INSTITUTE FOR THEOLOGICAL ENCOUNTER WITH SCIENCE AND TECHNOLOGY

BULLETIN

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Several events in recent months have focused public attention on faith/science issues. One in particular seemed to draw a great deal of media attention.

In April, scientists reported evidence of slight variations in the 2.7° Kelvin background radiation. This was interpreted as evidence in favor of the Big Bang theory and of inhomogeneity immediately after the Big Bang. Predictably, there were questions and statements about creation. One scientist was reported to have said that we are seeing the "fingerprints of God." Another, in the letters to the editor in the daily newspaper, the *St. Louis Post-Dispatch,* stated that that confirmation of the Big Bang theory was incontrovertible proof that the universe self-created out of nothing, thus denying the existence of God.

That last remark is rather spectacular when analyzed. Nonetheless, I personally prefer the philosophical position of the song in the *Sound of Music*: "Nothing comes from nothing, nothing ever could." We must realize, however, that neither the theistic nor atheistic conclusions expressed are scientific. Father Stanley Jaki, at our Seminar last October, defined science as a quantitative study of the quantitative aspects of matter in motion. Using that definition we can say that science can prove nothing either about God and creation or about nothing. If we could get this point across we could remove one major source of conflict.

We can say the same thing about the Shroud of Turin. Its authenticity (or non-authenticity) can neither prove nor disprove the physical resurrection of Christ. That is solely and totally a matter of faith. I personally am convinced of its authenticity, yet my faith does not rest on that authenticity but on the Revelation. Scientific results can help us understand the creation (as long as we never forget we are merely using models of reality) and in that way help us to understand better what God's will *may* be for creation. As such it should be actively pursued by Christians. In *The Vineyard: Scientists in the Church*, the authors state that scientific activity is a form of our worship of God. It does not, however, sit in judgment over the faith.

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ANNOUNCEMENTS

1. Plans for our 25th anniversary celebration/convention are progressing well. We have been fortunate in recruiting three excellent speakers for this convention: Dr. John Staudenmaier, S.J. (History of Technology, Detroit-Mercy University) on beauty in technology; Mr. Leonard Buckley (foreman of designers, Bureau of Engaving and Printing) on beauty in art; Bishop John Sheets, S.J., (Auxiliary Bishop of Fort Wayne/South Bend) on Christian beauty. We are still searching for a speaker on beauty in science.

As noted in the Spring issue of the Bulletin, the convention will be held at the Mount Holyoke Center in Massachusetts during the first week of August (1-6), 1993. We can accommodate 100-150 people (including families) at the center. We would like to make this a celebration for the whole membership and their families. Remember, spouses and children and/or colleagues and friends are most welcome! Further information will be sent as soon as it is developed. Please mark your calendars.

2. The topic for the October 23-25, 1992 workshop is *The Human Genome Project.* We have two scientists to press the case *for* the human genome project, two scientists who urge great caution, a theologian, and a computer scientist who will discuss how the data can be handled. Full details have been sent to you. If you by chance have not received a copy of the invitation for this Workshop, please let us know. This workshop will be held at Fordyce House in St. Louis, Missouri.

3. The staff is working on the final edit of the Proceedings of our October, 1991 *Seminar with Fr. Stanley Jaki, OSB.* These Proceedings will probably be available late in the summer. The Board of Directors has decided to print the Membership Directory, 1993 in the same volume with the October Proceedings. The sole reason for this is financial. The double volume will save a couple of thousand dollars. The Directory will contain the names of dues-paid members as of 7/31/92.

4. As noted in the Spring issue, several ITEST members are writing chapters for a book on Faith and Science Issues (title open to suggestions) that we intend to complete in time for the Holyoke Convention. It will include chapters on the methods employed in the various sciences, philosophy and theology. It will also contain some historical material on the growth of science and on the theology-science conflict and three chapters (Protestant, Orthodox and Catholic) on the elements of the Christian faith. We wish to thank the authors both for their willingness to write these chapters and for sharing their wisdom with us.

5. The Board of Directors has commissioned the staff to explore the possibility of producing an hour long film (in two independent segments) on the beauty of creation. With the help of Mr. Richard Cusack of Chicago, we have prepared a concept paper and have begun the process of raising the money ($100,000 +) for this project. If any of you know of any foundation we might approach, please let us know. This request is also pertinent to the announcement immediately below.

6. Not content with the above, the Board has approved a preliminary survey on the feasibility of launching a quarterly magazine (roughly along the lines of *Science*). We shall be sending each of you (before the end of the year) a mock-up of an issue, with all the articles taken from the ITEST archives for your reactions and suggestions. This is a long term project and will require significant financial support. Again, any help you can give in any way on this project will be gratefully received. We will, of course, keep you informed of any developments.

7. It has become increasingly clear to the Board of Directors, the staff and many members who have commented on it, that the most important aspect of the faith/science mission is the enabling (not empowering, since they already have the "power") of Christians in science in the fulfillment of their baptismal call to "preach the Word." To do this more effectively we need the help of all our members. We have found over our almost-quarter-of-a-century experience that most of our long-term members have been recruited by other members. Please help us spread the Good News of Christ to our scientific-technological colleagues. Let them know about us and let us know about them. In this way we will be better able to serve the Lord in this very crucial area of the church's life and growth. In the final analysis, this is our work for Christ as Christians in science and no one can substitute for us.

WHAT IS OUR AGENDA IN THE FAITH/SCIENCE ARENA?

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Since the appearance of the so-called modern sciences their relation with religion has often been troublesome. Since many volumes and articles have been written to describe and explain this, we do not need to repeat that discussion here. For our purpose it is sufficient to recall that the struggle by the natural sciences for their autonomy ended with their hegemony. As a sign of the latter, one of Laplace's statements to Napoleon (perhaps apocryphal) is often quoted: "Sire, I did not need that hypothesis (i.e., God)." In some two hundred years God had become 'marginalized'.

Today's rapidly increasing secularization is often interpreted as the natural outcome of the process initiated by the birth of the natural sciences. It is as if people are only now fully recognizing the consequences of Laplace's statement. If this is indeed the case, then the Post-Laplacian research should only have confirmed the tendency he formulated: the world around us can be understood (and our lives can be lived) without a God. Of course, many of the promises from science have not yet been realized but they will be realized in the near future. In principle, in a Laplacian world the (natural) sciences provide us the only acceptable explanation of our world and sufficient tools to cope with it.

In this paper I will raise some question about this obvious conclusion. My argumentation will be coloured by the situation in which it is written, namely, The Netherlands. However, in the Dutch situation some aspects might be more clearly visible than they are in other countries. In my opinion, however, the Dutch scene is typical, at least of the western world. Events now occurring in the countries in Eastern Europe seem to confirm this assumption.

The scene of the confrontation has profoundly changed.

From the historical correlation suggested above between the secularization of religion and the success of the natural sciences, one might expect a continuous decline of religious belief as time (and science) progresses. In particular, one might expect that atheism will be more widespread among scientists than in other groups of the society. This, of course, is an historical simplification. It excludes other factors which might have occurred in the same period and might have had a significant influence on the religious attitude of people. Nevertheless, our intuition is that with this restriction the present thesis should be valid.

From the Dutch situation, however, one gets a different impression. All the scientific progress not withstanding, one notices in 1992 that a very large portion of the Dutch scientists still has a religious background. I like to stress 'background' because one's impression is that a majority of them no longer practice their faith. Or, to state it differently, the speed of secularization has rapidly increased during the last four decades. This applies to several other groups in the Dutch society as well, and it is not restricted to particular churches. One might see this as a delayed "Laplacian effect." This suggestion is difficult to refute, but there are some arguments against it. The major counter-argument is that it presupposes that the developments in the sciences since Laplace still confirm his extrapolation that we live in a closed, deterministic and predictable universe. We will come back to this later.

Nonetheless, in the same time frame we have witnessed the birth of artificial intelligence, an effort to reduce once again the mind to a machine, albeit a very sophisticated one.

Another question to be raised is why the secularization has increased so rapidly since the 1950s. One can hardly expect that the scientific achievements before, during, and directly after World War II would receive a standing ovation!

The suggested correlation between secularization and scientific progress also assumes that the nature of the two partners remained constant during the interactive process. Sociologically considered, this is highly unlikely. In fact, both partners have changed quite considerably in this period.

A lot has happened in *science* since Laplace's time. Science, as he knew it, was firmly based on a mechanistic picture of the world, despite Newton's return to the Middle Ages with his introduction of 'force at a distance'. In that picture the world is taken to be a 'mathematically describable machine'. As a contingent complex of simple, independent elements, a machine can be divided into parts to be studied separately and then put back together. The formulation of quantum mechanics has shown this approach to be questionable. Quantum mechanics shows that the idea of the existence of independent elements, and that of exact predictability, is only approximately correct.

The success of the sciences, in particular natural science, would have been impossible without the remarkable development of technique.

Relativity theory has contributed as well to the scenery change within physics. The elements of the clockwork model prove to be no absolute entities. Their properties depend on their context; on their relation to the observer. Despite these revolutionary developments, the old model of the world as a clock has prevailed and still prevails. Serious objections from biology (not to speak about other sciences) against the reducibility of organisms to their parts, led to the formulation of an alternative approach, namely, system theory. But it did not take long before system theory in its turn became incorporated in a revised 'mechanistic' endeavour. Recently, we witnessed the birth of so-called "chaos theory." That made it clear that even an ordinary classical physical system can behave unpredictably. This should have put the final nail in the coffin of the Laplacian ideal. So far, however, there is scant evidence that this has indeed happened. Apparently, the attraction of this simple model is too great to be abandoned even in face of such formidable counter evidence.

One notices similar developments elsewhere. For example, in psychology the comparable approach of the human (and animal) organism has been either a physico-chemical study of its (dissected) body, or a behaviouristic study of its behaviour. It was not even permitted for a person to refer to a human mind. Much research and experience since 1956 has changed this situation. Areas such as cognitive psychology have become quite decent disciplines. Nonetheless, in the same time frame we have witnessed the birth of artificial intelligence, an effort again to reduce the mind to a machine, albeit a very sophisticated one.

These two examples demonstrate that in the ages since Laplace the mathematical analyses of, and experiments with, our world have made substantial and impressive progress. Simultaneously Laplace's picture has proven to be incorrect. There is no way for us to predict future developments except for very simple artificial systems. So, one must conclude that the science side of the science-religion dichotomy has changed profoundly. Moreover, sciences have transformed not only our thinking about the world but our living in the world as well. Before I go into this I want to consider the other side, the religions/theologies side of our topic.

The developments in *religions and in their theologies* have been dramatic as well. At first, their attitude was not that different from that of the natural sciences. One hardly could have expected otherwise because the sciences had their origin in the whole body of knowledge and intellectual methods dominated by theology. The sciences slowly developed their own experimental methods and mathematical techniques. These methods and techniques cannot be imitated by any theology and religion. This can be seen in the difficulty in coping with the application of such methods to sociological and psychological problems. But in the beginning of the "modern" period the overall attitude was not that different.

Theology, for example, also at times looked for its laws in sometimes overtly Newtonian terminology. Theological terminology and problems demonstrate this clearly as well. Here one should think about questions of God's omniscience, about what God could or could not do. The solution proposed often incorporated the same mentality found among physicists of the day.

In fact, this attitude proved to be catastrophic. If one reads the books of the bible in the same way that one has learned to read the book of nature, not much will be learned, if anything. Of course,

biblical texts also deal with facts, original expressions translated into linguistic utterances. But finding them requires a different methodology. Religions/theologies had to (re-)learn that human statements are always embedded in a cultural context. Every understanding requires an interpretation.

Therefore, the original experiences linguistically expressed are only tentatively accessible to "outsiders." The more removed the temporal and cultural situation is from the original experience, the harder it is to understand that experience. When theologians became aware that hermeneutics had to be applied not only to the scriptures, texts of an ancient oriental culture, but to western theological thinking of the past, they began to realize that profound changes had to be made not only in theological doctrines, but also in religious practice.

When one realizes how much each of the antagonists had changed, it becomes clear that the original opposition has lost much of its ground. *Science* has had to give up the pretense of being able to give a complete explanation of our world. Even more since World War II, scientists have become increasingly aware that they need support from other sides as well. Ethical problems, for example those clustered around the atomic bomb, illustrate this. *Religion* too has had to realize that it has lost ground. It too has restrictions: in our case its domain is basically limited to interpretation. It can provide meaning of one's world, but it cannot provide a complete explanation for it. The appearance of mutual modesty, at least in principle, might perplex our reader. Because, if one takes this seriously then it will be hard to defend a direct relation between the success of the sciences and the increase of secularization.

On the other hand, changes in positions make it easier to understand the recent upsurge in encounters between theology/religion and the natural sciences. The FEST group in Heidelberg, Atomium in The Netherlands, ITEST in the USA have been active for about 25 years. ESSSAT (European Society for the Study of Science and Technology) is relatively new. These meetings and conferences demonstrate a change of climate. That statement does not imply that their occurrence is something obvious. If each side has redesigned its territory so that it no longer overlaps with that of the other, why should these encounters be something more than friendly parties with good neighbours?

The purpose of these meetings, however, are far more serious. That poses the question: Why do scientists talk with theologians, or vice versa. Can they actually learn something from each other? For our purposes here we can leave such topics aside. Instead we should concentrate on the fact that the analysis just presented questions the increase of secularization. If scientists know their field, they realize their restrictions. How then can the upsurge of science lead to an increased secularization? One gets the impression that the solution to our question is farther away than ever. Moreover, why do we witness such a rapid increase in secularization?

The Laplacian ideology lives on.

My own suggestion for an answer to that question would be that, although the developments in science no longer support the Laplacian idea, the ideology behind it is still as active as ever. How could this be the case? In my opinion, this is because Laplace's original idea has become embedded in our mentality. It has a double foothold. The first and most obvious way occurs via *technique* (i.e., technology). The success of the sciences, in particular the natural sciences, would have been impossible without the remarkable development of technique. The interaction between the two has become so strong that, in many disciplines, it is no longer possible even to distinguish between pure science and technique. In my opinion, the impressive performances of these techniques have confirmed the idea that we can "make" a world, that it is humanly re-creatable. We are convinced that our problems can be solved, no matter what they are. This corresponds exactly to the background of Laplace's remark. We are masters of our existence; everything is soluble. We approach not only energy problems but infertility ones as well in this way. There is no limit to our power to solve problems. So we seem to think.

Especially since the second world war our ability to manipulate the world and parts of our own existence has increased dramatically.

The same engineering approach has not remained restricted to so-called technical problems. It has become incorporated in completely different ways as well, for example, in ideas about the social imension of our lives. *Social engineering* has become normal practice. Hardly any solution to a

problem is decided upon by a government without a scientific advisory committee. This does not mean that the government acts accordingly, but it highlights the background idea that all social difficulties can be reformulated as soluble social problems. The smooth acceptance of expert systems in such social domains as law and social security exemplifies this attitude. Moreover, as a contingent 'machine', society is seen reductively as a collection of autonomous elements, a mere aggregate of individuals.

Consequently, as members of our western societies we have become convinced that our living world is Laplacian. Our world (and our lives) is exactly describable, thus all its difficulties are in principle soluble. Therefore, we have become self-sufficient. There is no need for any "escape routes," including religious ones. Again, this attitude is not based on facts; it is a conviction; it is really an assumption. It is, I think, so prevalent because of our present mentality and of the impressive performances by technique and social engineering.

Encounters between science and religion (including theologies) should promote an awareness of the real grounds each of the old antagonists can cover.

Especially since the second world war our ability to manipulate the world and parts of our own existence has increased dramatically. Nuclear energy and molecular engineering are spectacular examples of human knowledge and power. They are examples also of the risks involved in our technical efforts. Although the negative consequences have become more apparent, they have not yet led to a diminution in our admiration for our abilities — except in some groups. Quite the opposite, pushed by industries and by governments anxious over their economic perspectives, science and technique have a more central position than ever before.

How to act from here?

What can we conclude from this analysis? Certainly, there is no reason to reject the products of technologies and social engineering. They can and will be very helpful to liberate us to become free and independent persons and to create healthy societies. What should be called into question is *the pretension of omnipotence*, just as we have rejected our notions of the omniscience of our scientific knowledge. The development of modern physics and mathematics has taught us that we can understand our physical world only to a certain extent. The same applies to our practice. Although technologies and social engineering will be powerful tools, they cannot solve all the troubles we run into during our life.

What are the consequences of this analysis for our original question? As long as the idea prevails that we are complete masters of our existence, there will be no change in the increasing marginalization of God. In my opinion the claim of omnipotence lies at the root of this phenomenon. However, it would be an illusion to expect that the process of a marginalization of God would stop with an awareness of the fundamental restrictions of our powers. The better our technique becomes, and the better our societies function, the less people will realize their limitations. In that respect, there is nothing new under the sun.

We are continuously inclined to put God's reign outside our world because we fail to recognize it within our world. The story of the Jewish people, as told in the holy scriptures, repeats that message again and again. Nonetheless, a realization of the falsehood of our omnipotence-claim will make an experience of God possible. So, in my opinion, there is a crucial difference between our ability to do a lot, and the attitude that we can do *everything*. The closure of our living world excludes any experience of God, a principal openness of our existence makes that experience possible.

So, I would like to stress that it is not the actual state of affairs which seems to block an experience of God, but the ideological pretensions behind it. We will have no illusions about the difficulties we are facing if we realize the limitations of our intellectual and practical powers. Since the end of the Middle Ages so much has become known and so much has become possible that it has become much harder to experience God in and through the phenomena of our world. The layer of autonomously explainable and soluble things has become very, very many times thicker. This may hinder the experience of their relativity.

On the other hand, the impressive scientific and technological results so far achieved might also bring about wonderment and thereby ease the way for us to experience God — just as the wonders of

nature inspired the psalmist. The most obvious way for this experience is through a realization of the greatness of God's works coming about not only by natural evolution but even more by our own efforts.

And about the agenda?

Encounters between science and religion (including theologies) should promote an awareness of the real grounds each of the old antagonists can cover. That could make us realize that we can't play God. So, these meetings can help to create openness for, and not hinder, an experience of God.

NOTES:

1. Rudwick states that the outcome of a serious controversy does not come down to one person winning (i.e., being right) and one losing (i.e., being wrong). During the dispute both sides continuously change position. Thus, the final outcome (the truth) lies somewhere between the two original positions. One side may think it has won because it does not understand the changes in position that occurred in the dispute. This applies to our case as well. *The Great Devonian Controversy,* Chicago: University of Chicago Press, 1985.

2. Dijksterhuis has coined this terminology to emphasize the fact that here mathematics and mechanics are combined. *De mechanisering van het wereldbeeld,* Amsterdam: Meulenhoff, 1950. An English translation exists.

3. P. Schoonenberg, *De geest, het woord en de zoon,* Averbode: Altiora, 1991; in particular p. 102ff. An English translation is in preparation.

As all of you know, the United States held the Earth Summit in Rio de Janeiro, Brazil in June, 1992. We thought it would be of interest to the readers of the Bulletin to re-read the text of the address given at the ITEST Conference on the Environment, April, 1972. Mr. Whitman Bassow was at that time the Senior Public Affairs Officer, United Nations Conference on the Human Environment. Fr. Robert Brungs, S.J., Director: ITEST, attended the U.N. Conference in Stockholm in June, 1972 as an official non-governmental observer, representing the International Federation of Catholic Universities. It is interesting to note how much is the same as it was in 1972 and at the same time recognize how much progress has been made on some issues in the last 20 years.

UNITED NATIONS' CONFERENCE ON THE HUMAN ENVIRONMENT

Mr. Whitman Bassow

Reprinted from ITEST Proceedings, April, 1972

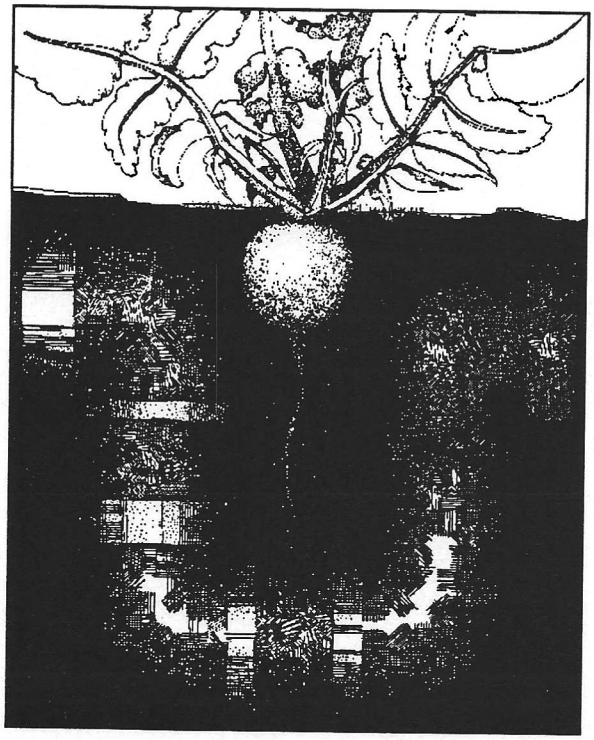
I am very happy to be here tonight even though I understand there are tornado warnings in the area. But I also understand that St Louis has experienced only six or seven tornadoes since the 1920's. So, we really have little to fear tonight.

Before I left this morning I met with Maurice Strong (Director General of the Stockholm Conference) at the UN. He asked me to express his gratitude for the concern and interest of the religious community sponsoring this St. Louis meeting on the environment and to convey his greetings to the people here today and to those who will be seriously considering some of the problems that will be discussed at the UN-sponsored conference on the environment in Stockholm. Mr Strong is especially encouraged to learn that you will be considering a post-conference analysis in Rome. We hope it will be a critical analysis. This is the kind of treatment we want and expect from people like you who are gathered here tonight. It is also very gratifying that the Conference itself, according to our calculation, opens in 52 days. It is the subject of a great deal of scrutiny and examination

by some very competent people. In the post-Stockholm period we hope we will turn to you for guidance that will pin-point where Stockholm failed and where it succeeded.

Now, I will give you a report on where we are in preparation for the conference, what we feel we have achieved, what remains to be done and what we hope will result from the conference. At the end of February, after almost a year and a half of work, the Conference Secretariat presented to member states of the UN an 800 page document, or series of documents, which lays out the recommendations that will come before governments when they meet in Stockholm. These recommendations deal with the six agenda items described in the brochure you have in your materials kit.

Those of you who are interested in getting a copy of these documents should address themselves to the Department of Commerce. Several people have asked me about these documents. Unfortunately, the UN published only enough copies for member states and international non-governmental organizations. We do not have copies for the public. So, you can order this complete set from the National Technical Information Service, Department of Commerce, Springfield, Virginia 22151. You can



get segments of that set, and if you're interested in the breakdown, you can consult this State Department Press Release after the meeting. The document does not have a specific title; simply request the Documents for the UN Conference on the Human Environment.

These documents were presented to the governments at the end of February, which means that they will have had three months to study them and make decisions on the recommendations. Government representatives, therefore, will go to Stockholm already prepared to make decisions. Actually, one of the things essential to the preparation of this conference has been that government representatives have been involved from the very beginning in the conference preparations. There will be no surprises at Stockholm. The governments have been taking part in inter-governmental working groups, at dozens of meetings. They have sent consultants to the Secretariat in Stockholm. We have calculated that exactly 115 governments have taken part in Conference preparations, so that at Stockholm they will know what they are dealing with and they will have already worked out agreed positions before they arrive.

Now, we have felt that one of the main purposes of the conference was education of governments. Originally, when the UN convoked the Conference in 1968, at the invitation and initiative of the Swedish government, the purpose of the Stockholm Conference was to create public awareness of the issues. And, as an indication of the route we have travelled since then, it is apparently no longer necessary to call public attention to the environmental issue. It has become one of the best advertised, best known and most pervasive issues of our time. And so, subsequent to 1968, the General Assembly of the UN declared that the Conference should be an action-oriented one at which decisions will be made to deal with the problems we will be discussing at Stockholm.

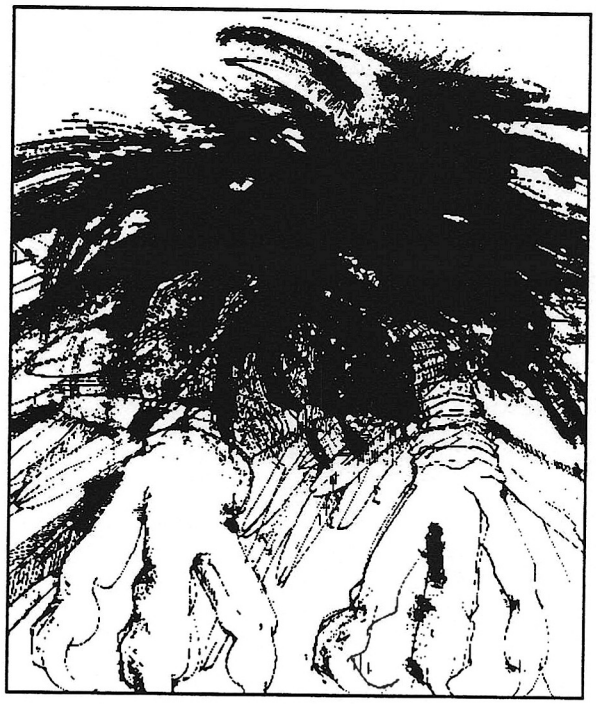
Now, this means that the Secretariat, located in Geneva and composed of a very small group of 25 to 30 officers, has had to prepare proposals and recommendations upon which decisions can be made. These proposals are found in the documents, but the heart of the proposals is what we call an action plan for the human environment. This is the plan that we expect governments will approve at Stockholm. There are three basic components of this plan. One is the Declaration on the Human Environment. The text is in your conference materials kit. This Declaration is so important because it is the first statement of

principles on the responsibilities of governments for the care and maintenance of the environment. As the newspaper reporter pointed out very precisely in her analysis of the document, Article 18 deals with the responsibility of governments not only for their own environment but for the adverse effects their actions may have on a neighbor. In other words, if a country in a river system (the Rhine, for example) inflicts adverse economic, social and health costs on a country downstream, by continuing to pour industrial effluents into the waters; then the upstream country is responsible for those adverse effects. That demonstrates a very important principle in international law. At the last meeting of the Intergovernmental Working Group on the Declaration, although there was disagreement about the wording, there was a general agreement that this principle had to be stated. So, we expect that at Stockholm there will be approval of this Declaration.

The second basic component of the action proposal deals with one of the most important needs in the environmental issue, the need for more knowledge. We have found in the course of preparations, and I suppose it's no surprise to you, that people are making decisions in this highly technological society without knowing the impact on the environment. We neither know, nor do we have the hard factual scientific information on which to base these decisions. So, we are proposing to the Conference, or to the governments, the establishing of a global monitoring system, which is called *Earth Watch.* The *Earth Watch* system would set up for the first time an international network of information-gathering stations that would not only monitor the air, the oceans and the land for all kinds of environmental variables but would include a system for the evaluation of the data received and for the exchange of this data. This integrated knowledge-exchange system will provide decision - makers throughout the world with vital information in order to make the policy decisions that governments are required to make every day at the national level. Also there will be an annual report on the state of the global environment drawn from this collected data. In other words, a report that says this is where we are now.

As part of the Earth Watch system, a research coordinating unit will be established, not to carry out research, but to indicate where research is needed and to set appropriate priorities. Thus, there will be a complex of information-gathering, evaluation, and dissemination activities. It is not envisaged that all these programs will be administered by an international body; rather, they will be carried out mainly at the national level in developing and in developed countries with a coordinating focus at the international level.

The third series of recommendations concerns the machinery we hope to see agreed on at the Conference. The major item is the establishment within the UN of a new unit concerned with the environment. No one has come up with a name for it yet; we call it the Secretariat Environmental Unit. It would be established under the policy guidance of some kind of inter-governmental body, just as the preparatory committee for the Conference of 27 nations provided policy guidance for the preparation of the Conference.



It has been suggested that this intergovernmental body would report either to the General Assembly or to the Economic and Social Council. That is up to the governments to decide. In any case, this new secretariat unit, while not an operating agency, will be small, and of high quality. Operations will be carried out by the UN Specialized Agencies, by national governments and by other international organizations; but the coordination of these activities will be entrusted to the UN Secretariat acting as the hub of the activities. However, this Secretariat will be able to call upon the best

available scientific leadership in the world: economists, academicians and so on. But it will not carry out an operational function. In order to do all this money is needed.

We are proposing to governments the establishment of a global environmental fund. President Nixon actually took the initiative in this respect in his environment report to the nation in February when he proposed a $100,000,000 fund for a period of 5 years to be used by the UN. The US was prepared to pay its fair share. Subsequently Christian Herter, the US representative to the Preparatory Committee, announced that the US would be willing to pay 40% of that 100 million, which is a percentage larger than the normal US 30% contribution.

Now, we have all the ingredients here for the machinery that will carry on after Stockholm. Of course, the Secretariat can only propose, although these proposals are based on literally dozens of meetings with governments, scientists, academicians, and specialists who know much more about this topic than we do. But it is still a proposal and the implementation and the approval of these proposals is up to the governments themselves. In effect, we are really doing is serving up the menu for Stockholm, but only the governments can order the dishes.

We have also included in these recommendations — a summary of over 12,000 pages of documents and reports received over the past year - papers from UN Agencies, governments, experts. In addition to the 12,000 pages of documents, we have received national reports on their environmental problems from 80 governments. I must add that over half of these 80 came from developing countries. For many of these countries this was the first look, a self-examination if you will, of their own environmental problems.

One of our most serious political problems has been the involvement of the developing countries in the conference. It is no secret that two or three years ago, even as recently as last year, there was a great deal of doubt if the developing countries would even go to Stockholm. Many of them felt, as you know, that pollution was a rich-country disease and that the problems of the developed countries were not relevant to their own countries. They had problems, of course, but they *wanted* pollution. Pollution meant jobs; the smoking, belching chimneys meant jobs for the people.

They were concerned with the sheer overwhelming problem of merely providing their people with daily food or a place to live. So, the conservation concern about trees in the United States, England or the Scandinavian countries was irrelevant. But, I am happy to report that developing countries will be in Stockholm. For the most part they are now aware of the importance of the Stockholm Conference to their own concerns. They now have a clearer view of their environmental problems which involve not only problems of pollution but a broad spectrum of issues, among them, the growing and critical need for potable water.

We have found that the most serious problem around the world is the lack of water for drinking, for agriculture, for industry. The developing countries — this is a generalization and I've made a lot of them here tonight — have very serious problems of soil erosion. Large areas of arable land are being made unusable for agriculture because of farming practices and irrigation projects that are injurious to the productivity of the soil.

So we see in the environmental issue, one that transcends boundaries and transcends politics.

Developing countries are faced with the depletion of natural resources especially forest areas and mineral wealth. Take the Philippines, for example: where the deforestation of approximately 40,000 acres a month, is a serious concern since they are unable to replant more than a few thousand acres. The developing countries are faced with the greatest rate of urbanization in the history of the world. The cities in Latin America are burgeoning at an incredible rate with vast immigration from the countryside. People go to the cities looking for jobs, for the amenities of urban life and they are forced to live in slums. There is inadequate housing and sanitation facilities, polluted water, not enough schools and so on.

These countries simply do not have the resources to deal effectively with their own growth. For example, we have been told that the entire city of Lagos in Nigeria, within a decade or so, may have to move somewhere else, to another part of the country, because the water supply is contaminated. The city of São Paulo in Brazil has declared a

no-growth policy. The mayor and the city council did this because further growth threatened the stability of the city. So, the developing countries now recognize that they have environmental problems and they want to go to Stockholm to present their own views on how these problems should be handled.

We have made a very special effort to deal with the developing countries, to help them, usually at their own request, and in the course of the last year we have held four meetings in the developing world at Addis Ababa, Mexico City, Beirut and Bangkok. Representatives from more than 70 developing countries discussed their own environmental problems. The papers were very interesting. Many of them represented the first look at a specific problem in a specific country. It is very interesting to note the development of this consciousness. Mr. Strong reported that he was at a meeting in Khartoum a few weeks ago sponsored by the Arab League.

This meeting was called specifically to discuss environmental problems. He said that Arab scholars and scientists read 60 substantive papers, most in Arabic, dealing with their problems, including such subjects as the ecological impact of the Aswan Dam. There weren't any Harvard specialists there, nor any AID people. These were local Arab scientists dealing with Arab problems. We feel that a meeting like that could not have been held two or three years ago. It was largely due to the impetus of the Stockholm Conference that stimulated the awareness of environmental problems in the developing countries. As a result, their people and governments have begun looking at those problems very seriously.

There is so much fall-out from this Conference that I could write a book about some of the things that have been happening. We are getting requests every day from the developing countries, for advice, for technical assistance to help them deal with these problems. Of course, this is the sort of thing that we are recommending to the Conference: to establish machinery that would enable all countries to get the kind of technical assistance they need to deal with their problems. Another example: a few weeks ago, when Mr. Strong was in Egypt, he was told that 1200 bullocks died in one area in Egypt and nobody knew why they died. Obviously there had been some kind of chemical poisoning. The Egyptian government was not able to deal with the problem and Strong was asked whether the UN could provide help. The point is that when people need help, they turn to the UN. And we hope and expect that out of the Stockholm Conference will come the machinery that will enable the UN to respond to requests like this.

I'll say a few words about the agenda itself and what we are proposing. The agenda consists of six substantive items. The first deals with the environmental problems of human settlements. I always resented that name. I don't know if it's UN jargon. Perhaps this is the type of language used in reference to environmental concerns. In any case, I always thought this should be called, "Places Where People Live." Anyway, that's actually what it means. This will deal with the problems of the cities, with questions of health, leisure, transportation, education, sanitation and so on. And in the rural areas especially, the issues are housing, water supply, transportation and infrastructure.

One of the things that we are now beginning to see is that the bioshpere is really a unitary system wherein everything fits together, and works together.

The second item is the management of resources. This is the item that will deal with conservation. It will deal also, however, with things like the non-renewable resources, the renewable resources, especially soil and soil degradation. One of our five inter-governmental working groups treated the very important question of soil erosion and produced recommendations on how to combat it.

The third item on the agenda is the identification and control of pollutants of international significance. We're making recommendations on management of the oceans, on standards and criteria, on a system of obtaining data, on pollutants (about which we really know very little), and on research and new technology to reduce pollutants in the air. I want to mention here a Convention on Marine Dumping, on ocean dumping, to show you how expectations can be built up and then deflated. One of the major aims of the Conference was to secure an agreement on a Convention to ban, control or limit dumping in the oceans. A special inter-governmental working committee met twice to deal with the whole question of marine pollution. At the first session a draft convention was submitted by the US. Many members of that group

feeling that the draft was weak and inadequate, came up with their own proposals. Then, at Ottawa — the first meeting was held in London in June of last year and the second was held in Ottawa in November — it became clear that it was almost impossible at that time to agree on a draft convention. The draft was abandoned. Instead, a series of principles was agreed on which would govern the conduct of the countries of the world in relation to the oceans. But they couldn't get past that stage. There was a lot of wrangling. The real issue there was whether or not countries have any responsibility for the Continental Shelf? This was Canada's question: Did a country have the authority to hold a ship responsible for dumping pollutants three hundred miles off shore, if that dumping would ultimately destroy the productivity of a fishing bank or have an adverse impact on the shoreline? It was obviously extremely difficult to get any agreement on that score.

The meeting finally adjourned with a recommendation that governments continue to discuss this draft, and that it would be proposed not to the Stockholm Conference, but to the Law of the Sea Conference in 1973. In the meantime, however - to show the intricacies of negotiations - the government of Iceland has called for a meeting in Reykjavik this month to try to work out a draft on this issue with an invitation to all member states of the UN to participate. Some countries feel that it is not Iceland's place to call this meeting, that it should be held in a UN framework. So, they aren't going. Right now I can't tell you what else is happening. One thing is certain, the draft convention will not come out of the Conference itself.

Did a country have the authority to hold a ship responsible for dumping pollutants three hundred miles off shore?

The fourth agenda item deals with the social, economic, informational and educational aspects of the environment. Here we're dealing primarily with education, with training and with public information designed to create understanding of the real issues. We feel that governments will go only so far as people push them; it's absolutely essential, if we're going to have any progress in managing the environment effectively, that people understand the issues. That's why it's so important for a group like ITEST to meet and discuss the issues, communicating this understanding to various constituencies.

The fifth element on the agenda is environment and development which will be one of the thornier issues to be discussed at Stockholm. But it is an issue that affects us all, and the vital interests of developing and developed countries. It should not be surprising, therefore, that there will be a lot of argument and conflict on this issue. Yet, I must say that in Switzerland last year a group of 27 economic experts largely from developing countries, convened by Maurice Strong to discuss this issue, produced a very important statement called the *Founex Report* on development and environment. This has become almost the *Magna Carta* on this issue making two basic points which are generally accepted by developed and developing countries.

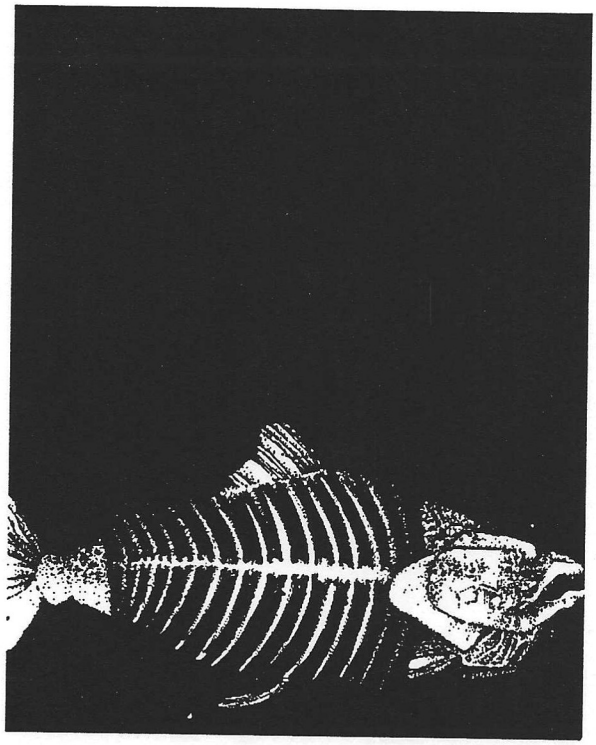
The first point is that developing countries in the course of their own development will have environmental problems resulting from their under-development. The second point is that in their own self-interest developing countries must incorporate environmental considerations in their development planning. This seems like a reasonable approach both from the developed *and* developing countries' points of view. In any case it's going to cost money; that's where the conflict may arise for the industrialized countries. The developing countries want, in addition to the assistance they're now getting, an increment to cover the cost of both the new technology and the environmental factors that have to be incorporated in the planning.

The final agenda item deals with the organizational implications of the proposal I have discussed. This is the new machinery to be established in the UN, a new secretariat unit with responsibilities in the environmental field, with a global fund to finance the activities of this unit.

One of the things that we are now beginning to see is that the biosphere is really a unitary system wherein everything fits together, and works together. Anything adverse that affects one part of the system affects the other parts. It's really a miracle - it boggles the mind to look at the biosphere, this thin layer of air that makes life possible on this planet, and how everything fits together so beautifully. Each living thing supports life elsewhere on the planet. When we see this it becomes almost inescapable that the only way to deal with this system is through international cooperation and

through a unitary system on the political level. There really is no other way. If there's one thing we have learned from the environmental issue it's that no nation can solve it alone just as no one man or woman can solve it alone or live in complete isolation from the rest of the community.

So we see in the environmental issue, one that transcends boundaries and politics. It is the issue that can bring the people of the world together as no other issue can. The concept of spaceship earth, travelling through the darkness of space, as a unitary body, a unitary system, where we are all travellers together in a finite space is not only logical and beautiful to behold from the moon but from the earth as well, that we are all in this together. We hope that the Stockholm Conference will make this clear to the governments and to the people of the world. We feel that with the public understanding and support of these issues, this can be done. But we will have to be very harsh judges of what comes out of Stockholm and we cannot afford to be misled by a declaration, papering over differences. This is much too grave an issue to be tossed off lightly. And if the governments of the world cannot agree on what has to be done at Stockholm to ensure that humanity moves in the right direction, somebody has to get up and say that the king is not wearing any clothes.



The ethical or moral program of creating rights and a market for pollution was posed infrequently by the left, once in a *New York Times* op-ed piece by Todd Gitlin of University of California and again by Barbara Ehrenreich in *Mother Jones* magazine. Both pieces oppose giving industry the "right" to pollute, apparently on moral grounds; pollution is bad and no one should have the right to pollute at all lest we create other rights to do bad things. Both pieces use fables of a future full of rights to do bad things: street crime, white collar crime and international crimes against human rights such as torture. Their point seems to be that establishing pollution rights put us on a slippery slope towards regulating all "bads" through the market place and away from making absolute determinations of right and wrong by expressly prohibiting those wrongs.

I find their analogies inept. Emissions of air pollutants are not necessarily hazardous to human health or the environment. I know no responsible person who would argue that the only safe level of sulfur dioxide, for example, is zero. In fact as a general point, emissions are only pollutants when they exist in excessive concentration or in the wrong place such that they can cause harm. Just as a weed is a plant growing in the wrong place. Contrast that with street crime or torture. No one would argue that these are OK in limited quantities or in the appropriate place. More fundamentally, whether we say industry has emissions rights or not, we currently allow high levels of pollution to be freely emitted. Under the acid rain program, those allowable levels will no longer be free.

Nancy Kete, ITEST Workshop on *The External Environment*, 1990.

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