INSTITUTE FOR THEOLOGICAL ENCOUNTER WITH SCIENCE AND TECHNOLOGY

BULLETIN

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At the October, 1994 Workshop on the *Science and Politics of Food*, ITEST for the third time in 26 years presented an ITEST Meritorious Service Award. The recipient of this third award, presented by Judge Thad Niemira, ITEST Treasurer, is Sister Marianne Postiglione, RSM. This award was designed and executed by the internationally renowned sculptress, Dr. Anneta Duveen, a long time ITEST member.

Sister Marianne, in her eight years with ITEST, has succeeded in making herself totally indispensable. Whatever has to be done, she does efficiently, promptly and, most importantly, well. At present, besides being Director of Communications, Sister is Secretary of the Corporation and a member of the Board of Directors.

Sister Marianne has a Master of Music (Catholic University of America in 1968) and a Master of Arts in Communications (Saint Louis University, 1982). She is a member of ΦBK and, until she was forced to abide by ITEST's stringent cost policies, a member of UNDA, an organization of Catholic communicators. ITEST can thank her for all its publications and the (usually) pleasant voice on the phone.

Sister Marianne came to ITEST from the post of Director of Communication of the Diocese of Providence, Rhode Island. Before holding that position, she was the Head of the Media Center of the Diocese. Marianne taught everything (as was the Sisters' wont) at Bishop Feehan High School in Attleboro, Massachusetts and later taught music at Salve Regina University (then College) in Newport, Rhode Island. Born on Long Island, Sister Marianne grew up in Fall River, Massachusetts. All that experience has been a great boon to ITEST. Finally, to show her versatility, Sister Marianne recently gave a piano recital for the "Senior Jesuits" in the Missouri Province Infirmary. She played some Bach, Paradisi, Brahms, Mendelssohn, Schumann (all of *Papillons* and some of *Carnaval)*, three of Scott Joplin ragtime pieces and a few other things. We are grateful to have such a gracious and graceful Awardee.

Previous recipients of the ITEST Meritorious Service Award are Mr. Edwin Borserine of Kansas City, Missouri and Mrs. Bernice Morris, longtime Administrative Assistant at ITEST who retired in 1989. Sister Marianne clearly joins a small but very special company.

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ANNOUNCEMENTS

1. Work on the October 13-15, 1995 on *Population Issues* proceeds apace. The original title for this Workshop was *Reproductive Science and Population*. It was decided, however, that that topic included too much and that population issues by themselves should be the focus. We hope to have the roster of essayists complete in a month or two, at which time we shall send out a preliminary invitation. We would remind you that Fordyce House has room for only about 50 guests. Reservations for attendance at the Workshop will be accepted on a first-come-first-serve basis.

2. The ITEST Board has definitely chosen *Environmental Ethos* as the topic for the March, 1996 Workshop, which will also be held at Fordyce House in St. Louis. The dates for this meeting will shortly be set and will be reported in the Spring issue of the *Bulletin*. The kinds of questions we are interested in are the more basic (even philosophical) principles and assumptions of various parts of the environmental movement and an accurate portrayal of the Christian aspects thereof. What, for example, motivates people to espouse (sometimes) diametrically opposed attitudes and actions on the environment? Is this "ethos" more subtle than the various media outlets portray? Has environmentalism become a religion? Can that religion in any way be called "Christian"? We hope to enlist essayists from several sides for this Workshop. If you are aware of a good prospect for an essayist, please let us know. Many speakers/essayists are booked a few years in advance.

3. Please note the following: ITEST has a new phone number and a new FAX number. As noted in the editorial information box at the bottom of Page 1 of this Bulletin, the new phone number is (314)-977-2703. The FAX number is (314)-977-2711. Since the FAX equipment is not located in the ITEST office, we do not have propriety over its use. We share it with several other offices. For the time being, therefore, we will use that line in the RECEIVE mode only. In other words, you may send us messages, but we will not respond via FAX unless it is an emergency. In all correspondence via FAX please use both Father Robert Brungs' name *and* ITEST. That will ensure its reaching us.

4. The preparation of the Proceedings from the October Workshop on *The Science and Politics of Food* is on schedule. We hope — so much depends on the printer — to be able to get this volume into the mail sometime in late March or early April.

5. We have received the following book written by Dr. Thomas Sheahen. *Introduction to High-Temperature Superconductivity*. (New York: The Plenum Press, 1994, pp. 580 + xviii). Tom, President of Western Technology Incorporated in Derwood, Maryland, is a long-time ITEST member and a very frequent participant in ITEST Workshops. He has contributed essays to both ITEST's Workshop on *The External Environment* and *Transfiguration: Elements of Science and Christian Faith.*

6. We have also received a notice of the publication of *Track of the Mystic: The Spirituality of Jessica Powers*. (Kansas City: Sheed and Ward) 1994, pp. 192, $12.95. The author is Sister Marcianne Kappes, C.S.T. Sister Marcianne is a member of the Carmelite Sisters of Saint Therese. She received her doctorate in Historical Theology from Saint Louis University. An active member of ITEST, Sister Marcianne presently teaches theology at St. Gregory's College in Shawnee, Oklahoma.

7. We have also received a third book written by a member of ITEST, Joseph P. Provenzano: *The Philosophy of Conscious Energy: Answers to Ultimate Questions* (Nashville: Winston-Derek Publishers, Inc.), 1993, pp. 245 + xvi. Mr. Provenzano is currently employed by the California Institute of Technology at the Jet Propulsion Lab as the technical group supervisor of the Modeling and Artificial Intelligence Applications Group.

8. Finally, we have received the following book from Australia. It is written by Bernhard Philberth: *Revelation* (Plumpton, NSW: BAC Australia), 1994, pp. 203. Father Philberth, a nuclear physicist and priest, writes about a new theology growing out of the discoveries of the last fifty years or so in physics. The translation, Brungs believes, leaves a great deal to be desired. Nonetheless, it is time for the Church to really begin to appropriate as best she can some of the scientific insights into the world-as-it-is. Anyone interested in purchasing this book should contact Mr. Franz Samuel, 15 Superior Avenue, Rowville, 3178, Melbourne, AUSTRALIA.

9. According to a very brief notice in *Science* (Vol. 266, 9 December, 1994) The National Institutes of Health's Recombinant DNA Advisory Committee (RAC) plans to create a panel that will study genetically altering human fetuses and germ-line cells. Up until now, gene therapists have been barred from manipulating egg and sperm cells. Food and Drug Administration (FDA) molecular biologist Amy Patterson is reported by *Science* to have urged the panel to study fetal gene therapy. This comes not long after NIH's recommendation to conduct experiments on living human embryos. Clearly the pace of human experimentation is picking up. I suggest that we might all ponder the limitations (if we think there are any) to our human quest for knowledge. Is "knowledge" the highest goal to be sought? This, perhaps, might make a good topic for either a small ITEST group or for a general Workshop.

EUROPEAN PERSPECTIVES ON THE ECOLOGICAL CRISIS

Dr. Jean-Robert Leguey-Feilleux*

It has taken a long time to recognize that the global environment is being destroyed. Even now, many do not realize the gravity of the problem and nations remain painfully reluctant to take decisive action to reverse the process of ecological havoc. The first concerted global effort to address the problem took place less than 25 years ago (1972 UN Conference on the Human Environment in Stockholm). The United Nations then created the UN Environmental Program (UNEP) but, as usual, members contributed minimal funds — and the environment has continued to decay at an accelerated pace.

Earth Politics[1] is a policy-oriented study published in English in 1994, the second edition of a volume which first appeared in German in 1989. It sets out to examine the world ecological crisis and to develop a political strategy to solve it. In the process, it seeks to challenge our imagination to devise practical alternatives to the destructive practices which are a way of life for us. It is critical of what has been done thus far to meet the crisis, but profoundly upbeat about the possibility of reversing the destructive process.

The author, Ernst Ulrich von Weizsäcker, a prominent German environmentalist, held academic and adminstrative positions at several German universities. Since 1991, he has been president of the Wuppertal Institute for Climate, Energy and Environment. A member of the Club of Rome, the author of numerous articles, essays and books in the field of environmental policy, he was also a long-time member of ITEST.

In his view, the Twentieth Century has been mesmerized by economic considerations and this has led to the "rape of nature." Continued environmental devastation inevitably will force the world to take environmental protection measures it has thus far run away from, and the Twenty-First Century will become "the Century of the Environment," meaning that the environment will be, of necessity, the dominant concern just as the economy has dominated the period coming to an end. In the meantime, economic considerations continue to prevail; consequently, if any environmental protection strategy is to be adopted at all, it must acknowledge and work with our contemporary political bias toward economic interests.

Earth Politics is divided into four parts.The first presents a brief historical overview of the problem, with both the industrialized "North," and the underdeveloped "South" equally characterized as myopic on the environment issue. Beginning in the late 1960s, we have the "classical" period of environmental policy mainly focused on pollution control through bureaucratic regulation, which the author views as simply incapable of providing a solution. The European Community (now European Union), because of its common institutions, managed to initiate more stringent environmental protection than most of its component members would have done on their own.

This part of the book concludes on the hopeful note that our era is beginning to generate a global vision which may facilitate dealing with the environmental crisis. With the Club of Rome's Limits to Growth, the UN Conference on the Human Environment, the "Global 2000" Report to President Carter, the Brundtland Report and the 1992 Earth Summit, greater awareness of the environmental problem was created, in turn reinforced by widespread reports on the rapid destruction of the ozone layer of our atmosphere, the devastation of the rain forest and the threat of a greenhouse effect. All of these combined have generated greater public openness toward global environmental issues.

Part II probes five areas of current environmental crisis. The first three are energy and raw materials treated together; means of transportation: and agriculture. Each is analyzed and found environmentally destructive. Moreover, pressure for growth and development will inevitably generate even greater environmental damage. In each case, a contributing factor is that the price of commodities and services does not include environmental costs — this leads to one of the central themes of the study: Price must tell the ecological truth.

Attempts to stem escalating environmental destruction have been mostly in the form of legislative and bureaucratic regulation; but these measures are inadequate. Given the driving force of our economic orientation, the solution can only be to insure that prices be increased to show the real cost of goods and services, taking into account what is done to the environment. When prices are raised, a powerful incentive is created to cut waste, use less and recycle; this is another important element in the strategy outlined in this volume, conservation, and, beyond this, the development of entirely new models of consumption and, eventually, new lifestyles.

The fourth crisis is massive environmental destruction in the Third World. These countries are all too often prepared to sacrifice ecological concerns for the sake of faster development. International society has begun to acknowledge, however, that environmental destruction undermines development. To be sustainable, development must be environmentally responsible. The link between environment and development was the theme of the 1992 Rio Earth Summit. The Third World remained focused on development at the expense of environment.

Another serious problem resides in the South's fixation on the Northern model of development. Not only does this model raise false hopes for the extremely underdeveloped (in the sense that it is unattainable), it is also a blueprint for environmental disaster: One can imagine what would happen to the environment if the other two-thirds of the world reached our absurd levels of waste and consumption. Rich nations must without delay strive to provide a better example of environmental responsibility: Their model of growth is unsustainable. They must also help the Third World protect its environment by providing more appropriate technology and assistance in setting up more effective administrative structures.

The last ecological crisis discussed is that of the destruction of biological diversity, a phenomenon reaching unprecedented proportions with the extinction of large numbers of species as a result of the worldwide decimation of forests, the alteration of river, swamp and desert ecosystems and the use of chemicals in agriculture. Modern agriculture has also continued to reduce the genetic variance between domestic animals and seeds. The 1992 Rio Conference on Environment and Development saw the completion of a Convention on Biological Diversity (but the United States refused to sign it). Genetic engineering, sometimes presented as providing a solution for this problem, cannot realistically restore biological diversity. It could however be used to ensure some protection for many species, e.g., by lessening agricultural dependence on chemicals.

Having shown in Part II that environmental policies have been, thus far, insufficiently effective, Part III tries to develop a new strategy. This strategy is intended to be incremental and pragmatic as it cannot be anticipated that people will easily change their values or mode of behavior. The main preoccupation will continue to be focused on economic well-being: Whenever environmental protection clashes with economic self-interest, environmental policy will be diluted or abandoned. However, environmental destruction makes change inescapable since our present economic model of prosperity is not ecologically sustainable. But the longer reform is delayed (the greater the level of environmental destruction), the more drastic change will have to be.

The first step in the proposed strategy is to use the market as a force for environmental preservation. This represents a departure from earlier approaches since environmentalists have tended to see the market as the enemy of environmental protection (hence, legislative efforts to control the market, and impose regulations enforcing environmental standards). but this command and control approach did not succeed. So, Wiezsäcker now proposes using the price-mechanism to achieve his objective: Prices must be made "to tell the ecological truth," i.e., must include their share of environmental costs (normally ignored in pricing procedures).

One method is already in use (although not effective enough): It consists in the application of a variety of charges, such as emission charges, user charges (e.g., for municipal waste disposal), product charges (e.g., charges on non-returnable bottles), administrative charges (e.g., for the registration of new chemicals). Adding to the prices of goods and services induces managers and producers to push for improvements (e.g., in the technology) to reduce burdensome charges. This procedure, however, can't solve the environmental crisis. Indeed, few of the charges have been steep enough or radical enough to stop environmentally destructive activities.

Weizsäcker therefore advocates using environmental taxes with a directional purpose: Taxes intended to increase the prices of goods and services detrimental to the environment so as to (1) achieve conservation (high prices deterring use), and (2) create a strong incentive to develop alternative technologies and techniques oriented toward environmental protection. These taxes are to be introduced in the course of a program of environmental tax reform involving tax increments on specific items of 5% per year over some 40 years, progressively reorienting the economy as the targeted priced become prohibitive. To make such a radical scheme acceptable, some of the taxes currently in use (e.g., income tax) are to be reduced by an equivalent amount so that the revenue generated will remain constant.

We are assured that the gradual increase in the rate of environmental taxes will prevent economic disruption, presumably because environmentally benign alternatives will be developed over the lengthy transition period. However, given the extensive number of activities subject to the new taxes (intended to become, eventually, exorbitant), it is hard to see how grave economic disruption could be avoided. Unfortunately, only three pages are devoted to refuting such objections to the ecological tax proposal, a serious shortcoming given the drastic nature of the proposed change. And even if an effective defense were made in this respect, one may wonder how such an ecological tax scheme could be politically viable in a country such as the United States in which public opinion is so intensely and so fiercely sensitive to taxes (a sensitivity in fact verging on paranoia). The author, throughout his study wisely stresses that an environmental strategy, to be effective needs to be pragmatic and designed for political acceptability. In the United States it seems that this requires avoiding anything that vaguely resembles additional taxation (at least in the present mood of the nation).

Earth Politics also advocates enlisting the support of the business community in reforming the system, in itself an excellent idea. But in the United States, and probably in many other countries as well, business and industry are not very likely to cooperate in instituting a comprehensive environmental tax reform intended to put out of

existence, however progressively, entire lines of production, even if it is meant as an incentive to develop lucrative alternatives. More likely than not, business and consumers both will be opposed to the reform even for the sake of making prices reflect true ecological costs. Part of the problem today is in fact that the public does not want to pay what it costs to protect the environment, and one may doubt that the ecological tax reform will make it any easier to pay the ecological bill until ecological destruction reaches catastrophic proportions.

The Earth Summit (1992 Rio Conference) is an example of the difficulty of making progress in global environmental protection even though the approach was much more conventional than instituting an ecological tax reform. A large part of the problem is that it was a meeting of nation-states many of which were still fettered by state-centric views. This is not meant to contend that the conference was useless: Global discussion of the issues creates greater awareness even if remedial action is not forthcoming. What is most needed is a change of perspective not only for greater ecological sensitivity, but also greater readiness to shed one's traditional state-centric mentality. The last part of *Earth Politics* aptly calls for a new vision.

Technology and science must be redirected toward ecological responsibility (e.g., redefining the meaning of productivity, eliminating waste, facilitating re-use and recycling). More effort must be devoted to researching the consequences of scientific discovery and to the attainment of new scientific perspective, greater respect for the humanities and interdisciplinary cooperation. Ultimately what is called for is a profound cultural transformation involving new concepts of work and of wealth (since our present mode of behavior is not environmentally sustainable) to overcome our acquisitiveness and fixation on money-making, and to reassess our notion of the good life. This is not an invitation to embrace austerity but, rather, to seek a new model of well-being that will not entail certain destruction of our global environment. This applies both to North and South, the latter currently all too willing to imitate the former even in its most wasteful ways. What is suggested here is little short of a cultural revolution in which happiness is not measured in terms of what one earns or how much one possesses, but in achieving satisfaction in other ways, such as the company of good friends, appreciation of music, the arts, reading, or finding fulfillment through spiritual, religious or aesthetic experience. This change of lifestyle would not only preserve our environment but relieve the pressure of life in modern society (otherwise understood as the "rat race"), thus providing substantial health benefits to boot. This perspective is already more widely shared today but undoubtedly remains a minority position.

Education is a powerful instrument of social change: "Weizsäcker's challenging little volume is making a valuable contribution by coaxing his readers to re-examine the conventional views of this *fin de siècle* — whatever we do, the inevitable end of an era.

Endnotes

* Dr. Leguey-Feilleux is Professor of Political Science at Saint Louis University.

1. *Earth Politics* (London: Zed Books, 1994).

NEUTRALITY? ALLIANCE? OR WHAT?

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Introduction

ITEST has entered its 27th year alive and bursting with energy. There are more groups working in this area now than there were individuals then. Times and circumstances have changed. Opportunities and challenges have come and gone, though more have come than gone. In other words, there is more opportunity and more challenge than ever. Thanks be to God, there is more (not enough, but more) openness to the need and the possibility of this type of Christian "inculturation."

ITEST members and its Board of Directors have long recognized that there are many different aspects to Faith/science work. It includes the high-level contacts between the Catholic Bishops' Committee on Science and Human Values and a national scientific organization. Another, of course, is theology/science work, which, up to this time, has taken place largely between physicists and theologians. Another aspect can be seen in bioethics work and environmental work. Still other aspects take a more evangelical approach, realizing that we greatly need the ministry of "bench scientists" pointing to the compatibility of religion and science simply by their lives in science. Another aspect is working with students in both science and theology, acquainting them

with the intellectual and spiritual riches of their faith and the importance of scientific knowledge to that faith. The above is not an exhaustive listing of the "rooms in our Father's house." While a partial list, it shows the multiple aspects of faith/science work.

Beside the many things to be done there is another aspect of faith/science work to be considered. Why are these things to be done? What is the goal? Again, there are perhaps as many sub-goals as there are groups or even individual members of those groups. Although the ultimate goal of all Christians working in this area is the glory of God through the strengthening of the church, there are many sub-strategies and tactics to be pursued — all of them important to the total effort. For years a particular tactic and strategy of ITEST was "clearing the ground" of the debris of a totally unnecessary conflict between scientists and the faithful. Two names dominate this struggle in the minds of scientists: Galileo and Darwin. Thus, it was (and is) important to "detoxify" the intellectual atmosphere. The "air pollution" in this particular neighborhood of the city of man and God is still far from eliminated. Nonetheless, the breathing seems somewhat easier. We can put it briefly: for a long time we were, among other things, struggling simply for some kind of "truce" in the war between science and religion, some kind of neutrality.

Science is becoming aware that all is not well in its own bailiwick. There is no single cause for the growth of this awareness. But the complacency (some call it arrogance) dominating that community shows some signs of wear — if I may mix metaphors. This gives us in faith/-science work another model to propose — that of ally. It is an offer that will be resisted by those who couldn't accept even neutrality. But, more for our sake and for our goals — for our love for science and our Christian faith — we must offer an alliance to those beginning to feel themselves beleaguered. The faith is definitely able to help the newly more self-conscious scientists. Why would scientists want an alliance with believers?

It is probably best to begin with a major element in the new situation: a new book entitled *Higher Superstition: The Academic Left and Its Quarrels with Science* by Paul R. Gross and Norman Levitt.[1] This is an important study and many of us who work in an academic milieu will recognize many of the references to university life in the latter 20th century. We may even recognize some of the authors' "demons." After a short description of what the authors call "muddleheadedness" they identify what (and whom) they mean by the "academic left." Since they are at pains to be clear about their target, I shall quote them at some length.

> We try to use the troubling term academic left with reasonable precision. This category is comprised, in the main, of humanists and social scientists; rarely do working natural scientists (who may nevertheless associate themselves with liberal or leftist ideas) show up within its ranks. The academic left is not completely defined by the spectrum of issues that form the benchmarks for the left/right dichotomy in American and world politics, although by reference to that standard set — race, women's rights, health care, disarmament, foreign policy – it unquestionably belongs on the left. Another set of beliefs — perhaps it is more accurate to call them attitudes — comes into play in an essential way, shaping this subculture. What defines it, as much as anything else, is a deep concern with cultural issues, and, in particular, a commitment to the idea that fundamental political change is urgently needed and can be achieved only through revolutionary processes rooted in a wholesale revision of cultural categories.
>
> This apocalyptic break with things-as-they-are is supposed to displace a vast array of received cultural values and substitute an entirely novel ethos. From this perspective feminism, for example, means more than full juridical equality for women, more than income parity and equal access to careers, more than irrevocable "reproductive rights." It means, in fact, a complete overthrow of traditional gender categories, with all their conscious and unconscious postulates. By the same token, racial justice, on this view, does not mean peaceful assimilation of blacks into the dominant culture, but the forging of an entirely new culture, in which "black" (or "African") values — in social relations, economics, aesthetics, personal sensibilities — will have at least equal standing with "white" values. Similarly, environmentalism, as understood and preached on the academic left, extends far beyond concrete measures to eliminate pollution, or to avoid extinction of species and elimination of habitats. Rather, it envisions a transcendence of the values of Western industrial society and the restoration of an imagined prelapsarian harmony to humanity's relation with nature.[2]

Please note "apocalyptic break with things-as-they-are." We shall have reason to come back to it later. The authors, then, pinpoint more exactly what they mean by the academic left and why it is of such concern to them.

> Postmodernism, however, is but one of the strands from which the academic left weaves its indictment (of science). Other notions both new and old enter into the cloth. The traditional Marxist view that what we think of as science is really "bourgeois" science, a superstructural manifestation of the capitalist order, recurs with predictable regularity, in its own right or refurbished as the doctrine of "cultural constructivism." The radical feminist view that science, like every other intellectual structure of modern society, is poisoned and corrupted by an

ineradicable gender bias, is another vitally important element. An analogous accusation comes from multiculturalists, who view "Western" science as inherently inaccurate and incomplete by virtue of its failure to incorporate the full range of cultural perspectives. A certain strain of radical environmentalism condemns science as embodying the instrumentalism and alienation from direct experience of nature which are the twin sources of an eventual (or imminent) ecological doomsday.

These ideas are the chief elements alloyed to form the academic left's challenge to conventional scientific thinking. It must be noted, however, that there is no canonical way of combining them. Although we have been speaking of an academic left critique, it must be stressed — and we are compelled to stress it throughout the discussion to follow — that this is not a self-consistent body of doctrine. Rather, it is a congeries of different doctrines, with no well-defined center, each of which draws upon the notions we have cited in an idiosyncratic way, elaborating some of them with enthusiasm while leaving others in the background and rejecting still others completely. What enables them to coexist congenially, in spite of gross logical inconsistencies, is a shared sense of injury, resentment, and indignation against modern science.[3]

The above lists the various academic (I almost wrote intellectual) actors treated in the book. Throughout the book the authors pay tribute to their own understanding of the Enlightenment.[4] It seems, however, that by "Enlightenment" they mean "Progress," so beloved of 19th century intellectuals.

Although the authors bend over backwards to maintain their "liberal credentials," they name names and pursue "postmodernists" relentlessly, though, I think, fairly. This book is important for those who love science. Despite that, however, the authors manifest an enormous blindspot toward Christianity and Judaism. It does not seem to enter their minds that their greatest ally in addressing the world of "things-as-they-are" is Christianity and Judaism. Whenever they mention religion they seem to sneer. As is *de rigueur* in their milieu, their greatest heroes are Galileo and Darwin. Having such heroes automatically, at least in their view of things-as-they-are, makes Christianity a villain. They give no indication of any real understanding of Christianity. For example:

In its ineluctable dynamic, the science of the turn of the eighteenth century could not be contained within the shell of any theological system. It was, in important ways, already fully modern. Open-endedness is the vital principle at stake here. It constitutes the life-blood of ongoing science. Newton said it best: an 'ocean of truth' lies undiscovered before us. Unless we are unlucky, this will always be the case.[5]

It does not seem to occur to the authors that this statement must be made as well about Christian theology. Christianity cannot be contained within the shell of *any* theological system. Further, two other aspects of Christianity seem to escape Gross and Levitt: first, the primary goal of Christianity is salvation, not reason; second, faith is not irrational. On this second point let me quote briefly from the *Encyclopedia Britannica* in, of all things, its section on the Enlightenment:

Christianity was rooted in both reason and revelation, and, according to the Fathers and doctors of the church, these sources were not in conflict; revelation simply had the higher truth.[6]

Christians have defined theology as *fides quaerens intellectum*, faith seeking understanding. One does not seek for something which one already has. Theology does not *possess* the truth. Christian thought, in reality, is more open-ended than science, since it sees a world beyond the methods and concepts of science. This, however, is not the place to pursue this particular idea.

Let us return to the author's concern about the church's treatment of "poor Galileo." The authors state: "Their arrogance (postmodernists), then, is comparable to that of 'creation scientists' in addressing evolutionary biology, or to that of Galileo's persecutors within the Inquisition in their response to his cosmology."[7] Let's compare that to a statement of Fr. William Wallace.

Nonetheless Galileo continued to propagate Copernican views, with the result that protests were made to the Holy Office (the Roman Congregation entrusted with defending the Catholic faith). Late in 1615 he himself felt it necessary to go to Rome to explain his activities. Meanwhile a Carmelite friar, Paulo Antonio Foscarini, had written a small book in which he maintained that the Bible could be interpreted in ways that allowed the Copernican system to be taught. Replying to Foscarini and, along with him, to Galileo, Cardinal Robert Bellarmine wrote a letter to both saying that if they could *demonstrate* that the earth actually moves there would be no objection to their holding Copernicus's heliocentrism. In that event Scripture would have to be interpreted differently from the way it had been throughout the Church's history. If they lacked such a demonstration, however, they might continue to teach the Copernican system as a mathematical hypothesis, as this had been suggested in the preface of Copernicus's book, but they were not to teach that the earth actually moves.

In an interview with Bellarmine in Rome on February 26, 1616, Galileo apparently acquiesced to the instruction in Bellarmine's letter to himself and Foscarini. Galileo surely understood what Bellarmine

> meant by *demonstration,* since Bellarmine was a Jesuit and had had access to the same teaching on the *Posterior Analytics* as did Galileo. The latter also probably recognized that the demonstrations in the *Sidereal Messenger,* while remarkable in their own right, failed to offer convincing proof of the earth's motion. . . . [8]

We should note that Galileo's original critics were academics. Until Galileo himself brought in the question of interpreting Scripture the Vatican was not formally involved. Father Wallace continues:

> The Catholic Church has been much criticized over the centuries for its handling of the Galileo case. Replying to such criticisms, in 1979 Pope John Paul II admitted that Galileo had suffered unjustly at the hands of the Church and praised him for the faith he manifested under such difficult circumstances. Then, in 1981, he appointed a special commission to reopen the trial, as it were, and to fix responsibility for it wherever it might lie.
>
> Some have regarded Galileo's abjuration as a character defect, saying that he perjured himself when he denied the earth's motion at the end of the trial. But this is to misunderstand the proper relationship that Galileo knew to obtain between faith and reason. Had Galileo been able to *demonstrate* the earth's motion as being true and certain, then he would have lied (under oath) in withdrawing assent to the Copernican system. But if he still had doubts about the argument from the tides, as well he might, that left room for his following the Church's teaching (wrong though we now know it was) until such time as proper proof became available. Although other evidences began to appear in the seventeenth and eighteenth centuries, most scientists would now agree that the earth's motion was not made clearly manifest until Bessel's measurement of stellar parallax in 1838 and Foucault's experiments with the pendulum in 1851 — both still a long time off in 1633![10]

Whatever else we might say about Galileo and his famous "persecution," we can at least say that it is more complicated than Gross and Levitt make it seem. It is curious that the authors, like many other scientists and their apologists, continue to go back 350 years to prove the church's "conflict" with science. Despite their going back 350 years, Gross and Levitt are put out because The Biology and Gender Study Group criticizes a book published in 1890:

> We come next to "Sperm Goes A'Courtin'," which turns out to be an indignant attack on a book published in 1890 — not a technical book at that, but a popularization by Sir Patrick Geddes and John Arthur Thomson dealing with sexual physiology. This was published soon after the discovery of syngamic fertilization (sperm-egg fusion), but before the discovery of chromosomal sex-determination.[10]

I am not suggesting that Gross and Levitt are incorrect in criticizing this Study Group. But should they stress that the book being attacked was written in 1890? That's almost 260 years after the Galileo case. If they can criticize the church for an event in 1633 they shouldn't be so upset that others criticize a book written in 1890. The content of the criticism is not a question here. Indeed, scientific understanding has changed over the years. But then, so has the church's understanding changed. These authors give little indication of being aware of the fact, much less the content of that change. I wonder how scientists like Gross and Levitt would react if religionists continually went back to the writings and theories of Paracelsus or Descartes to show how benighted science is. In fact, we would not have to go back that far; we could go back to Laplace's nebulosity theory at the beginning of the 19th century.

Things as They Are

Gross and Levitt are right to be concerned with those who think science's study of the world-as-it-is is merely a product of white, European male values and therefore culture bound, sexist and so on. Strangely enough, Christians should also be worried about precisely the same phenomenon and for exactly the same reasons. Neither science nor the faith can operate properly in a world-as-it-ought-to be, in some utopia (or dystopia). As Christians we believe that God (WHO IS) created the universe. We believe that he sent his beloved Son to redeem that world. In short, God having created the world, saved it after human beings sinned. We believe that the church is the body of Christ, that it is his historical (though sacramental) presence in the world. But we must always be present to him in the world that is, truly the only world we have. Christianity is not some religious or spiritual never-never land. It lives and grows only in the world that is.

It may seem to us that for many centuries, even for a millennium, the church was far more concerned with abstract things that never were. How often have we heard the old canard about how many angels can dance on the head of a pin? (I have never been able to find that discussion in the theological texts and I would deeply appreciate it if anyone who has come across it would send me the references.) We must remember, even if we are deeply unfriendly to the kind of abstraction in which the Scholastics engaged, that these were real people trying to answer real questions put to them by other real people. We, from our superior perch on the tree of knowledge (please note that knowledge is not necessarily the same as wisdom), may find the arguments ludicrous or perhaps scandalous. Nonetheless,

these were the questions that the learned culture was asking and which the Scholastic philosophers and theologians were attempting to answer. Moreover, we cannot forget that these scholars were convinced that their answers had important ramifications in the real world in which people were trying to live lives worthy of the Lord. That the arguments and methods proceeded into sterility cannot be denied. Nonetheless, it is salutary for us to realize that future generations, from their (hopefully) still higher perch, may find our questions and answers equally ludicrous and sterile. A little humility is not out of place.

Almost from the its beginnings Christianity has tried to answer the questions put to it by both the physical universe itself and the culture (both secular and religious) of the time. To comment on this let me introduce what may seem like a diversion. In a Report[11] published in 1993 Stanley McDaniel states:

> The apparent failure of the Mars Observer mission is all the greater loss to science because of its inability to return data on Martian landforms whose natural origin has been called into question. If NASA's current failure to assign appropriate priority to these landforms remains in effect for future missions to Mars, science stands at risk of committing the most egregious act of scientific irresponsibility of all time. Indeed, NASA has already, by its ridicule of the independent investigation and its failures in . . . proper research on the landforms, effectively compromised the scientific process.[12]

In 1976 the Viking Mars probe took pictures (2 frames) of what some think may be an enormous artifact bearing a remarkable resemblance to a humanoid face. My purpose in bringing this up here is neither to judge the "evidence" presented by the group involved nor to make some kind of a judgment on the possibility of extraterrestrial life. I want merely to call attention to one section of that report:

> In 1960, a report titled *Proposed Studies on the Implications of Peaceful Space Activities for Human Affairs* was delivered to the Chairman of NASA's Committee on Long-Range Studies. The report, prepared by the Brookings Institution, Washington, D.C., under contract to NASA, was also delivered to the 87th Congress. In a section on "The Implications of a Discovery of Extraterrestrial Life," the report acknowledges the possibility that "artifacts left at some point in time" by intelligent life forms might be "discovered through our space activities on the Moon, Mars, or Venus."
>
> The Brookings report directly questions the view that the discovery of extraterrestrial intelligence (ETI) would necessarily lead to an all-out space effort. Instead, the report notes the possibility that society might "disintegrate," or survive only by "paying the price of changes in values and attitudes and behavior.". . . .
>
> > "The degree of political or social repercussion would probably depend on leadership's interpretation of (1) its own role, (2) threats to that role, and (3) national and personal opportunities to take advantage of the disruption or reinforcement of the attitudes and values of others."
>
> In particular, the reactions of politically influential religious groups, including "fundamentalists," "anti-science sects," and "Buddhists," were a matter for concern. . . . the report considered the potential reaction of such groups as an unknown factor that should be researched, in order to weigh the possible social consequences of their actions should an ETI discovery be announced. . . .
>
> > "It has been speculated that of all groups, scientists and engineers might be the most devastated by the discovery of relatively superior creatures, since these professions are most clearly associated with the mastery of nature, rather than with the understanding and expression of man-[kind]. Advanced understanding of nature might vitiate all our theories at the very least, if not also require a culture and perhaps a brain inaccessible to earth scientists."
>
> As a result of these possibilities — that major social upheaval and psychological "devastation" of many scientists might occur (including the implied possibility that antiscience fundamentalist groups could attack scientific institutions and perhaps threaten individual scientists) — the report speaks of the possibility that scientists and other decisionmakers might interfere with the release of ETI information, even to the extent of *withholding it altogether.*[13]

While I can't predict the possible future activity of a bunch of "nuts," I feel safe in saying that the fundamentalists (whoever they are) will not riot in the streets. At his request, I sent a brief response to Dr. McDaniel for use at a meeting with government officials in May, 1994. Please permit me to quote from that letter.

> I think that the best way to approach the reaction of the Catholic Church to "a possible artifact on Mars" is to look at the Church's reaction to other events in her history. Within a dozen years of the death of Christ, the Church in Jerusalem faced an issue of enormous importance, namely, whether or not to preach the Good News of Christ to the pagans. I doubt that we can begin to understand now what a wrenching question this was. The Church was still very, very young and, humanly

> speaking, very fragile. Nonetheless, under the guidance of the Holy Spirit the leaders decided that the pagans were indeed called to Christ equally with the Jews. That was a critical decision, certainly of the order of the possibility of now finding evidence that there was a line of humans before us "out there."
>
> Other "paradigm shattering" discoveries (religious, political, scientific, intellectual and so on) have occurred since the first century. I'd just mention the "Christianization"of the Roman Empire and its later collapse, the non-occurrence of the "end-time" at the beginning of this millennium, the Black Death, the "discovery" of the New World, the Copernican model of the solar system, the Reformation, the Enlightenment, two World Wars, etc. In none of the events was there religious panic. I certainly would not expect any now.[14]

I cannot speak for that amorphous group called "fundamentalists." I have read articles about them, but I still am not sure who they are. I do not expect Christians to riot or panic. We (along with our Jewish brothers and sisters) should know by now that God loves to surprise us. We need think only of Gideon or of Mary of Nazareth to be aware of that. I believe that most Christians would be enthralled by documented and validated evidence of an artifact on Mars. That would sing to me of the greatness of God. I would be delighted to have a real-world opportunity to reflect on and learn from an unexpected appreciation of the universe and of God's will for it. Christians (though not all, of course, would) should rejoice in any new and deepening understanding of the history of the cosmos and of its future.

We must emphasize that the primary concern of the faith is *salvation*. It is not primarily the knowledge that comes through reasoning. We should not forget Paul's affirmation in 1 Corinthians: "'We all have knowledge'; yes, that is so, but knowledge gives self-importance — it is love that makes the building grow. A man may imagine he understands something, but still not understand anything in the way that he ought to; But any man who loves God is known by him" (1 Cor 8:1-3). Salvation is far more related to love (God's love for us and our response in love) than it is to "knowledge." To put it briefly, salvation demands knowledge (at least the knowledge that God loves us and sent his Son into this world); rational knowledge does *not* demand salvation.

Still, our cooperation with God in salvation is not simply an individual matter. By our baptism we are members of a consecrated race set apart to sing his praises. Do we sing more beautifully the praise of the Creator by learning as much as we possibly can about creation? The church has always thought so. Almost from the very beginning, Christianity's relation to "the academy" has been an important part of spreading the Good News. Christopher Kaiser writes:

> The first comparable interaction of Christian faith with Greco-Roman science took place in the second and third centuries when Christians suffered persecution much as the Jews had earlier. As in Jewish apologetics, there were those who claimed all truth to be inspired by God and hence suitable material for Christian scholarship. The first clear statement of this viewpoint was made by Justin Martyr (c. AD 165). Justin borrowed the Stoic idea of a seminal Word *(logos spermatikos)* implanted by God in all humans and maintained that this seed inspired the best philosophy of the Greeks as well as the prophecies of the Old Testament. Hence, 'Whatever things were rightly said among all men, are the property of us Christians.' In the same breath, however, Justin noted that the various schools of Greek philosophy contradicted each other and concluded that they knew only that part of the *Logos* that was distributed to them and not the fullness of the Word which was embodied in Christ. And, in another context, he recounted the opinion of his own teacher that the Greek philosophers were motivated by a desire for personal fame and only taught a select few, while the Hebrew prophets were inspired by God's Spirit and 'saw and announced the truth to all.'
>
> Such a positive attitude towards the arts and sciences was taken also by Clement of Alexandria, Origen and Pseudo-Clement (purportedly Clement of Rome) in the third century. All three were concerned with the communication of the gospel to pagan inquirers and advocated the study of what later became known as the *quadrivium* (geometry, arithmetic, astronomy, and music) as a prerequisite for a proper understanding of Christian theology.
>
> . . . Irenaeus and Tertullian (late second to early third century) were more critical of Greek philosophy primarily because they had to deal with the rise of numerous heresies within the ranks of the Church. Irenaeus made a sweeping condemnation of the natural philosophers (Thales, Anaximander, Anaximenes, Pythagoras, Empedocles, *et al.*), calling their teachings 'a heap of miserable rags' from which the Valentinian Gnostics had sewed together a cloak to cover their own deviations from orthodoxy. Natural mysteries like the rising of the Nile and the dwelling place of birds, he argued, were far beyond the reach of human knowledge, and, while much could be said concerning their causes if they were properly searched into, 'God alone who made them can declare the truth regarding them.' Christians should confine their studies to the Scriptures and the apostolic rule of faith (an early form of the Apostles' Creed). If they were foolishly to inquire into the wonders of nature they would develop con-

> flicting schools of thought, like those of Greeks, and undermine the God-given unity of the Church. . . .[15]

Galileo, contrary to the dominant myth, was not the first to challenge Aristotelian cosmology. Kaiser states:

> Basil's [ordained Bishop of Caesarea in Cappadocia in 370] *Hexaemeron* was one of the first in a series of criticisms of Aristotle, a series that was to last for over twelve hundred years and give rise at last to modern (post-Aristotelian) science in the seventeenth century. Some of the key points of this critique were: (1) that the behaviour of the elements must be understood in terms of law ordained by God rather than in terms of their essences; (2) that the heavens are corruptible like the earth so that the same laws of physics should apply to both; (3) that nature, once created and put in motion, evolves in accordance with the laws assigned to it without interruption or diminishment of energy.
>
> The importance of these ideas in the development of science has been recognized by a number of historians, though the insight of Basil and the influence of his commentary have not always been properly credited.[16]

It would be helpful if scientists would look beyond Galileo for the foundations of their work and ideas. Nonetheless, we must realize that our Christian intellectual activity is carried on in the world-that-is — to the best of our understanding. If the "academic left" (of the culture and of the church) gives real evidence of opening the "learned community" (of the culture and of the church) to a deeper understanding of the world-as-it-is, we have a serious obligation to consider that evidence and ideas very thoughtfully. But, for the Christian, these new ideas and approaches must be primarily conducive to salvation. This is certainly the burden of recent papal statements. The church is not primarily an intellectual operation.

Reasoning and faith are not in opposition. In 1893, in an Encyclical on Scripture, *Providentissimus Deus*, Pope Leo XIII wrote:

> There can never, indeed, be any real discrepancy between the theologian and the physicist, as long as each confines himself within his own lines, and both are careful, as St. Augustine warns us, "not to make rash assertions, or to assert what is not known as known (Augustine, *In. Gen. op. imperf.* ix. 30)." If dissension should arise between them, here is the rule also laid down by St. Augustine, for the theologian: "Whatever they can really demonstrate to be true of physical nature we must show to be capable of reconciliation with our Scriptures; and whatever they assert in their treatises which is contrary to these Scriptures of ours, that is to the Catholic faith, we must either prove it as well as we can to be entirely false, or at all events we must, without the slightest hesitation, believe it to be so (Augustine, *De Gen. ad litt.* i. 21, 42)." To understand how just is the rule here formulated we must remember, first, that the sacred writers, or, to speak more accurately, the Holy Ghost "who spoke by them, did not intend to teach men these things (that is to say, the essential nature of the things of the visible universe), things no way profitable unto salvation (Augustine, ib, ii. 9, 20)." Hence they did not seek to penetrate the secrets of nature, but rather described and dealt with things in more or less figurative language, or in terms which were commonly used at the time, and which in many instances are in daily use at this day, even by the most eminent men of science. . .
>
> . . . in commenting on passages where physical matters occur, they [the Fathers] have sometimes expressed the ideas of their own times, and thus made statements which in these days have been abandoned as incorrect. . . . The Catholic interpreter, although he should show that those facts of natural science which investigators affirm to be now quite certain are not contrary to the Scripture rightly explained, must, nevertheless, always bear in mind that much which has been held and proved as certain has afterwards been called into question and rejected. And if writers on physics travel outside the boundaries of their own branch, and carry their erroneous teaching into the domain of philosophy, let them be handed over to philosophers for refutation.[17]

It would have made a great deal of difference in the "Galileo Affair" if those involved had remembered the words of St. Augustine. Pope Leo, later in the same encyclical made statements that are still extremely important for those of us in faith and science:

> It (defense of the Holy Bible) is an enterprise in which we have a right to expect the co-operation of all those Catholics who have acquired reputation in any branch of learning whatever. As in the past, so at the present time, the Church is never without the graceful support of her accomplished children; may their service to the Faith grow and increase! . . . . Moreover, the bitter tongues of objectors will be silenced, or at least they will not dare to insist so shamelessly that faith is the enemy of science, when they see that scientific men of eminence in their profession show toward faith the most marked honor and respect.[18]

In a message given to participants at a celebration of the tercentenary of Newton's *Principia*, Pope John Paul II called for dialogue and common searching between science and theology. While Pope Leo XIII was con-

cerned primarily with defense of the Sacred Scripture, Pope John Paul II has a much broader agenda:

> By encouraging openness between the Church and the scientific communities, we are not envisioning a disciplinary unity between theology and science like that which exists within a given scientific field or within theology proper. As dialogue and common searching continue, there will be growth towards mutual understanding and a gradual uncovering of common concerns which will provide the basis for further research and discussion. Exactly what form that will take must be left to the future. What is important . . . is that the dialogue should continue and grow in depth and scope. . . . What is critically important is that each discipline should continue to enrich, nourish and challenge the other to be more fully what it can be and to contribute to our vision of who we are and who we are becoming.[19]

The Pope continues:

> We might ask whether or not we are ready for this crucial endeavour. Is the community of world religions, including the Church, ready to enter into a more thorough-going dialogue with the scientific community, a dialogue in which the integrity of both religion and science is supported and the advance of each is fostered? Is the scientific community now prepared to open itself to Christianity, and indeed to all the great world religions, working with us all to build a culture that is more humane and in that way more divine? Do we dare to risk the honesty and the courage that this task demands? We must ask ourselves whether both science and religion will contribute to the integration of human culture or to its fragmentation. . . .[20]

If Gross and Levitt are typical of the scientific community, the answer to the Pope's questions is a decided *no.* I marked 18 passages showing the authors' negative feelings toward religion. I will cite one:

> Totalism (*a negative concept in the eyes of the authors: Brungs*), as we would define it, is the impulse to bring the entire range of human phenomena with the rubric of a favored doctrinal system. It erects ideological categories which are viewed as primary, privileged, and comprehensive. Totalism of this kind has been the historic tendency of organized religion . . . since the end of classical paganism.[21]

This is not the openness that the Pope calls for. The faith *must* inform the lives of Christians. If it does, Gross and Levitt would not accept it, since it is "totalizing." The question remains: would they conclude an alliance while remaining unconvinced and unfriendly? As the Pope in effect says: we'll know more later.

> *For a simple neutrality is no longer acceptable* (emphasis mine). If they are to grow they cannot continue to live in separate compartments, purs[u]ing totally divergent interests from which they evaluate and judge their world. A divided community fosters a fragmented vision of the world; a community of interchange encourages its members to expand their partial perspectives and form a new unified vision.
>
> Yet the unity that we seek, as we have already stressed, is not identity. The Church does not propose that science should become religion or religion science. On the contrary, unity always presupposes the diversity and the integrity of its elements. Each of these members should become not less itself but more itself in a dynamic interchange, for a unity in which one of the elements is reduced to the other is destructive, false in its promises of harmony, and ruinous of the integrity of its components. We are asked to become one. We are not asked to become each other.[22]

The Pope's statement, in itself and in its importance as a magisterial document, is worth quoting further:

> To be more specific, both religion and science must preserve their autonomy and their distinctiveness. Religion is not founded on science nor is science an extension of religion. Each should possess its own principles, its pattern of procedures, its diversities of interpretation and its own conclusions. Christianity possesses the source of its justification within itself and does not expect science to constitute its primary apologetic. Science must bear witness to its own worth. While each can and should support the other as distinct dimensions of a common human culture, neither ought to assume that it forms a necessary premise for the other. . . .
>
> But why is critical openness and mutual interchange a value for both of us? Unity involves the drive of the human mind towards understanding and the desire of the human spirit for love. When human beings seek to understand the multiplicities that surround them, when they seek to make sense of experience, they do so by bringing many factors into a common vision. Understanding is achieved when many data are unified by a common structure. The one illuminates the many; it makes sense of the whole. Simple multiplicity is chaos; an insight, a single model, can give that chaos structure and draw it into intelligibility. . . .[23]

After reviewing the role and value of faith and science and the need for unity, the Pope moves to the nature of the relation of faith and science:

> What, then, does the Church encourage in this relational unity between science and religion? First and

> foremost that they should come to understand one another. For too long they have been at arm's length. Theology has been defined as an effort of faith to achieve understanding, as *fides quaerens intellectum*. As such, it must be in vital interchange today with science just as it has always been with philosophy and other forms of learning. Theology will have to call on the findings of science to one degree or another as it pursues its primary concern for the human person, the reaches of freedom, the possibilities of Christian community, the nature of belief and the intelligibility of nature and history. The vitality and significance of theology for humanity will in a profound way be reflected in its ability to incorporate these findings.
>
> . . . . Theology is not to incorporate indifferently each new philosophical or scientific theory. As these findings become part of the intellectual culture of the time, however, theologians must understand them and test their value in bringing out from Christian belief some of the possibilities which have not yet been realized. The hylomorphism of Aristotelian natural philosophy, for example, was adopted by the medieval theologians to help them explore the nature of the sacraments and the hypostatic union. This did not mean that the Church adjudicated the truth or falsity of the Aristotelian insight, since that is not her concern. It did mean that this was one of the rich insights offered by Greek culture, that it needed to be understood and taken seriously and tested for its value in illuminating various areas of theology. Theologians might well ask, with respect to contemporary science, philosophy and other areas of human knowing, if they have accomplished this extraordinarily difficult process as well as did these medieval masters.[24]

This would be an interesting proposal to put to theologians. The answer is clearly *no*. The Pope then says:

> If the cosmologies of the ancient Near Eastern world could be purified and assimilated into the first chapters of Genesis, might contemporary cosmology have something to offer to our reflections upon creation? Does an evolutionary perspective bring any light to bear upon theological anthropology, the meaning of the human person as the *imago Dei*, the problem of Christology — and even the development of doctrine itself? What, if any, are the eschatological implications of contemporary cosmology, especially in the light of the vast future of our universe? Can theological method fruitfully appropriate insights from scientific methodology and the philosophy of science?
>
> . . . . Pursuing them further (questions of this kind) would require the sort of intense dialogue with contemporary science that has, on the whole, been lacking among those engaged in theological research and teaching. It would entail that some theologians, at least, should be sufficiently well-versed in the sciences to make authentic and creative use of the resources that the best-established theories may offer them. . . .
>
> In this process of mutual learning, those members of the Church who are themselves either active scientists or, in some special cases, both scientists and theologians could serve as a key resource. They can also provide a much-needed ministry to others struggling to integrate the worlds of science and religion in their own intellectual and spiritual lives, as well as to those who face difficult moral decisions in matters of technological research and application. Such bridging ministries must be nurtured and encouraged. . . .
>
> The matter is urgent. Contemporary developments in science challenge theology far more deeply than did the introduction of Aristotle into Western Europe in the thirteenth century. . . . Just as Aristotelian philosophy, through the ministry of such great scholars as St Thomas Aquinas, ultimately came to shape some of the most profound expressions of theological doctrine, so can we not hope that the sciences of today, along with all forms of human knowing, may invigorate and inform those parts of the theological enterprise that bear on the relation of nature, humanity and God?
>
> Can science also benefit from this interchange? It would seem that it should. For science develops best when its concepts and conclusions are integrated into the broader human culture and its concerns for ultimate meaning and value. Scientists cannot, therefore, hold themselves entirely aloof from the sorts of issues dealt with by philosophers and theologians. By devoting to these issues something of the energy and care they give to their research in science, they can help others realize more fully the human potentialities of their discoveries. They can also come to appreciate for themselves that these discoveries cannot be a genuine substitute for knowledge of the truly ultimate. Science can purify religion from error and superstition; religion can purify science from idolatry and false absolutes. . . .
>
> For the truth of the matter is that the Church and the scientific community will inevitably interact; their options do not include isolation. Christians will inevitably assimilate the prevailing ideas about the world, and today these are deeply shaped by science. The only question is whether they will do this critically or unreflectively, with depth and nuance or with a shallowness that debases the Gospel and leaves us ashamed before history. Scientists, like all human beings, will make decisions upon what ulti-

> mately gives meaning and value to their lives and to their work. This they will do well or poorly, with the reflective depth that theological wisdom can help them attain, or with an unconsidered absolutizing of their results beyond their reasonable and proper limits. 25
>
> . . . . Only a dynamic relationship between theology and science can reveal those limits which support the integrity of either discipline, so that theology does not profess a pseudo-science and science does not become an unconscious theology. Our knowledge of each other can lead us to be more authentically ourselves. . . .[26]

It can be seen, I think, that Pope John Paul II has carried the apostolic task of faith/science effort far beyond that sought, legitimately, by Pope Leo XIII. Leo was primarily concerned with "neutrality"; John Paul is authentically desirous of alliance. The latter sees the need for at least some theologians to understand science in order that the development of doctrine occur. Again, that development can take place only in contact with the world-that-is, with the real thoughts of real people. Development of doctrine, like any other aspect of Christian living, can only take place in the real world-as-it-is. We do have to work toward an alliance both for the sake of the Gospel and for the ultimate good (or betterment) of science. This is not to say that an alliance, even if accepted, will result in friendship — at least in the foreseeable future. There is still a great deal of animosity and/or arrogance in the scientific community, matched by an almost immovable apathy in the theological community. There is scientific one-upmanship and theological defensiveness disguised as indifference. Yet, both communities are being attacked by the same forces — deconstructionism, feminism, multiculturalism, environmentalism and other contemporary *isms* in the sense that Gross and Levitt describe them.

It is clear that those of us in faith/science work should continue to work at "clearing away the debris" while at the same time we should begin to work at building an alliance. We have to do this at every level of the faith/science apostolate, "in season and out of season."

Endnotes

1. Gross, Paul R and Levitt, Norman. *Higher Superstition: The Academic Left and Its Quarrels with Science*, (Baltimore: The Johns Hopkins University Press, 1994), pp. 316.

2. *Ibid.*, pp. 3-4.

3. *Ibid.*, p. 5.

4. *Ibid.*, p. 3. "It (the hostility of the academic left to science) seems to represent a rejection of the strongest heritage of the Enlightenment. It seems to mock the idea that, on the whole, a civilization is capable of progressing from ignorance to insight, notwithstanding the benightedness of some of its members." I (Brungs) recall that Nietzsche said something to the effect that, if God is dead, Reason is also dead. I suspect he might agree that, if God is irrelevant, Reason is also irrelevant.

5. *Ibid.*, p. 17.

6. Cf. "Europe" in *Encyclopedia Britannica*, vol. 18. Chicago: Encyclopedia Britannica, Inc., 1987, p. 757.

7. Gross and Levitt, *op. cit.*, p. 106.

8. Fr. William Wallace, O.P., "A History of Science and Faith," in *Transfiguration: Elements of Science and Christian Faith*, ed. Marianne Postiglione, RSM, St. Louis: ITEST Faith/Science Press, 1993. pp. 34-36.

9. *Ibid.*, p. 36

10. Gross and Levitt, *op. cit.*, pp. 117-118.

11. Stanley V. McDaniel, *The McDaniel Report* (Berkeley: North Atlantic Books), 1993, pp. 174 + Appendix.

12. *Ibid.*, p. 167.

13. *Ibid.*, 167-168.

14. Private correspondence, April 22, 1994.

15. Christopher Kaiser, *Creation and the History of Science*, (Grand Rapids: Eerdmans Publishing Co., 1991, pp. 316), pp. 3-4.

16. *Ibid.*, p. 5.

17. Pope Leo XIII, *Providentissimus Deus*, printed in *The Great Encyclical Letters of Leo XIII*, Benziger Brothers. No publication data is included in this volume. This citation can be found on pages 294-5.

18. *Ibid.*, pp. 298-299.

19. John Paul II, "Message of His Holiness John Paul II" in *Physics, Philosophy, and Theology: A Common Quest for Understanding*, ed. R. Russell, W. Stoeger, SJ and G. Coyne, SJ. Vatican City: Vatican Observatory, 1988), p. M7.

20. *Ibid.*, pp. M7-M8.

21. Gross and Levitt, p. 225.

22. John Paul II, *Ibid.*, p. M8.

23. *Ibid.*, pp. M8-M9.

24. *Ibid.*, pp. M10-M11.

25. *Ibid.*, pp. M11-M12.

26. *Ibid.*, pp. M12-M14.