ontological discontinuity to emphasize the distinctness between the kind of being you have at the level of matter and the kind of being you have at the level of life and the kind of being you have at the level of intelligence and the kind of being you have at the level of the divine. That's ontological discontinuity... different kinds of being, that's what I'm talking about. So what I think one of the great confusions of the modern age is that we've confused ontological primacy or ...certain the kind of being that we associate with matter we confuse that with chronological primacy so that we tend, at least scientific skepticism tends, to give ontological primacy to matter simply because it's chronological prior to life and mind and logically

does not necessarily follow it, so it can be the case that the more significant level of reality emerges later chronologically much later in the process so that I say intelligent life comes about very late and almost grudgingly from a chronological perspective but in no way diminishes its ontological primacy.

***Wright*:** Does it diminish its probability when you say intelligence life and intelligence appeared grudgingly, do you mean it almost wasn't really kind of in the scheme of things it just happened and it might well not have happened?

John Haught: Well yes I mean the sort of scenario that prompts Bertrand Russell the great British skeptic to say that if the point of the universe was to produce intelligence then why did it lie there so long to produce so very little. And it's that kind of of location of intelligence as a kind of an afterthought, a kind of cosmic flu that then arises if we look at things only from the criterion of chronological development but what I'm saying we could make the case logically speaking anyway that what comes very late and with great fragility and precariousness onto the scene is perhaps the most significant thing that the cosmos has ever produced and ... and so I think we have to make that distinction between ontological and chronological primacy.

Wright: Ok. I guess the reason I ask is because when I read the book –and I'm not up on current theological trends especially – I was struck by how different a a conception of God there is in the book than the one I might naively associate with Christian thought, for example, the one that I was brought up with. And there the idea is basically you know the guy up there...

John Haught: Right.

Wright: ... created everything...

John Haught: Right.

Wright: ... looking down...

John Haught: Yes.

Wright: Intervening... and and I think on all those points almost you differ in a certain sense. Is this just what contemporary Christian theology is or are you a radical or what? What's the story?

John Haught: No. In fact some scientific thinkers and others who've read the book think that tailored the traditional notion of God to fit nicely and consonantly with the picture of life that Darwin has given us. But my whole argument in "God After Darwin" is to say I stand within a tradition which has given shape to my sense of God independently of my ever having read Charles Darwin but I didn't really study science and religion until after I got my theological education and so the theological idea of God that I use as the basis, as the framework, for talking about God and evolution in that book came to me in my theological training before I even thought much about God and evolution and and so what you in fact have pointed out is there is a great disparity within the religious world as to what exactly God means and even if you look within the Biblical texts you'll find that there is certainly evolution in our understanding of God. What I start with as a Christian theologian is the understanding of God that's given in the picture of Jesus. As a Christian I'm instructed not to think about God without thinking about this man and picture of this man that's presented to us in the classic texts of my tradition, which is one of humble self-giving promising love if I could summarize it that way. So if the key to ultimate reality in Christianity, in Christian faith, in Christian theology and I'm certainly not alone in saying this is the picture of Jesus as humble self-giving promising love then we talk about evolution God and evolution we should talk about evolution in terms of that God and not the God who is sometimes identified with the man up there or or with the supernaturalism as it's called where God is just a supernatural reality has no connection with the with life I'm talking about incarnate God a God who enters into ... become enfleshed and suffers. This is the God of Christianity so I think it's pointless to talk about nature if you don't come to that with with a picture of God as it's given in religious tradition. And so I did not

make this notion of God up, it's the one that I think is certainly central in contemporary Christian theological reflection.

Wright: When I was reading your book I had just been to an exhibit on Daoism in a museum in Chicago and I was reminded a number of times in the book of Daoist philosophy and then I came upon a passage where you actually referred to Daoism and I'm wondering whether indeed you know am I imagining this or are there some real resonances between your thinking and Daoist philosophy?

John Haught: Well, I'm talking about philosophical Daoism such as you find in the famous classic the Dao De Jing by the famous philosopher Laozi and according to the philosophy of Daoism ultimate reality -- called the Dao -- is humble, is unobtrusive, is not prominent, doesn't stick out but precisely because of that humility of ultimate reality it allows the rest of nature to emerge and perhaps the best example given by the Dao De Jing is to imagine a circle, a wheel with spokes, converging from a center and that center geometrically speaking is essentially nothing, but yet this nothingness generates a wheel. Or think of the emptiness of a window which allows light to come in. It's this insight in the Daoist philosophy which is most effective and is also the most unobtrusive and they have the notion of the way which simply can be translated as effective non-interference so that which is most effective and most foundational to reality is not going to be found among the objects of ordinary experience and I correlate this with the Christian notion of the humility of God and that's one of the themes that perhaps you found perhaps a bit strange. It's not one that you might have grown up with and that many people have not grown up with in their religious experience but yet a case can be made and has been made by contemporary theology that this is the most characteristic feature of the God of Christianity and the classic text for this is St. Paul's letter to the Philippines in in which he puts an early Christian hymn which says Christ was in the form of God but did not want to cling to that status but emptied himself and took on the form of a slave and subsequent theological reflection has has taken that to mean that ultimate reality is self-emptying, self-humbling reality and that fits nicely the new understanding of all the universe because a

humble God would not overwhelm the world, would not stick out prominently as one object among others which religion often looks for and we're disappointed because we don't find that type of God we find very unavailable that kind of God but the unavailability of God is a correlate of the fact that we find a universe which is constantly striving to become itself, that's how I understand from a religious point of view this is what evolution is about, even the expanding universe that we live in, as Penberg pointed out, can be interpreted theologically as consonant with the theme of a God who lets the world become itself. God wills the independence of the world. And this is kind of like the God of Daoism or the ultimate reality I don't want to use the word God to refer to the Dao but there's some sense that what is ultimately in the Daoist position is exceedingly humble and unobtrusive and not available to scientific observation.

Wright: In your book you talk about a number of scientific thinkers, some in more flattering terms than others, let me just give you a series of names and and and...

John Haught: Yes. Sure, sure.

Wright: ... Daniel Dennett.

John Haught: Well Daniel Dennett I think is a good philosopher in a sense of very logical and very consistent I just don't think that he's fully aware of his fundamental assumption that much of his philosophy is based upon a belief system. He would probably not call it a belief system but that belief system is the view that essentially matter as he has said in "Consciousness Explained" as well as in his book on Darwin that matter, that reality is fundamentally reality, that matter is fundamentally all that there really is and once you start with that then that means that you have to explain everything including consciousness and including life including evolution simply as the movements of lifeless matter according to invariant physical laws and that has a certain appeal to it, there's a certain clarity to the materialist scientific materialism that he has but it’s really when you come right down to it it's a belief

about science and not science itself and I think what he tends to do is to present to the public as science or as scientific thought what is really a conflation of science with a particular metaphysics and that metaphysics is materialism.

Wright: So you are not a materialist? On the one hand not a...

John Haught: No.

Wright: ... thorough going material. On the other hand, you subscribe to Darwinian theory more or less, I mean you believe natural selection...

John Haught: Yes yes.

Wright: ... happened.

John Haught: Sure. I think when you do science you have to abstract from any other causes than what we normally call material causes and I have no objection to science abstracting that phyiscal approach to things and and presenting that as as science. What I object to is the philosophical belief that after you've done that you've given us an adequate understanding of reality. I would be among those who would say science gives us only a very very small thin cross-section of the ultimate depths of the real.

Wright: So what is a Darwinian account of emergence of life missing? What is it not showing us?

John Haught: Well I don't want to say the Darwinian account is missing anything as far as science is concerned because I don't wamt to make room for a God of the gaps or anything like that...

Wright: And by God of the gaps you mean God as the source...

John Haught: God who comes in and who theologians and religious people bring in to answer questions that science has not yet dealt with.

Wright: Right, which is necessarily a God of shrinking significance, and science...

John Haught: Right. And science...

Wright: ... marches on...

John Haught: Exactly.

Wright: Right.

John Haught: And I think I would emphasize we should push scientific explanation as far as we possibily can. What I would argue for is what I would call a hierarchy of explanations in which science and the various sciences themselves constist of a certain number of levels of explanation themselves but that that does not rule out what I would call an ultimate kind of explanation that is not given by science. If I can give you an example that John Polkinghorne gives if I can adapt it... suppose there is a pot of water boiling on the stove and somebody comes along and says why is that boiling? One very good answer is to say it's because the molecules are moving excitedly around... a good physical explanation. But that does rule out another explanation somebody else might come along and say it's boiling because somebody turned the gas on. And that doesn't rule out a third explanation: it's boiling because I want tea. So what we see in science is more like the first level of explanation but occasionally we have scientific thinkers and I think Dennett is one of these who would say this is enough, we don't look at any other possible levels of explanation and that contention, that conviction, that decision to see the world at that level of explanation is not logically speaking a scientific movement of the mind, it's rather a belief. I believe that I can explain everything at this level. Now what I would like to say is I think we should push that kind of explanation as far as we possible can and not allow theological explanations in at that level, that causes enormous confusion and unfortunately that's what often happens but rather we should allow for that level of

explanation but not rule out arbitrarily it seems to me the possibility that there are other levels of explanations such as I want tea.

Wright: Ok. Let me give you another another scientific name: Stephen J. Gould.

***John Haught*:** Stephen J. Gould is one of my favorite writers and I've learned an enormous amount about evolution from Stephen J. Gould. I really have essentially one beef as far as Stephen J. Gould is concerned and that's that he sees Darwinism as a mixture of scientific ideas and philosophical ideas and he's often said in his books that the reason people accept Darwin or don't want to digest the evolutionary science is not that the science is particularly difficult. The science is relatively simple. But he says that the Darwinian theory brings along with it what he calls a philosophical message and that philosophical message is that life is directionless and that the universe is purposeless and that matter is all there is. Now those three statements are metaphysical statements. I don't think any scientist really seriously wants to mix beliefs in with science I mean the whole idea of science is to abstract as much as possible from beliefs but yet I don't think Stephen J. Gould can ideologically separate the science of evolution from that philosophical message and I don't agree with that, I think you can contextualize the information that scientists are gathering from the genetic code and the geological record and comparative embryology and anatomy and homology and so forth you can correlate that with what I would call a metaphysics of promise of the future just as easily and make just as much sense of it that way that we're not compelled to think of Darwinism as Michael Rosner has called it as an ineradicable materialist theory. I think scientists actually sabotage their own discipline by making statements like that because they are in effect telling people you can't separate science from this particular metaphysical system and in a culture that is dominantly theistic when you present evolution to the public as though it's eradicable materialistic. I think that does not serve the cause of science education and I think it's unnecessary to make Darwinism and materialism such happy bedfellows.

Wright: I would quibble with you a little there because I think one of those propositions, the issue of directionality in evolution, is in some ways a scientific proposition. I mean it's largely an argument about the facts about...

John Haught: It's a phenomenon that you can observe yes...

Wright: Yes yes and there I think Gould is just wrong wrong on the facts.

John Haught*:* Oh, okay well that's right ... ok that's another aspect of Gould. I mean I would agree with you on that...

Wright: If I were going to accuse him of something it would be and I'd be willing to...

John Haught: Yes yes.

Wright: It would be... it would be having a philosophical bias as you described about wanting the universe to be purposeless...

John Haught: Yes.

Wright: ... and then reading that into the account of evolution and then being determined to depict evolution as having been highly unlikely to create intelligent life, of course we're all susceptible to the accusation because, however you come out on the directionality issue, it has these philosophical implications, I mean I think a directional evolution is more likely to suggest purpose so you know but I think that on the issue of direction I think you can argue in scientific terms and ...

John Haught: Yes I said I had one beef with Gould, but I think I have two beefs and your second one is entirely well taken and that's that he has made too much of the directionlessness of evolution but I think the reason for that is and I don't think it's peculiar to him alone but a lot of evolutionary biologists have focused on one chapter of the whole cosmic process that deals with life and its evolution and

they've haven't backed up and looked at the whole cosmic process and and that cosmic process clearly shows clear directionality...

Wright: Beginning with the big bang...

John Haught: Yes.

Wright: And so you think like Teilhard de Chardin...

John Haught: Yes.

Wright: ... that you can see everything since the big bang as a process of kind of complexification although it has moved...

John Haught: Generally speaking.

Wright: ... pretty darn slowly at times by our standards.

John Haught: Generally speaking, right generally speaking, there has been a trend toward increasing complexity and I think when Gould criticizes Teilhard for Teilhard's directionalism I think Gould often forgets that Teilhard was one of the first scientific thinkers of the 20th Century to realize that the whole cosmos is in evolution. This is a really new idea relatively speaking and most of us haven't digested this and it was that cosmic context that Teilhard had in mind when he talked about directionality not just the branching bush that you see at times in the biological realm.

Wright: Let me give you another scientific name to react to: Richard Dawkins.

John Haught: Well once again Richard Dawkins is someone from whom I learned quite a lot when I read his books. I enjoy reading him, he's a very good writer, a very clever writer but he has decided in advance to understand God primarily as a designer and he is assisted in that by the fact that I think unfortunately some Christian thinkers define God primarily as a designer. Once you define God as a designer then you can say well look at this very very messy

evolutionary process which is designed but the design can be explained in purely naturalistic terms and therefore what need do we have of your designer God, there is no God, therefore science has ruled out the theology and theology should be extricated from the university context all together. And once again I think there are some certain assumptions there I mean he's saying let's play by these rules namely that God is a designer and then he'll say well I win and that I think is something that I as a theologian simply don't start defining God in those terms or understanding God in those terms.

Wright: In "God After Darwin" you talked a little bit about the perennial philosophy... this is the name of a book I believe by Aldous Huxley...

John Haught: Aldous Huxley... yes.

Wright: And the idea is that there are certain reoccurring themes in the great religious...

John Haught: ...in the religions...

Wright: ... traditions around...

John Haught: ... and philosophies of the world traditionally.

Wright: What do you make of that?

John Haught: Well the two themes are first of all that there's one ultimate reality which is named God, Brahma, Allah, whatever, by different traditions, but the second main feature of the perennial philosophy is the way in which it's organized the world into an hierarchy of levels moving from inanimate to animate to conscious to God and this is something that you do find cross-culturally and and so there is a kind of perennial quality to it. What I have problems with is that there's a third assumption actually that the perennial philosophy has and that's that there was some primordial revelation of God and that what human history has been is the story deviation from the primal purity of that initial revelatory moment

into various traditions and therefore what we should do with our lives is make our way back up stream to that primordial revelation. Huston Smith is an advocate of the perennial philosophy who had a great deal of influence on people. My problem with it is that it just does not fit well the evolutionary understanding of the universe that we have and as a matter of fact my perennial philosophers if not most have a very very difficult time appropriating evolutionary thought into their thinking.

Wright: So in what way exactly does evolution not fit in to the perennial philosophy?

John Haught: Well, because evolution lets us see that mind came very late gradually teased out of life which in turn was gradually given rise to by the material elements so you have a kind of conflict between the horizontal picture that science gives us of life emerging out of matter and mind out of life and the vertical picture that you have in the perennial philosophy and I think the primary reason why the perennial philosophy has its appeal is that it does provide a reason for saying for example that life is more valuable than inanimate stuff and that human life is more valuable than animal life and that God is ultimately valuable. It greys things and what I would want to do I don't want to deny there are different levels of value. I think it would be sheer madness to deny that there is a certain hierarchy in our making of judgements. I think you can argue for a sort of 45 degree hierarchy in which the hierarchy is an emergent one in which more important levels do emerge later in the process and therefore you can preserve both the evolutionary picture of things and the hierarchical understanding of nature. That's what I'm trying to do, just to give you a snippet of the argument that I would follow there.

Wright: On this issue of the perennial philosophy, on this issue of there being the possibility of a future convergence of the world's religions, you certainly don't want to see them kind of homo-genized...

John Haught: Right right.

Wright: ... on the other hand, there needs to be a kind of working compatibility among them it seems to me, I mean for kind of practical...

John Haught: Yes.

Wright: ... purposes of keeping people living in harmony and things like that...

John Haught: Yes, one of the really promising projects is one that's based upon themes like justice and ecological integrity, ethical issues like that do more to get religions to sit down and talk to each other to one another than all the ecumenical sort of planning that we do and many of us in religion have found a remarkable convergence especially on the issue of ecology. I teach a course on religion and ecology in which we don't deal just with Christianity but with native religion, with Hinduism, Buddhism, Islam and the students all do reports on these and in the course of the semester they really learn to appreciate other traditions for the wisdom and insight that they have, that other traditions don't have and so it's because of – you're right – convergence on specific concerns like that that will do more toward bringing about a convergence but again a convergence that does not reduce them all to some common denominator....

Wright: Right.

John Haught: ...but allows each to maintain its distinctiveness within a world community in its search for meaning and ethical responsibility.

Wright: Well, in the realm of more of theology and metaphysics do you think that when somebody like Aldous Huxley says fundamentally all the religions are talking about the same thing that he's reading his hope into it a little?

John Haught: I'm a little bit wary of statements like that, that all religions are ultimately saying the same thing and this comes out

especially when we bring Buddhism into the conversation, Buddhism which does not have a concept of a transcendent deity but is yet in some sense very ethically oriented, very deeply compassionate, it shares in many ways and in an ultimately important sense with other religions the elimination of suffering, the bringing about of happiness and meaning and so forth, so I would not want to look forward to a time when Buddhists become theists necessarily. I don't know that that could ever happen.

Wright: If you believe that there really are some aspects of the theologies of the great religions or the metaphysics of the great religions that are not logically compatible in a certain sense, I mean that either there is a transcendent god or there's not a transcendent god I mean...

John Haught: Yes right.

Wright: ... does this pose problems for you as a as a Christian...

John Haught: Sure.

Wright: ...I mean the question arises why would God reveal himself only to half of humankind, the half that happens to inhabit a particular part of the world?

John Haught: I have no easy answers to those things, but I think it helps to contextualize questions like this one within an evolutionary picture of the world, after all there are many diverse forms of life but life burst forth probably in one single instance of life and that particular event was a privileged moment you know within the total scheme of things. I don't know that we can logically rule out the possibility that a revealing God would first emerge most vividly within a particular historical tradition. I don't want to make a big deal of that, but I don't think we can logically rule that out. My own belief is that revelation is actually something that's coextensive with the universe, except the universe is the primary revelation of ultimate reality. As the universe unfolds, each form of life reveals its ground, its ultimate ground, in a unique sort of way and then it

becomes conscious and social and this same revelatory reality discloses itself in a unique way in each religious tradition as as well so I don't think revelation in that broad and deep sense can be claimed as unique to only one of these traditions.

Wright: Yes, although if you take certain traditional aspects of of Christianity seriously, which may or may not still be taken serious by a lot of theologians, but the notion that you know you don't go to heaven if you don't believe the right thing. There certainly are a lot of practicing Christians who believe that.

John Haught: There are practicing Christians and historically there's been … there is no salvation outside the church and that is is still something that some Christians believe but it's I think a good example of how religions themselves evolve, how doctrinal development itself takes place to point out that for example in the Catholic community today which I belong to that statement is not taken literally. In fact, those who take it literally are not considered to be up to date with their theology and with doctrine, so you have to be very careful to place religion itself in an unfinished universe I think we have to expect that our religions are going to be unfinished also and that means they have a future and that doctrinal development is possible regardless of what some static thinkers say and that religion is as much an evolutionary phenomenon as anything else in the history of the universe.

Wright: So it's no longer a belief of a kind of mainstream Christian theology that non-believers go to hell...

John Haught: Yes exactly yes. There are different ways in which theology finesses that point, but the general exclusivism that characterized an earlier epic has been pretty much eliminated in contemporary mainline Christian theology...

Wright: That's a load off my mind. I'm glad I came here today.

Wright: Among the attempts to reconcile religion with science is pantheism, which as I understand it means basically that everything we see ...

John Haught: Is God.

Wright: ... is God. God is the physical universe.

John Haught: The universe is the ultimate reality, there is nothing beyond the universe.

Wright: Right, and you're not a pantheist.

John Haught: I'm not a pantheist.

Wright: Maybe you're not the person to ask, but it seems to me if God is only the physical universe then in what sense is that God? I mean where's the value added?

John Haught: Right. Well Spinoza the great philosopher in the 17th Century essentially said the same thing … God, nature call it what you will, you know it's still there, there's still nothing beyond it as it were. It has an appeal to people today, especially people aware of the evolutionary epic and so forth who find that the anthropomorphic one planet deity of Christianity in Biblical religion is just too small for their enlarged cosmic horizons and so there are a number of people who are arguing for a kind of evolutionary spirituality or cosmic kind of spirituality which in a sense logically speaking in my view does not really differ from pantheism in the sense that ultimately the ultimate context of their existence is the universe there's no need to posit the reality of anything that transcends the physical universe and that's really an interesting challenge to contemporary theology because oftentimes we do fail to present our pictures of God as larger than the universe and if you don't present your picture of deity as larger than the universe then that's not going to work religiously so people will go to the universe as the ultimately context of their religious reverence and surrender and so forth. But there's no finity in the theological tradition, God

after all is called the infinite and the universe is finite, no matter how large it is and after Einstein we know how large it is, after Hubble we know how large the universe is, we have a better sense rather of how large it is, still by by my mathematics the finite just does not quite equal the infinite so there's no real theological basis for saying that God is smaller than the universe but psychologically I think both the God that's presented in the suburban pulpit is often times smaller than what smart scientifically educated people are really looking for and that's largely I think the fault of our seminaries. I think our seminaries today are just really failing to educate religious leaders and clergy in this large understanding of the universe that we have.

Wright: Do students ever come to you, I mean this is a university where religion is kind of a prominent...

John Haught: Yes we we...

***Wright*:** ... part of life...

John Haught: ... require two courses in religious studies.

Wright: And do they ever come to you for something more in the way of guidance than...

John Haught: Sure.

Wright: ... you know ... I mean do students ever come to you and say to you I feel there's something missing in my life, I don't have religious faith and and perhaps even further, the kind of scientific world view that I'm imbibing here seems to make it only harder to reach the kind of meaning I'm after.

John Haught: Exactly. This is one of the reasons why thirty years ago I invented a course on science and religion precisely because I realized that some students were taking science courses where they're bombarded with atoms and molecules and genes and so forth and at the end of the day they wonder what does this all have to do

with anything really really significant so what I try to do in my course is precisely to give free complete freedom to scientific inquiry to push scientific inquiry as far as it possibly can go but at the same time offer to the students mostly through readings that I give to them I don't preach to them or anything like that to open up to them avenues of thought that will allow them to locate their scientific thinking including their evolutionary awareness within a framework that will allow it to make sense in the larger sense of the term... that's basically what I do for a living here at at Georgetown.

Wright: And if after discovering that science doesn't foreclose a religious possibility they wind up as Daoists or Buddhists or Muslims are you about as happy as you would be if they wound up Christians?

John Haught: I don't lose any sleep over the fact that most of them are not converted to a particular religious tradition I'm more concerned that they realize that their own life journey and their own questioning process is something that they share with many others and that they don't have to become anxious that they don't have or that they can't share the kind of doctrinal servitudes that religious traditions give them but as a matter of fact I talk to many of the students who come back years years after leaving here and and by that time in their lives many of them have settled down into a particular religious tradition often times they have at least nominally abandoned their Catholicism or their Christianity when they come to college and so forth but many of them look back at that so called atheistic moment as a very important development in their growth process, in their spiritual journeys as it were and my experience has been most of these students who go through that period don't stay agnostic or sometimes call themselves atheists for an indefinite period but I'm very relaxed about letting them question and the reason for that is that religion and theology should never ever suppress the legitimate intellectual aspirations of people and sometimes it does and that's a tragic thing for religion and theology when that happens so I like to be more relaxed about their their questions.

Wright: And when they say that the atheistic phase is important is that related to the way you say that reckoning with science is ultimately an enriching experience even if it leads to doubt at first?

***John Haught*:** Yes. Exactly. What that sometimes does is is allow them to appropriate ideas from science that they would be afraid to take seriously if they took too literally some of the preconceptions that they've had from their religious education in the past and it takes time for you know a new set of ideas is going to jostle and break down previous psychological and intellectual synthesis. This is a perfect example that I talk about how evolution is not just a picture of reality that I have is not just order but order plus novelty and especially in the intellectual realm but novelty comes in and breaks down our previous preconceptions of things and this happens not just intellectually but religiously and theologically and so on.

Wright: So the on-going evolution of religious doctrine is analogous to the ongoing evolution of these students...

John Haught: ... of a person. Yes.

Wright: We await the next word then in evolution. I'll wait for your next book.

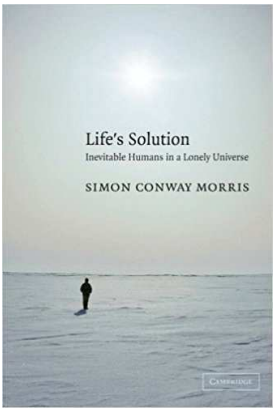
John Haught: It's indeterminate.

Wright: I'll wait for your next book to get the next word. Well thanks very much.

John Haught: Thanks thanks. I enjoyed our conversation. Thanks.

Simon Conway Morris: Life's solution - Inevitable humans in a lonely universe

Anthony Campbell



This book is in effect a counterblast to two popular and influential writers on evolution, Richard Dawkins and Stephen J. Gould, with whose views Conway Morris disagrees profoundly. In the case of Dawkins it is his militant atheism that Conway Morris dislikes. As for Gould, it is his claim that if the tape of life were rerun it is very unlikely that anything resembling humans would emerge. Conway Morris's view is that, given the right start, it is pretty well inevitable that intelligent life will appear and will almost certainly be quite similar to humans. However, he also thinks that the right start is a pretty unlikely event, so we may in fact be unique in the galaxy or even the universe.

The book is certainly ambitious and wide-ranging. It starts at the very beginning, with the origin of life. In spite of a lot of speculation we are still far from having an adequate theory of how this could have happened. And although some people maintain that the emergence of life is probably almost inevitable in the right circumstances, there is a lot of evidence to suggest that the development of complex life forms, as opposed to bacteria, requires very special conditions that are probably exceedingly rare. Planets exist in many solar systems apart from our own but most are probably unsuitable for any kind of advanced life.

Still, life did arise on earth and eventually gave rise to complex life forms, including us. Gould and those who think like him believe that the course of evolution might conceivably have taken any one of a huge number of paths, resulting in worlds that were completely unlike our own. In support of this, Gould made an extensive study of

the famous Burgess Shale fossils and suggested that it was almost entirely due to chance that the vertebrate body plan eventually developed from among the varied forms that existed at the time. Conway Morris is an authority on the Burgess Shale and has reached diametrically opposite conclusions about what it signifies. **His view is that evolution has been constrained to follow certain paths leading more or less inevitably to the development of intelligence, and the bulk of his book is a detailed explanation of why he believes this.**

As Conway Morris realizes, his argument entails the risk that he might be taken for a "creation scientist". He is at pains to point out, in his Preface, that this is not the case. He is, after all, Professor of Evolutionary Palaeobiology at Cambridge and a card-carrying Darwinian, who is fully signed up to the idea that evolution has been guided by natural selection. At the same time, however, **he is convinced that evolution has "metaphysical implications"**, so one can understand why he needs to go out of his way to distance himself from Biblical literalists. He does seem to be treading a rather fine line here and I am not sure that he entirely manages to avoid crossing it at the end of his book.

His essential position is that evolution does not have a completely free hand in what it produces. "The number of evolutionary end points is limited: by no means everything is possible. [And] what is possible has usually been arrived at multiple times, meaning that the emergence of the various biological properties is effectively inevitable." Of all the possibilities that might in principle be realized, only a small subset has actually arisen. And this, he believes, is not just a local phenomenon on this earth but will be found to be true if any other planets harbouring advanced life are ever discovered.

In support of his thesis he provides a huge number of instances of convergent evolution -- far too many to summarize here. They include the eye, which has evolved a considerable number of times from different starting points but arriving at remarkably similar solutions. The same is true of other senses, including the familiar,

such as hearing, and the more unusual, such as the electric sense organs of fishes. There are also interesting similarities in the brains of different groups of fishes that use electricity in this way. Convergences are also explored in the evolution of ants, birds, moles, and many other organisms. There is a good deal of discussion of the sophisticated agricultural technology possessed by some types of leaf-cutter ants, with its curious parallels to human agriculture (even in some cases the same risky dependence on monocultures).

It is however convergence in the evolution of intelligence that is the real quarry for Conway Morris. The main groups exhibiting intelligence are the anthropoid apes, the elephant family, the cephalopods, and the whales and dolphins, although some birds, notably the New Caledonian crows, show behaviour as complex as that of any of the other groups. Conway Morris dwells on the degree of intelligent behaviour exemplified by these species and on convergences in the neurological basis for this behaviour.

When we come to the human level we seem to encounter a level of intelligence well above that of any of the other species on the planet, and we also find sophisticated language which appears to be unique to humans. But Conway Morris holds that the trend was moving in that direction in any case and he believes that, if we had not evolved to become bipedal and tool-using, another primate species would: "... from the present evolutionary perspective we are undeniably unique. Yet ... if we had not arrived at sentience and called ourselves human, then probably sooner rather than later some other group would have done so, perhaps from within the primates, perhaps from further afield, even much further afield."

This claim is really the culmination of Conway Morris's argument; his purpose in writing was to reach this point. And in his concluding chapter (plus a postscript) we see why he wanted to arrive here. Chapter 11 has the title "Towards a theology of evolution?" and the question mark is not really needed. Much of this chapter is a sustained attack on the views of "ultra-Darwinists" such as Richard Dawkins and Edward O.Wilson and on what Conway Morris

regards as their adherence to genetic determinism. In its place we should "ask ourselves what salient facts of evolution are congruent with a Creation."

At this point we get a frank recommendation (quoting an extended passage **from Michael Polanyi's** Personal Knowledge) to acknowledge the validity of the Book of Genesis. "The assumption that the world has some meaning which is linked to our own calling as the only morally responsible beings in the word, is an important example of the supernatural aspect of experience which Christian interpretations of the universe explore and develop." In other words, Conway Morris (citing Polanyi) is making an overt plea for Judaeo-Christian religion as a guide to what we should do and how we should think. And before long we he is citing **C.S.Lewis** and the "cosmic view" of G.K.Chesterton.

I have to say that here I part company with the author. Unless you believe in the uniqueness of the Judaeo-Christian revelation there seems to be no particular reason to prefer the Book of Genesis to Hindu or Buddhist cosmology (to name two possible alternatives). And ancient Chinese civilization produced a viable cosmology and mythology without a Creator God that satisfied a quarter of the world's population for millennia. Conway Morris does not even mention any of these rival mythologies.

At the end, therefore, this book turns out to be a polemical tract. But the maddening thing about it is that, if we leave the polemics aside, it contains a huge amount of fascinating information. The examples of convergence it provides are in many instances certainly astounding, even if others do appear to be somewhat trivial. And there is no doubt that Conway Morris is making a valid point: there is a question to be answered.

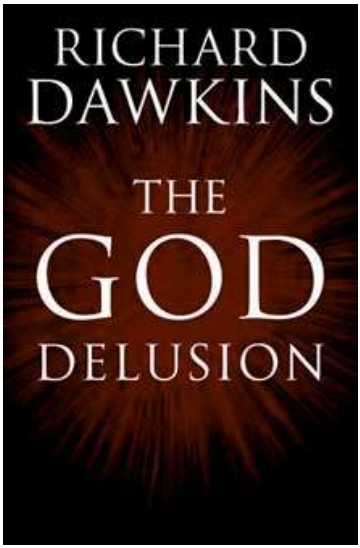
He touches only in passing on the notorious Anthropic Principle, which is an attempt to account for the astonishing fact that our very existence depends on the fine tuning of certain cosmological numbers [see Just Six Numbers, by Martin Rees]. In a sense, this book could be seen as a transposition of the Anthropic Principle to

the biological level. Conway Morris quotes with approval the late Fred Hoyle's opinion that the Universe is a set-up job. And it can hardly be denied that the book provides an impressive array of evidence to support its author's contention.

At the same time, I still find myself wondering if the trend towards sentience and intelligence is as inevitable as we are told it is. Mind certainly took its time in arriving on the scene. The dinosaurs were around for a very long time but there does not seem to be any evidence that they went in much for developing intelligence; they seem to have focused on size more than anything. Are we to suppose that if the fatal meteor had not ended their career they would eventually have produced a civilization? (Though I suppose Conway Morris could point to his friend, the New Caledonian crow, as an intelligent descendant of the dinosaurs.)

It seems to me to be perfectly possible to maintain that intelligence is simply one manifestation of life and that it is only because we value it so highly that we are tempted to think it arises inevitably in evolution. Is this perhaps the ultimate anthropocentric illusion? I am not convinced that Conway Morris has adequately made a case for the view that it was in some sense the "purpose" of evolution to give rise to intelligence.

Simon Conway Morris



The God Delusion by Richard Dawkins. Boston and New York: Houghton Mifflin Company, 2006. 406 pp., notes and index.

Richard Dawkins — eminent biologist and bête noire of creationists — endeavors to show that belief in a supernatural being that created and designed the universe is a pernicious delusion (31, 108). As one would expect, Dawkins makes his case with cleverness, pugnacity, and flashes of brilliance. The first 160 pages attack theistic arguments as "spectacularly weak" and argue that it is overwhelmingly probable that God does not exist. In the remaining 200 + pages, Dawkins sketches a theory of religion as the misfiring of something useful (like children believing what their parents tell them), traces the Darwinian origins of our moral sense, denies the relevance of religious beliefs to sound ethical principles, lays bare the mischief done by absolutist religion (especially harm to children), and waxes eloquent on how science can inspire us. Dawkins promotes his book as a "consciousness-raiser" for "atheist pride". He hopes that religious readers follow the examples of Douglas Adams (author of Hitchhiker's Guide to the Galaxy) and others who became atheists after reading Dawkins' earlier books (5, 116-117, 322).

Much of Dawkins' project can be endorsed by intellectually responsible theists. For example, if "is" and "ought" are not conflated, few theists would object to exploring the evolution of our sense of right and wrong. Or again, Dawkins omits to mention that many theists embrace the Socratic dictum that an act can be good whether or not it is loved by God. Thoughtful people of faith will join Dawkins in bemoaning evils done in the name of religion. They might add that religiously motivated individuals are often — but not often enough — in the vanguard of social justice movements: think of

William Wilberforce on slavery and animal cruelty, Dorothea Dix on the humane treatment of the mentally ill, and Martin Luther King Jr. on civil rights. In recent memory, the Anglican theologian Norman Pittenger advocated full acceptance of homosexuals and lived openly with his partner. Theists also agree that the study of sacred writings is integral to a literary education (340f). Finally, theists, no less than atheists, can appreciate the grandeur of the world as revealed by science. Teilhard de Chardin was fond of saying that research is adoration.

Where, then, is the battle joined? A. N. Whitehead called the obsession with the idea of the necessary goodness of religion a "dangerous delusion". Dawkins, however, seems to be obsessed with the contrary extreme of the necessary badness of religion, or at least of the tendency of religion to be bad. He speaks of "the religious [or theological] mind" (313, 358, 360), thereby employing a rhetorical trick (the use of the singular) that he recognizes in racist writing as reducing "an entire plurality of people to one 'type'" (269). The fact is that there is no single religious mind, but a variety of minds that think in often sharply conflicting ways. Dawkins saddles religion with amplifying in-group loyalties and out-group hostilities (254f). This is true of what Henri Bergson called closed morality and static religion, but it is false of open morality and dynamic religion. Modern religious thinkers from Kierkegaard to Tillich speak of doubt as an essential ingredient in the life of faith. Hence, Dawkins' identification of faith with unquestioned dogmatism (306) is dubious, notwithstanding that these nuances are easily missed when religious extremists dominate the headlines.

The book's first part is where Dawkins directly makes the case for atheism. Unfortunately he does not present theistic arguments in anything like the forms that their most thoughtful defenders would recognize. Consider Anselm's ontological argument. For nearly half a century philosophical discussion has focused on the second, or modal, version of the argument (formalized by Charles Hartshorne in 1962). Dawkins ignores these developments. He tells of piquing some philosophers and theologians by his adaptation of Anselm's (first) argument to prove that pigs could fly. He adds this enticing

morsel: “They felt the need to resort to Modal Logic to prove that I was wrong” (84). Yet, modalities are precisely what one needs to deal intelligently with Anselm. Moreover, Hartshorne urged that Anselm’s reasoning, though inconclusive, shows the futility of framing God’s existence as an empirical question (in Karl Popper’s sense of falsifiable by some conceivable experience); this directly challenges Dawkins’ own assumptions.

Harry Emerson Fosdick said that religion has the right to be judged by its most worthy expressions. Dawkins does not meet this standard. One must look elsewhere for accurate presentations of the best theistic arguments and thoughtful criticisms of them. Dawkins knows that there are respectable atheistic (and theistic) criticisms of these arguments, for he mentions J. L. Mackie’s *The Miracle of Theism* (1982), which rivals Michael Martin’s *Atheism: A Philosophical Justification* (1990) as the top book of its genre. If Dawkins knows this, why waste time clowning with frivolous and incompetent scholarship? And why the sophistry of supposing this approach settles important issues? Hartshorne rightly said that one should judge by argument, not insinuations. In the case of classical theistic arguments, Dawkins mostly insinuates.

Dawkins is much better at his old game of exposing the folly of considering “God did it” as a workable hypothesis to fill real (or imagined) gaps in the scientific account of the rise of life on earth. Most philosophers and theologians — with notable exceptions — would put Dawkins on the side of the angels on this question. But he aligns himself with the fallen angels in his underlying assumption that the existence of God is best considered as a scientific hypothesis (2, 50). This claim is philosophic, not scientific, but one looks in vain for an argument for it, or for consideration of intelligent rebuttals of it. Dawkins’ view that this is the only legitimate approach may stem from a belief that one can engage in “rational argument” about the world if and only if one engages in science (cf. 154). He insists that he is not advocating a “narrowly scientistic way of thinking” (155). Perhaps not, but again he deals with his philosophical opponents by means of what C. S. Peirce called the method of convenient ignorance.

It is David Hume, interestingly, not Darwin, who provides Dawkins with his central argument that God does not exist. According to Hume, it is unavailing to use God to explain complexity (or design) since a divine being would have to be at least as complex, and hence as much in need of explanation, as the complexity that it is invoked to explain. Dawkins approvingly quotes Daniel Dennett's assessment that this is an "unrebuttable refutation" of belief in God (157). Or is it? Mozart's brilliance may be in need of explanation, but his creativity is surely central to explaining his music. Of course, appealing to Mozart's creativity presupposes intentionality, final causes, and purposes. One suspects that Dawkins would admit no explanation as fully adequate that made such appeals (which, following Dennett, he describes as skyhooks, or mind-first explanations). This is another controversial philosophical thesis for which Dawkins gives no argument.

There is, to be sure, a legitimate issue barely discernable through the dust that Dawkins kicks up: What, if anything, is gained by way of a rational account of things by positing God as the ontological ground of the universe rather than accepting the universe, or even God plus the universe, as the ultimate metaphysical fact? Since Dawkins is preoccupied with tilting at creationist windmills — assuming that God's existence is a scientific hypothesis — he never gets around to this question. The closest he comes is to claim that all entities complex enough to be intelligent are the result of evolutionary (non-skyhook) processes (73). Theists might agree that all entities within the universe are products of evolution. They can even agree that there are aspects of deity affected by evolutionary processes; but they should demand a reason for grouping God with localized beings. In any event, one wonders (and here Hume would agree) what basis Dawkins has for assessing probabilities at the highest levels of metaphysical generality. Once again, Dawkins does not so much settle questions as to beg them.

The deepest irony in this book is the failure to take developmental perspectives seriously where religion is concerned. Dawkins knows that the Bible is a library of books written over centuries (237), but he has a decidedly monochromatic understanding of the ideas about

God in those books. He never considers what it might mean for people in very different historical contexts to refer to God with theological constructs appropriate to their particular settings. Dawkins is apparently "an atheist for Jesus" because the Nazarene represents "a huge improvement over the cruel ogre of the Old Testament" (250). Yet, Jesus and the Hebrew prophets speak with one voice on issues of justice. Finally, one must ask how an atheist's manifesto that touts the power of evolutionary thinking to raise consciousness could ignore those theists who are similarly impressed (I mentioned some of their names in this review). They could at least applaud Dawkins' impassioned case that the extremists promote a pernicious delusion. Beyond this, Dawkins does not prove anything particularly pernicious or delusional about theism.

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