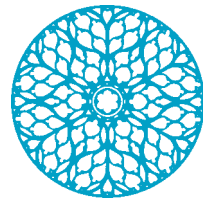


# The SHORELINE



Walking together on the shoreline of an infinite sea of mystery...

## *In Memoriam: Pierre Teilhard de Chardin 1881-1955*

By Frank Villa, Editor

Evolution of species by natural selection is a powerful explanation of the diversity of life on earth. Over the four-and-a-half billion year history of the planet, the web of life evolved by the accumulation of gradual, sometimes imperceptible changes and created new types of living creatures. Human beings, blessed with sentience and reasoning ability - arguably the most complex of objects in the universe - came about by the same amazing process. Scientific evidence converges from fields of study as diverse as genetics, paleontology, and microbiology to point unflinchingly at the gradual transformation to new life forms. Theologian Ewart Cousins goes so far as to designate Darwinian evolution the seminal idea of the twentieth century.

Evidence for evolution is overwhelming. Rather than cling to dubious claims of alternative pathways like creationism and its more subtle counterpart, intelligent design, modern theologians must embrace the marvelous mechanism of evolution as revelatory of God's works. Yet, religious-based groups in many states have attempted to divert attention in classrooms from solid science to dogma, thereby undermining the effectiveness of their theology and rendering their ethical voice less effective in the public square.

This year, we honor the fiftieth anniversary of the death of a theologian who, as both a Catholic priest and a paleontologist, embraced the principles of both disciplines. Pierre Teilhard de Chardin attempted to unify the latest discoveries in science with the foundational theology of Christianity. In Teilhard's view, Christ came into a world that had evolved the stars and the planets (the geosphere) and the web of life on earth including humankind (the bio-

sphere) to lead the way towards the next level of evolution, the unification of all consciousness and spirituality (the noosphere) into ultimate unity with God. To Teilhard, evolution was an essential component of God's design and human purpose. Christ was the God of the Ahead, leading to the final endpoint of the evolutionary process where all consciousness was unified as the Omega Point. To Teilhard, evil and original sin were a natural result of the randomness and chaos in the evolutionary process, but as the noosphere advanced in evolution under Christ's direction these counterproductive forces would be overcome. Omega Point would not be reached overnight. It would require further billions of years to achieve unity, but the way had

been illuminated and Christ was the guiding spirit. It has been suggested by some that Teilhard's theology would find the global communication explosion made possible by the internet to be a

***A Christ whose features do not lend themselves to the requirements of a world which is evolutive in nature will tend to be eliminated out of hand...And, correspondingly, if a Christ is to be completely acceptable as an object of worship, he must be presented as the saviour of the idea and reality of evolution...Pierre Teilhard de Chardin, 1933***

large step towards a unity of consciousness. This issue's *Student Corner* article by Rev. John Mills provides further insights into the theological implications of cyberspace.

Teilhard's theology was not readily accepted in his day. The Vatican banned any publication of his theological writings until after his death. But his ideas resonate in many circles today because they seek to unify the tenets of two great epistemological systems - the worldview of theology and the discoveries of the scientific method. As theologians and scientists find common ground at the shoreline of the sea of infinite mystery, Pierre Teilhard de Chardin provides an example of the spirit that can unify both disciplines.

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Frank Villa, Editor

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SCIENCE and RELIGION at the BTI

## Student Corner

### Opinions, ideas, and musings of students in the Science and Religion Certificate Program

#### *The Biology of Cyberspace*

John A. Mills

Beyond blogging, e-mailing, webcasting, browsing, and gaming, something wonderful and deep is happening in the cyberworld of PCs, users and the Internet. Outwardly, cyberspace appears as pixels and tones on PC desktops and cell phone displays. But these are merely windows into an amazing world that has organically grown up over the past 50 years into an evolving web of diverse and complex interactions of functions, information, and users. The “Big Bang” of this world was the development of stored-programmed machines, a.k.a. computers, a categorically different type of machine that is unlike any other machine type. A computer is cybernetic having the capability to acquire, store, generate and act on information. It does not just compute like an abacus, but rather it processes according to internal and external stimuli. It is programmable where its function can be changed radically by simply loading a new program. Even further, it has the capability of modifying its own program to evolve new capability. This universal computing capability seems to endow the machine with a mind and intelligence. Yet computers are not alone in being cybernetic. We have discovered that genes are also cybernetic. It is this cybernetic capability that is the basis for evolving diversity and complexity within and among computers and within the biosphere. And in the 21<sup>st</sup> century the computer has merged with the telecommunications network to take the critical step towards interrelationship among intelligent machines, further taking on the characteristics of the biosphere. These intelligent machines

can be, and more and more are, networked in an open web of intelligent processing.

We think of the biosphere as being organic, carbon-based and not digital, silicon-based. Yet, the study of genetics has shown that the biosphere is cybernetic: genes have the capacity to acquire, store and retrieve information. Our genetic machinery, enzymes and DNA, processes the programs in our genomes. Holmes Rolston in *Genes, Genesis and God: Values and Their Origins in Natural and Human History* reports that our genomes have over the course of evolutionary history accumulated the genetic capacity to acquire, store, and transmit new information. The genome is cybernetic. It is the generation of novel information that allows for the complexity and diversity of the biosphere. This genetic information is the key to progress and is generated in the mutagenic processes of evolution. But the change brought on by mutations alone is insufficient for complexification; there appears to be attractive forces encouraging it. Over the generations and epochs there is a clear tendency to diversity and complexity in an ever evolving, interrelated web of life. Scientifically, these invisible forces are emergent. But in theological, Whiteheadian Process terms, we find God in the interrelationships of life. *God’s lure towards the Divine is the attractive force towards order, complexity and diversity.* Evolution is thus an interplay between chance, order, and emergence. Chance provides flexibility and variability and hence responsiveness. Order provides the vector of complexification and life. Emergence provides self-organization and higher forms greater than the parts, thus; life and consciousness emerges.

Therefore, by analogy, could not the biosphere also embrace the silicon world of cybernetics? At a profane level, nothing particularly exciting is happening here. If we omit the possibility of God’s lure and observe only what we can measure, we have

a case of patterns emerging from blind mathematics and mindless logic. Cyberspace is simply so much C++ and Java code running on PCs and racing along fiber. It is only a deterministic process of logic. God’s lure is not there — because it has not been programmed to be there. Thus, if the underlying genetic assumption that emergence occurs given the complexity, diversity, self-organization, and interaction holds in cyberspace, we have to assume that there is something beyond blind mathematics and mindless logic, i.e., beyond determinism, even when all with which we work is founded on mathematical logic.

This, then, leads us to the sacred. God lures the creation towards novelty, into new forms greater than the individual parts. The stunning cybernetic parallel of cyberspace and biology lures us to look further into the metaphysics of cyberspace, beyond the mathematics and logic. If the cybernetic parallel is true, can we not hope to find God’s lure in the digital cosmos? Is cyberspace simply a soulless machine, or in this creation of our hands and minds, has God lured us into a new and alien extension of reality?

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*The Rev. John A. Mills is an ordained pastor in [United Church of Christ](#). He is also a telecommunications solutions architect who has worked on a variety of computer systems supporting the emergence of the Internet. Rev. Mills graduated from Drew University Theological School with a Masters of Divinity degree, Summa Cum Laude, and from Rutgers University with a Masters of Science degree. He has three decades experience in the telecommunications industry, publishing various technical articles in the field of software engineering, and developing various operations architectures for telecommunications networks. Rev. Mills is director of [Wisdom’s Light](#), a program bringing the dialog between science and religion to the public.*

## CHARLES TOWNES WINS ANNUAL TEMPLETON PRIZE!

Just as this newsletter is going to press, word comes that Charles Townes has been awarded the 2005 Templeton Prize for Progress Toward Research or Discoveries about Spiritual million dollar year to en-honor those knowledge in former pro-Townes won Physics in on the devel-ser. His article on sci-“The Conver-and Religion”, in the IBM journal THINK led to a lifelong search for the commonality between the two disciplines

“Understanding the order in the universe and understanding the purpose in the universe are not identical, but they are also not very far apart.”

--- Charles Hard Townes

or Discoveries Realities. This 1.5 prize is given each courage and who advance spiritual matters. A vest at MIT, the Nobel Prize in 1964 for his work opment of the la-ground-breaking ence and religion, gence of Science

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## InterFASE and BTI COLLABORATE on ANNUAL TOWNES LECTURE

On Sunday, June 12, the fifteenth annual Townes Lecture will be held at Sperry Auditorium at Harvard Divinity School. The intent of the Townes lecture series is to contribute to the science-religion dialogue at the highest level, with first-rate scientists who explore ways in which the two disciplines, science and religion, can be reconciled for their mutual benefit. It is typically attended by members of the BTI community - the nine theological schools in the Boston area - and by scientists from all local institutions.

Charles Townes will be in attendance this year. In addition to a dinner preceding the lecture and a reception following, we will have a birthday cake in honor of his ninetieth birthday.

Watch for details in upcoming newsletters. For more immediate information, contact the Editor by email at [villa@bostontheological.org](mailto:villa@bostontheological.org)

## Courses in Science and Religion

BOSTON UNIVERSITY

Fall 2005

Religion and Science — The Contemporary Dialogue  
Explores recent developments in the theoretical and cultural relations between religion and science, paying particular attention to strategies for moving beyond the limitations of the pervasive “conflict” view. No specific background in science required. Focuses primarily, though not exclusively, on the interaction between Christian thought and the natural sciences.

Wegter-McNeilly

Spring 2006

Theology and Evolutionary Biology

Investigates various historical and contemporary theological perspectives on evolutionary theory, including the “theistic evolution” and “intelligent design” approaches. No background

--- Wegter McNeilly

### To Contact Us:

For comments, submissions, letters to the editor, please e-mail [villa@bostontheological.org](mailto:villa@bostontheological.org). We will make every effort to respond to your comments, questions, or concerns.

# ***OUR BRAINS AND US***

## ***Neuroethics, Responsibility, and the Self***

***APRIL 17 –19,2005***

***MASSACHUSETTS INSTITUTE OF TECHNOLOGY***

- What is Neuroscience? What is Neuroethics?*
- What insights do the neurosciences provide into the concepts of the self?*
- What implications do the neurosciences have for understanding human freedom, moral agency, and legal responsibility?*
- What opportunities do the neurosciences provide for therapy,for neurological enhancement, or for the exercise of social, economic, and political influence?*

This conference brings together scientists,philosophers,members of diverse religious communities,and the public for a multifaceted,interdisciplinary and multi-traditional dialogue about the neurosciences and questions such as these.It provides an opportunity to explore a range of emerging ethical, religious and philosophical issues associated with neuroscience research and its present or foreseeable applications.

For additional information and on-line registration visit:

**[www.aaas.org/spp/dser/neuroscience/index.shtml](http://www.aaas.org/spp/dser/neuroscience/index.shtml)**

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***The SHORELINE***

Boston Theological Institute  
210 Herrick Road  
Newton Centre, MA 02459