INSTITUTE FOR THEOLOGICAL ENCOUNTER WITH SCIENCE AND TECHNOLOGY (ITEST) NEWSLETTER

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For Your Calendar:

The March 11-13, 1983 Workshop has pretty well taken shape. The topic is a question: is the old conflict between science and faith being revived? A part of this meeting will include some discussion of the creation/evolution debate. It will also involve more general consideration of the science/faith issues of the present and the prospects for the future. The speakers will be Dr. Philip Hefner, Lutheran School of Theology at Chicago (on the present situation) and Fr. Robert Brungs, S.J., Director of ITEST, (on the future challenge). Background papers, which will be sent to all participants prior to the meeting, are being prepared by Sr. Marianne Postiglione, Providence, R.I. (on media treatment of such issues), Fr. William Wallace, Catholic University of America (on historical perspective), and F.G. Shimskey, Foxboro, Ma., (on religion and science as seeking one truth). This meeting will be held at Fordyce House, St. Louis, Mo. Final details will be sent out to the invited participants in late December of early January.

The October 1983 Conference will also be held in St. Louis, October 7-9, 1983. The topic will be the role of Christian men and women of science in the work and mission of the Christian churches. Any suggestions for speakers at this conference will be greatly appreciated. Please address your suggestions to Fr. Robert Brungs, S.J., Director: ITEST, 221 N. Grand Blvd., St. Louis, Mo. 63103.

Notes:

1. The Proceedings of the March, 1982 ITEST Workshop on "Technological Advance and the Survival of the Nation-State" have been mailed out to all dues-paid members of ITEST. If you have not received your copy, please let us know.

2. As was reported in the July Newsletter, ITEST has set up the Fr. Joseph A. McCallin, S.J. Fund to provide fellowships for graduate students and post-graduate professional students at ITEST Workshops and Conferences. To date $2,500.00 has been contributed to this fund. At current interest rates this will provide one fellowship per meeting. We are hoping that we can quadruple this fund. We would deeply appreciate any contribution you may care to make (tax-deductible checks should be made payable to ITEST and sent to Robert Brungs, S.J.; Director: ITEST at the same address given above).

3. Letters for membership renewals for calendar year 1983 have been sent out. We would request that you take care of this now. Your prompt reply will spare us the expense of having to sent a reminder.

CORRECTION:

We should like to call to your attention errors that were present in the article "A Spirituality for Scientists" by Fr. Patrick Dolan (ITEST Newsletter, Vol. 13, No. 3, July 1982, p. 4). The paragraph below is from the Newsletter. After this is the original paragraph. The editor regrets this alteration in text.

The Newsletter paragraph read:

"Yet beyond all this there exists a second road or level of intimacy with God occasioned and enhanced by science. It is revealed in the word "made" where God made everything good. All those who "make" can empathize with and are conformed to God the Son. As a synthetic chemist I have made many things, including molecules that had never been made before. (Contrary to the Old Testament book of Qoheleth, these are "somethings new under the sun".) Any scientist or inventor who has made something knows the exhiliration of the act of creation -- as does any artist -- and we sense a small tinge of how God the Father felt as He created the entire universe. Our senses fall short of complete understanding, for we cannot even now conceive of creating another living being with free will; but we do have some sense of how He knows us "from the inside out" and we can long for the time when as St. John says "we shall know even as we are known". Above all, we can appreciate how much He loves us (even though we turn against Him) and why He can never withdraw that love any more than any scientist could truly disown an invention or material he has made. There may even be a glimpse into the awe-ful dilemma of watching the Son He begot murdered by the children He created. If it is at all possible for humans to identify with God the Father, science is the means."

The original paragraph read:

"Yet beyond all this there exists a second road or level of intimacy with God occasioned and enhanced by science. It is revealed in the word "made" where God made everything good. All those who "make" can empathize with God the Father just as surely as those who "mediate" can empathize with and are conformed to God the Son. As a synthetic chemist I have made many things, including molecules that had never been made before. (Contrary to the Old Testament book of Quoheleth, these are "somethings new under the sun".) Any scientist or inventor who has made something knows the exhiliration of the act of creation -- as does any artist -- and we sense a small tinge of how God the Father felt as He created the entire universe. Our senses fall short of complete understanding, for we cannot even now conceive of creating another living being with free will; but we do have some sense of how He knows us "from the inside out" and we can long for the time when as St. Paul says "we shall know even as we are known". Above all, we can appreciate how much He loves us (even though we turn against Him) and why He can never withdraw that love any more than any scientist could truly disown an invention or material he has made. There may even be a glimpse into the aweful dilemma of watching the Son He begot murdered by the children He created. If it is at all possible for humans to identify with God the Father, science is the means."

EVOLUTION AND CREATION

We recently received some comments on the article "Creation and Evolution" by F.G. Shimskey

(ITEST Newsletter, Vol. 13, No. 2, April 1982). The comments were sent by Prof. Lucien Morren of the University of Louvain, Belgium. Professor Morren has been a long-time member of ITEST. The remarks are as follows:

"The article "Creation and Evolution", by F.G. Shimskey, (ITEST Newsletter, April, 1982) is most interesting, but, for a European Christian scientist at least, it is also somewhat puzzling. Perhaps it reflects an American situation, which leads to a conflict seldom met in Europe, and which puts an emphasis on bipolar, exclusive positions. While doors are open for less rigid positions, the reader finds no developments toward a solution for the teaching of religion in schools.

"Equations seem to be established between Evolutionism and Atheism on the one hand and Creationism and Fundamentalism on the other. The author is rightly critical of such extreme positions. At the bottom of page 1, he writes: 'Both theories contain aspects of the truth but also leave out substantial portions necessary for a reasonable explanation of what happened, and what, in fact, is still happening.' Thus, along with the overwhelming majority of Christian scientists, he admits the compatibility of the faith in God and an evolutionary process.

"Yet, further on the author systematically seems to require a direct action of the Creator every time evolution advances toward greater order. Never do we hear of the traditional distinction between primary and secondary causes. Are we so sure that the conditions prevailing in the famous experiments performed at Cornell University (cf. paragraph at the top of page 2) could not have occurred in the early atmosphere? The main idea is made explicit two paragraphs later: 'matter does not organize itself.' But such a statement seems somewhat inconsistent with the theory of "dissipative structures", a theory which merited the Nobel Prize for chemistry for Professor Ilya Prigogine of Brussels University. This theory states that, under certain circumstances, a system exchanging energy with its environment may spontaneously evolve toward greater order, thus with a (local) decrease in entropy.

"Thus, it seems to me to be dangerous to state <u>firmly</u> what is possible and what is impossible in matter and nature. In other words, it seems dangerous to appear already to know what God kept for his direct action and what he left to the action of secondary causes. Some Christians would say that God has left to secondary causes everything but the very act of Creation and its remaining in existence. They would hold that God put such extraordinary properties in his Creation and we discover (some of) them through our exploration of nature (at all levels).

"Sentences such as the one at the end of page 3 ('Evolution is a very real and ongoing process. But it does not happen by itself -- it requires the action of the Creator') are at once fully right and still ambiguous. For the great question is: how does the Creator act?

Dr. Shimksey replies:

M. Lucien Morren of Louvain raises several valid points. In my article, I made no attempt to distinguish between Primary and secondary causes of creation. Depending on one's definitions, every living creature could be considered a secondary cause, in its ability to produce order from disorder (reduce entropy). However, C.S. Lewis tells us in <u>Miracles</u> that all of nature simply responds to the

initiation of events by beings having free will. Since the angels are of one will with God, they are surely secondary causes. Man could also be, in cooperation with God's will, but his power is limited. At present he can only "create" mechanical and chemical processes, which, while capable of reducing entropy, are not alive and therefore are incapable of growth, healing, and reproduction. Man cannot "make" his offspring, nor even his food, which therefore require agents of higher intelligence and skill - whether God or His angels.

I do not argue that the conditions duplicated at Cornell University could not have occurred in the early atmosphere; my point is that they were arranged in the laboratory by scientists having intelligence, skill, and free will, which demonstrated the requirement for these essential ingredients in the original formation of complex molecules.

My own observations agree with Prigogine - any "productive" process must result in a local decrease in entropy. However, such processes do not simply happen - they are not accidental; they must be designed, built, and operated or automated by a being with intelligence and free will.

Scripture gives us some inkling with regard to the Primary Cause:

> Are not two sparrows sold for a penny?
> And yet not one of them will fall to the
> ground without your Father's consent.
> But as for you, the very hairs of your
> head have been counted. Mt 10:29-30

Finally, the conviction that the Creator acts is the province of the theologian; to discover how the Creator acts is the task of the scientist.

A Life of Faith in an Age of Science and Technology
A Personal Look Back and into the Future

Thomas I. Monahan
NGO Representative at the UN
World Federation of Christian Life Communities

(This excerpted paper was prepared for the seminar, "God, Christ and the Universe," Loyola College of Maryland, June 4-6, 1982. This is published here with permission of the author.)

"When I was invited to come to this meeting, I indicated that while I had been involved at the interfacing of science and faith, my experience was more in the nature of a generalist rather than that of a specialist in science....Some strong emotions are evoked as I look back on some initial attempts to see and understand the linkage between science and technology, on one level, and philosophy and theology on a second level.

"I would like to speak to three points:

a. Science and technology, especially my involvement in faith questions;

b. Lay spirituality, specifically my attempt to integrate my spiritual journey while engaged in the scientific endeavor;

c. The world of today and of tomorrow - fashioned by science and technology; how we scientists and technologists can contribute to the development of a world community.

"From my experience I see a need for:

a. Dialoguing and mutual formation among scientists and theologians;

b. Addressing spiritual and moral questions wherein the first requirement is to develop the correct questions before we move to answer them;

c. A viable presence in the world by the Christian, . . . , who is knowledgeable and formed in his/her faith and in. . .secular disciplines.

"I am concerned that we need an on-going instrument to realize the Gospel message of the Beatitudes. I would propose that we consider for our model those early 'Iniguist' groups set up by Ignatius (of Loyola) and Peter Faber, which would explore the relevant issues facing the Christian in the world, groups which I am sure Teilhard would have fostered were he permitted to do so.

"I often think how fortunate I have been to have lived the past 65 years during which we have had an explosion of knowledge, with advances in transportation, communications, and in the quality of life for some people. I have struggled for survival during the Depression of 1929. I have worked for the military for 30 years. At first I was committed unswervingly to our nation, whose President and government as a moral force, in my estimation, were but one step below the level of God. Later I had many reservations, especially during the last years before retirement. I am a veteran of several nuclear weapons tests where we were engaged in research on the thermal effects of nuclear weapons. At that time I was positively committed to supporting our position in the Cold War. I became increasingly disillusioned as I recalled the orders to Army and Marine Corps personnel to march through ground zero of weapons tests as part of their training regime....

"I had been a lukewarm Catholic when I received the call to be 'more'. After some negative experiences at the parish level, in 1956 I joined what was then known as the New York Professional Sodality....Then started the process, or should I say struggle, in which I joined with others to understand how to integrate our professional activity in the light of our faith commitment, specifically the call to the 'magis' (more) and the 'insignis' (to be outstanding). For me my professional work was in the area of applied science, but at the same time I was concerned with the broader question involving the various academic and professional disciplines. Thus I developed a formation program for new members of the New York Professional Sodality, which was challenging yet visionary. Twenty years

later it is still considered visionary, although the theological and spiritual constructs may be dated. Since the program called for personal and communal initiative at a time - 1961 - when the Church itself and Church structures were highly authoritative, the program received mixed reviews....

"A group of us in several professional sodalities, looking to how to integrate our work in science with our life of faith, saw "the need now to define clearly the meaning of the apostolate in the sciences and technology and to initiate action towards carrying out that apostolate." We organized what we called, quite appropriately, the Matthew Ricci Academy.

"I quote from the first issue of The Matthew Ricci Academy Newsletter: 'In these times, as Father Louis Putz, C.S.C. remarks, there is a need for "a theology of the legal, medical and scientific professions".... To work out such a theology, to define and live out the roles of the Catholic in the scientific community, of the scientist in the Catholic community, and of the Catholic scientist in the national and international communities, is not a practical task for individuals, no matter how dedicated, working individually. What is demanded today is a grouping of such dedicated men and women, with intensive professional and intellectual formation based on a demanding spiritual and theological insight'....

"The Matthew Ricci Academy had some successes....There were also some difficulties. There were legitimate questions of priority, since many of our members were in the process of completing their academic education and were raising families, at the same time pondering one's obligation to the Church at the parish level....

"The Second Vatican Council had both positive and negative impacts. Personally I have been most impressed by the Apostolic Constitution on the Church in the Modern World (Gaudium et Spes). I had prepared a paper for Commonweal in 1961 as part of their symposium on 'What the Laity Expects from the Council.' The paper was not published, but I sent it to the Council on the Laity as possible input into the Vatican Council's proceedings. In the paper I asked that the laity be empowered to participate positively in the work of the Church in world affairs as flowing from the integration of one's secular and Christian charisms. The language of sections 42 to 45 of Gaudium et Spes is very similar to that in my paper....But we had many difficulties...which might be attributed to the unrest in the Church following the Council. Uncertainty brought questioning - many of us could not adjust to the call to personal responsibility after being led in a law-and-order Church for so many years.

"What does science and technology say in a positive way to the question of spirituality for today's and tomorrow's worlds? Advances in communications require us now to move from concern for one's personal relationship to God to a societal, a global, a cosmic spirituality. Teilhard has made us see this need very clearly....

"Let us look at today's world. There is the East-West polarization centered around the cold war. There is the North-South confrontation on economic issues and the availability of natural resources. Is there a Christian solution for the world's ills? We are at the end of the industrial age spawned by science and technology; we are about to enter what Fr. Tom Berry calls the ecological age, with greater attention to be given to our use of God's gifts in nature. Natural resources, the environment,

energy, water pollution are critical long-term issues. From a God-man relationship theology must move to a God-man-nature interaction as the focus for its attention. If the world can and will survive we need a new cosmology and a new spirituality which becomes more and more global. We must build on Teilhard's vision and apply it to the social, cultural, political and economic dimensions of living in the global village...."

(Editor: Dr. Monahan then discusses the state of Catholic higher education in general and Jesuit higher education in particular -- this paper was given at a Jesuit college. In this section he talks about the linkage between Jesuit educators and the laity in the professions.) He goes on to state:

"I see the need for scientists and technologists to continue to do basic and applied research, but there is need for increasing awareness of the public implications of scientific and technological advances.

"There is need to flesh out, through review and critique of experiences, a meaningful theology, a viable spirituality for living in the emerging global community. There is need for groups to dialogue, to reflect, to form oneselves, to teach the larger community.

"There is need for a skeleton to focus our vision. I would suggest as an appropriate model the United Nations and its specialized agencies. The United Nations can be a forum, it can become an arena for our efforts. Pope John Paul II has praised the work of the United Nations and of UNESCO. He has called upon laypersons in the International Catholic Organizations to participate in the work of the world community; he has called on us to bring our technical expertise, but also the fruit of our philosophical and theological reflections and our experience at the local level in the several regions of the world in which we are present....

"I have found my background in science helpful at the United Nations, specific in such areas of United Nations' concern as: disarmament, the peaceful uses of outer space, science and technology for development, new and renewable sources of energy, population, the environment, food and agrarian reform, the disabled, the problems of children, youth and the aging.

"Today we look to this period of our history for guidance as we move to implement our mission "in and to the world." Our agenda for the next several years includes most of the elements I have spoken to in these remarks."

An Item of Possible Concern

Robert Brungs, S.J.
Director: ITEST

The ideas (concerns, really) below are phrased in the declarative mood; but please understand them in the interrogative mood. They are questions. More, they are questions raised in the hope of beginning a discussion on the issues involved. I would like nothing better than to learn that these concerns are groundless and that there is no cause to worry. In short, I am asking that those readers with a knowledge

of the problem area, which I shall be addressing, contribute to an open discussion in the Newsletter. The problem is what I see to be the easy (practically automatic) application of the methodologies of physics to the science of living systems.

First, I believe that these methodologies of physics (and, of course, chemistry) came into the life-scientific research about the end of World War II. Their introduction is at least partly responsible for the sudden spurt in the life sciences since that time. In the intervening 35 years or so the life sciences have moved from an observational posture through a very rapid and very intense analytic phase to a synthetic capability -- synthetic is used here in the sense of building or rebuilding living systems. To put it starkly, biology has, in this time period, moved from cataloguing to commerce. So where's the problem? Undeniably great achievements, both in understanding and in application, have resulted from this.

My concern is rooted in the notion that the methodologies of physics and chemistry were developed for research on inanimate systems. The method calls for as complete a control as possible of the research environment and of the research object. Two of the basic canons of such research methodology are predictability and reproducibility of the experimental result. To achieve such predictability and reproducibility, the laboratory system must be as tightly closed as possible, i.e., ideally all the variables must be controlled. Otherwise, reproducibility is not possible. The spontaneous has no place in the laboratory context. That context is essentially non-historical and abstracted from reality. Is that an appropriate setting for understanding living systems which interact with the real environment in far more complex ways than do inanimate systems? Thus, the abstraction involved is much greater.

The above is not meant to imply that we cannot learn very much about animate systems by such research techniques. We can -- and have! The problem is whether we can learn as much about them as about inanimate systems, simply because there is so much more to learn in terms of environmental interactions and internal spontaneity. Are we deluding ourselves if we think that we do learn as much, that these methodologies are as effective in the case of both kinds of systems.

Another potential problem involves two of the great virtues of the scientific approach to reality, namely, disinterestedness in result and objectivity. In research on inanimate systems these two virtues do not seem to have come into conflict with each other. There is, however, at least a potential situation in the life sciences where it seems as if they might. At the time when we begin to alter our human brothers and sisters, first in the research itself and later in application, can we be both disinterested in result and remain objective as well. If we are truly disinterested in result, have we not already decided in a way that these brothers and sisters are merely objects? And is this an "objective" evaluation of them? Does it not deny in its presuppositions that spontaneity, vital interaction with each other and with the complex total of relationships in the world, etc., are essential human characteristics? Or if we do take an 'objective' view of this vital, independent, spontaneous reactibility, can we be disinterested in result, even from a totally secular point of view?

A final issue can also be raised. It seems to me to be practically certain that we will endeavor, through our growing capacity in the life sciences and the life technologies, to introduce "better" characteristics into the human genetic stock -- as well as eliminating the "poorer" ones. Such redoing of the human has been a dream since at least the time of Plato. Even our most recent disastrous

brush with the eugenics of the Third Reich does not seem to have diminished our fascination for remaking ourselves. Can science, out of its own presuppositions and methodologies, tell us what is this "better"? If it does, does it not either presume that all there is to us is the quantitative and the manipulable or become the vehicle for some other ideology? If the science itself cannot decide what is "better", and yet works for the "better" human stock, what view of the human being have scientists accepted from other sources? And if they have accepted such a normative view from elsewhere, have they retained scientific freedom or have they surrendered the virtue of disinterestedness in result?

Perhaps these issues are not really so important as they seem to me. But I see science itself in some potential difficulty if scientists and philosophers of science don't begin at least to discuss the question of the application of physics methodologies to the science of living systems. Perhaps, some modification of these methodologies ought at least be considered. Otherwise, I wonder if science might not self-destruct as a truly independent, rational approach to the understanding of the very complex web of natural interactions in the universe.

Finally, let me return to my initial statement. This entire piece is written in a question mode. Any observations on it would be appreciated.