The Jesuit and the Skull

Teilhard de Chardin, Evolution, and the Search for Peking Man

A 21st century tribute to the enduring timeliness and attraction of Pierre Teilhard de Chardin’s life and visionary work is this new volume (New York: Riverhead Books, 2007) by the renowned science writer Amir Aczel. With several bestsellers on mathematics and physics such as Fermat’s Last Theorem and God’s Equation to his credit, it is significant that Aczel, during a trip to China, was moved to conceive this edition. With a literary skill backed by extensive travel and research, three themes are interwoven – Teilhard’s extraordinary life story, the paleoanthropology field work to find Peking Man, and the persistent contention between religion and science.

The reader will become acquainted with a unique, luminous person and thinker of first half of the 20th century. Teilhard biographical course from the Auvergne region of central France, through many excursions, sojourns, and fossil digs, along with years of exile in Asia, onto his passing on Easter Sunday in New York City is effectively engaged and told. What impressed me anew is how much Teilhard lived life on the edge. He could write with such authority and sensitivity about an evolutionary cosmos from matter to spirit because he actually found, and held in his hands the crania, mandibles, and bones which would serve to reveal to him, after much prayerful reflection, a divinely ordained, suffused and futurely oriented creation.

Although banished for some long years, circa 1925 – 1945, by his Jesuit Order who had vested difficulty with an epochal reorientation of Christian theology, Teilhard yet travelled often from Dragon Bone Hill in the Gobi desert and his laboratory with colleagues in Beijing to Africa, France, the Middle East, and the United States. We learn that he would spend weeks on steamship journeys across oceans, which gave him solitude and perspective to think through his essays on both this mystic milieu and its scientific credence.

2008 Annual Meeting

This year’s event of lunch and lecture, now over 40 years running, will be held on Saturday, April 12 at Union Theological Seminary in New York City. We are pleased to have as speaker Sr. Miriam MacGillis on: “Genesis Farm and Its Journey into Deep Time.”
In several chapters Amir Aczel goes on to trace the rise of hominid beings of Java, Neanderthal, and Cro-Magnon origin. The Darwinian breakthrough and corpus, which gave human beings an ancient pedigree, is carefully presented. This scene setting leads into its 1925 Scopes trial challenge in Tennessee, a standoff essentially of Alpha vs. Omega, which is unresolved to this day. Equally well presented are the archaeological treks of the 1930's into Inner Mongolia, such as the Roy Chapman Andrews and American Museum of Natural History expedition, of which Teilhard was the lead palaeontologist.

The book closes with probably the best recounting of the disappearance of the Peking Man bone collection during the Japanese occupation and subsequent intense efforts to solve the mystery and attain their recovery.

A prime consultant for this edition was Fr. Thomas King, SJ, a veteran Teilhard scholar at Georgetown University, and prolific author on his vision and legacy, whom Amir Aczel consulted with on a number of occasions.

We next reprint some brief excerpts from the text, to give a taste of its content and import.

**The Jesuit and the Skull**

Amir D. Aczel

“Though he was a priest and followed the traditions and teachings of the Catholic Church, Teilhard was very much a man of his time. He knew about the great advances in science that had been taking place during his life and earlier, especially in paleontology, biology, and the study of human evolution. He was no stranger to physics, either, and had studied thermodynamics and relativity. As a Frenchman, he was particularly aware of the pre-Darwinian work on evolution undertaken in France by Georges Cuvier and Jean-Baptiste de Lamarck. He was fully versed in Darwin’s theory and achievements, as well as the great debate on evolution that followed his work. And Teilhard’s own mentor in Paris, Boule, was the man who first studied in detail the fossils of the Neanderthals and, with his reconstruction of what these “cavemen” might have looked like, made Neanderthal a household name.

Teilhard was charismatic and mysterious. He was a priest who made lifelong friendships in the secular world, a loyal Jesuit who cared passionately about science, and a Frenchman with deep roots in his country who spent most of his life in exile. Throughout his life, he tenaciously pursued his goal of uniting science with faith and, like Galileo three centuries earlier, fought for science against formidable odds.” (21)

“Teilhard admitted soon after writing “La Vie Cosmique” that he had “a naturally pantheistic soul.” In his own mind he reconciled this idea of a multitude and a “one” with a deep and sincere Christian belief. Teilhard’s pantheistic feelings made his provincial in Lyon, Father Claude Chanteur, nervous about allowing him to take his solemn vows in the Society of Jesus. But another Jesuit, Father Vulliez-Serment, convinced the provincial that Teilhard was a solid Jesuit, and on May 26, 1918, at Sainte-Foy-‘es-Lyon, while on leave from the front (WWI where he served as stretcher bearer), Pierre Teilhard de Chardin took these vows, which included chastity, obedience, and poverty. He was now fully committed to the Society of Jesus. And yet, even at that moment of total submission to the Church and its rules, he continued to interpret his role as a priest in his own way. On July 8, while stationed with his unit in the forests along the Aisne River near Compiegne, northeast of Paris, he wrote: “This is why I’ve dressed my vows, my priesthood (and therein my strength and my joy), in a spirit of acceptance and deification of the Powers of the Earth.” (79)

“Teilhard was a gifted palaeontologist, professionally groomed by (Marcellin) Boule for a career in the field. He was learning much about science and about prehistoric fossils: how to find them, how to clean and prepare them for analysis, and – most important – how to decipher the stories these ancient relics had to tell. And this scientific work moved him ever forward in the direction of evolution. Studying bones from various geological periods intensified his notion that our universe moves forward to more advanced, more complex states. With his equal enthusiasm for physics and astronomy, he understood evolution in the same way he knew our planet to be in motion, as Galileo had argued, using the ideas of Copernicus. Teilhard believed that Earth was also a progressing biological system, eventually reaching cognition in humans, and continuing toward hyperconsciousness: the consciousness of the entire planet.” (80)

“Pierre Teilhard de Chardin’s work on Peking Man demonstrates that a common ground between science and faith is something we may still strive for. It is akin, perhaps, to our hope that the lost fossils of Peking Man may someday be found. Even without
the recovery of the fossils, science progresses and our knowledge of the universe and our place in it expands continually. The story of our species, from its humble origins on the African plains through *Homo erectus* in Asia, to the Neanderthals and Cro-Magnons of Europe, is explored ever more deeply, and its details are constantly being uncovered.

Teilhard’s wholehearted embrace of evolution attests to the enduring nature of Darwin’s theory. The fact that a devout Jesuit never wavered in his espousal of this theory speaks volumes for its ability to explain the nature of life and our experience on Earth.

His posthumously published book *The Future of Man* begins with echoes of Galileo, as Teilhard sets forth his view of science, religion, and philosophy:

The conflict dates from the day when one man, flying in the face of appearance, perceived that the forces of nature are no more unalterably fixed in their orbits than the stars themselves, but that their serene arrangement around us depicts the flow of a tremendous tide – the day on which a first voice rang our, crying to Mankind peacefully slumbering on the raft of Earth, “We are moving! We are going forward!”

Teilhard understood the gravity and the depth of the implications of our struggle to combine science and faith. He knew how hard it is to achieve what he had started: a wedding of science with belief, and an embrace of the theory of evolution by everyone, scientists, the religious, the public in general. He knew that in science and faith, the road ahead is long and arduous. And he understood that working alone, he could not bring all people to one goal. Others had to contribute to this important effort. Late in his life, Teilhard wrote:

If I have had a mission to fulfil, it will only be possible to judge whether I have accomplished it by the extent to which others go beyond me.” (242-244)

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**Quakerism and the New Story**

Philip Clayton

We are pleased to reprint this 2007 essay by the Professor of the Philosophy of Religion at Claremont Graduate University, who has achieved some of the most innovative thought on a convergence of traditional faith and 21st century science. It first appeared in a booklet with this title by the New Story Study Group of the Friends Meeting at Cambridge, MA, and was provided courtesy of its coeditor, ATA member, biologist, and author Mary Coelho.

Quakers are a practical folk, committed to making a difference in the world. We are also a mystical folk, believing that experiences of what we call “the Light within” are available to those who seek them with sincerity and openness. But Quakers are not known as a particularly scientific folk.

During much of our history, Friends have worried that the attitudes and results of the sciences might stand in tension with the inner experiences and ethical testimonies that lie at the center of our tradition. As a consequence, many have turned aside from the scientific world, neither ridiculing it (as many fundamentalists do) nor embracing it whole-heartedly (as many liberal Protestants do).

This pamphlet argues that it is now time to reconsider that long-standing separation of science and faith. We describe some of the revolutionary changes that have taken place with the sciences in recent years. Science today seems to be telling a “new story,” one that no longer stands in tension with core Quaker convictions. This is important information.

Too many Friends have felt compelled to lower their eyes in the presence of science – afraid that, were they to look closely, many of their most cherished beliefs would be undercut. These pages show that such fears are unfounded given the recent transformations in scientific understanding.

Indeed, a variety of interpreters of science are now hinting at something even more astounding. They are suggesting that the “new story” that science is telling actually supports something very much like traditional Quaker ways of conceiving reality. Our goal is to introduce readers to these changes in the world view of science, which seem to bring it closer to the spirit of Quaker belief and practice.

The best way to understand these changes is to read the “new story” that follows – absorbing the details where one can and allowing the general impression simply to flow over one when the going gets rough. Still, it might be helpful, especially for those who are encountering these ideas for the first time, to have in hand a sort of “road map,” an outline of the main
ideas, so that one will know in advance where the journey is headed. Here, then, is a brief description of five of the major themes:

Beyond the reduction of all things to lifeless matter. Over the last centuries, men and women have often worried that scientific theories will eventually eliminate all that matters to us: values, human intentions, conscious experience, even the uniqueness of life. Some final theory in physics, it was feared, may someday steal from us the things that we hold most dear, leaving only inert particles, “matter in motion,” and nothing more.

But the key results of the last one hundred years have actually pointed in the opposite direction. The natural world seems not to work like a Swiss watch, where all the pieces turn together like clockwork to produce the illusions of thought, wishes, and values. Instead, interpreters of science now describe cosmic evolution as much more like a symphony, in which the individual players contribute to the results. On the new view, evolution is not predetermined but involves the continual emergence of novelty, of new and unexpected phenomena. This view emphasizes the place of humans and other living things as unique actors within cosmic evolution, whose thoughts, actions, and moral convictions help the universe to become what it will become.

Reality as not objective but also subjective. For most of the modern era science was said to herald the victory of objectivity over subjectivity. Human aspirations and values, it was claimed, would ultimately give way to cold, unfeeling statements of “the facts and nothing but the facts.” The real explanation of things would finally be given in terms of objective laws and physical particles, leaving no real place for the human subject.

In fact, however, the new story of science seems to have turned in the opposite direction. Physicists now talk about bits of information as the ultimate reality, rather than bits of matter. Fields of energy come first, and physical particles emerge only later. Some physicists believe that human observations and measurements help to make the physical world the way it is. And leading cosmologists speculate that, before the big bang occurred, perhaps there was only mind.

Surely this is a paradigm shift if ever there was one! One can’t help but sense that this new acknowledgement of the role of subjectivity has great potential to strengthen Quaker life and practice. In these pages we invite Friends to reflect on the various ways in which the new story and Quaker testimonies may overlap.

Retrieval of the concept of purpose. Modern science was said to be the enemy of all purposive language. When the evidence was finally in, it was thought, all talk of purpose would be replaced by purposeless laws and forces. Talk of values would suffer a similar fate.

But the new story suggests the opposite conclusion. Many of the new accounts of cosmic history allow for, and some even demand, the language of pattern, of directionality, of value. Human intentions and aspirations, far from being irrelevant, seem to play an irreplaceable role in this cosmic narrative. These results suggest a new significance for the type of prophetic testimony with which Quakers have traditionally been associated. It is crucial, and exciting, to reflect on how prophetic witness may actually be strengthened by the return of purpose language within scientific accounts of evolution.

The immanence of the Divine. Out of the new story have arisen new modes of conceiving the divine. Theologians and philosophers, recognizing the implications of this paradigm shift, have begun to emphasize ways of speaking about divine immanence in a more radical way. Many of these new approaches fall under the heading of panentheism – the belief that the world is located within the divine, although God is also more than the world.

Of course, science cannot prove the existence of God or Justify one theology over all others (the claims of “intelligent design” notwithstanding). But recent science has encouraged theologians to shift their attention away from traditional models of God as a distant being, somehow excluded from the world as a whole, and to replace them with powerful new models and metaphors. People of faith now speak of this as being located within the “womb of God,” of the world as “God’s body,” and of the mind-body relationship within ourselves as a model for reconceiving the relationship between God and universe. These are great mysteries, and we offer no absolute answers here. But we do draw attention to some of these exciting new ways of conceiving the divine, since they are related to recent developments within the sciences. It should not escape our attention that these ways of talking are much closer to traditional Quaker language than were the older ways of speaking of God.

At home in the universe. It was generally held that modern science would leave very little place within the universe for anything like persons. Masses and particles and physical forces and laws care nothing for persons – for their hopes and aspirations, their values.
and sufferings, their sense of justice or injustice. “The more the universe seems comprehensible,” wrote the Nobel laureate and physicist Steven Weinberg, “the more it also seems pointless.” We are products of blind chance, wrote the biologist Jacques Monod, and all talk of the significance of human life is sheer fiction and wishful thinking.

The new story, by contrast, suggests that we are “at home” in the universe. On the one hand, we are ourselves stardust; the matter that composes us was composed in the fiery furnaces of stars in the distant past, and the same fundamental energies that move the galaxies are at work in our own bodies. On the other hand, we are not merely the passive recipients of purely physical forces. What we do as persons – our moral aspirations, our creative endeavors, our efforts to leave the world a better place for our children and grandchildren – are themselves part of the cosmic evolutionary process.

Perhaps most shocking of all, some science writers are claiming that what we experience in our deepest spiritual moments need not be cast off as illusory. Instead, they write, subjectivity is part of the pulse of the universe. It may even be – science no longer has a reason to exclude it – that in the end a deeper Mind or cosmic Power or transcendent Source underlies all that is. As persons, as moral and spiritual beings, we are not alone in a hostile physical world, struggling to stave off the cold of interstellar space for a few moments before life breathes its last and disappears. Instead, we are bone and sinew, breath and soul, of an ever-evolving Whole that is like us because it includes us as an intrinsic part of itself.

British Teilhard Association
Conference 2008

Canon Alan Nugent, Chairman of the British Teilhard Association has kindly sent this following notice of their annual conference for 2008.

Dates: Friday 18th – Sunday 20th April
Location: The Friars, Aylesford, Kent
Title: Teilhard: The English Connection

This Conference marks the centenary of Teilhard’s move to the Jesuit Seminary at Ore Place, Hastings, after the Jesuits had been expelled from France. His ‘Letters from Hastings’ documents this period.

Speakers: Fr. Francois Euvé SJ
Dr. David Grumett

On Saturday 19th April we will visit Hastings:

1. Visit the Hastings Museum and see archaeological finds discovered in excavations in which Teilhard was involved. The Museum’s curator will be our guide.

2. Attend Mass at the Church of Our Lady Star of the Sea at Hastings where Teilhard was ordained. The service will focus on Teilhard ‘Mass on the World.’

3. Ore Place is now a housing estate but the Hastings Council is hoping to place a plaque there commemorating Teilhard.

4. Take afternoon tea at Ashburnham Place which Teilhard himself often visited (it is now a Christian Youth Conference Centre).

5. Return to Aylesford via an English pub.

Canon Alan Nugent can be reached at: The Subdeanery, 18 Minster Yard, Lincoln, LN2 1PX, UK, and via: subdean@lincolncathedral.com.

Teilhard de Chardin, Pierre
Priest, Theologian, Anthropologist

The above title introduces a four page article on Teilhard in the 2004 Encyclopedia of Modern French Thought, edited by Christopher John Murray, and published by Fitzroy Dearborn of New York. Its author is Pete A. Y. Gunter, a professor of philosophy and religion studies at the University of North Texas. We note this certain contribution among many such essays on Teilhard, for a cogent review of the essence and breadth of his vision, along with some understandable lapses such as environmental...
consequences. A good resource for students and new readers. Here are two samples.

“In one respect Teilhard...is seen to be well ahead of his time. Today we are still struggling to come to grips with a planetary civilization. Economics has become globalized; it overflows the boundaries of once self-sufficient nation-states to create an international web of trade and manufacture. This would have not been in the least surprising for him, nor would the rise of the Internet. His grasp of “planetization” and its implications is undeniable. Similarly, the way in which he described biological evolution in planetary terms, stressing the mutual togetherness of the biosphere with the planet, bears more than a passing resemblance to ideas brought together under the aegis of the “Gaia hypothesis” according to which the world can be seen as a single organism, responsive to itself and capable of response to stress.” (619)

“Interest in his ideas, intense and widespread particularly during the 1970s and 1980s, has abated in part though it shows no sign of disappearing. Poet of a vision of purposeful evolution, he has inspired many readers with his insights, even where many so inspired have not concurred with his theology. The sociologist of planetary man, he has drawn attention in an unmistakable way to the global situation in which humankind now finds itself and has made it clear that the human future depends on the ability to deal with it in wise and humane terms. Deeply immersed in Roman Catholic doctrine and tradition, his insistence that these require to be rethought in terms of modern knowledge and the modern situation even when it has drawn opposition has struck a profound cord with progressive Catholics and breathed now life into both practice and theological outlook.” (620)

Intelligent Design Once Again

Sjoerd L. Bonting

We are pleased to publish this extended book review sent to us by Henk Hogeboom van Buggenum of the Foundation Teilhard de Chardin in the Netherlands. Their website address is: www.teilharddechardin.nl.

In 1996 Michael Behe published Darwins's Black Box, in which proposed his 'Intelligent Design' hypothesis. Now, 11 years later, he produced a sequel: The Edge of Evolution, The Search for the Limits of Darwinism, which is reviewed here. In the intervening years many scientists as well as theologians, including myself, criticized the hypothesis. Understandably, I was very curious to see how Behe would answer his critics in his new book. Briefly put, he shows at some points to have read the criticisms, but he never mentions the critique in his references.

First I relate briefly the main points of the Intelligent Design (ID) hypothesis as they are presented in the first book. Behe claimed there that complex biological systems (his examples: visual pigment rhodopsin; immune system; bloodclotting system; bacterial flagellum) could not be the result of a Darwinian evolution process of successive gene mutation-natural selection steps, because (1) this process would be too slow, (2) these systems are 'irreducibly complex', i.e. if one component is missing, the system is not functioning. Therefore, these systems must be the result of 'intelligent design'. Who or what is the intelligent designer Behe did not say. He claimed that ID is a purely scientific theory. This was necessary for the attempt to have the theory incorporated in the biology textbooks for American public high schools.

The three main criticisms are: (1) evolution can sometimes proceed surprisingly fast, particularly through the operation of so-called epigenetic
processes in which gene regulation instead of gene mutation occurs; (2) none of Behe's four examples are 'irreducibly' complex and they show evidence for evolutionary development; (3) ID is an example of God-in-the-gap theology, where God's role is at the mercy of new scientific findings.

Has Behe been able to counter these criticisms? I discuss this for most of the important points in his new book (numbers in parentheses refer to the pages in the book).

Common ancestor: Behe accepts that species descend from a common ancestor and that gene mutation and natural selection "can modify life in important ways" (2-4). But, he says, "there is strong evidence that random mutation is extremely limited." His purpose in this book is to determine what Darwinian evolution is capable of and what it is not capable of, and thus to find 'the edge of evolution'.

Within the 'edge': What falls within the edge of evolution, is according to Behe the battle between humans and the malaria parasite, resistance to malaria in sickle cell anemia patients, drug resistance in HIV infection, and the formation of anti-freeze proteins in Antarctic fish species (14-16). In the next three chapters Behe describes in detail what the evolution theory is able to explain (17-83).

Outside the 'edge': But, Behe poses, when two or more simultaneous mutations in a single gene are needed (because functional change in a protein often requires changes of two or more amino acids), then this is not possible by an evolutionary process and ID is required (103-122). Two or more simultaneous mutations in a single gene are indeed extremely unlikely, but Behe does not realize that if one mutation provides even a slight advantage, selection can act, and then a second mutation can occur in the gene for the modified protein. Sean Carroll mentions many examples of this process in his review of the book. Another reviewer, Kenneth R. Miller, discusses this matter extensively and concludes that it is a "breathtaking abuse of statistical genetics" for Behe to base his claim on the chance that two mutations could simultaneously occur in a single gene in a single individual.

Behe is also wrong when he states that the spontaneous occurrence of binding between two proteins is very unlikely, because this requires the interaction of five or six amino acids (123-147). Carroll refers to the many studies showing that only two or three amino acids in the two proteins need to interact; furthermore that each pair of interactive proteins can easily recruit a third and more proteins to form a complex. But Behe does not cite these articles. Very recently it has been shown that syntaxins (membrane proteins that play a key role in membrane fusion) can spontaneously form complexes of some 75 molecules.

Irreducibly complex systems: Behe describes in great detail the structure of the bacterial flagellum, but without mentioning, let alone countering, the criticism of his claim that this can only have been produced by intelligent design (84-102). He mentions that two parts of the flagellum (the membrane-embedded ring base and the interflagellar transport system) occur in other places with entirely different functions but does not seem to realize that this casts serious doubt on his claim.

His other examples of 'irreducibly complex' systems - rhodopsin; immune system; bloodclotting system - are barely mentioned and thus neither that none of these are irreducibly complex and that they all show signs of evolutionary formation. Behe doesn't at all mention epigenetics (rapid evolution through gene regulation rather than gene mutation). He ascribes the (reversible) loss of bony plates and pelvic spines in the marine stickleback in a few generations after transfer to fresh water to gene mutation (200-201), whereas it is actually due to inactivation of the Pitx-1 gene, a typically epigenetic phenomenon. Breeding the fresh-water form in seawater reverses the changes in two generations.

Where lies the 'edge'? Behe writes about this in three rather confusing chapters, in which he describes all sorts of things without finding a clear answer to this question or producing new evidence for ID (148-240).

Who is the Designer?: Behe says that believers, as he himself, will assume that this is God, but that it can also be any other being, principle, or mechanism, yes, even a clever physicist (227-229). The last suggestion is obviously nonsensical, since the first physicists appeared only 13.7 billion years after the initial explosion and at the end of the evolutionary process to date. If it is God, Behe says, then this is irreconcilable with Darwinism, which rests on random mutations (229-233). It does not seem to occur to him that God may have given evolution freedom to proceed as a 'trial-and-error' process.

Evil in nature: Here Behe shows that he has taken note of the criticism that the appearance of pathogenic organisms would seem to be the work of an "unintelligent designer". Without countering this criticism, he accuses Darwin, who on this ground rejected divine design, of unscientific reasoning, overlooking the fact that Darwin was using a theological rather than a
scientific argument (237-239). Behe states: "denying design simply because it can cause terrible pain is a failure of nerve, a failure to look the universe fully in the face." This is a serious underestimation of the theological problem of the theodicy.

My conclusion: With this book Behe has not been able to strengthen the case for 'intelligent design', rather he has weakened it, both scientifically and theologically. He has not succeeded in determining the 'edge' between Darwinism and 'intelligent design'.


Sjoerd Bonting, a Dutch scientists and theologian, has many credits as a professor of biochemistry and department chair at the University of Nijmegen, along with being an ordained Episcopal priest, founder of four congregations in the Netherlands, and an author of several books on science and religion. Google his name and you can access an extensive vita, and a list of publications. A sample is the innovative article entitled Chaos Theology in the June 1999 issue of the journal *Zygon* which engages complex systems theory to reach novel insights. This review was forwarded by Henk Hogeboom van Buggenum, who is president of Stichting Teilhard de Chardin, the Dutch Teilhard Association. View their site also for much Teilhard material.

**New Books and Articles**

This Perspective offers an expanded sample of current works that contribute to the welling encounter in scientific and theological corners of a new kind of genesis cosmos that Teilhard presciently glimpsed. A notable source is the December 2007 issue of *Zygon: A Journal of Religion and Science* which contains seven papers from the Star Island 2006 summer conference on Emergence: Nature’s Mode of Creativity. Another theme is a more feminine vista so imperative today.


Many works have documented the matriarchal nature of early civilizations, circa 1500 BCE, founded upon the fecund round of seasons and cycles of life, passage and rebirth. A classic example is Minoan culture on the island of Crete. What makes this book special is that its author came to the subject through his experience as a trial lawyer in defence of women’s right to equal wages. But the judge would not enter as evidence their long history of disenfranchisement under patriarchal dominance, which overtook the original maternal matrix. Through extensive travel to archaeological sites, Barnes, who has also mediated ethnic cleansing and water issues in Central Asia, makes a vital case for such an innately feminine milieu, and goes on to detail its replacement by a ‘warrior civilization,’ still rampant to this day.


The author has recently received his Ph.D. in Theology at the Graduate Theological Union in Berkeley, CA and is editor of the Forum on Religion and Ecology Online Newsletter. We cite this article as a creative example of theological rethinking with regard to a 21st century ecological sensitivity to both Creation and Creator. We quote the paper’s abstract.

“This year marks the 30th Anniversary of Lynn White’s critique of Christianity, which set off the field of eco-theology. At that time, apologetic theologians responded to the White critique, that the Genesis
"dominion" command is largely responsible for the contemporary ecological crisis, through reformulating Christian doctrines to address ecological issues. These pioneers have brought us a long way in terms of addressing both how Christianity has been responsible in supporting harmful human-earth relations and what resources within the tradition might be useful for addressing the contemporary ecological crisis. Building on this work, this article suggests that Christian theology (whether eco or not) will continue to support an understanding of the human being as rooted "outside of creation" as long as the concept of a transcendent, Omni, Creator-God is left intact. In place of this theological discourse of transcendence which secularizes the natural realm, I suggest a "radical materialist" (Val Plumwood) understanding of Christianity that moves between idealism and reductive materialism (both are forms of transcendence) through a "planetary" (Spivak) understanding of Creation and a "bio-historical" (Gordon Kaufman) understanding of anthropology.”


A well-illustrated book that is more than the usual popular gloss on the subject, but relies on much travel and research to chronicle the urgent worsening of megacities, poverty, melting ice caps, loss of shellfish habitats, voodoo economics, and many other realities. A benign ‘Pleasantville’ is on the way out unless a suitably informed public is aroused to sensible lifestyle adjustment, like now.


The volume contains selected Templeton conference proceedings on the import, if any, of our anthropic presence, to the latest string theories of physics which imply a vast multiplicity of randomly occurring cosmeses. Each vicarious universe, as it bubbles into existence, will contain an arbitrary set of basic parameters. Life and persons can only occur in a universe with a rare concatenation of favorable values, which is not seen to bode well for human purpose. The main proponents of this school weigh in – 27 men and 1 woman (Renata Kallosh) – but fortunately Paul Davies is given the last word.

In his chapter Universes Galore: Where Will It All End? Davies rejects the whole laborious scheme, bereft of proof or point, along with another extreme of a Divine designer who would precast or intervene. A ‘third way’ is proposed, as the next quotes convey, of an extant reality that is organically life-generating in kind and essence. By this stroke, a conducive, self-organizing cosmos becomes evident which by its innate nature brings forth sentient, observer beings. Davies’ other writings such as his new book and website (search Google) expand on this novel alternative due much to adjusting ones perspective from sterile mechanism to a procreative genesis.

“The most obvious way to establish a link between life and cosmos is to postulate a ‘life principle’ (or, extending this to encompass observers, a ‘mind principle’).” (498) “The assumption of a link between laws and product states such as life inevitably amounts to slipping an element of teleology into physics. This is very unfashionable, but I believe it is unavoidable if we are to take life and mind seriously as fundamental rather than incidental features of the universe. And the bio-friendliness of the Universe suggests that they are fundamental.” (499-500)

“So biology does not actually select a pre-ordained universe, rather, physics and biology co-evolve under the action of a (precise) principle operating at the multiverse level, in such a manner that teleological behavior emerges. So this is a theory in which life and mind, goal and purpose, arise in a law-like manner from a dynamic universe (or multiverse).” (502) “Thus life is neither a statistical fluke in an indifferently random set of laws/universes, nor is the Universe designed in an ad hoc way for life. Instead, life and mind, laws and universes, are common products of an overarching principle.” (503)


A biochemist from Semmelweis University in Budapest presents his theory that loose connections between elements or components in a dynamic network can impart an inherent robustness. As an exception to such technical works, it is a well-written, accessible entry to the expanses of natural and social complexity, along with a huge bibliography. By clever rhetorical devices, a self-similar universality (as above, so below) is initially discerned, which can then be noticed everywhere from genomes to Gaia. A deep nestedness accrues, whereof nodes (proteins, people) are themselves networks within a pattern and process which grasps a self-creating cosmos.
“Practically every complex system can be imagined as a network. Atoms form a network making macromolecules. Proteins form a network making cells. Cells form a network making organs and bodies. We form a network making our societies, and so on. Most of these networks are a result of self-organization. In fact, self-organization seems to be an inherent property of matter in our Universe. (xi) Recent evidence indicates that many scale-free networks can be simplified, renormalized to a self-similar, fractal hierarchy of network motifs.” (22)

“Modularization is a spontaneously occurring property of networks, where the links are gradually reorganized. Module formation is related to the fractal growth of networks”. (38)


In 1977, Hazel Henderson, Jean Houston, and Barbara Marx Hubbard joined in a weekend of conversation in Princeton, NJ, which was recorded by then graduate student Barbara DeLaney. This volume presents the luminous dialogue by these spokespersons for the feminine future of a viable, just, peaceful, planetary civilization. A 2006 update is added by each contributor, wherein an obvious, encompassing metaphor gains fulfillment. We are in the midst not of apocalyptic destruction, but a global, blessed nativity event. As environmental, militaristic, mercenary, and fanatical forces seem bent on Armageddon, as the TV news relishes, this ‘radically transformative’ vision can offer a much needed positive alternative.

And to note some personal history, in 1972 I prepared a reference sourcebook for the Synergistic Convergence SYNCON conference that Barbara Marx Hubbard and her associates ran at Southern Illinois University. Jean Houston was in attendance whose mythic energies and evocations provided much guidance. But an organic natural genesis could not then be scientifically substantiated. A point of cosmic origin had only been detected seven years earlier. A main resource was indeed Pierre Teilhard, along with philosophers Oliver Reiser, Alfred North Whitehead, Jan Smuts, and Samuel Alexander from earlier in the century, and especially Carl Jung. Some thirty-five years later, both sufficient proof finally seems in our midst at this hour of earth.


Dowd, a former United Church of Christ pastor, assisted by his wife the noted science writer Connie Barlow, has achieved an extraordinary synthesis of science and religion. “Evolution” in their view is not an aimless consequence of random mutations, but a self-organized, nested emergence of divine creativity. From this 21st century scientific insight, evolution’s spiritual trajectory can reveal new appreciations of God before, during, and as Teilhard would advise, ahead. We next quote from the publisher’s description.

“Finally, the war between science and religion is over. The winner? All of us. With supporters from an incredibly wide spectrum of backgrounds and beliefs, including five Nobel laureates, Thank God for Evolution! builds bridges, provides guidance, and restores realistic hope for humanity and the body of life as a whole.

A movement has been growing over the past few decades that takes our common creation story -- the epic of cosmic, biological, and human evolution revealed by science -- as the basis for a meaningful view of our place in the universe. Reverend Michael Dowd, America’s evolutionary evangelist, is at the forefront of this movement. This well informed, thoroughly researched, and inspired book proclaims a gospel billions of years old.

Thank God for Evolution! presents in a lively and accessible manner the reasons why it is now possible to view evolution as a divine process; how current science shows that evolution is not meaningless blind chance; practical methods for using evolutionary insights to achieve greater personal fulfillment and thriving relationships; and how aligning with evolutionary trends can guide activists and others hoping to make our world a better place. As a Christian minister, Dowd especially addresses the concerns that Christians have about evolution, but this book contains insights that will appeal to people of all faiths and of no faith. Fun and uplifting, Thank God for Evolution! goes beyond the current debate to offer up a whole new way of thinking about science, religion, and the meaning and purpose of our lives.”

With a 2001 doctorate in systematic and philosophical theology from the Graduate Theological Union in Berkeley, CA, the author is now Assistant Professor of Religious Studies at the University of Miami. She has previously spent two years as Theologian-in-Residence at the San Lucas Toliman Mission in Guatemala. As a result of her erudition and experience, the book advances the program for a more feminist theology in contrast to centuries of a masculine emphasis. This is achieved by a balanced survey and synthesis of the leading contributors over the past two decades in this revisionary regard.

Two conceptual areas can illustrate. A debate has gone on between schools known as essentialism and constructivism. Authors have worried over whether women can be known to have an essential, archetypal identity within a greater creation, which could then evoke a distinct feminine principle. But consistently through history this image became distorted and defined by men to their advantage. The polar option is a pragmatic reality which is made up as we go along, without a sense of abiding guidance.

A second issue is that of gender complementarity. Rosemary Radford Ruether has long riled against such a characterization because women became secondary to and the antithesis of male dominant traits. (Even the Taoist yin and yang, an exemplar of this view, has in actuality been much abused.) Prudence Allen, in her writings, is aware of the problem but seeks to preserve its value whereof woman is not a ‘fraction’ of man, but an ‘integral,’ egalitarian complement.

In both cases, Michelle Gonzalez advises a middle path, firstly of a ‘strategic essentialism’ which contains both modes of individual and incarnation. She goes on to provide a rare synthesis of the agental or relational roles beyond past misunderstandings toward a full partnership resolve.


We note this work for several reasons. The University of Exeter theologian is the author of a recent major study: *Teilhard de Chardin: Theology, Humanity and Cosmos* (Peeters, 2006), reviewed in the Fall 2006 Perspective by Fr. Thomas King. Henri de Lubac, SJ, (1896-1991) was one of Teilhard’s most staunch advocates over many years. A leading French spiritual scholar, he was on the Faculty of Catholic Theology at the University of Lyons when he wrote an early substantial appreciation: *The Religion of Teilhard de Chardin* (Desclée, 1962). The present work is the first accessible entry to this salient thinker who was immersed in the ferment of 20th century Europe in accord with Teilhard.


The professor of theology at Georgetown University is the author of many works such as *God After Darwin* which look beyond the current evolution vs. religion rancor to innovative pathways for common accord. Teilhard’s vision is a constant, tacit guide and in this latest volume he is given central position. With Haught’s usual lucid exposition, one learns of a hopeful moral and spiritual presence suffusing an albeit fraught, yet dynamically incomplete creation.


We also note this paper and edition because of an especially cogent paragraph in this chapter, quoted below, about Teilhard’s insights toward a developmental divinity. A simple shift of viewpoint makes all the difference from a vested scientific reduction back in time, down into matter, and out into space, to sight ahead toward Whom in creation an
unfinished genesis universe seems to be tending. The total work is somewhat ponderous, with 12 male contributors and 1 woman (theologian Murphy).

“Finally, Teilhard de Chardin also seeks to correct the one-sided direction of scientific knowing. Instead of looking only to the chronological past or to the subordinate constituents of emergent wholes in order to understand them, what is needed, he thinks, is a ‘reversal of perspective’ that takes into account what emergent evolution has actually brought about. Instead of viewing life and mind exclusively in terms of their antecedent lifeless and mindless elements, Teilhard looks back at the material spheres studies by physics and chemistry by deliberately starting inquiry into nature at the point of the phenomenon of consciousness. This richly empirical method, less abstract and analytical than what is typically called science, is based on the conviction that human inquiry cannot begin to understand the physical universe without taking into account what that universe has produced by way of emergence. Once again, in Teilhard we encounter a rich empiricism that refuses to remain oblivious to the amazing outcomes to which evolution has in fact led. Teilhard’s perspective is, I believe, much more radically empirical than is that of normal science since it refuses to leave out the actual experience of consciousness that takes place within the context of the universe.” (262)


Phil Hefner, a veteran Teilhard scholar and advocate, is presently Emeritus Professor of Systematic Theology at the University of Chicago. He is also the editor of *Zygon: Journal of Religion and Science* and has kindly in the past given us permission to reprint as *Teilhard Studies* several relevant articles which first appeared in those pages. To properly convey this contribution, we next append its abstract.

"Milieu" (extending the work of Teilhard de Chardin) is proposed as the central image for interpreting evolution in a theological framework. Evolution constitutes the milieu in which we live, and this milieu is ultimately a divine milieu, the work of God. The following arguments elaborate this proposal: (1) we must place our efforts to give a theological appraisal of evolution within the classical theological context of apophasis and cataphasis. (2) The scientific study of evolution is religiously and theologically important because it throws light on the works of God (God's economy). (3) The divine energies are a realm of hiddenness, embedded in paradox. The biblical Book of Job epitomizes our situation as we explore the divine milieu of evolution.”


In a special section in this issue on Confucian and Christian Conceptions of Creativity, the eminent Harvard Divinity School theologian ventures an innovative view of “God as Creativity.” Three dimensions or phases then accrue – an original act of singular proportions, the interim self-organizing evolutionary dynamics of complex adaptive systems, and lately a phenomenal human contribution as “co-creators.” After such theological parsing, one can’t help avoid this translation: mother and father, a long gestation, the nativity of a cosmic Christ child, surely akin to what Teilhard was trying to express.

A companion article by Harvard-Yenching Professor Tu Weiming goes on to explain how the traditional Chinese cosmos of spontaneous self-generation can accommodate, through its on-going interplay of Heaven and human, various anthropo–morphic, centric, and cosmic realms. Gordon Kaufman also has a paper in the December 2007 *Zygon* issue: *A Religious Interpretation of Emergence: Creativity as God.*


Physician, biologist, philosopher, Renaissance person, Stuart Kaufman offers with his usual brilliance these latest thoughts on an imminent revision in science and the resultant cosmos, to which he has made major contributions over past decades. One sign of our myopia is that he should have received the Nobel Prize in Biology for his work, that is if there was one. Prizes indeed for physics and chemistry, but not for studies of a genesis universe of arisen life and mind.

“In this brief article I wish to discuss the first glimmerings of a new scientific Worldview – beyond reductionism to emergence and radial creativity in the biosphere and human world. This emerging view finds a natural scientific place for value and ethics and places us as co-creators of the enormous web of emerging complexity that is the evolving biosphere and human economics and culture.” (905) “Thus,
beyond the new science that glimmers a new worldview, we have a new view of God, not as transcendent, not as an agent, but as the very creativity in the universe itself.” (905)

“I believe, I hope correctly, that what I have sketched above is true, points to a new vision of our co-creating reality, that it invites precisely an enhancement of our sense of spirituality, reverence, wonder, and responsibility, and can form the basis of a transnational mythic structure for an emerging global civilization.” (914)


A new article by the Teilhard scholar and Georgetown University theologian that journeys widely to explore the heart and soul of darkness and light. Three prime pilgrims and exemplars are first considered: St. Therese of Lisieux, Mother Teresa of Calcutta, and Pierre Teilhard de Chardin. Some keywords for the article can convey its depth and breath: destitution, faith and doubt, humanity, John of the Cross, prayer. With this course taken, Fr. King then reflects on the troubled existential atheism of Jean-Paul Sartre. Select writings of both Teilhard and Sartre finally close upon the unsettled nature of belief, both in the 20th century and for our postmodern age.


The publisher’s city is appropriate because if to gloss the book’s theme, and probably St. Paul, all of creation which has been groaning in travail has at last reached its prophesized, quickening day of nativity. Drawing much from Pierre Teilhard, Alfred North Whitehead, and others, along with Ken Wilber, a mindful “within of things” is at last attaining self-reflection so as to perceive the creative unity of a spiritually oriented evolutionary gestation. These lights then augur for a worldwide enlightenment and governance. Be so advised, the work could have been better organized and documented.


Our 100-Million-Year-Old Ecosystem – And The Threats That Now Put It at Risk is the subtitle for this call to aware action by Provost of Science at the American Museum of Natural History. If the present global environmental precariousness is seen in this expansive view of an evolutionary biosphere reaching closure via human proliferation, then our consequent remediation, or lack thereof, becomes even more significant. Novacek does not mince words and entitles a chapter A Waste of a World. Teilhard, along with Vladimir Vernadsky and Antonio Stoppani, are mentioned in passing as originators of this vista so as to designate a radically novel, and now penultimate epoch, variously known as Holocene or Anthropocene. It occurred that two future paths might hence be taken – Terra or Terror. Are we to be engulfed in a tsunami of male ignorance and violence, or could somehow the inconvenient, intentional care and furtherance of a precious bioplanet, a sustainable Earth Community, become a 21st century mission of numinous essence.


One of the last statements by the Anglican biochemist of his essential Teilhardian vision, grounded in complexity science and pantheistic theology, of a ‘natural incarnation’ in this divinely inspired and attended creation. For papers from a February 2007 conference on Peacocke’s legacy, access the *Zygon* website at www.zygonjournal.org/peacocke_symposium_papers.


A philosopher of religion at Bath Spa University, UK, who recognizes he is a male author writing about this female subject, sketches out pathways to a more fecund, encompassing, and immanent presence. As Paul Davies also notes in *Universe or Multiverse?* by such lights as the new complex systems sciences the cosmos may indeed be appreciated as innately pantheistic, gestational and pregnant with Divinity both in being and becoming. This is in contrast to a patriarchal physics whose pessimism classically shifts the focus to a remote, transcendent Deity. Of course, this begs a complementarity of anima and animus, mother and father, if ever these qualities could join in sacred marriage.

“Femaleness and organicism are the primary theological resources for conceiving and interpreting the cosmic whole; a religious orientation that is the
virtual antithesis of most patriarchal forms of cosmogonic and cosmological thought.” (85) “In the Goddess feminist worldview, the womb of the Great Mother is the cosmogonic and cosmological construct par excellence. Building upon metaphoric and mythopoetic associations between female reproductive capacities and the structures and processes of the universe in its entirety, Goddess feminism can be understood to affirm a form of ontological continuity between microcosmic female generativity and the macrocosmic reality of Goddess Nature. In a theologically significant sense, the universe is conceived as either female or a female environment/matrix.” (92)


An extraordinary work by a lifelong Teilhard teacher and communicator. Louis Savary holds doctorates in both mathematical statistics as applied to the social sciences, and in spirituality and theology and is the author of several prior works. We quote from the publisher’s website.

“During the 20th Century, Jesuit priest Teilhard de Chardin is said to have developed a truly innovative spirituality. By integrating a comprehensive evolutionary perspective with the discoveries of modern science into Christian traditions, Teilhard presented novel pathways to at once understand the Word of God and the immensity of the Universal Christ.

While many books have explored and explained Teilhard’s theology, there has never been a spiritual guide for practical, everyday use of his principles. Having taught and lived Teilhardian ideas for almost 40 years, author Louis M Savary transforms these luminous insights into accessible spiritual practices for both inner contemplation and social action, a ‘divinization’ of passivities and activities. This heartfelt work offers real examples of how to both think about one's faith and live it in light of an evolutionary creation.”


Dr. Schaab is Assistant Professor of Systematic Theology at Barry University in Miami Shores, Florida. She has kindly written our latest Teilhard Study “The Divine Welling Up and Showing Through: Teilhard’s Evolutionary Theology in a Trinitarian Panentheistic-Procreative Paradigm,” which was facilitated by the Studies new editor Kathleen Duffy, SSJ, Ph.D. In this new book, along with the Study and several recent articles noted in prior Perspectives, Gloria Schaab achieves some of the most innovative rethinking of a theology appropriate for an embryonic, still developing, cosmic genesis, which Teilhard so presciently glimpsed. We quote from the publisher’s book description.

“The scope and impact of human suffering in the last century have demanded an authentic theological response and impelled debate concerning God's relationship to suffering and the conceivability of the suffering of God. How shall one speak rightly of God in view of the suffering that is inherent and inflicted in the cosmos?” This book proposes that a truly viable response to cosmic suffering is the recognition that the triune Christian God participates in the very sufferings of the cosmos itself.

The Creative Suffering of the Triune God arises from Gloria Schaab's interpretation of the ongoing dialogue of theology and science concerning the problem of suffering, focusing on the work of scientist-theologian Arthur Peacocke. Informed by evolutionary science, grounded within a panentheistic paradigm of the God-world relationship, and rooted within the Christian theological tradition, Peacocke's work claims that the Triune God is intimately involved with the suffering of the cosmos. Developing this idea, Schaab contends that the proposal of divine suffering provides an essential and efficacious response to the suffering of the cosmos and its creatures.
Schaab explores her proposal in three contexts—feminist theology, ecological praxis, and pastoral ministry—as steps toward Christian praxis in response to the mystery of God within the pain, suffering, and death of cosmic existence and human experience.”


Since his retirement as CEO of a major Dutch engineering company, Allerd Stikker has founded and chairs the Ecological Management Foundation (www.emf.nl), a nonprofit organization focusing on the environmental dimensions of business strategies. In this regard he has championed ‘Exploring Sustainable Water Management for the New Millennium,’ a subtitle of this subject book. Drawing upon much international travel and conference participation, the work covers salient issues such as preserving the oceans, desalination options, the role of multinationals, along with a practical, local project to save the ecology of Taiwan. This present paperback can be attained through amazon.com.

Allerd is also a veteran Teilhard scholar and author and has contributed *Teilhard Study* No. 15: “Teilhard, Taoism, and Western Thought.”


In this response to the 2007 question: "What Are You Optimistic About," by the online salon www.Edge.org, the MIT cosmologist offers a salutary vista whereby conscious, informed living entities might be able to expand into and transform the future universe. Human beings may be a rarity but thus possess an august potential to influence the fate of cosmic destiny. As the quote avers, the next century could decide whether this path is taken or not.

“Moreover, this brief century of ours is arguably the most significant one in the history of our universe: the one when its meaningful future gets decided. We'll have the technology to either self-destruct or to seed our cosmos with life. The situation is so unstable that I doubt that we can dwell at this fork in the road for more than another century. If we end up going the life route rather than the death route, then in a distant future, our cosmos will be teeming with life that all traces back to what we do here and now. I have no idea how we'll be thought of, but I'm sure that we won't be remembered as insignificant.”


The lead article of a special issue of this publication of the Yale Divinity School on “God’s Green Earth: Creation, Faith, Crisis.” John Grim and Mary Evelyn Tucker, president and a vice president of the American Teilhard Association, have in 2007 been appointed Senior Lecturers and Research Scholars at Yale Divinity School and the School of Forestry and Environmental Studies. They are also Environmental Ethicists in Residence at the Interdisciplinary Center for Bioethics at Yale. For years they have been ahead of the curve with their advocacy of a vital intersect and salutary union between religion and ecology. In this regard, they are the founders of the Forum for Religion and Ecology and have organized and ran a ten part series on World Religion and Ecology at the Harvard Divinity School, which are collected in a similar volumes published by Harvard University Press. This article can be accessed at: www.yale.edu/reflections/spring07_index.
“And finally, a conviction is emerging in some quarters that we need a new “species identity” to rally humanity to a stronger sense of solidarity than nationhood, faith, or family can muster. It means coming to understand our place within this vast field force we call nature and evolutionary history. It means embracing a new story, a universe story, one that evokes awe, wonder, and responsibility, and inspires humans to influence evolution in benign directions.” (9)


The emeritus biochemist at California State University, following up on previous writings, contends that if a ‘complex systems view’ of nature’s innate creativity is taken, then life’s occasion and course can be appreciated as inherently teleological in kind. If fully appreciated, Weber argues, such a finding can inform a true natural theology.

“If the problem (life’s origin) is recast as one of a process of emergence of biochemistry from protobiochemistry, which in turn emerged from the organic chemistry and geochemistry of primitive earth, the resources of the new sciences of complex systems dynamics can provide a more robust conceptual framework within which to explore the possible pathways of chemical complexification leading to life. In such a view the emergence of life is the result of deep natural laws (the outlines of which we are only beginning to perceive) and reflects a degree of holism in those systems that led to life. (837) The emergence of life may thus be seen as an instance of the broader innate creativity of nature and consistent with a possible natural teleology.” (837)

Teilhard Perspective

TEILHARD PERSPECTIVE is published by the American Teilhard Association, a non-profit organization whose goals are to explore philosophical, scientific, religious, social and environmental concerns in light of Teilhard’s vision and the role of the human phenomenon in this emerging understanding of the cosmos.

We welcome suggestions of relevant ideas, books, news, events and contributions of articles for this newsletter. The editor’s address is Arthur Fabel, 11 Meadowbrook Dr., Hadley, MA 01035; email: artfabel@crocker.com. The Teilhard Perspective newsletter along with the biannual Teilhard Studies pamphlet and meeting notices are available through membership. Please contact us at: American Teilhard Association, The Spirituality Institute, Iona College, 715 North Ave., New Rochelle, NY 10801. Annual membership is $35. Our new website address is: www.teilharddechardin.org.

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