

"God so loved us . . ." is the essential message of Good Friday and Easter.

Not only that, God is tricky, or at least so the Church Fathers thought. We read, for example, in Maximus the Confessor: "Here is the reason why God became a perfect man, changing nothing of human nature, except to take away sin. His flesh was set before that voracious, gaping dragon as bait to provoke him: flesh that would be deadly for the dragon, for it would utterly destroy him by the power of the Godhead hidden within it. For human nature, however, his flesh was to be a remedy since the power of the Godhead in it would restore human nature to its original grace." (from *The Five Hundred Chapters*)

Can we add to that common patristic notion of Satan's being duped St. Paul's statement to the Ephesians that "the Sovereignities and Powers should learn only now, through the Church, how comprehensive God's wisdom really is, exactly according to the plan which he had for all eternity in Christ Jesus our Lord."? Can it be that, like the Sovereignities and Powers, Satan learned of the full extent of his mistake only with the creation (and growth) of the Church? Can it be that he continues to learn more of his mistake in and through the present-day People of God? In us? In our work? In our concern for the well-being of the Church? In our awe at the works of God's hand?

We are indeed privileged who are trained in or interested in science/technology and, more importantly, called to share in God's Church, called to be evangelists. Why am I ever defensive about my faith? I never feel the need to be defensive about being a physicist? Here I am, the adopted child of a God who not only loves me, but who is also, as we say, street-smart. I belong to a God who can fool Satan. He may be able to defend me from whatever establishment I fear.

At any rate, a blessed celebration of the Risen Christ!

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## ANNOUNCEMENTS

1. Preliminary invitations for the October 13-15, 1995 Workshop on Population Issues: Cairo, Copenhagen, Beijing have been sent to all the ITEST membership. 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. The essayists are: Monsignor Diarmuid Martin (Sub-secretary, Pontifical Council Justice and Peace, Vatican City), Dr. Alene Gelbard (Demographer, Population Reference Bureau, Washington, D.C.) and Dr. David Byers (Executive Director, Committee on Science and Human Values, National Conference of Catholic Bishops, Washington, D.C.). We remind you that Fordyce House in Saint Louis has room for only about 50 guests. Reservations are accepted on a first-come-first-serve basis. We suggest you do not delay too long in letting us know your plans.
2. The ITEST Board has definitely chosen *Environmental Ethos* as the topic for the March, 15-17, 1996 Workshop, which will also be held at Fordyce House in St. Louis. 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. Thus far, Fr. Albert Fritsch, S.J. (Director: Appalachia — Science in the Public Interest) has agreed to provide an essay. We are searching for other essayists. If you are aware of a good prospect, please let us know. One difficulty we have is that many "environmental experts" demand stipends beyond our "poor power" to meet.
3. Please note: 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 exclusive use of it. 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 way it will more likely reach us.
4. The Proceedings of the October, 1994 Workshop on *The Science and Politics of Food* have been mailed to all the 1994 dues-paid members — one of the benefits dues-paid members receive. We presume that these have now been delivered. We once again want to thank the essayists and the participants for an enlightening and invigorating discussion. We're confident that you will appreciate this volume.
5. We have received from Fr. Augustin Udias, S.J. (Department of Geophysics, Universidad Complutense, Madrid and long-time ITEST member) notice of the following article: "Jesuit Astronomers in Beijing, 1601 - 1805," in *Q.J.R. astr. Soc.* (1994), **35**, 463-478. The Summary states: "Jesuit astronomers worked in Beijing for almost 200 years from 1601-1805 and occupied posts as directors of the Astronomical Observatory and presidents of the Board of Astronomy. During this time, they carried out an unprecedented transfer of scientific knowledge between Europe and China, especially in the fields of astronomy and mathematics. They took advantage of the need to reform the calendar to introduce western astronomy to China. They built astronomical instruments, brought European astronomical tables and made an extended programme of observations. The work, in particular, of Ricci, Schall, Verbiest, Kögler and Hallerstein highlights this story."
6. Note to campus ministers and leaders of student discussions: ITEST has prepared a series of discussion papers written by about a dozen ITEST members on issues in faith/science and/or theology/science. These are presently being used in Iowa, Kansas and Oklahoma on a pilot basis. They will be evaluated and re-written if and when necessary. We hope to be able to make them available within a reasonable time after we receive the evaluations. We also hope to be able to have them "translated" into "highschoolese." If you wish further information about these discussion pieces, please contact Sister Marianne Postiglione, RSM at (314)-977-2703 or write to the ITEST office at 3601 Lindell Boulevard, St. Louis, Mo. 63108.
7. If any of you would like to contribute a paper on a faith/science issue, we would be very happy to receive it for the next set of topics we would like to prepare. The length should be approximately 1500 words. Remember, though, that these are not "research papers" — the style should be akin to that of a news magazine. Within this calendar year we hope to be able to have a second full set of topics available for campus ministry use. Again, we could use your expertise. Let us thank you in advance for your help in this matter.



# ANTHROPOLOGY AND ECOETHICS

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## *Abstract*

Although seeing man as unique had been criticized as a form of speciesism responsible for our ecological crisis, it is argued here that a recognition of human uniqueness forms the necessary foundation for establishing our responsibility in preserving nature's integrity. Biological anthropology has therefore an important contribution to make in providing a scientific basis for ecoethics. The fossil record, as well as research on nonhuman primate behavior, demonstrate both continuity and discontinuity between humans and other primates. Becoming aware of the remaining distinction and of our singularity is what forces upon us the recognition of our responsibility toward our fragile blue planet. Biological anthropology may help us to reach this awareness.

## *Introduction*

The sociologist Alan Wolfe, in a recent issue of the *Hastings Center Report*, points out a paradox widely noted but seldom explained: "At the very same time we hold all societies in the world to be accountable to certain moral principles, such as respect for human rights, and we also witness a major theoretical challenge to the notion that anything can ever be universal." (Wolfe, 1944)<sup>1</sup> Modern bioethics draw our attention to another manifestation of the same paradox. While all technologically advanced countries recognize the need to consider the ethical questions raised by advances in the medical sciences, our pluralistic societies find it increasingly difficult, some would say impossible, to define universally accepted valid standards for answering bioethical dilemmas (Engelhardt, 1991).<sup>2</sup>

*Yet, it can also be argued that a recognition of human uniqueness constitutes precisely the necessary foundation for establishing our responsibility in preserving nature's integrity, including our duties toward all forms of life.*

As early as 1966, Hans Jonas,<sup>3</sup> the well known philosopher of biology and ethicist, addressed this situation and suggested that "the immanent direction of nature's total evolution" may provide us with signposts for finding the way to a more human use of the powers which

biotechnology places in our hands. Inspired by Jonas' suggestion I tried, some years ago, to discern how a consideration of the trends seen in human evolution could help in answering modern bioethical questions (Kitahara-Frisch, 1989).<sup>4</sup>

Here, focusing on ecoethics, I examine how far, and in what sense, the data provided by anthropology may provide a welcome scientific support to our responsibility towards the environment. I shall suggest that biological anthropology provides such a confirmation to ecoethics by assessing man's status among primates and particularly by helping us define what constitutes human originality, an originality that makes our species qualitatively different from other primate species.

I am, of course, fully aware that such a proposal is bound to be highly controversial and meet with much skepticism. Yet, I feel the matter to be important enough for deserving full consideration.

## *Why a recognition of human originality matter*

Seeing man as unique and qualitatively different from all other forms of life has often been criticized as 'cosmic arrogance' (Livingston, 1973)<sup>5</sup> and as a form of 'speciesism' (Singer, 1979).<sup>6</sup> As Livingston puts it: "One would wish that our species had been granted somewhat more humility and somewhat less consciousness of self, or 'reflection.' Or perhaps one might also wish for more open-mindedness and a great deal less of the capacity for self-deception."

In fact, 27 years ago, the historian of science, Lynn White, Jr., proposed that the sharp distinction which the Judeo-Christian tradition recognizes between humans and other animals was responsible for our present 'ecological crisis' (Lynn White, 1967), the wanton exploitation of nature and the extinction of numerous animal species.

Yet, it can also be argued that a recognition of human uniqueness constitutes precisely the necessary foundation for establishing our responsibility in preserving nature's integrity, including our duties toward all forms of life. It is difficult to see how one could talk about 'Animal Rights' unless man, alone among animals, was recognized as responsible for honoring these so-called 'rights.'

This is why, I believe, an important contribution can be expected from biological anthropology in assessing



the basis of this unique human responsibility and thereby providing a rational and scientifically informed foundation for ecoethics.

*Human originality as seen by anthropology*

A brief outline for such a contribution on the part of anthropology would comprise the following items.

1. As the end product of primate evolution, *Homo* is found to be unique by the development of his brain (size and complexity). This development it is that enables him, in the light of his remembered past experience, to think about the future consequences of his present behavior. Man is able, for instance, to foresee and calculate the likely outcome of the way he modifies his environment and uses natural resources. Brain development thus provides the necessary neurological basis for the capacity to choose rationally between alternative courses of action as we decide how to exercise within our environment technological power.

Yet, the fossil record shows the development of the brain to have occurred only progressively in human evolution. It is therefore uncertain exactly the brain reached the critical point that made man responsible in a way other forms of life are not. A continuous process, progressive brain expansion, is found to have resulted in major discontinuity with ethical consequences.

*Yet, not even the strongest admirers of animals maintain that they have a higher capacity to make distinctions or judgments according to reflectively formulated concepts of means and ends and to act on these . . .*

2. The same must be said about behaviors that accompanied cerebral development and have been at various times proposed as unique to *Homo*, only to be subsequently found incipiently present in other hominoid primate species. Such are: tool use and incipient tool making, cognitive abilities similar to those necessary for language, a degree of cooperation in predatory behavior and even some transfer of food (Goodall 1986<sup>8</sup>, Nishida 19871<sup>9</sup>).

None of these behaviors have so far been observed in lower primates, such as the intensively studied Japanese monkeys. They appear to characterize the homi-

noid grade of evolution. Yet, not even the strongest admirers of animals maintain that they have a higher capacity to make distinctions or judgments according to reflectively formulated concepts of means and ends and to act on these in order to achieve long range goals and values. This is best seen in the fact that we do not hold animals responsible for their actions on grounds that they could have acted for better reason, and should have chosen otherwise.

3. Thus, here also, as in the development of brain size, a clear gap remains between the behaviors characterizing the ethogram of living apes and those seen in all humans. This gap is best seen perhaps in spontaneous food sharing, self awareness and communication through symbols. The only uncertainty concerns the exact time when the gap became decisive, such as to cause *Homo's* entire behavioral pattern to function in a new way.

As often pointed out, most characteristic of the human adaptive pattern is the way man adapts the environment to his needs by transforming it instead of relying on genetic mutations, as other animals do. Though the origin of this transformation can be traced back to the first human-made stone tools and the use of fire, only recently has the unprecedented and worldwide expansion of technology made man acutely aware of his responsibility for the potentially destructive consequences of his dealings with nature.

*Originality of degree only?*

Having thus assessed both the continuity and the discontinuity between humans and other primates, the anthropologist faces then a most important question: Is there merit in claiming that the remaining distinction between humankind and other animals, both in brain size and in the behaviors that accompany it, is *essential* and not only a matter of degree? Or, as some suspect, is the claim that man is singular, in a way that other species are not, mere dangerous self-complacency and therefore to be carefully avoided?

For answering that question, perhaps what most needs to be pointed out is that, far from being a manifestation of arrogance or a justification for a reckless exploitation of natural resources, the recognition of human uniqueness imposes upon us an equally unique burden, that of caring for our fragile 'blue planet' and its inhabitants. Once this is seen, becoming aware of our singularity, far from appearing as 'self-deception,' is recognized on the contrary as what forces upon us the recognition of our duties.

The Australian philosopher Passmore (1980)<sup>10</sup> seems



to acknowledge this when he writes: "Ecologists rightly emphasize the resemblances between human beings and other species. . . But only human beings either need to, or could, develop an eco-philosophy." (Passmore, 1980: XII). Passmore's remark is important. Indeed, it may lead us to suspect that it is the, perhaps unconscious, wish to avoid facing this unique and heavy burden placed on us by evolution that causes many of us to deny our singularity.

After all, such unwillingness to acknowledge our responsibility toward nature is in no way a new phenomenon, neither is it peculiar to the Christian West, as is sometimes assumed. Indeed, Dubos (1972)<sup>11</sup> mentioned the environmental destruction that occurred in China long before any contact with the West and its technology.

#### *Ecoethics and the Bible*

The Bible suggests a much more ancient origin still to the wanton exploitation of nature and this deserves careful consideration in view of the fact that the account of man's creation found in Genesis has been held responsible by many for a view of man leading to our ecological crisis (Lynn White, 1967).<sup>7</sup>

It is therefore of the greatest interest to notice how Genesis (chapter 3) pictures original sin as an over-reaching by Adam and Eve of our human limitations as regards the proper use of natural resources. The sin, as depicted in Genesis, is basically one of pride and arrogance. While, alone of all animals, Adam was given the role of trustee, vice-gerent and custodian in the place of the Creator, responsible for the care of creation, he is seen to abandon that role and to use creation instead, as all animals do, for his own satisfaction. Thereby, the first man did violence to the ordered creation Yahweh had in mind (Birch, 1991:93).<sup>12</sup>

Here can be seen how, always according to Genesis, Adam, not satisfied with the role of trustee, acts as an absolute monarch, claiming dominion over nature without the duties attached to it. This despotic attitude was imitated by many after him, with the destructive consequences we may witness today. More instructive still, these destructive consequences of human sin are already figured in the story of the Flood (Genesis, 5) where all living things are seen to suffer from the violence and corruption wrought by humankind. Indeed, it has been remarked that "as a story of contemporary morals, Genesis cannot be faulted" (Linzey, 1987:13).<sup>13</sup>

*It is therefore of the greatest interest to notice how Genesis (chapter 3) pictures original sin as an over-reaching by Adam and Eve of our human limitations as regards the proper use of natural resources.*

#### *Conclusion*

Although, as pointed out by Lynn White and many after him, the Bible's account of man's creation may often have been used as justification for plundering natural resources, it should not be overlooked that biblical creation faith "also stresses the special commission of responsibility given to men and women in the midst of creation, and the misuse of that responsibility." (Birch, 1991:86). Most importantly, from the point of view of Ecoethics, Genesis' chapter 3 makes it clear that Adam's sin consisted in disregarding the mission that made him unique among creatures. This should prompt us to ask: "May not our present ecological crisis result from a similar refusal to acknowledge our uniqueness and the responsibility it entails?" If so, the role of biological anthropology in assessing the status of *Homo* among primates and in helping to define more correctly the nature of our uniqueness is of great importance indeed.

If, however, as Genesis suggests, our refusal to acknowledge both our responsibility toward nature and our uniqueness has an essentially religious root, then, no matter how persuasive the evidence marshaled by anthropology, ecoethics may well ultimately call for a religious, not necessarily Christian, belief in man's mission on earth. Here, as in other instances, progress in scientific understanding would be found to open questions that science alone finds itself unable to answer.

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## REFLECTIONS ON THE NATURAL AND THE SUPERNATURAL IN MAN

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According to the Christian view, based on the Biblical accounts of the Creation, humans appear to be the sole beings who, on this earth, are explicitly called to share the divine life. So humans belong to two worlds: with all the Creation they are a part of nature but their destiny (and already their present life) has a definite supernatural character.

The grounding of humankind in nature, that we see at present through a biological evolution, is expressed, as we know, at the very beginning of the Bible. In the second account of the Creation, which is the earlier account, we read: "The Lord God formed man of dust from the ground" (Gen. 2.7). This is said only of man. But it is in the first account that man is created with a surprising qualification: he is created in the image and the likeness of God (Gen 1:27).

It is clear that nature cannot raise humans to such a level; it would be a contradiction since we are dealing here with a specifically supernatural level. But this has far-reaching consequences: any definition of man, in order to be complete, must necessarily include a theological element as well as a natural basis. It seems that these requirements are fulfilled in the following attempt: "Humans are the beings that biological evolution has brought to a level which enables them to receive the gift of the spirit in order to respond to the call of God.

The gift of the spirit! We really enter here into the

core of the subject we wish to tackle but we have to begin by looking at questions of terminology which at first may seem to be of secondary importance. However, as I shall try to show later on, I think that the debate goes further than a simple question of words: it throws light on the status of man.

In order to characterise this status, a classic statement of Christian theology says that God creates immediately each "spiritual soul" and that man is a unity comprising a body and a soul.

Such ideas are, as expected, to be found again in the new Catechism of the Catholic Church published in Latin at the end of 1992 and translated since into various languages. The paragraphs bearing the numbers 355 to 383 deal in particular with the creation and the status of man.

However, such fundamental questions have, of course, been the subject of much speculation through the centuries. It is thus not astonishing to find, in a historical survey, a variety of interpretation without (and this remark is important) such diversity necessarily entailing divergence or disagreement.

The Catechism refers to one of these non-divergent interpretations. In paragraph 367 we read: "Sometimes, the soul is distinguished from the spirit. For instance, one may read this prayer of St Paul: "May the God of peace Himself sanctify you wholly; and



may your spirit and soul and body be kept sound and blameless at the coming of our Lord Jesus Christ" (1 Th 5:23). And the Catechism adds this comment: "The Church teaches that such a distinction does not introduce a duality within the soul. The 'spirit' means that man is called since his creation to a supernatural destiny and that his soul has the capacity to be raised gratuitously to communion with God."

Thus, the anthropology that one might consider as the official one in the Catholic Church is bipartite: man is a unity with a body and a soul, and this soul, created by God, is spiritual.

*If it is admitted that the body and the soul are both part of man's constitution, (they are said to be of man), the spirit, on the other hand, is said to be "within man" or "in him," expressions which correspond to a gift from outside.*

Nevertheless, quite a number of theologians throughout history have followed the views of St Paul more directly where this great Apostle sees man as a whole with a spirit, a soul and a body. This is precisely what the Jesuit Father Henri de Lubac (now a Cardinal) reminds us of in a study significantly entitled "*Anthropologie tripartite*" (Tripartite anthropology).<sup>1</sup> Basing his study on numerous examples, beginning with the early Fathers of the Church but followed with others throughout the centuries, the author mentions that this vision "has constantly provided a basis for doctrine and spiritual life in the tradition of the Church."<sup>2</sup>

For myself, being not a theologian but a scientist eager to ensure a harmony between my scientific vision of the world and my faith, I feel a duty to indicate the reasons for my sympathy with the tripartite anthropology.

First, it seems to me that it secures in a better way the *integrity* of the natural aspect of human beings, that part of them which arises from the evolution of the animal world. In the light of this anthropology, the gift of the spirit, which transforms an hominoid into a true human, must be attributed to a *complete* living being. Now, any animal has not only a body but also a "psyche" which directs its behaviour. In other words, using a terminology which may appear somewhat "archaic" today but which keeps its value, an animal has also a body and a "soul," this "soul" being understood as a unifying and informative centre. Hence the perspective of bipartite anthropology leads one to fear

that this aspect of a natural unifying centre is somewhat blurred, even wiped out, when the soul is explicitly said to mean the *spiritual principle* in man (see paragraph 363 of the Catechism). Is there any room then left for the "animal" (or natural) soul that the living being called by God should have possessed as well? And if there is no room for this natural soul, the "spiritual principle" immediately created by God seems to have been allocated to a being restricted only to a body. In such a perspective, the integrity of the contribution of nature may be judged to be only partially respected.

Some people may argue that the "spiritual soul" includes the natural soul of the living being but, then, you would be led to distinguish two levels in the soul. In other words, a tripartite perspective would be reintroduced under a bipartite terminology! But such a tripartite vision, with two elements recognized under the same term, seems to me definitely less appropriate than the one directly expressed in the Pauline verse of the first Epistle to the Thessalonians. And in another passage (1 Cor 2:14-15) St Paul distinguishes the man with natural gifts from the man with spiritual gifts. The first, in contrast to the second, "is not able to receive the gifts of the Spirit of God." Such a language cannot be applied to a being restricted to a body and the distinction can be put in parallel with the one between the (natural) soul and the spirit.

One finds in the work of Father de Lubac a nuance of terminology which may throw some light here.<sup>3</sup> The present author considers it as very important. If it is admitted that the body and the soul are both part of man's constitution, (they are said to be of man), the spirit, on the other hand, is said to be "within man" or "in him," expressions which correspond to a gift from outside. Thus tripartite anthropology offers, according to our views, a better understanding of the respective contributions of nature and of divine grace.

*Humans as relational beings show also new characteristics closely linked with ethics. Relations between similar beings are widespread in nature but no human society may be compared with a bee-hive or an ant-hill.*

Of course, the gift of the spirit changes the whole human condition. In another passage of his work, Father de Lubac enumerates its consequences: the spirit is in man the seat of a higher life, ethical, religious, mystical; it, is the seat of the Christian life, a life which is not a mere question of feeling but of



faith.<sup>4</sup>

For a scientist who tries to picture evolution (if he is open-minded enough to admit extra-scientific contributions), to take the gift of the spirit into account throws light on the sharp contrast to be noted with the emergence of man between the somatic and the psychic "jumps" which characterise this emergence. We learn that man and the chimpanzee have a chromosomal patrimony differing by about only 1%. This refers to the somatic side. But on the psychic side, one really enters into another world! And it is this fundamental change which justifies the placing of man on a different level from the animals in the hierarchy of the main landmarks of evolution.

With the gift of the spirit, humans become *personal, relational, free* and *creative* beings and thus *responsible* beings.

I like to emphasize this last characteristic. This does not mean that I do not appreciate the numerous works pointing to the differences between humans and animals in the fields of language, of tools (notably tools for making other tools), on the recognition of signals, etc. But in my view, human specificity appears to be much more decisive in the emergence of responsibility, which is a fruit of freedom. Nobody would ever attribute responsibility to any other being except man. The intrusion of ethics accompanying the emergence of man (of true man should I say) is something completely new for, in contrast with tools, there is no sketch of ethics in nature before the appearance of man. Thus, something fundamentally new must have happened, something that the great neurophysiologist J.C. Eccles qualifies as non-material.<sup>5</sup> And something so new is better foreshadowed if we admit the Christian vision of divine intervention.

Of course, we enter here into a domain which is right outside the scientific sphere. But when the integrity of humans is at stake, science alone cannot describe them completely. As Dr. John Durant rightly said during the ESSSAT [European Society for the Study of Science and Theology] Conference at Enschede in 1988, science cannot explain the advent of a *subject*, of a *responsible personality*.<sup>6</sup> It is quite meaningful, in this respect, that in the second account of the Creation in the book of Genesis, there is in the midst of the garden granted to Adam and Eve the tree "which brings knowledge of good and of evil" while they are forbidden to eat its fruits. This shows that humans are beings bound with ethical rules in a religious context. This is surely one of their most distinctive marks. Nature knows individuality but not personality, it knows the unforeseeable but not freedom.

Humans as *relational* beings show also new characteristics closely linked with ethics. Relations between similar beings are widespread in nature but no human society may be compared with a bee-hive or an ant-hill. A Japanese primatologist of Belgian origin, Father Jean Kitahara-Frisch, underlines an interesting difference regarding the behaviour of prehistoric human groups and chimpanzees. The traces left by the first are best interpreted as showing a sharing of the products of the hunt or of the picking of leaves or fruits. But there is no sharing in the groups of primates: a chimpanzee will leave a disabled companion alone, everyone looks out for himself only and any help is unknown. (One must of course consider separately the feeding of offspring which is instinctive).<sup>7</sup>

The sharing of food among prehistoric human groups shows that, from the beginning, the behaviour of man is governed by ethics. The Bible will accentuate this character: let us but refer to the famous chapter 25 of the Gospel according to St Matthew. However, man is free and he may act either way. We may find in the opposite direction another distinction between man and animals: there are fights between animals but only men can reach in their struggles a degree of perversity. This observation brings us back to the first chapters of the book of Genesis, namely to the history of the fall. Humans, being free, may rightly or wrongly make use of the gift of the spirit. There is no sin on earth before the advent of humankind.

The emergence of the human personality and of his destiny are at the heart of the question of the meaning of life. In the perspective which has associated a scientific evolving vision and a theological view of man, God appears to have completed a process of hominisation by a humanisation. And man's model is Christ: *Ecce Homo!* We are created in God's image and our vocation is to look like Him.

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CONTEMPORARY BIOTECHNOLOGY IN THE CONTEXT OF CONFLICTING THEOLOGICAL PERSPECTIVES

by Donald DeMarco

[This article was originally printed in the ITEST Newsletter (vol. 15, Nos. 2-3) in April-June, 1984. Since it is still quite pertinent to the current biotechnical/bioethical scene, we are reprinting it. We are aware that the author's use of 'man,' while quite common then, would yield now to more inclusive forms; we shall not, however, re-write this article to reflect the change in language usage.]

The unprecedented progress in recent years in man's technological capabilities to modify, reshape, or re-engineer himself evokes a sense of uneasiness and awakens the memory of Eden. Eat promises the serpent; you certainly will not die, you will be like God. The temptation to be like God is at the root of the ethical dilemmas that contemporary biotechnology poses, particularly that branch of biotechnology that has the power to alter man in a radical way. Should science recreate man? Will *Homo futurus* resemble the superman of the Nietzschean or Shavian dream? Will recreated man be, as the serpent promised, more like God? Because such questions as these are raised, which surely carry the discussion beyond science and into the domain of theology, many social critics perceive a profound antagonism between certain biotechnological projects and Biblical Theology. "The most alarming features in the biotechnology revolution," writes author Wes Granberg-Michaelson, "are not its scientific advances but its theological assumptions."<sup>1</sup>

Ethicist Paul Ramsey has enlarged upon modern biotechnology's dubious aspiration to Godhood in his book, *Fabricated Man*. So familiar are we with "techno-theologians," he contends, that many of us believe they actually are theologians and that in their writings they are using theological concepts and are doing religious ethics.<sup>2</sup> These techno-theologians, in fact, are the shaman of an age in which cultic praise of bio-engineering is virtually the only form of prophecy that has social respectability.

The distinguished Roman Catholic theologian, Karl Rahner, in an article titled "Experiment Man," probes

the question of what, if anything, a theologian may say about present schemes for man's indefinite self-modification. Rahner argues that man has no alternative but to change himself if he wants a world population of billions to survive. In order to bring about this change, Christians must oppose what he calls "bourgeois conservatism." "Man," he argues, "is essentially a freedom event," a person who is subject to himself and capable of freely determining his own final condition. His "self-determination" is so complete, Rahner continues, "that he can ultimately and absolutely become what he wants to be."<sup>3</sup>

*The fundamental assumption of the Promethean perspective is that man and God (gods) are essentially antagonistic to each other. Man needs something to fulfill his destiny — fire, light, knowledge, freedom, courage, and so on — that God withholds.*

Rahner's argument can easily be interpreted as offering a *carte blanche* for unlimited human self-modification, for he states, optimistically, that "there is really nothing possible for man that he ought not do."<sup>4</sup> Nonetheless, he is still aware of contradictory and destructive forms of "self-creation" man might engineer on a large-scale that could have "irreversible, irreparable consequences in the future which future manipulation will be unable to undo." Ramsey finds Rahner's thinking on this point (and the thinking of Protestant theologians of secular, historical "hope") to be so vague and lacking in moral guidelines that



would safeguard man in his own proper nature, as to obliterate the distinction between being men and being God, or, as he puts it: "being men before God and being God before we have earned to be men."<sup>5</sup> Ramsey's watchword is that men ought not to play God before they learn to be men, and after they have learned to be men they will not play God.<sup>6</sup>

Ramsey is not developing but merely alluding to a distinction of fundamental importance, one that separates two competing theological perspectives in which man seeks to become more like God or more Godlike. Since the blurring of these two ethical perspectives is at the heart of the essential ethical dilemma posed by current biotechnology, it is important to attempt to distinguish them clearly and to elaborate upon each in some detail.

#### The Promethean Perspective:

The fundamental assumption of the Promethean perspective is that man and God (gods) are essentially antagonistic to each other. Man needs something to fulfill his destiny — fire, light, knowledge, freedom, courage, and so on — that God withholds. In order for man to acquire what he needs, he must *take* it, as Prometheus stole the fire. A theology becomes Promethean, then, whenever it assumes that man's supreme perfection is something God wants to prevent him from attaining. But in seizing from God what God wants to keep for himself, the radical distinction between man and God dissolves and man becomes more 'like God.' At the same time, as explained by Promethean philosophers from Feuerbach to Sartre, God ceases to be.

*The Promethean perspective is not only anti-theistic but anti-humanistic as well. Man's nature, given its mortality and finitude, must be transcended.*

Feuerbach argues in his book, *The Essence of Christianity*, that "the distinction between the human and the divine is illusory."<sup>7</sup> Man, according to Feuerbach, is radically unfulfilled because he alienates the best part of himself in the name of an imaginary God. The task of philosophy, therefore, is to convince men that the God to whom they attribute qualities of perfection and transcendence is really the alienated better part of themselves they have projected upon a nonexistent being. Feuerbach simply transfers attributes of God to man and enjoins men to be like God. "Man with man, the unity of me and you: this is God! The love

between men must be elevated to the rank of divinity."<sup>8</sup>

Marx, who was Promethean by temperament, later adopted Feuerbach's rational formulations of alienation and the illusory nature of God. In his earlier writings, Marx wrote about Prometheus chained to his rock and expressing contempt for the gods with lyrical enthusiasm and admiration. He saw in Prometheus a symbol of man denying the gods and assuming responsibility for his own creation. "I would much rather be bound to a rock," he exclaimed, "than be the docile valet of Zeus the Father!"

We find a similar Promethean strain running through the thought of Nietzsche and other disciples of the "God is Dead" movement. "God is dead," Nietzsche announces, "now it is our will that Superman shall live."<sup>9</sup> Emil Bergmann proclaimed in words that anticipated some of today's techno-theologians, that "it is possible to breed not only animals but the man-God." As Henri de Lubac, S.J. has pointed out in his study, *The Drama of Atheist Humanism*, such thinkers trace their descent from Prometheus, whom they acclaim to be "the first of the martyrs."<sup>10</sup>

In Sartre's *Les mouches* and in Dostoyevsky's character Raskolnikov of *Crime and Punishment* we find important landmarks in modern literature referring to man's attempt to rise above himself through his own heroism and claim the Godhead for himself. The Promethean themes of heroism and taking control are amply presented in modern thought and application to the ethics of bio-engineering is clearly evident.

Ethicist Joseph Fletcher, who is also an ordained Protestant clergyman, is perhaps the most outspoken of today's Promethean techno-theologians. "To be men," he expostulates, "we must be in control. That is the first and last ethical word."<sup>11</sup> Fletcher regards it as a sacred duty for modern man to take control of his own heredity. Yet he advocates more than that and even welcomes the opportunity "to bio-engineer or bio-design para-humans of 'modified men.'"<sup>12</sup>

The Promethean perspective is not only anti-theistic but anti-humanistic as well. Man's nature, given its mortality and finitude, must be transcended. And since God, or the idea of God, resists this transcendence, God cannot be an object of hope. Thus, man must attempt the heroic (perhaps the impossible) and try to become God himself, a man-God, or a self created being who is like God.

Gerald Feinberg, a physicist at Columbia University, is the author of *The Prometheus Project*. In this work,



Feinberg urges mankind to press on to "transcendent goals" which "require the creation or achievement of something qualitatively new." Since man, as Feinberg reasons, despairs at the recognition of his own finitude — a recognition which prevents him from achieving abiding contentment — we must inaugurate "a transformation of man into something very different from what he is now called for. . ."<sup>13</sup>

*He does not oblige man either to save his soul by a Promethean tour de force, or come crawling towards Him on his stomach.*

It should be clear that projects such as those proposed by Fletcher, Feinberg, and others, are rooted in a despair over man as he is. This despair is the natural and inevitable reaction to the human condition which is mortal and finite and the awareness that man can find neither satisfaction nor hope in his limited and fallible human nature. The Promethean call invites man to attempt a quantum leap beyond mere humanness into the realm of the gods. Such a call summons heroic courage. But in the end, after rejecting both God and human nature, man is left with no place to find rest, no place to stand. At the same time, in the spirit exemplified by Malraux and Camus, it may be that the struggle itself is enough to satisfy the mind and heart of the Promethean figure. Yet the theologians have more ambitious hopes.

Humanistic psychoanalyst Erich Fromm, in *The Sane Society*, remarks that life is so burdensome that it is truly surprising more people are not insane.<sup>14</sup> A few years later he wrote a book bearing the title *You Shall Be As Gods*, affirming the promise of the serpent.<sup>15</sup> We are left to wonder how Fromm can place any credence in such a quantum leap, or whether he envisages a race of gods verging on insanity.

#### The Biblical Perspective:

At the heart of the Biblical perspective is the conviction that man and God are friends. In fact, this friendship (or sonship with God) is such that it constitutes a world of grace. To put it another way, grace is testimony to the harmonious continuity between God and man. Accordingly, nature is the soil of grace and through nature man is able to return to God. Grace means that there is no opposition between man and God, and that man is able to be sufficiently united within himself (not alienated) to live without opposition to God. If there is an infinite

abyss that separates God from man, there can be no grace and finite man is thus left to his own natural resources to achieve his ultimate perfection.

God in no way is resentful of man's innermost natural needs. Everything that God creates is good ("There are no dustbins in the house of the Lord," as G. K. Chesterton says). He "hates nothing that He has made." He does not oblige man either to save his soul by a Promethean *tour de force*, or come crawling towards Him on his stomach. God creates man in such a way that he makes it possible for man to participate in His own Divine life, that is to say, to become more Godlike. Because the world of human nature and the world of God are united by grace, man, by becoming more Godlike, not only fulfills his human nature but surpasses it, satisfying his deeper longings for the eternal and infinite which mere nature itself cannot fulfill.<sup>16</sup>

The philosophical-theological vision of Thomas Aquinas is in perfect accord with this notion of the harmony and continuity between nature and God. Étienne Gilson, the well known Thomist and historian of philosophy, has remarked that "The central intuition which governs the whole philosophical and theological undertaking of Saint Thomas is that it is impossible to do justice to God without doing justice to nature, and that doing justice to nature is at the same time the surest way of doing justice to God."<sup>17</sup>

*The Promethean attitude, which begins in despair must also end in despair. Marx's defiant revolutionary phrase, "I am nothing and should be everything," is a perfect articulation of this despair.*

In the Promethean perspective the assumption is made that man comes into possession and entitlement of what he needs through conquest. According to the Biblical perspective, God offers man what he needs as a gift that needs only to be accepted. Here, salvation belongs to the order of love and acceptance, rather than to the order of resentment and conquest. Man becomes more Godlike as he freely accepts the gift of God that exists within his own soul. Something belongs to man, then, not because he has taken it through power, but because he has received it through love.

*Genesis* 1:26 reads: "Let us make mankind in our image and likeness." First, man is created in God's image. This "image" is in the structure of man's soul,



whether he is aware of it or not. But this "image" becomes a "likeness" of God when the intelligence is enlightened in a spiritual understanding of God and when the will raises the whole soul in love for God. The "likeness" of God (being Godlike) is the perfection, through knowledge and love, of God's "image" in man. According to St. Augustine, "In this image (which is the soul) *the resemblance of God* will be perfect when the vision of God is perfect."<sup>18</sup> Aquinas adds that likeness, which is a kind of unity, "signifies a certain perfection of image."<sup>19</sup> It is not enough for man to recognize the "image" of God within himself which makes him potentially Godlike; he must actualize this potential through knowledge and love.

In the Promethean approach, man raises himself up by his own powers. This represents merely an intensification of powers that are already present in human nature. According to the Biblical perspective, on the other hand, man is raised up by supernatural gifts for which his nature has a passive and obediential potency.

The Promethean approach is intensely humanistic in that it calls man to realize his full potential as a human. Nonetheless, it is anti-humanistic in that it demands that man go beyond his human nature, recreating himself according to a pattern that is not human. Because the Promethean approach requires extraordinary courage and heroism, its fundamental appeal is to the individual. Indeed, for the Promethean individual, everything converges upon the self. According to Biblical theology, however, the self is fulfilled by selfless love for other persons. The notion of biogenetic perfection that is discussed among techno-theologians is one that devolves upon man in his material individuality alone, for such spiritual realities as fellowship in God, love of others, and faithfulness to God are not subjects for biotechnical operations. At the same time, it is important to acknowledge the courage the Biblical perspective demands. Whereas Promethean courage is needed for the individual to stand alone and accept his struggle, the Biblical approach demands a sterner and yet more humble courage to accept the human condition with all its painful finitude *and* to accept the reality that we cannot be like God. Here the virtues of humility and faith complement courage and protect it from degenerating into fanaticism. The Promethean seems pre-eminently heroic only because all of his strength is concentrated into a single virtue — courage. Realistically, however, he is prone to a host of disabling vices, including intemperance, pride, and arrogance.

Thomas Merton offers a summary distinction between the Promethean and Biblical (Christian) perspectives

in describing *The New Man* that emerges as more Godlike rather than more like God:

The union of the Christian with God is the exact opposite of a Promethean exploit, because the Christian is not trying to steal something from God that God does not want him to have. On the contrary, he is striving with his whole heart to fulfill the will of God and lay hands upon that which God created him to receive. And what is that? It is nothing else but a participation in the life, and wisdom, and joy and peace of God Himself.<sup>20</sup>

#### Biotechnology in Perspective:

The radical limitations of the Promethean perspective are many. We draw attention to but four. The first represents a virtual rejection of religion, at least traditional Biblical religion. The Promethean perspective does not justify this rejection, it merely assumes that no justification is necessary. But in rejecting religion, it accepts excommunication from a possibly real and loving God who confers vital benefits upon his creatures. It also disavows the type of ultimate meaning that only a religious framework can provide. André Malraux, whose life dramatically illustrates the Promethean attitude, writes in *The Human Condition* that it takes sixty years of incredible suffering and effort to make a unique individual, and then he is good only for dying. The Promethean attitude, which begins in despair must also end in despair. Marx's defiant revolutionary phrase, "I am nothing and should be everything," is a perfect articulation of this despair.

*Perhaps the greatest danger to biotechnology's realizing its great potential is the abiding belief that biotechnology has a more important function to play in re-creating man.*

Secondly, the Promethean perspective focuses narrowly on man as a material individual and fails to embrace his whole nature as a being who is both spiritual as well as material, free as well as determined. It also neglects the importance of moral values that are simply not amenable to bio-technological control but spring from the heart of man. Kindness and generosity of spirit are at least as important for a better world as a perfectly designed genotype. Bio-chemist Leon Kass makes a point that is more difficult to refute than to ignore when he writes:



It is probably as indisputable as it is ignored that the world suffers more from the morally and spiritually defective than from the genetically defective. Thus, it is sad that our best minds are busy fighting our genetic shortcomings while our more serious vices are allowed to multiply unmolested.<sup>21</sup>

In addition, the Promethean approach is incapable in principle of overcoming the more radical weakness of the human being — his mortality and finitude, including the unannullable facts that he is not God, not his own creator, and not the object of his own beatitude. Ernest Becker concludes his Pulitzer Prize winning work, *The Denial of Death*, by asserting that "a project as grand as the scientific-mythical construction of victory over human limitation is not something that can be programmed by science."<sup>22</sup> Concerning the ineradicable limitations that the Promethean spirit is wont to deny, he writes: "There is no strength that can overcome guilt unless it be the strength of God; and there is no way to overcome creature anxiety unless one is a god and not a creature."<sup>23</sup>

The fourth limitation is perhaps the most significant and has to do with the fact that the Promethean perspective, rooted as it is in despair over the human condition, is essentially anti-humanistic. Thus, it is a perspective that is not so much interested in serving the needs of human nature, as in responding to needs that transcend human nature. An exaggerated interest in what Paul Ramsey calls "questionable aspirations to Godhood"<sup>24</sup> can easily displace a normal interest in the human role of medicine and science as a human enterprise that serves human beings. Human nature, limited as it is, is a good. Moreover, the immediate and common universal needs of man which biotechnology can remedy are health needs.

The vast array of health remedies that biotechnology possesses and promises — from gene therapy to the regeneration of organs — provides a great service as well as a great hope for mankind. Perhaps the greatest danger to biotechnology's realizing its great potential is the abiding belief that biotechnology has a more important function to play in re-creating man.

The Biblical perspective does not see the world's humanization as first dependent on technical progress.<sup>25</sup> At the same time, this perspective demands the full employment of biotechnology in the interest of restoring men to health. Because human nature is regarded as a good created by God, and, through grace, harmoniously united with Him, biotechnology serves a vital function in coming to its aid. Medical technology is good only because human health is good.

At the close of their book, *Who Should Play God?*, authors Howard and Rifkin express the fear that biotechnology will be applied contrary to the good of human nature. "The very knowledge that we can now be replaced," they write, "should provide a stimulus for us to prove that we are worthy of being preserved."<sup>26</sup> Yet how do we "prove" that human nature is a good worthy of being preserved? Such a proof, involving, as it does, a metaphysical valuation, cannot be made by science. Is not the whole moral force of the Biblical perspective nothing other than conveying the truth that man is good (and worthy of being preserved) because he is the creation of a God who Himself is all good? Paul Ramsey makes the point in these words:

We ought rather to live with charity amid the limits of a biological and historical existence which God created for the good and simple reason that, for all its corruption, it is now — and for the temporal future will be — the good realm in which man and his welfare are to be found and served.<sup>27</sup>

All men by nature seek God. In practice they either seek to be God or to be with God. In either case, they need a transforming force that allows them to advance toward their ultimate destinies. This force is either a natural power that exists within man, or a supernatural love by which man participates in the life of God. These two distinct approaches — one Promethean, the other Biblical — are irreconcilable. In the former case man seeks to be like God (equivalent to God); in the latter, he seeks to be Godlike (participating in the life of God). The current discussion concerning modifying man through biotechnology includes a theological dimension which stands to be greatly clarified by distinguishing between the Promethean and Biblical perspectives. Paradoxically, it is the latter perspective which ostensibly is concerned with man's relationship with God, that is also concerned with man as a good that is worthy of the kind of salutary help biotechnology can offer him. The Promethean perspective, on the other hand, in stressing the importance of man transcending his nature through his own effort, presents the twofold danger of foiling in its intent and deflecting interest away from man's basic health needs that are grounded in his reality as an imperfect and limited human being.

#### Endnotes

1. Wes Granberg-Michaelson, "The Authorship of Life," *Sojourners*, June-July, 1983, p. 20.
2. Paul Ramsey, *Fabricated Man* (New Haven and London: Yale University Press, 1970), p. 138.



3. Karl Rahner, "Experiment Man," *Theology Digest* 16 (Feb., 1968) p. 61; Rahner also speaks of "auto-creation." "Experiment Mensch: Theologisches Über die Selbstmanipulation des Menschen," in *Schriften für Theologie* 8 (Einsiedeln, 1967): 260-85.
4. Rahner, p. 64.
5. Ramsey, p. 142.
6. *Ibid.*, p. 138.
7. See also an elaboration of this point in Ignace Lepp, *Atheism in Our Time* (New York: Macmillan, 1966), pp. 57-72.
8. Quoted by Lepp, p. 63.
9. Friedrich Nietzsche, *Also Sprach Zarathustra*, Part IV.
10. Henri de Lubac, S.J., *The Drama of Atheist Humanism* (Cleveland: World Publishing Co., 1963), p. 28.
11. Joseph Fletcher, "Ethical Aspects of Genetic Controls," *New England Journal of Medicine*, Sept. 30, 1971, p. 782.
12. *Ibid.*, p. 776.
13. Gerald Feinberg, *The Prometheus Project* (Garden City, New York: Doubleday, 1968), pp. 50-1.
14. Erich Fromm, *The Sane Society* (New York: Fawcett, 1955), p. 34.
15. Erich Fromm, *You Shall Be As Gods* (New York: Fawcett, 1966), p. 53: "The Serpent who said *eritis sicut dei* ('You shall be like (as) gods') had been right."
16. Francis Thompson addresses this paradox in his poem *The Hound of Heaven* when he writes: "All which I took from thee I did but take,/Not for thy harms,/But just that thou might'st seek it in my arms."
17. Étienne Gilson, "Nature and God. St. Thomas Aquinas," *Proceedings of the British Academy*, Vol. XXI (London: Oxford Press, 1935), pp. 29-45.
18. St. Augustine, *De Trinitate*, XIV c. 15 n. 23.
19. St. Thomas Aquinas, *Summa Theologiae*, 1, Q. 93, a.9.
20. Thomas Merton, *The New Man* (New York: New American Library, 1963), pp. 34-5. Granberg-Michaelson *op. cit.*, draws a distinction between trying "to be like God," orienting life around self-chosen purposes apart from God, wanting to decide "autonomously the intentions for life and creation, and then attempt to carry out that rule by its own power and for, its own ends," and being "the image of God," in "serving as the representative of God's rule and purpose in the creation. . ."
21. Leon Kass, Making Babies: The New Biology and the 'Old' Morality," *The Public Interest*, November 26, Winter, 1972, p. 21.
22. Ernest Becker, *The Denial of Death* (New York: Free Press, 1975), p. 285.
23. Becker, p. 261.
24. Ramsey, p. 138.
25. See Ulrich Eibach, "Genetic Research and a Responsible Ethic," *Theology Digest* (Vol. 29, No. 2, Summer 1981); "*Leben als Schöpfung aus Menschenhand? Ethische Aspekte genetischer Forschung und Technik*," *Zeitschrift für Evangelische Ethik* 24:2 (April, 1980), 111-30.
26. Ted Howard and Jeremy Rifkin, *Who Shall Play God?* (New York: Dell, 1977), pp. 229-30. 27. Ramsey, p. 149.

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Some of us are old enough to remember the theological discussions of 50 years ago (and the encyclical *Humani Generis*) about monogenism (one origin of humanity) and polygenism (many origins). In relation to that long-ago argument, we read in *Science* (Vol. 267, 3 March, 1995, p. 1272): "The theory that all modern humans originated in Africa is looking more and more convincing — and the date of the first human exodus from Africa keeps creeping closer to the present. The controversial 'Out of Africa' theory, which originally postulated that the common ancestor of all modern humans lived in Africa about 200,000 years ago, has had its ups and downs over the years. But new genetic research presented in Atlanta, which traces two types of gene lineages from the far reaches of the globe back to Africa, is likely to remove many lingering doubts. And the research has also provided new dates for the African exodus, one as recent as 112,000 years ago."

While many scientists still disagree with a single origin of humanity and while we can be certain that more research (and perhaps different conclusions derived) will be done, we can see some reasons for not tightly basing our understanding of Revelation on scientific theory.

EDITOR



A FEW REMARKS ON *GAUDIUM ET SPES* AND SCIENCE AND TECHNOLOGY

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*In the July, 1985 issue of the ITEST Bulletin the ITEST Director wrote: "December of this year marks the commemoration of the 20th anniversary of Vatican II's Constitution on the Church in the Modern World (Gaudium et Spes). In that Constitution it was stated: "Individual and collective activity, that monumental effort of man through the centuries to improve the circumstances of the world, presents no problem to believers: considered in itself, it corresponds to the plan of God. Man was created in God's image and was commanded to conquer the earth with all it contains and to rule the world in justice and holiness: he was to acknowledge God as maker of all things and relate himself and the totality of creation to him, so that through the dominion of all things by man the name of God would be majestic in all the earth.*

*"In 1965 this was a major magisterial statement on science and technology. In view of the tremendous spurt in the life sciences, life technologies, and life industries since then, is this conciliar statement still appropriate? If anyone of you would care to write a brief, updated critique on the Council's treatment of science and technology, in view of the present situation, we would be pleased to consider it for publication . . . ."*

*Professor Morren responded and his critique was published in the September - November, 1985 issue of the ITEST Bulletin. At the end of this year we shall be celebrating the 30th anniversary of this conciliar document. The editorial board thought it appropriate to re-print Professor Morren's 1985 contribution.*

In the editorial of the ITEST Bulletin of July 1985, after having quoted as an example a passage of *Gaudium et Spes* referred to as "a major magisterial statement on science and technology," our Director puts the question: "In view of the tremendous spurt in the life sciences, life technologies and life industries since then, is this conciliar statement still appropriate?" He invites us to react.

Surely, during these last twenty years, the progress made in biology and in the associated sciences and technologies are tremendous. But even if they have a great impact on our present lives, we have some doubts whether, rewritten today, the *Pastoral Constitution on the Church in the Modern World* would substantially differ from its original version. For the standpoint adopted for describing the cultural and pastoral role of science and technology is a global one and the recent scientific developments only stress even more such a role. Moreover, we should also pay attention to other recent advances; namely, the developments of computer science which have such a large impact on labour conditions but not only on our social life. For instance, the debates over "artificial intelligence" have sometimes led to a renewed form of "scientism," reducing man to a mere mechanism. But computers, even sophisticated ones, handle symbols and words and not intricate meanings!

In spite of these changes, our opinion is that *Gaudium et Spes* does not suffer from obsolescence. Its influence has been and continues to be important while the picture of our modern world and culture and the associate religious considerations to be found in it always deserve to be read. This is particularly true for the scientist referring to his own activities and his religious outlook.

It happened that, soon after the promulgation of the Constitution, we were asked by the editors of the "*Nouvelle Revue Theologique*" to write an article on science in *Gaudium et Spes*. It appeared under the (French) title "*La Constitution Pastorale 'L'Église dans le Monde de ce Temps' et la Science*" in issue No. 8, September-October 1966, Vol. 88, p. 830-847.

It's impossible here to translate these 18 pages into English! But, perhaps, some considerations about the place of science and technology in the Constitution, mostly derived from this paper, might be deemed relevant in the present context.

Never had the Church bestowed such an interest on science and technology in an official documents. In this respect, *Gaudium et Spes* marks a turning point. Scientists will be pleased that the document affirms:

- a) the value of science and technology,



- b) their belonging to human vocation,
- c) their legitimate autonomy (only restricted by the respect for the ethical order — here bioengineering is increasingly involved),
- d) their powerful impact on culture.

After a foreword and preliminary considerations, the Constitution is divided into two parts. In the first one, "The Church and human vocation," references to science are to be found in all of its four chapters. In the second part, devoted to some particular problems, they are on the contrary practically concentrated in Chapter II, "The proper development of culture." There, some of the most important declarations are contained; namely, those on the autonomy of the sciences and on the pastoral implications of the relations between culture and Christianity.

The predominantly positive appreciation of the scientific development does not mean, of course, a naive attitude. We live in a sinful world and thus, any human richness is ambivalent. Science may be badly used and frequently exerts a materialistic pressure which is one of the major causes of atheism in the present world, an action, however, which is nowadays partially balanced by a better conscience of its own limits. (This is true, generally speaking, in spite of what was just said above about artificial intelligence).

Rather than pointing out the various qualities of the document, it may be more appropriate to address questions where further developments might have been desirable, at least for a Christian scientist.

Regarding the impact of science and technology on human life, the position taken seems too timid. Scientific progress is mainly seen as means for *improving* the quality of life, for providing more favourable conditions of life. This is true but insufficient, since technological advances are nowadays absolutely required simply for *enabling a great proportion of humanity to live*. Should we return to the age of the ox-cart and of the pirogue, with an agriculture ignoring chemical fertilizers and other technical means, we should condemn the majority of humans to death by starvation. Many similar examples might be mentioned. Thus scientific and technological developments constitute a necessary service to mankind, to our neighbours, in the fullest sense. Surely, this service is accompanied by evils. The gap between rich and poor countries has been disastrously increased during the last twenty years and a new edition of the Constitution would stress this fact. Simultaneously, scientific progress has also led to more terrible weapons. These two phenomena are not independent since the monstrous expenses for armaments disastrously restrict the

funds for development. We again face the fundamental ambivalence of scientific and technological progress: they are together major agents of more efficient charity, enabling people to live, and major agents of destruction and death.

Regarding the impact of science and technology on the religious life, there are in *Gaudium et Spes* many excellent considerations on the harmony to be secured between culture and Christianity. One is presently conscious of living in a dynamic instead of a static world. This requires a continuous *adaptation* of the presentation of the Christian message to cultural changes. Here we recognize that the document is fundamentally a *pastoral* Constitution. But, as a Christian scientist, we would have liked to find more emphasis placed on the impact of science on our *understanding* of the biblical message; we should even speak of purification.

The complete renewal of our vision of the universe compels us to harmonize the truths of the Revelation and the truths disclosed in nature. A huge task! The traditional vision was "fixist"; ours is now dominated by the concept of generalized evolution for the whole cosmos; regarding time, the religious attention is focused on the few thousands years of Judeo-Christian history while we presently know that the process of hominisation extends over millions of years and that the age of the universe is to be expressed in billions of years; regarding space, we now know that our earth is orbiting around a star of medium size among hundreds of billions of other stars in our galaxy which is itself lost among billions of other galaxies.

Surely, such a transition does not go without serious difficulties. We still have the so-called "creationists" opposed to evolution. And history reminds us about the conflicts which the ideas of Copernicus and Galileo had to survive: our earth was seen as the centre of the universe since it was on it that Christ, the Incarnation of the Son of God, of the Creator of the universe, was born. And St. Paul, in his epistles to the Colossians and to the Ephesians, awards to Christ a cosmic sovereignty. Finally, geocentrism was nevertheless abandoned. The present vision of the universe, opening the possibility of other conscious beings somewhere in space and time, puts to us a new question: should we as well abandon any geoprimary? For, if the theologian has spontaneously a vision of singularity, the scientist thinks spontaneously in the category of plurality. Anyway, the surest theological principle seems to never restrict God's freedom! And His freedom may lead either to the singularity of our case or to the plurality of similar ones. We shall discover the answer in the eschaton!



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### IN MEMORIAM

We announce the death of one of the very earliest ITEST members

Dr. Conrad Bonifazi

and

Mrs. Mary Matschiner

the beloved wife of John Matschiner, the co-founder of ITEST and member of the Board of Directors.  
We ask you to pray for them and their families.

We also ask you prayers for ITEST members who are ill. May they feel the restoring hand of the Lord.

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