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

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For Your Calendar:

The October, 1983 Conference will be held in St. Louis, Mo., October 7-9, 1983. The topic will be the role of Christian men and women of science in the mission of the church. Invitations will be sent out early in August.

The March 9-11, 1984 Workshop will have as its topic "Artificial Intelligence." If you have any suggestions for the faculty, please contact Dr. John Cross, Department of Psychology, Saint Louis University, 221 N. Grand Blvd., St. Louis, Mo. 63103.

The October, 1984 Conference topic will be "Scientific Contributions to Theology" (a positive look at the contribution of science and technology to the life and thought of Christianity). The March, 1985 Workshop will be directed to "Space Exploration and Colonization. Again, we would deeply appreciate you're help on forming the faculty for these meetings. Please let us know about people you would like to hear (or read) on these issues. We need your input to make our meetings more successful.

For Your Attention: The following was received from Dr. Enrico Cantore, Director; World Institute for Scientific Humanism, Inc.; 113 West 60th St. (Lowenstein Bldg. at Fordham University); New York, N.Y. 10023. All correspondence on this matter should be sent to Dr. Cantore.

The World Institute for Scientific Humanism is a group of professionals -- scholars, educators, scientists, technologists, business people -- seeking to remedy the philosophical causes of the current worldwide crisis of culture, development and peace. To what end they work at the level of essential convictions and motivations, trying to bring about a new humanism (that is, a doctrine of the whole person, individual and social) which is at once faithful to the perennial insights concerning human dignity and open to the new perspectives of our scientific age. In so doing they strive for development as the growth of the whole person and of all persons, and they work for peace as the basic consensus and cooperation of minds and wills for the common good.

1. EXPERIENCE OF W.I.S.H.

WISH originated in response to the international scientific community's expectations for humanistic leadership, which were manifested by the surprising worldwide interest of its members in the methodological writings of the Institute's founder. Subsequent experience suggested adding the dimensions of development and peace as integral components of contemporary humanization. An important part of that experience was involvement with the manifold initiatives culminating in the United Nations Conference on Science and Technology for Development (Vienna, August 1979). The director of the Institute was a member of

the U.N. Committee which prepared the participation of Non-Governmental Organizations in UNCSTD, and he coordinated the committee's Cultural Task Force (1978-1979). Other Institute Fellows are contributing humanistic services by working on such issues as the improvement of health care, a better application of science to development, initiatives for peace and others.

2. UNIQUENESS OF W.I.S.H.

WISH stands out among the many contemporary groups dealing with science and its human implications because of its global concern for human dignity.

Inspiration. WISH seeks to recapture in depth the greatness and responsibility of human dignity, including explicitly its religious dimension, according to the formula: "The glory of God is the human being fully alive" (Saint Irenaeus).

Scope. WISH embraces all the principal manifestations of human dignity, notably its aspiration toward comprehensive development and genuine peace.

Focus. WISH specializes in studying the causes and remedies of the current humanistic crisis, especially as affected by the theoretical and practical influence of science.

3. GOALS OF W.I.S.H.

To understand and foster human dignity in all its dimensions, WISH aims at:

Rebuilding Foundations. The specific goal of WISH is to rethink, by means of thorough scholarship, the pattern and process of humanization in the light of the discoveries, opportunities and challenges contributed by science, pure and applied.

Stimulating to Action. WISH pursues its scholarly activity not as an end in itself, but as an indispensable means to clarify the convictions, motivations and commitments required for the individual and social maturation of the human personality.

Renewing Education. WISH is particularly concerned with the plight of the young, who are extraordinarily numerous in our time -- it is estimated that close to one half of the contemporary world population is under twenty-five of age -- and who are especially exposed to the dangers arising from the current humanistic crisis. WISH tries to be of help to them chiefly by working with their intellectual and professional leaders.

4. AREAS OF CONCENTRATION

Interdisciplinary Investigation and Synthesis. WISH seeks a new humanism for the scientific age by exploring and integrating into a unified whole the human significance of the traditional humanities, the various sciences and the manifold practical pursuits affected by the scientific mentality (industrial and business management, international relations, commercial practices and so on).

Professional Renewal. WISH places its scholarship and experience at the disposal of the professions whose activities more directly affect human dignity, development and peace (scientists, engineers, physicians, educators, managers, business persons...). WISH seeks to help them rediscover in depth the humanistic nature of their calling and to rededicate themselves to its implementation in a manner more suitable to meeting the present needs and inspiring the young.

5. SERVICES OFFERED

Catalytic Approach. Given the depth and breadth of its mission, notably its educational goal, WISH seeks effectiveness not by working alone, but rather by trying to encourage and support the currently widespread humanistic interest among individuals and groups involved with science and its applications.

Services in Print. WISH now offers or soon will offer the busy professional a number of publications designed as instruments of information, reference, communication and collaboration. W.I.S.H. Report is a compact periodical which presents succinct essays in the broad field of scientific humanism, book reviews and other features. The Basic Papers are short scholarly monographs exploring the basic humanistic issues of our time. A major scholarly publication of the Institute has been the book of its direction, Dr. Enrico Cantore, entitled Scientific Man: The Humanistic Significance of Science, which appeared in 1977. As sufficient means become available, WISH will publish other books, directories, etc.

Services in Person. The members of WISH gladly make themselves available to individuals and groups for consultation, lecturing and so on....

WISH also helps to organize task force of professionals seeking the humanistic renewal mentioned above. Task forces of economists and engineers have been established in the past, and a similar group of physicians is now in the planning stage.

6. OPPORTUNITIES FOR PARTICIPATION

WISH is aware that it cannot succeed alone in fulfilling the humanistic task it has set for itself. Hence it appeals to all persons who share its spirit and concern to support its activities. The degree of their participation will vary according to interest, training, desire for involvement and available time and resources. The opportunities for participation are:

Personal Membership. Individuals can become Associate Members or Full Members (Fellows).

Corporate Membership. This is available to any interested organization or group.

Financial Support. As a nonprofit organization WISH depends on donations, all of which are tax-deductible.

Advisory Support. WISH welcomes information and suggestions, especially from experienced members of the professions dealing with science and its human applications.

Requests for additional information on the conditions for participating in the activities of the Institute are honored promptly. To speed up the procedure, prospective participants are invited to enclose some material about their expertise and philosophical perspective (self-presentation, reprints, etc.).

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In March, 1981, ITEST sponsored a Workshop on "The Patenting of Recombinant DNA". There are several points on which an update is now possible.

1.) At the March '81 meeting (cf. p. 68 of the Proceedings) Roman Saliwanchik, in response to a question, remarked: "....Some person at the University of California, I think, had a very virulent form of cancer. Someone working at the National Institutes of Health in Washington indicated an interest in receiving a sample of the cell line....(which) had certain characteristics that were very interesting to researchers. So the person in California sent him a sample....Anyway, the investigator in Washington got the cell line....Well, a person at the pharmaceutical firm of Hoffmann-LaRoche took an interest in looking at that cell line. Presumably there had been no stated inhibition to transferring the cell line to another party, no contract that stated that the cell line not be disseminated any further.

"I think that you might possibly infer, as some people are doing, that there was some sort of an implicit contract that this would only be used for research purposes. Nevertheless, once the cell line was transferred to Hoffmann-LaRoche, they started to work on it in collaboration with Genentech, one of the new genetic engineering outfits. They found that the mechanism of this cell was such that, when it was put into another host and fused with the gene which makes interferon, it could produce interferon very rapidly. All of a sudden, then, there is a potential for a multi-million dollar market, because of the peculiar properties of this cell line to energize its production of interferon in a host microbe. All of a sudden it became important....

"Now the University of California...is trying to back this thing all the way up. Unfortunately they don't have a written contract. Today, if you were going to transfer a cell line to another party, you could construct a legal agreement that would retain property rights for you, should anything be developed from that cell line. But in this California case there was no written agreement. It is going to take litigation to resolve this."

In Science (Vol. 219, 28 January, 1983, p. 372) it is reported: "Hoffman-LaRoche and the University of California (UC) have reached an out-of-court settlement in their lawsuits over an interferon-producing cell line known as KG-1. Thus the pharmacentical giant and the university have spared themselves the embarrassment of a public trial over the ownership of the cell line which was developed by researchers at UC and exploited as an interferon source by Roche and the biotechnology firm of Genentech. Roche has paid the university an undisclosed sum to bring the matter to a close."

Barbara J. Culliton, author of this article in Science, concludes:

"So everyone claims to be happy. And, perhaps, an expensive lesson has been learned. It isn't wise to "share" scientific material these days unless the terms of the exchange are clearly set forth, preferably in writing."

This final remark is reminiscent of the following paragraph in the Foreword of the ITEST Proceedings on this topic (p. ii):

"One result of large industrial funding could be a decrease in the flow of information. Researchers seem to be more inhibited in sharing research information.

Science reports:

> Bondurant (dean, U. of North Caroline School of Medicine) said, 'The lure of the dollar makes people clam up.' Doris Merritt, a special assistant to Fredrickson warned, 'Publish or perish doesn't need the corollary of patent or perish.'

These issues will continue to vex the scientific, legal, and political communities. We encourage further discussion on this topic in future issues of the ITEST Newsletter."

Later, in the discussion sessions at the ITEST Workshop (p. 78) George Schurr remarked: "....In fact, modern science is steadily pushing in the direction of 'get patentable results.' Curiously enough, this induces secrecy instead of disclosure, until one patents.

"This was borne in on me last year at a major university. I think it is replicated elsewhere. There was concern that the graduate students should be educated to a function of truth in science. But give up on the faculty. The faculty was not concerned about the promulgation of truth. They were concerned with furthering their own research to a patentable level. Hence, they were teaching their students not to share the results of their ongoing research. For good or ill, we are simply describing the situation in which we are operating; what is happening is that the high value of truth in the research tradition is being lowered. A commercially promulgatable product which we can get to first is more important than whether we are sharing the truth."

These questions are even more vexing than they were two years ago. The following items can be used for an update of the March, 1981 Workshop on "The Patenting of Recombinant DNA":
- "Although patents are well recognized by the general public and considered to be 'good', it is amazing to see their aversion by research scientists and, in particular, by the academic community. However, the latter group's attitude is changing quickly as more and more universities adopt the policy of patenting the inventions of their faculty. Last year (1982), 32 U.S. academic institutions were granted 76 U.S. patents on biotechnology." (Biotechnology, Vol. 1, No. 1, Mar. 83, p. 33.)

-"In 1982, the U.S. Patent and Trademark Office issued approximately 58,000 patents of which close to 2% were on biotechnology. In all, 1,116 biotechnology patents were issued which covered a wide spectrum of products, processes, and devices." (Ibid., p. 34)

-"A select group of American universities and multinational corporations has recently submitted its comments on a unique proposal for biotechnology patent distribution which could profoundly alter the way non-profit research centers and companies conduct the business of technology transfer....The goal is to provide freer access to the "tools of biotechnology" than is possible under the current system of patent license shopping." op. cit., Vol 1, No. 3, May, 1983, p. 217.

This article then spells out some of the factors involved, from a basically commercial point of view. The article describes a model proposing the establishment of an independent University License Association for Biotechnology (ULAB). ULAB would do the negotiations between companies and universities. There would be something like a membership fee structure or a fixed royalty rate that would provide access to a pool of licenses for the use of basic biotechnological patents. ULAB, set up on either a profit or non-profit basis, would: publish the pool of licenses; arrange negotiations; collect and distribute revenues; establish basic policy for the sale and use of the patents it controls.

The putative advantages are: speeding the transfer of technology from the university laboratory to the manufacturing facility; widening the access to licenses of the participating universities; better prosecuting of patent violators; providing faster corporate access to a larger range of biotechnology tools; making licensing policy more uniform; saving negotiating and administrating costs; providing a higher ratio of non-exclusive to exclusive licenses; shifting competition from the laboratory to the manufacturing and marketing.

The disadvantages foreseen include: a loss of control both by the university and the corporation; a decrease in the negotiable value of each patent with the resulting loss of revenues by both the university and the inventor; the inventor is most likely to suffer because each invention would receive less recognition and the contact between the inventor is likely to diminish. Also, the university's share of revenue would be less likely to be used for the inventor's research once an outside administrative body is introduced.

The ULAB would be of greatest benefit to the universities whose research is better than their marketing skills. There is no reason why a university that knows how to play the patent game would give up control over the negotiation process.

Bio/technology (Vol. 1, No. 3, p. 249) lists cumulative equity investments in U.S. biotechnology companies through 1982 at $839 million. There's no doubt the commercial issue is high.

In an article in Science (Vol. 220, No. 4604, 24 June 1983, pp. 1360-1361), entitled "Clerics Urge Ban on Altering Germline Cells: it is stated that the "leaders of virtually every major church group in the United States have signed a resolution calling for a ban on genetic engineering of human reproductive cells. The resolution has sparked a sharp controversy because the prohibition it seeks would be so broad that it would preclude attempts to correct some genetic disorders, such as Tay-Sachs disease, by manipulating germline cells. Even some of the signatories seem uncertain that they want to prohibit such work."

Sojourners (Vol. 12, No. 6, June-July, 1983, pp. 26-27) reprints the resolution. It seeks "to express the sense of Congress that engineering specific genetic traits into the human germline not be attempted." The reasons given are: that such engineering raises the possibilities of altering the human species which is then subjected to technological manipulation and design; that it represents a fundamental alteration in the way a human being may be formed; it irreversibly alters the gene pool; it forces decisions about which genetic traits should be programmed into the human gene pool or which

should be eliminated; no individual, group, or institutions have either the right or authority to make such decisions on behalf of the rest of the species alive or to come.

Science (ibid) reports that Alexander Capron, former executive director of the President's Commission for the Study of Ethical Problems in Medicine and Biomedical and Behavioral Research, which was terminated on March 31st, reacted as follows: "'Do we want to ask those people who suffer the ill effects of the genetic lottery to bear the heavy, and sometimes lethal, effects of our unwillingness to find a finely-tuned means of avoiding potential abuses of genetic alterations?' By calling for a ban, Capron argues that the religious leaders have answered that question in the affirmative."

How do you think we should approach the issue of genetic therapy through intervention into the reproductive cells? We are willing to devote an issue of the Newsletter to your opinions on this issue. Send your remarks to Robert Brungs, S.J., ITEST, 221 N. Grand Blvd., St. Louis, Mo. 63103.

The following, originally published in the April, 1978 ITEST Newsletter, was taken from an article by Joseph Cardinal Hoffner, Ateismo e Dialogo, June, 1977, pp. 79 ff.

Church and Science

Historically, faith and science have come into conflict whenever faith has had to resist a worldview which would accept and find credible only that which could be proved scientifically. Many such conflicts have been sterile. Those conflicts proved to be fruitful when Christianity did not simply defend itself but combined a constructive presentation of itself with a positive, perceptive awareness of the function and competence of science. The achievement of Thomas Aquinas is an outstanding and effective example.

The thirteenth century, like our own century, was one of new viewpoints and values, widely accepted, eclipsing traditional values. For centuries, nature had been considered as a rather easily comprehended symbol, an almost transparent veil, of eternal truth. This view was then supplanted by Arabic science and philosophy. This represented a worldview elaborated by reason alone, recommended by the clarity of formal logic. According to this view, nature was perceived as a structured reality in movement, to be investigated rationally. Even theology would be a science whose concepts were logically controllable.

It was inevitable that some of what seemed to have been rationally proved -- something for which cogent and even compelling reasons could be advanced -- contradicted what was accepted as traditional faith. Some thinkers, in this situation, felt that rational, scientific inquiry might establish a conclusion which contradicted revealed truth. It is difficult to see how such a solution could have been other than verbal and formal, since the mind cannot rest in it. Ultimately, one must reject either science or theology as an embodiment of the truth. If one is persuaded that science, in some way, is concerned with the truth of things, he or she must find a middle ground between these viewpoints. Obviously there will be tensions, which must be resolved in a higher, more inclusive viewpoint: the one and same truth may be grasped differently, though not in contradiction.

Aquinas perceived the human intellective capability as a creation of God. In a way, it can comprehend all that exists. Science, therefore, necessarily and in itself, does not find its norms in a higher, all-inclusive, univocal, obligatory knowledge or methodology. Vatican II has restated this principle in the Constitution on The Church in The Modern World:

> If by the autonomy of earthly affairs we mean that created things and societies themselves enjoy their own laws and values which must be gradually deciphered, put to use, and regulated by men, then it is entirely right to demand that autonomy. Such is not merely required by modern man, but harmonizes also with the will of the Creator....

Our human knowledge, however, is always partial and conditioned by the methodology of the inquiry. Metaphysics -- the philosophy of being, cannot substitute for single scientific circles. Nor are these sciences derived from metaphysics. It is necessary to recognize, determine and respect that autonomy which is proper to individual sciences.

The human mind, however, moves toward higher, more inclusive syntheses. It demands more and more satisfying meaning. Thomas Aquinas recognizes this thrust and refuses to see presumption in it. He views it as the natural development of a God-given capability which precludes the seeking our ultimate salvation exclusively in or through that which is empirically verifiable. As a Christian, Aquinas saw the ultimate destiny that God has set for us as the immediate vision of God. The direct means of attaining that salvation could be effected only by the action of God. Since these means can be grasped only in and through faith, we cannot seek that final salvation in an ideal perfection of science. That science, then, is released from responsibility for ultimate salvation, and in this process it is set free to pursue its mediating activity of creating a more congenial framework within which God's saving activity may unfold itself.

Because the subject-matter of science and of faith are grounded in the same true God, in principle -- but only in principle -- conflicts between them are impossible. In fact, conflicts can arise and have arisen. This has occurred when, in a certain time and place, something has been considered to be a part of faith when it was not. It has also occurred when scientists have pushed beyond their data or methodology, reasoned upon that date faultily, or ascribed to hypotheses more objectivity than they contained. It is not sufficient, however, merely to state the theoretical compatibility of faith and science. This personal conviction must be confirmed by a personal witness in our lives.

Today, the ideal of the natural sciences, namely, controllable conclusions, repeatable methodologies, general validity -- for example what is true in biology should, at least, not contradict what is true in physics -- has become a general ideal even among those not concerned with natural science. Often enough today, the type of objectivity and empirically controllable conclusions proper to science are made the norm of truth itself. Any narrowing of truth to exclude a broader philosophical truth is unwarranted. It is said that science must be indifferent to values since values cannot be the object of science. But, if science is a stranger to values, or if it admits only

formal values such as fidelity to data, then it lays itself open to easy and ominous exploitation by external, non-scientific agencies. Moreover, the proliferation of scientific specialities and their constant advance have caused many to think that we are learning more about mankind and its world, but we are far from learning and knowing what we are. The lack of an embracing, meaningful knowledge is now being felt and is the source of that anxiety many have noted in modern mankind.

An exclusive insistence on the empirically verifiable as alone embodying knowledge and truth has led to an unfortunate separation, even in the believing scientist, between what one believes and what one does. Often such a person does not discuss the meaning or implications of what he or she believes. This meaning remains in a sphere radically different from the professional sphere, which is of itself valueless. Thus, the believing scientist is denied an intellectual self-affirmation in and through his or her professional work.

For an integration to replace this dichotomy, it is necessary to deny any restriction of knowledge to that which can be verified empirically. Such a restriction must be resisted for the untruth it is. That general grasp of meaning, which is the vision of faith, must be set forth as the basic interpreting knowledge it is. To the degree that science is not merely neutral toward the knowledge of faith but is sympathetic toward it -- and even inspired and animated by it -- to that degree science will be able to play a rightfully normative role in human living. Then it will collaborate with all true knowledges in furthering authentically human living in our developing world.

When historical development alters or challenges previously widely held standards, the problem of elaborating new norms becomes urgent. Scientific development often enough in our day raises serious ethical problems. Since the Church both of her nature and historically must be gravely concerned with ethical matters, even those who are not her members expect her to have and to urge a position. New conditions bring new problems. The mere restatement of old truths is rarely adequate. In each case, the Church -- along with others who with more or less authority pronounce on the contemporary challenges-- must show the relationship between the eternally valid norms and the solutions being offered for the latest problems. Nor can we overlook the difficult, indeed almost inextricable, complexity of contemporary challenges. Solutions to them are not easy to come by even with general and sincere collaboration. The Church cannot discover the right path of solution without the assistance of believing scientists and, indeed, of those without belief, given their good will and sincerity.