

TEILHARD PERSPECTIVE

Volume 37, Number 2

Fall 2004

Teilhard 2005 Events Calendar

To celebrate Teilhard's vision on the occasion of the 50th anniversary of his death in New York City on Easter Sunday, April 10, 1955, a superb array of convocations are planned. Events are to be held in April 2005 in New York and in Washington, DC, May 2005 at Marist College, Poughkeepsie, NY, and November 2005 at Chestnut Hill College in Philadelphia, PA. Members will receive a separate mailing of the final calendar.

New York City

Thursday April 7, 2005

Inaugural Symposium

United Nations: Trusteeship Council Chamber

Morning: 10:00 AM - 12:00 PM

Speakers: Michel Camdessus, Ewert Cousins, John Grim, George Ordonnaud

The Philosophy of Teilhard in Building the Future of Humanity

Fordham University: Lincoln Center Campus 113 West 60 Street

Afternoon: 3:00 - 6:00 PM

Speakers: Jean Boissonnant, Thomas King, Ursula King,
Henri Madelin, Lothar Schafer

The Zest for Life: Teilhard and the New Cosmology

Iona College, Iona Spirituality Institute

Spellman Lounge 715 North Avenue, New Rochelle, NY Evening: 7:30 PM

Speaker: Mary Evelyn Tucker

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

The Spirit of the Earth: Global Ethics and a Sustainable Future

United Nations: Trusteeship Council Chamber

Morning: 10:00 AM - 12:30 PM

Speakers: Nobel Peace Prize Laureate Wangari Maathai,
Adnan Amin, Brian Swimme, Mary Evelyn Tucker

Registration Required for U. N. Events: 212 817-8215 or continuinged@gc.cuny.edu

The Life and Thought of Teilhard de Chardin (1881 - 1955)

Convent School of the Sacred Heart 91st Street and 5th Ave

Afternoon: 4:00 - 5:30 PM

Speakers: John Grim, Mary Evelyn Tucker

Saturday, April 9, 2005

The Influence of Teilhard's Thought on Scientific Research

Cathedral of St. John the Divine, Synod House

Morning: 9:30 AM - 12:30 PM

Speakers: Kathleen Duffy, Ludovico Galleni, Mark McMenemy,
Harold Morowitz, James Salmon, James Skehan

Celebration of the Epic of Evolution:

Affirming the Vision of Teilhard

Afternoon: 2:00 - 4:00 PM

Welcome: James Kowalski, Dean, Cathedral of St. John the Divine

Speakers: Governor Mario Cuomo, John Grim, Ursula King,
Miriam Therese MacGillis, Wangari Maathai, Helen Prejean, Brian Swimme

Music: Paul Winter Consort

These many events have been primarily arranged by Rev. Franklin "Skip" Vilas,
along with Mary Evelyn Tucker and John Grim.

Sunday, April 10, 2005

Morning Pilgrimage to Teilhard's Grave Site

Jesuit Cemetery at the Culinary Institute of America, Hyde Park, NY

Teilhard's Spiritual Vision: "Mass on the World"

St. Ignatius Church, 980 Park Avenue, New York City

Afternoon: 4:00 PM **Celebrant:** Thomas King, SJ

Washington, DC

Monday, April 11, 2005

Georgetown University

Afternoon: Teilhard and Science

Speakers: Lodovico Galleni, Mark McMenamin, Harold Morowitz, James Skehan

Evening: Woodstock Forum Program to be announced

Tuesday, April 12, 2005

Afternoon: Teilhard and Theology

Speakers: Ewert Cousins, Mary Gilbert, John Haught, Thomas King

Marist College

Saturday, May 14, 2005

Pierre Teilhard de Chardin, SJ, and Evolution

To mark the fiftieth anniversary of the death of Teilhard, Marist College is holding a symposium on Saturday, May 14, 2005 on his evolutionary and theological thought. Attendance and lunch are free, but pre-registration is required. Please notify by May 6.

Fontaine Hall 3399 North Road, Poughkeepsie, NY 12601

Contact Valerie Hall: phone: 845-575-3359. e-mail: valerie.hall@marist.edu.

- 8:30 Registration, Continental breakfast
- 9:30 Welcome by President Dennis J. Murray
- 9:35 James W. Skehan, SJ: “Life and Themes of Teilhard de Chardin”.
Introduced by Joseph L.R. Bélanger, fms
- 10:15 Arthur Fabel: “Cosmic Genesis in the 21st Century”
Introduced by Donald P. Gray.
- 11:00 Break
- 11:15 Donald P. Gray: “Teilhard and Catholic Orthodoxy”.
Introduced by James W. Skehan, SJ
- 12:00 Noon: lunch
- 1:30 Kathleen Duffy, SSJ: “Evolution and the Divine Milieu”.
Introduced by Arthur Fabel.
- 2:15 Freeman J. Dyson: “The Future of Evolution”.
Introduced by James J. Casey.
- 2:50 Stretch time
- 3:00 Panel Discussion with the 5 speakers
- 4:00 Personal visit to Teilhard’s gravesite [10 minutes away]

The program was arranged by Joseph L.R. Bélanger, fms, assisted by James J. Casey and Art Fabel. It is sponsored by the President’s Office and the Dialogue Center at Marist College under the auspices of the Catholic Studies Program, founded and directed by Robert Lewis. Please direct other inquiries to: joseph.belanger@marist.edu

Chestnut Hill College

November 17-19, 2005 Philadelphia, PA

Teilhard’s Legacy: Rediscovering Fire

A Conference to Celebrate 50 Years of Teilhard Scholarship

This conference celebrates the 50th anniversary of the publication of *Le phenomene Humain* by Pierre Teilhard de Chardin, SJ some months after his death in April 1955. *The Human Phenomenon* (formerly called *The Phenomenon of Man*), coupled with *The Divine Milieu* and his many religious essays, sets forth Teilhard’s synthesis of the Christian God with the theory of evolution. The aim of this conference is to assess Teilhard’s contributions,

to learn from his approach, and to allow his enthusiasm for synthesis to spark renewed interest and energy for the continuation of the growing science and religion dialogue.

Confirmed Speakers: John Haught, Thomas King, Ursula King, James Salmon, SJ

Request for Contributions:

Participants are encouraged to submit papers on topics related to Teilhard's thought, e.g., Teilhard's contribution to the science-religion dialogue, cosmology, globalization, environment, the future of religion, the future of culture. Presentations should be approximately 20 minutes long with 10 minutes for discussion. Please send an abstract of no more than 200 words describing your paper by April 26, 2005 to the conference director. Email submissions are preferred and must be a Word or an RTF document.

Artists are encouraged to submit artwork (one or several pieces on a theme) inspired by the thought of Teilhard to be exhibited during the conference. No entry fee is required. To submit entries, please send a slide or digital image of your work, along with its title, size, medium and a one-paragraph artist statement about the work by April 26, 2005 to the conference director. Please do not send the original artwork at this time. If submitting slides that you wish returned, please include a self-addressed stamped envelope. Artwork must be delivered one week before the conference and picked up within a week after the conference.

Persons whose paper and/or artwork are accepted for presentation at the conference will be notified by early June. For more information about the conference or about submission of papers or artwork, please contact the conference director, Kathleen Duffy, SSJ. Information about registration and housing will follow.

Kathleen Duffy, SSJ, Ph.D. Teilhard Conference Director Chestnut Hill College
9601 Germantown Avenue, Philadelphia, PA 19118. kduffy@chc.edu

The Cellular Automaton and the Cosmic Tapestry

Kathleen Duffy

This article which uniquely contrasts the work of mathematician Stephen Wolfram with Teilhard's vision was originally presented at the 2004 Metanexus Annual Conference, Science and Religion in Context, June 5 - 9, 2004. It is reprinted with the permission of the Metanexus Institute, www.metanexus.net. The author also wishes to acknowledge the support of Chestnut Hill College in its preparation.

Introduction

The 2002 best seller, *A New Kind of Science* by Stephen Wolfram, has caused a stir within the scientific community. In its more than 1000 pages, Wolfram presents the fruit of his efforts to model all of the facets of nature, including the universe itself, with simple programs. The goal of this project is to gain insight into the origin and nature of complexity, a behavior that has

only recently achieved widespread interest within the scientific community. Wolfram's preliminary results show that the behavior of spacetime can indeed be modeled with programs called cellular automata and causal networks in which the fundamental reality is the interconnection between network nodes.

Some seventy-five years ago, Jesuit paleontologist, Pierre Teilhard de Chardin (1881-1955), in his book, *The Human Phenomenon*, proposed a new way of modeling the universe. In order to portray the cosmos as a whole and "to organize the tangle of appearances" (*The Human Phenomenon* 95), he constructed and explored a metaphor that I call "the cosmic tapestry" (Duffy 1-12). This metaphor also focuses on interconnections within the evolutionary cosmos.

In this paper, I provide a short introduction to Teilhard's cosmic tapestry and to Wolfram's new science. I then suggest parallels between these two views of the universe, noting particularly the common theme of interconnection.

The Cosmic Tapestry

At the beginning of *The Human Phenomenon*, Teilhard states that in this study he is seeking to discover an experimental law of recurrence that expresses the successive appearance in the course of time of the elements of the universe (*The Human Phenomenon* 1). These elements, he notes, appear with increasing complexity; first inorganic matter: atoms, molecules, polymers; then life: single cells, tissue, organs, plants and animals including the human; and finally, thought. His concern is that without a sense of the whole spacetime history of the cosmos, with its amazing transitions from matter to life to mind, it is difficult to understand the full import of the evolutionary paradigm and its potential for motivating action for the future.

In order to view the whole of the cosmos with all of its complexity, Teilhard suggests plotting the positions of the elementary particles, the simplest forms of matter, present at the beginning of time on a spacetime plot. Initially, these particles are represented by dots randomly scattered throughout space. However, as time proceeds and the particles begin to interact with one another, the curves that represent their positions resemble threads and tend to weave more complex entities so that eventually the plot resembles a four-dimensional, though unfinished, tapestry. Successive three-dimensional cross sections of this tapestry at specific times in cosmic history reveal a universe of increasing complexity. Teilhard's tapestry image illustrates the tendency of the cosmos toward union since everything that is formed requires the knitting together of threads.

Just as the quanta of matter present at the beginning are weaving our present experience of the material world, so Teilhard conjectures that at the beginning there were quanta of spirit that are responsible for weaving the various manifestations of psyche in our world. This means that, to some degree, all matter is psychic and that the psychic component experiences a movement toward complexity similar to that in the physical domain. Teilhard captures the symmetry of this double movement in a law that he calls the law of complexity-consciousness (*The Human Phenomenon* 216). This law states that the complexification of matter and spirit are intimately connected. In fact, it is impossible for spirit to become more complex without a physical matrix of increasing complexity to support it. Teilhard's law of complexity-consciousness describes the complexification that goes on within the cosmos and

points the way to its future development in thought. Teilhard finds that once the evolutionary cosmos is looked at in the correct way, as a whole, this complementary weaving process becomes obvious.

And how is the weaving accomplished? Why this thrust toward greater complexity? And, especially, what does the appearance of mind tell us about the universe? Teilhard certainly agrees that the laws of science embedded within the cosmos are responsible for the weaving of matter. But the trend within the spiritual layer of the tapestry toward more highly developed states of mind leads Teilhard to conjecture that the cosmos is being allured by a Person toward a final unified state, an Omega Point. From his Christian tradition, he identifies this Person with the Person of Christ. The tapestry threads of matter respond to the laws of physics but the tapestry threads of spirit respond to the Cosmic Christ.

Cellular Automata and Causal Networks

Stephen Wolfram, the developer of computer language, *Mathematica*, is also attempting to model the universe. In his recent best-seller, Wolfram claims that by using various forms of computer programs, such as cellular automata and causal networks, he has been able to reproduce the characteristic behavior of many physical systems.

Equipped with results in the form of computer-generated output from countless experiments, he demonstrates rather clearly that complexity should be included in the list of the possible normal behaviors of a physical system. In fact, he finds that even systems that obey simple rules can produce complex behavior. This discovery becomes the basis for what he has termed a new kind of science. Wolfram claims that the new science is powerful enough to encompass the results of traditional science and, as a byproduct, to provide more physical insight into known phenomena. In particular, he is able to suggest ways to model the known universe in a manner consistent with the laws of physics. He does this by means of simple programs such as cellular automata and causal networks in which it is ultimately interconnection between nodes that is the fundamental reality.

In its simplest form, a cellular automaton consists of an initial line of squares colored either black or white (known as the initial conditions) plus a set of rules that determine the colors of the cells in subsequent lines. These rules usually rely on local information such as the

color of the cell itself and that of its closest neighbors. A typical rule might read: if a particular cell and its two neighbors are white, color the cell at that position on the next line black; otherwise color it white. After several iterations of the specified set of rules, a pattern begins to appear that can be characterized as one of the following: "repetition, nesting, randomness [or] localized structures" (Wolfram 106).

A second general call of programs that Wolfram utilizes in his new science is the network. A network system is a collection of nodes and connections between nodes with rules that specify how these connections change from step to step. The nodes in the network represent events while, in a causal network, the connections between the nodes represent the causal relations between events (Wolfram 490). The layout of the network system is inconsequential since it is the ways in which the nodes are connected that specify the properties of the system (Wolfram 193).

Wolfram finds that no matter what the system, whether it is a cellular automaton or a natural physical system, the kinds of behavior that surface are universal. Although the appearance of complex behavior requires that the underlying rules are mildly complex, once this threshold is passed, making the rules more complex does not increase the complexity of its behavior. (Wolfram 105-106).

Wolfram states boldly that "our universe is just a simple program" (Wolfram 434). Starting from an initial state and responding to the set of rules embedded within, the universe evolves as if it were a giant computer updating its state at each moment of time. Wolfram takes his conjecture seriously and explores the types of programs that could possibly exhibit the behavior that we see in the cosmos. He constructs a model of spacetime from a combination of an automaton which updates the system in time and a causal network that describes relationships in space (Wolfram 475, 508). In fact, with a variety of cellular automata and causal networks, Wolfram is able to model not only spacetime but also gravity, relativity, and elementary particles and to fulfill the prescriptions of physical laws such as the conservation of energy, the Second Law of Thermodynamics, and quantum mechanics.

The Parallels

Although their approaches to the study of nature's complexity differ radically, Wolfram and Teilhard share some common ground. For instance both note the

limitations of traditional science. They find scientists in some sense blinded by their preconceptions about the way nature behaves. Both feel that there is more to be seen and that deeper seeing depends on the model used to describe the universe. Wolfram notes how traditional methods of science have missed complex behavior because they focus too narrowly on simple systems that can be solved with traditional methods (Wolfram 21). Until recently, few new approaches have been suggested. Teilhard, on the other hand, claims that by looking at nature in its parts rather than taking the cosmic process as a whole into account, scientists have generally ignored the psychic aspects of nature.

Both scientists are clear that one must look at the whole of the phenomenon and not simply its parts. Wolfram says, for instance, that "universality is . . . quite crucial in finding general ways to characterize and understand the complexity we see in natural systems" (Wolfram 643). Teilhard insists on studying the "whole of the phenomenon" (*The Human Phenomenon* 1).

Wolfram and Teilhard both sense that there is a deep organizational rule or set of rules at work within the fabric of the cosmos. Teilhard discovers one such rule, the law of complexity-consciousness (*The Human Phenomenon* 216), which he summarizes in these words: "To be more is to be more united" (*The Human Phenomenon* 3). This rule sums up the ideals that the cosmos strives for as it continues to grope its way toward the Omega Point. Since the continuing evolution depends on the action of free agents, Teilhard is open to the surprise of its unfolding but believes that in the end it will culminate in Omega. Wolfram is also looking for simple rules. He is trying to understand the basic mechanism involved in the formation of patterns from snowflakes to turbulent fluids (Wolfram 17) and finally to the universe itself. These rules are difficult to find even though cellular automata are deterministic; that is, the rules to be followed at each step are clearly spelled out. More often than not, it becomes impossible to decipher these rules from the pattern that is generated (Wolfram 31). Besides, he claims that the Principle of Computational Equivalence shows that it will be impossible to find this simple rule for the universe as a whole or to know the ultimate outcome of the evolutionary project. This principle, he says, encapsulates both the ultimate power and the ultimate weakness of science. For it implies that all the wonders of our universe can in effect be captured by simple rules, yet it shows that there can be no way to know all the

consequences of these rules, except in effect just to watch and see how they unfold. (Wolfram 846)

Each of these scientists uses a simple metaphor to elucidate his understanding of the cosmic becoming. Wolfram seeks to describe ongoing development of the universe using a simple program that he claims is capable of producing much of the complexity that is presently being found in science, particularly in physics and biology (Wolfram 434). This is a non-traditional model, an abstract representation for the physical effects that operate within the universe. Teilhard also uses a non-traditional model for the evolutionary process. His cosmic tapestry serves as both a mathematical model and a metaphor for evolution which he calls "a light illuminating all facts" (*The Human Phenomenon* 152). This metaphor has the added advantage of being able to model not only physical but also spiritual or psychic effects.

Both scientists note the difficulty of being embedded within the universe that they are trying to study. For Wolfram the difficulty has more to do with the way we perceive time and how he must adjust his computer program to allow time to flow in a way that is consistent with causality (Wolfram 487, 490).

Teilhard finds that, because the human species is both at the center of perspective and at the center of construction of the universe (*The Human Phenomenon* 4), it is difficult to plumb the complex tangle of threads in which we are embedded. He finds that he needs a guiding thread, a thread that turns out to be related to the nervous system (*The Human Phenomenon* 93), a thread whose evolution provides a concrete connection between the material and spiritual layers of the tapestry.

Over the last couple of decades, complexity scientists like Wolfram have been able to show rather clearly that "local rules generate global order" (Lewin 38). Both Wolfram and Teilhard consider interactions that are local, involving only nearest neighbors, but whose effects somehow spread throughout the system and affect the system as a whole. Rules for cellular automata usually involve only nearest neighbors but their effects do not remain local. Teilhard also notes the importance of interactions with nearest neighbors. "We have gradually come to understand that no elemental thread in the universe is wholly independent in its growth of its neighboring threads" (*The Future of Man* 87). In fact, the vibration of a single tapestry thread affects the whole fabric. Teilhard's law of complexity-consciousness acts locally but with global consequences.

There are also major differences between the two models. Obviously, Wolfram is using a quantitative approach while Teilhard's is qualitative. Furthermore, in order to model spacetime using cellular automata and causal networks, Wolfram needs to divide both space and time into discrete steps. Teilhard's cosmic tapestry, on the other hand, depicts space and time as continuous. However, both Teilhard and Wolfram stress the importance of connectivity: Wolfram by way of his causal networks that focus on causal relationships between nodes and Teilhard by way of his law of union, "to be more is to be more united with more" (*Science and Christ* 45).

Another obvious difference between the two approaches is their starting points. Wolfram begins with simple rules to show that complex behavior can be generated from simple rules (Wolfram 466). Yet, although he has been able to generate behavior characteristic of much of the behavior known to physics, he is far from discovering the simple rules and initial conditions that characterize the universe as a whole, a fact that he claims is impossible.

On the other hand, Teilhard starts with the complexity he sees, the patterns that have formed through the eons of evolutionary activity. Tracing the advance of psychism and physical structure, he intuits the simple underlying rule at work in the cosmos responsible for the order we experience in the cosmos.

Conclusion

Both scientists are attentive to and trying to understand the order of the cosmic unfolding. Wolfram is looking for a simple rule to generate this order; Teilhard claims he has found it. Teilhard sees the human as the peak of evolution; Wolfram regards the human as merely another computation equivalent to others in the universe. In fact, Wolfram reduces all processes, whether natural or produced by human effort, to computations (Wolfram 715). And yet both scientists agree that basic to the cosmic program is the deep connectivity and interdependence among all of its apparently discrete elements.

Works Cited

- Duffy, Kathleen. "The Texture of the Evolutionary Cosmos," *Teilhard Studies*. Number 43, Fall, 2001.
- Lewin, Roger. *Complexity: Life at the Edge of Chaos*. New York: Macmillan, 1992.
- Teilhard de Chardin, Pierre. *The Future of Man*. New York: Harper & Row, Publishers, 1964.

Teilhard de Chardin, Pierre. *The Human Phenomenon*. (Sarah Appleton-Weber, Trans.) Portland, OR: Sussex Academic Press, 1999.

Teilhard de Chardin, Pierre. *Science and Christ*. New York: Harper & Row, Publishers, 1968.

Wolfram, Stephen. *A New Kind of Science*. Champaign, IL: Wolfram Media, 2002.

Biography

Kathleen Duffy, SSJ received her PhD in Physics from Drexel University. Currently, she is Professor of Physics at Chestnut Hill College. Formerly, she taught physics at Drexel University, Bryn Mawr College, Ateneo de Manila University and University of the Philippines. She has published research in atomic and molecular physics and in chaos theory in journals such as Physics Review Letters, Journal of Chemical Physics and Chemical Physics Letters, as well as Philippine journals and bulletins. Dr. Duffy is presently President of the Board of Directors of the METANEXUS Institute for Religion and Science and a member of the boards of the American Teilhard Association and Cosmos and Creation. Her current research interest is in the synthetic work of Teilhard de Chardin and its relationship to modern developments in science. She has published some of her work in this field in *Teilhard Studies*, *Review for Religious* and *Omega: Indian Journal of Science and Religion*.

Sion Cowell

The following is a notice sent by Celia Deane-Drummond on the passing of the former president and mentor of the British Teilhard Association.

Dear Colleagues and Friends of Sion Cowell,

It is with great sadness that I write to let you know that Sion Cowell passed away on 12th September, 2004. His requiem mass was held on 16th September at Our Lady of the Martyrs Church in Beaumaris, in Anglesey. One of his last thoughts to me that he passed on in late August was that he wanted everyone to know that he shared Teilhard's vision of death. At a house mass celebrated in late August with Billy Hewett, SJ, Sion commented to me later that: "Billy Hewett SJ visited us on Saturday morning when we had a wonderful house mass to commemorate a sad but at the same time very happy time here."

In both his life and death Sion was a great witness to the faith that he shared with Teilhard, and I am sure you

will want to join with me in prayers for both him and his family in their time of sorrow. He leaves behind his widow Caroline, and his two grandsons, Finn and Alex.

A book review by Sion Cowell of Teilhard's retreat notes was received last December and is included in that section. Celia Deane-Drummond has also sent this note with regard to Sion Cowell's Teilhard library.

I am writing to let you know that Peter Francis, the warden of St Deiniol's library, has generously agreed to set up a special book collection from Sion Cowell's legacy of books, of which there were a considerable number by or about Teilhard de Chardin.

In consultation with his widow, Caroline, we have decided to set up a special Bursary Fund in Sion Cowell's name, in order to help those who might wish to come to the library in order to study with these books. Further information about the library can be found at www.st-deiniols.org.

If you are interested in making a donation, however small, in order to support this legacy, please write to Peter Francis at deiniol.warden@btconnect.com, or Gladstone's Library, St Deiniol's, Church Lane, Hawarden, Chester, Flintshire, Wales, CH5 3DF. (Tel 01244 532350; fax 01244 520643). Cheques should be made payable to St Deiniol's Library, with a cover note indicating that this is earmarked for the Sion Cowell Bursary Fund.

Father Pierre Teilhard de Chardin

Eliane Lacroix-Hopson

These reflections are by a member of the Manhattan Teilhard Group. Contact Terri Heveran at 212 759 2106 or THeveran@aol.com for information.

I am a French-American and since a science A+ student in a Paris college in the mid 1930's, Pierre Teilhard has been my life guidance. Teilhard succeeded l'Abbe Breuil as the foremost French paleontologist and represented the French Government in the China "Peking Man" research in 1925-1930. At the time, I also met my best friend, who was a Communist and atheist. Our endless discussions were "Christ vs. Karl Marx" and "science vs. religion."

Teilhard's work opened fundamental questions for me: I wanted to understand why and how religion and science which emanate from the same source of knowledge – the Creator – have drifted apart in history.

More particularly, why the law of love of the Creation for which Jesus died had been so neglected in the course of history and never applied scientifically in a working model of society. I felt that the Church did not understand Christ's teachings.

The year 1939 changed the cultural landscape forever and during WWII survival was the priority. As Teilhard's spiritual writings were not published, the Church's Galileo-like stand toward him was not clear to the general public. Coming after the Church's controversial action toward the Holocaust, I was outraged and no longer felt to be a Catholic.

After a divorce, I married an American and we moved to the United States before I could buy the 1955 *Le Phenomene Humain*. I read the English translation in 1961 and the work acted as a spiritual revelation in my mind. All my past thinking was shattered and rebuilt in other dimensions. My questions were right but the answers, including the scientific law of love, sent my mind toward the numinous universe.

Father Teilhard's life was driven by the same historical events experienced by my relatives: the devastating 1905 legal separation of State and Church which closed seminaries and sent Jesuits into exile. The horrors of WWI later shocked this generation. Teilhard found in his Faith and love for Christ and his knowledge of science a redeeming vision which he translated into a brilliant theory of the evolution of energy and complexity.

I decided then to explore this theory by studying the evolution of civilization which Teilhard said is part of man becoming "mankind." In 1962, I spread out months of accumulated references into a history chart. This led me to conclude that most of the significant cultural, scientific and political events of our time were the enfoldment of discoveries which first occurred in the mid 19th century, with the year 1844 as a landmark.

On May 24, 1844 Samuel Morse sent a first telegraphic message using a Biblical verse "What hath God wrought..." Later in July 1844 the British scientist John Dalton, known as "the father of the atomic theory," passed away. Shortly before his death Dalton wrote in his diary: "O Lord! Thou know that no man can split the atom." Toward the end of the 1840's, a series of experiments in England and France led on to the discovery in the 1890's of radioactivity and eventually to the splitting of the atom in 1945 in New Mexico and in the skies over Hiroshima and Nagasaki.

My studies convinced me that something must have happened in 1844 which inspired inquiring souls and resulted in shaking civilization to its foundations. In the course of this research, I often turned to Teilhard for guidance and became used to being intuitively led to unknown sources in the library.

Shortly afterward, I found the book: *Baha'i World Faith*, a compilation of the writings of the Founders of the Baha'i Faith. The introduction mentioned May 23, 1844 as the starting date of the Faith. In my view, I had attained the source of the spiritual and cultural revolution which started in that year. I then resumed my studies in this new path publishing essays on my research.

After my 1982 retirement from a career in engineering, I volunteered at the United Nations and witnessed the unfolding spiritual disintegration of human evolution. Driven by advanced technology, humankind appears to be adrift in a spiritual vacuum: increased corruption while hundreds of thousands of people are destroyed by the cruelty of ethnic cleansings and terrorism.

Still the very existence of Father Teilhard's spiritual and scientific work is reason for hope. His vision of Christ's law of love/energy is well ahead of Christianity and though he was not aware of the Baha'i teachings, his writings parallel the Baha'i vision of a new civilization. There is no conflict, but a fulfillment of the Law of Love as the spiritual and scientific reality of the Divine Eternal Creation in the making.

British Teilhard Association Website

Bill Cranston of the BTA advises us that their current Newsletter along with back issues is available at: **www.teilhard.org.uk**. This site, akin to our own, offers a good array of sources – books and articles, local events calendar, other Teilhard groups worldwide, an interesting discussion bulletin board and a biography of Teilhard.

Natural Genesis Website

As mentioned in the last newsletter, this website **www.naturalgenesis.net** is now online. Its subtitle is An Annotated Anthology Sourcebook for the Worldwide Discovery of a Creative Organic Universe. With over 1500 entries, it attempts to gather, arrange and report the extensive literature in support of an unfinished cosmic

genesis of which human beings in a sustainable biosphere context are phenomenal participants.

Thank You

The American Teilhard Association wishes to thank Le Centre Teilhard de Chardin for a contribution of \$165 by way of its Treasurer Mme. Teresa Pasquale.

New Books and Articles

Pierre TEILHARD DE CHARDIN, *Notes de retraites, 1919-1954*. Éditions du Seuil, 2003.

By Sion Cowell

Some weeks ago I had some bad news from my medical advisers. But within days of learning that I had cancer of the oesophagus a package arrived on my desk. It contained good news from France. And what good news! Nothing less than a copy of the newly-published *Notes de retraites de Pierre Teilhard de Chardin 1919-1954*. This is a tremendously exciting book. For me it could not have arrived at a better time. It quickly gained a privileged place on my bedside table.

I knew Pierre Noir had long been working on their transcription until illness and, finally, death overtook him. His work has now been brought to happy fruition by Gerard-Henry Baudry, with an important introduction by Gustave Martelet. Baudry provides us with invaluable comments which put Teilhard's notes into context.

The *Spiritual Exercises* lie at the heart of Jesuit life. Those acquainted with his spiritual life will know that with few exceptions—notably during the First World War—Teilhard like the true son of St Ignatius that he was, made the *Exercises* every year. His retreat notes reveal his hopes, his fears and his concerns. And, for me, his ongoing debt to the Greek Fathers.

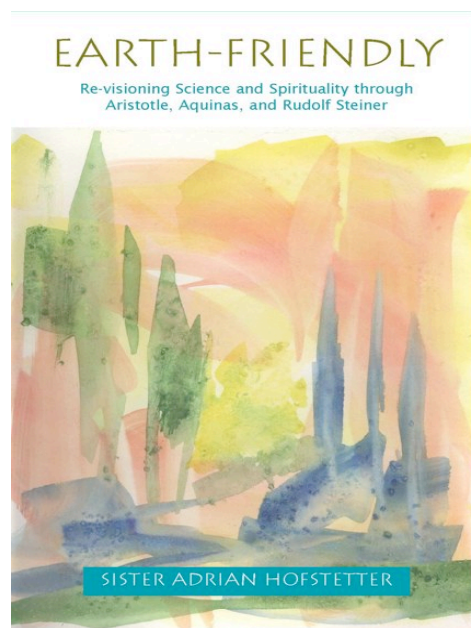
His friend and companion in China, Pierre Leroy, has noted their importance in his autobiography *Un Chemin non tracé* which, sadly, still awaits translation into English. Leroy reminds us that Teilhard was increasingly concerned over the years with transposing the *Exercises* from the dimensions of cosmos to those of cosmogenesis—from those of a static universe to those of an evolutionary cosmos.¹

Gustave Martelet puts it well when he reminds us that, for Teilhard, “the sacramentally limited place of Christ

in the host contains an unlimited power of expansion and irradiation throughout the universe” (Martelet, Introduction, *Notes de retraites*, p. 16).

Teilhardians around the world owe a special debt of gratitude to Maurice Ernst, Administrator of the Fondation Teilhard de Chardin, and his wife, Anne-Marie, for everything they have done to ensure this most important book is available to students and teachers around the world.

1. Pierre Leroy SJ, *Un Chemin non tracé*, Desclée de Brouwer, pp. 124-125.



Hofstetter, Sr. Adrian. ***Earth-Friendly: Re-Visioning Science and Spirituality through Aristotle, Thomas Aquinas, and Rudolf Steiner***. Herndon, VA: Lindisfarne Books, 2004.

Our dear friend conveys a lifetime of contemplation, study and experience in these collected essays. This quote from the publisher's website is a good entry.

Earth-Friendly collects the fruits of a lifetime of study and teaching in search of a holistic, organismic, living science, respectful of the sacredness of nature and the ubiquity of the spirit. As a biology philosopher, Sister Adrian's first teachers were Aquinas and Aristotle; later she came to know the work of Goethe and Rudolf Steiner.

Earth-Friendly traces the development of Sister Adrian's conviction that "the spiritual science flowing from the thought of St. Albert and St. Thomas, as

developed seven hundred years later by Rudolf Steiner, could recapture the true greatness of the West as it reaches out to the East to create an 'earthfriendly re-visioning of science and spirituality.'"

Typical chapters give an essence of its content:

Ancient Wisdom and Modern Science
Liberal Education, a Dominican Challenge
New or Traditional Earth Spirituality
Thomas Aquinas and the New Cosmology
Nature's Law Competition or Cooperation?
Universe Coding, not Genetic Coding
A Rudolf Steiner Sustainable Community
Women Scientists, Ancient Wisdom, and Modern
Science

Much of the spreading conflict and internecine problems in the world today can be traced at base to the wrong mechanistic universe where life does not belong. Sr. Adrian evokes a radically different numinous cosmos that is life, people and nature friendly. The book is available through Amazon.com.

"These luminous essays reflect the thought and deep work of a woman whose long and brilliant life has engaged some of the most profound revelations of our time. As mystic-activist, spiritual scientist, and endless enquirer into the workings of the world, she brings fresh and radical perspective that stuns as it awakens the reader. Earth-Friendly is at once an education for the new century and an inspiration for those who would make a difference, and even, a new creation."

Jean Houston

Powers of the Universe: An Exploration of the Powers Coursing Through the Universe and Each of Us, with Brian Swimme. DVD, 2004, nine hours.

Reviewed by K. Lauren de Boer

What do we think about when we think of the Universe? A vast crushing reality beyond all comprehension? A conscious, purposeful event permeated with intelligence of which we are but one expression? Something certainly awesome but with little bearing on our every day lives? A great teacher that can help us understand ourselves more deeply?

Our conception of the Universe as provided us from the scientific world view does little to connect us to

deeper truths of our lives in and of itself. We have moments of awakening, perhaps, and we want to bring them into our lives. We might stand agape at the night sky, sensing its wondrous and divine nature, but to think of ourselves as actual embodiments of its deepest powers remains elusive for most of us most of the time.

The great gift of this new series by mathematical cosmologist Brian Swimme is to give us empowering tools for becoming more openly receptive to the powers. There are really three levels of comprehending the powers as presented by Swimme in the series. The first level is that of the Universe as measured and presented by science, especially physics. The second level is the way we manifest them as a species. The final level is how each power manifests particular qualities in each human individual. The latter is perhaps the most immediate challenge to the viewer. Swimme asks: "How does each power express itself in our psyches, emotions, achievement, losses, etc.? How can we become a space where the powers can operate through conscious self-awareness? Each power provides a role for the human species. How can we become more aligned with this particular role? How can we consciously amplify this process that is already taking place?"

The following is a paraphrase of Swimme's own words in the first segment as he sets the context for his discussion of the cosmological powers.

We live on a withering planet and our creative response to this fact is something which will go on for a long while. The human species is undergoing a vast transformation, giving birth to a new form of humanity. A vast change came when we settled down into villages, a radical moment at which we gave birth to a new form of the human. We are now in a situation just like that. Our current form—industrial human—is over. But how do we move forward? We must come to a deeper understanding of our role. What is our identity? We have to find out what our habitat is at this point in time. We must move beyond our identification with a particular region, culture, religion, or work. Our new identity is in terms of the planet as a whole, of Earth and Earth's functioning. We are a primary mode of Earth. All other modes—Muslim, Republican, lawyer, etc.—are secondary. We are learning what it means to be "planet." We are the way in which the Universe begins to unfold freshly, the way the Universe proceeds in conscious self-awareness. Given our power of symbolic consciousness—language—we need to no longer think of ourselves as just one species among others, but take

responsibility for the vitality of the planet as a whole. We are trying to go to the powers of the Universe itself, to the processes that gave birth to us, for guidance,

Throughout, Swimme emphasizes what a vital task it is for us to move beyond the industrial, consumerist mindset that's not working, to a "new way of organizing ourselves, to a new image of what it means to be human." In fact, "we need a forest of new images, a blizzard of new symbols of what we're about," he states, "Out of that, we'll sort out what really does lead to a vibrant Earth community." By moving things out from under an industrial mindset, we "enable the powers to unfurl in conscious self-awareness." One point he reminds us of several times is that we don't make the powers happen, we don't construct them. Rather, our work is to remove the obstacles and illusions and allow them to emerge through us. And the great promise of the powers is that they are accessible to everyone.

Once you have a feel for each power in a scientific sense through vivid and easily understood examples, Swimme deftly takes them down to the personal level, into what Teilhard de Chardin called their "hominized" form. In fact, no cosmologist I'm aware of navigates the transition between the universal and personal levels of reality as effectively as Swimme does; I found myself anticipating with excitement the transition in each segment. While I had special affinity for one or two of the powers in particular, I found aspects of myself in each power—at times, both the positive and shadow sides. The sense for me was a progressively deepening sense that I am the Universe embodied. It wouldn't be possible to present each power adequately in this review, but let me list them here: Seamlessness, Centration, Allurement, Emergence, Homeostasis, Cataclysm, Synergy, Transformation, Transmutation, Interrelatedness, and Radiance. Swimme begins the series with Seamlessness as the ground out of which all the powers come.

One of the most defining moments of the series for me is in the "Emergence" segment where Swimme speaks of the human as a "geological formation." At a time when the great life-flowering era of the Cenozoic is coming to an end and a new geological era is emerging, the human impact on the Earth community is now on par with the other major spheres of the planet—the atmosphere, hydrosphere, bathysphere. He asks: "How do we participate in this awakening of the Earth through the birth of a new geological era?" It's something that "involves the entire Earth—we are not in charge, but

part of a process that goes back to the beginning of time. Our major task is to reinvent the major forms of human presence on the planet—our forms of agriculture, economics, education, building and architecture, and more."

Brian Swimme is an awakener, showing us a pathway for expanding consciousness and enlivening our sense of the human role. Thus awakened, we can begin the process of removing the obstacles to our understanding and feeling the powers. It is a process, through fuller receptivity, of better manifesting the Universe we already are. I would venture to guess that an active and open reflection and application of the powers as presented by Swimme can form the basis for their profound practice in our lives, one that can help us begin to realign heart, soul, and intellect.

My suggestion is to take your time with each power. Meditate on them individually, or with others, until you wed them one by one to your depth of feeling and intellect in such a way that they become your unique embodiment of the Universe. What more invigorating, loving practice could there be as we grope our way toward a new way of being human?

To order Powers of the Universe, go to www.brianswimme.org. Its cost is \$180.

K. Lauren de Boer is editor in chief of the highly recommended journal *Earthlight* for which this review was originally written: www.earthlight.org.

Boyden, Stephen. *The Biology of Civilization*. Sydney: University of New South Wales Press, 2004. The public health ecologist author was many years an originator and proponent of "biohistory" as the study of human settlements in their natural setting. This edition provides a popular introduction. An intentional new phase of civilization is now mandated to attain a global sustainability by way of an informed "biosensitive" society that appreciates the indispensable web of living systems.

Brown, Brian. **Environmental Ethics and Cosmology: A Buddhist Perspective**. *Zygon*. 39/4, 2004. This is the text of the luminous presentation that Brian gave at the 2003 Star Island Ecomorality conference. In order to faithfully convey its depth and import we reprint the abstract to the article. (email: bbrown@iona.edu)

The ground for a Buddhist environmental ethic is rooted in one of the earliest formulations of Buddhist

teaching, the principle of dependent co-origination. This concept provides an ecological perspective where nothing exists in and of itself but only as a context of relations, a nexus of factors whose peculiar concatenation alone determines the origin, perpetuation, or cessation of that thing. The primacy of dependent co-origination is consistent with the subsequent development of Mahayana Buddhism and its concept of Tathata (wondrous Being), as understood through the complementary doctrines of the Tathagatagrha (embryonic consciousness) and the Alayavijnana (Absolute Consciousness). Together, these specify the ontological and epistemological framework for understanding wondrous Being as the movement toward its own self-revelation: it comes to recognize itself as the essential nature of all things in and through the human mind, which is grounded on and informed by it. Through such a cosmology, coherent with the classical ideals of a bodhisattva, Buddhism reinvigorates the human in an ethic of mindful awareness of, reflection upon, and care for life in its entirety, as the species that can identify the integrity of the whole in the richness of its diverse particularities. (885)

Carroll, John, E. **Sustainability and Spirituality**. Albany: State University of New York Press, 2004. A professor of environmental conservation at the University of New Hampshire finds some of the best examples of ecologically sensitive living within a sacred landscape to be communities of religious women. In this unique book are collected stories of St. Mary-of-the-Woods, Indiana; Marianist Environmental Education Center, Ohio; Villa Maria, Pennsylvania; Center for Earth Spirituality; Sinsawa, Wisconsin; Sisters of St. Joseph of Nazareth Ecospirituality Center, Michigan; Dominican Earth Project, Kentucky; Genesis Farm, New Jersey; and Earth Connection, Ohio. The main guiding basis for these endeavors is the writings of Thomas Berry. This book then presents a succinct synopsis of Thomas' thought and its practical embodiment. In this regard its topics range from monasticism to social and environmental justice. A laudatory foreword is written by Bill McKibben.

This book is dedicated to the American women, religious and lay, who are compellingly showing us the way to an ecologically sustainable future. Quietly, gently, humbly, but with conviction, determination and passion, they are demonstrating how to live with

ecological principles and how to carry out the Great Work. (Dedication)

Seeing the universe as not mechanistic but spiritual, as not merely physical or material, Berry sees the adoption of this sense of the universe as sacred as being the most important work of our time. He believes that to do anything effective at the present time requires something profoundly of a religious nature and thus that we need new religious sensitivities toward Nature in all religions. (49)

Chiras, Dan and Wann, Dave. **Superbia**. Gabriola Island, BC: New Society Publishers, 2003. As its subtitle: 31 Ways to Create Sustainable Neighborhoods cites, this illustrated work looks at how the impersonal, wasteful sterility of suburban sprawl can be readily changed and made habitable. Simple steps include common backyards, much tree and shrub plantings, a community gathering area and meeting house, along with just getting to know each other and sharing life's journey.

Greenspan, Stanley and Stuart Shanker. **The First Idea: How Symbols, Language, and Intelligence Evolved From Our Primate Ancestors to Modern Humans**. Cambridge, MA: Da Capo Press, 2004. A child psychologist and physician (Greenspan) and a philosopher of language and artificial intelligence (Shanker), both leaders in their field, achieve a breakthrough synthesis of individual and evolutionary behavioral and cognitive development. The first advance is to conceive a 16 stage sequence of "Intellectual Growth and Transformations of Emotions During the Course of Life" from earliest infancy to mature adulthood. This is said to expand the Piagetian scale which only deals with logic functions. A second thesis is that its crucial generative agency is the quality and duration of "co-regulated emotional interactions" between a child and mother, father or caregiver. By extensive studies of marmosets, bonobos, chimpanzees the emergence of intelligence and symbolic speech from earliest primates through the hominids to homo sapiens is then seen to occur by the same process. As a result, a strong parallel is claimed between personal ontogeny and the phylogeny of humankind. A final section advises "A Psychology of Global Interdependency" whereof our volatile worldwide society needs to soon reach a reflective stage of common, shared wisdom.

Jackson, William. **Heaven's Fractal Net**. Bloomington, IN: University of Indiana Press, 2004. A professor of

religious studies artfully conveys how self-similar patterns suffuse all of nature, which is at the heart of literature, cultures and especially religious wisdom. The thought and writings of Thomas Berry and Brian Swimme are a constant resource. Jackson's survey runs, from Dante's *Divine Comedy* and traditional Dogon tribal designs to Taoist gender complementarities, cognitive evolution and Goethe's natural wholeness. What is implied is a resonant, correlative, spontaneous cosmic creation made knowable because this pattern and process recurs over and over everywhere.

King, Ursula. **Love, Cosmic, Human, and Divine: Pierre Teilhard de Chardin's Thoughts on the Phenomenon of Love.** *Composite Theology: Essays for Keith Ward*, T. W. Bartell, ed. SPCK, 2003. Noted in the British Teilhard Association Newsletter No. 18.

Litfin, Karen. **Towards an Integral Perspective on World Politics: Secularism, Sovereignty and the Challenge of Global Ecology.** *Millennium: Journal of International Studies*. 32/1, 2003. A professor of political science at the University of Washington makes a another strong case that the root of our troubles is the old materialist, secular, consumptive scenario which causes contingent people to exploit nature and each other. In its place is proposed a holistic "new story" via a synthesis of thinkers from Gregor Hegel to Thomas Berry, Sri Aurobindo, Pierre Teilhard, Ken Wilber and others, along with the Gaia image of a living earth. Since the single-point, object focus of modernity is unsustainable, Litfin bravely advises an idealist, emergent evolution suffused by subjective communion. This integral cosmology may then inform "humanity's self-finding" and inspire a global ecological concern.

The integral worldview draws no dichotomy between matter and spirit, nature and humanity, objectivity and subjectivity. Rather, mind and matter are two dimensions of a single reality that expresses itself in the self-organizing processes of the universe. From an integral perspective, the human is 'that being in whom the universe celebrated itself and its numinous origins in a special mode of conscious self-awareness.' (33)

If the metaphor for the secular worldview is the billiard-ball model of inert monads in a random universe, the metaphor for the integral worldview might be the seed, with its inherent fecundity and self-generative capacity. Evolutionary idealism proposes that an animating intelligence underlies the development of not only life

forms, but of all creation – from galaxies to human forms of social and political organization. (41)

Madron, Roy and John Jopling. **Gaian Democracies.** Devon, UK: Green Books, 2003. The book is a Schumacher Society Briefing with this subtitle: Redefining Globalization and People-Power. The dominant Global Monotocracy is now locked in a terminal spiral of destroying people and consuming the earth. A radical alternative can be based on the organic principles of complex interconnected systems such as shared purposes, ecological sustainability, networking, full participation, and an openness to change. A companion website is the Worldwide Democracy Network: www.wwdemocracy.org.

Miller, James, ed. **The Epic of Evolution: Science and Religion in Dialogue.** New York, Prentice Hall, 2004. This volume is an example of a growing convergence between science and religion. Its essays examine evolution on the grand cosmic scale, the rise of life on earth, Darwin and neo-Darwinism, the appearance of *homo sapiens*, the evolution of culture, society and religion, ethics and morality, and the human impact on a biosphere environment. Among its contributors are Thomas Berry, Brian Swimme and Mary Evelyn Tucker.

Norgaard, Richard. **Learning and Knowing Collectively.** *Ecological Economics*. 49/2, 2004. The University of California at Berkeley environmental scientist contends that the challenges of climate change and many other systemic issues will require a new mode of intentional, global collaboration. The many disciplines and specialties can no longer proceed in isolation. A common epistemology, language and modeling approach is vital so we can learn and act in effective concert.

Schneider, Stephen, et al, eds. **Scientists Debate Gaia.** Cambridge: MIT Press, 2004. A worldwide range of papers in this large collection consider earth as a special planet upon whom surface life has evolved and is maintained by a self-regulating biosphere. Its main sections review: Principles and Processes (e.g. geochemistry and thermodynamics), Earth History and Cycles (phosphorous, oceans, glaciers), Philosophy, History, and Human Dimensions of Gaia, Quantifying Gaia, and Life Forms and Gaia: Microbes to Extraterrestrials. Typical authors are Eric Schneider, Francesco Santini and Ludovico Galleni, Lee Klinger, and Peter Westbroek. But overall, the papers seem

caught within the old paradigm of a teleology taboo while they express a life-friendly, genesis cosmos.

Teilhard de Chardin, Pierre. *The Divine Milieu*. Translated by Sion Cowell. Brighton, UK: Sussex Academic Press, 2004. The late chairperson of the British Teilhard Association and author of *The Teilhard Lexicon* (Sussex Academic, 2003) provides a new translation of Teilhard's most luminous spiritual statement. The book's Foreword is by Thomas M. King, S.J., Professor of Theology at Georgetown University and is available from *Amazon.com*. We quote below from the publisher's website.

Pierre Teilhard de Chardin's spiritual masterpiece, The Divine Milieu, in a newly-revised translation by Sion Cowell, is addressed to those who have lost faith in conventional religion but who still have a sense of the divine at the heart of the cosmos. "The heavens declare the glory of God," sings the Psalmist. Teilhard would agree. "We are surrounded," he says, "by a certain sort of pessimist who tells us continually that our world is foundering in atheism. But should we not say rather that what it is suffering from is unsatisfied theism?" He sees a universe in movement where progress is the spiritualization of matter and its opposite is the materialization of spirit. Teilhard opts for progress. The Divine Milieu is the divine center and the divine circle, the divine heart and the divine sphere.

The book is written for those who listen primarily to the voices of the Earth; its purpose is to provide a link to traditional Christianity (as expressed in Baptism, Cross and Eucharist) in order to demonstrate that the fears prevalent in contemporary world society as it abuses its very foundation – Mother Earth – may be better understood by the Gospel path. Teilhard's primary purpose is to show a way forward which he sees as the "Christian religious ideal."

Teilhard Perspective

We welcome suggestions of relevant ideas, books, news, events and contributions of articles. The editor's address is Arthur Fabel 11 Meadowbrook Dr., Hadley, MA 01035; phone/fax 413 549 1416; email:

artfabel@crocker.com.

The *Teilhard Perspective* news letter 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 \$30.

The Association President and Vice President are John Grim and Mary Evelyn Tucker. They can be reached at the Department of Religion, Bucknell University, Lewisburg, PA 17837. Phone 717 577 1205, Fax 717 577 1064. Email: grim@bucknell.edu, mtucker@bucknell.edu.

Our website is www.teilhard.cjb.net

