



EUROPEAN COMMISSION

“FAST”: Forecasting and Assessment in Science and Technology

# **RELIGIONS CONFRONTED WITH SCIENCE AND TEHNOLOGY**

## **CHURCHES AND ETHICS AFTER PROMETHEUS**

**An exploratory Report by**

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## **PREFACE**

### **IN SEARCH OF MEANING**

by Riccardo Petrella  
Head of FAST

Man has always striven to go beyond his own limits, usually giving little serious thought to the implications and consequences of his inevitable successes and failures.

Today our society seems to be waking up at last to the dangers of yielding unquestioningly to the technological imperative to do everything that is technically feasible. This imperative remains nevertheless a prime motor of our civilization (the refrain "you can't halt progress" still echoes from one end of the world to the other).

But the moral debate on nuclear power over the past fifty years, and debates of more recent date on the environment and the new possibilities opened up by genetic engineering, have tempered the arrogance of scientism and technocracy in their manifold forms, ushering in a more open vision and more democratic practices (it is to be hoped) in the field of scientific and technological development.

Four major questions here nonetheless await answers from us, both as individuals and collectively:

- \* Is man just another "resource", the value and relevance of which is to be determined by increasingly complex and (supposedly) "intelligent" techno-scientific systems?

This question implies others, such as: what is the human body? Is it essentially matter - to be tampered with, experimented on, traded in? And what is a human being in a work context? A resource in the same sense as a computer, a machine tool, an office accessory?

- \* What relationship binds humans as co-inhabitants of planet Earth today? Can we, must we accept the great and growing disparities in quality of life separating individuals, countries, continents - disparities exacerbated by the rapid pace of scientific and technological development? Are the 6 billion or so human beings at present inhabiting the planet all part of one and the same human history?
- \* What relationship binds humans alive today with future generations? Can we, do we have the right to base our actions only on our own limited perspectives? Are we entitled to act without considering the implications of our actions for future generations?

- \* What relationship binds man (human society) with nature? Is nature first and foremost a terrain open to conquest and despoliation by man?

Out of an openness to these questions and an awareness of their importance was born the idea of a report on religious perspectives on science and technology.

\*\*\*\*

FAST's interest in this question does not stem from a certainty that a religious revival is under way, that God is "making a comeback". Our motives are much simpler and more pragmatic and relate to our mandate in the area of research and development policy. We want to see whether and how religions today influence thinking on science and technology in such a way as to be able to contribute to answering the four questions listed above. We would also like to know whether the prevailing religious beliefs in Europe, the United States and Japan influence scientific and technological developments and the use to which they are put in different ways.

Whatever the moral principles directing our choices regarding the relationship between man and nature, the exploitation of living things, genetic experimentation and artificial intelligence, their origins and bases are to be found in systems of religious or philosophical and moral belief.

We are interested to know:

- whether the structural, qualitative changes in human conditions and history brought about by recent advances in science and technology have been taken on board by the various religions and whether they have influenced their moral prescriptions;
- to what extent the different religions come up with the same moral principles and the same recommendations in practice on the development and use of science and technology;
- whether there have been marked changes in each religion's thinking on science and technology in recent decades.

\* \* \*

When I proposed to Marc Luyckx that he undertake this study he was at once enthusiastic and apprehensive. Enthusiastic because the subject is one close to his heart and because it was the first time a Commission department was taking a serious look at religions (a subject obviously far removed from the major questions exercising our "Eurocracy"! ). How could he turn down the pleasure and challenge of this pioneering task? But he was also apprehensive, knowing the scale and difficulty of the undertaking. The gift could turn out to be a poisoned one ...

He nonetheless set to work - and the result is remarkable.

Far be it from either of us to think this will be the last word on the subject. With laudable intellectual circumspection Marc has himself stressed its exploratory nature.

The fact remains that his achievement is remarkable in many respects.

Firstly because it is a culturally honest analysis - and the risk of ideological bias was a real one (Marc has his beliefs!).

Secondly because it is a genuine work of analysis and not just a compilation or repository of the ideas and views of others.

Lastly because it provides non-specialists with valuable and detailed information on just where different religious and philosophical schools agree and disagree on the main moral issues raised by science and technology.

\* \* \*

I have learnt much from the chapters on Catholicism, Protestantism and Japan. A careful reading makes clear that, even if the phenomenal technological progress achieved by Japan in recent decades cannot be explained by religious factors, there is some sort of connection: these factors (especially certain Buddhist and Shinto beliefs) will occupy an important position in the long term. The failure of Europeans and Americans to fully appreciate their importance could be one of the reasons for trade conflicts, particularly between Japan and America, which are likely to worsen in the coming years, and for the dearth of collaborative ties and mutual understanding between Japan and Europe.

Marc Luyckx did well to include a contribution by a liberation theologian (Leonardo Boff) in his report. It is important that this voice too is heard in a FAST document.

\* \* \*

What conclusions can be drawn from this report for scientific and technological policy in the European Community - not to mention the rest of Europe (including countries with a strong Orthodox Church)?

The author has wisely avoided drawing conclusions. For my part I will limit myself to one observation and one question.

There is a vast discrepancy between, on the one hand, the moral scope of the religions' discussions of science and technology issues and, on the other, the principles inspiring European science and technology policy, the priorities it has adopted and the goals it aims at. This discrepancy is not specific to European policy. It is as apparent, if not more so, in the science and technology policies of Japan, the United States, Korea, Switzerland, etc.

Which prompts the following question, addressed to all Europeans particularly scientists, technologists, engineers, innovation economists, politicians, research bureaucrats, industrialists - professing Catholic, Protestant or other religious or humanist beliefs: to what extent do the science and technology goals proclaimed by the Single European Act and embodied in the priorities defined in the 3rd Framework Programme of scientific and technical activities of the European Community (1990-93) square with the major moral principles and main guidelines of your faith?

Brussels/Tokyo  
Mid-November 1991

*"La révolution du XX<sup>e</sup> siècle doit faire à l'homme contemporain un instrument technique rationnel et une organisation sociale juste. Mais elle a pour rôle aussi de lui rendre une raison de vivre et de mourir et d'abord une consistance."*

*EMMANUEL MOUNIER, 1947*

*"We must learn collectively to limit our desires"*

*Rev. HIRATA, Japanese Buddhist monk*

*My thanks to Ricardo Petrella for his support and his inspiring vision and to all the FAST team; to J. Vignon, N. Dewandre and the Forward Studies Unit; to C. Maciotti, J. Elizalde and D. Van Loo for their valuable advice.*

*Thanks also go to Doreen Lacour for preparing the text for publication.*

## INDEX

### PEFACE:

IN SEARCH OF MEANING, *by Riccardo Petrella*..... 2

<b>0: INTRODUCTION</b> .....	9
1. Reasons for this study .....	10
2. Method followed in compiling this study .....	12
3. Relative importance of Christianity: statistics .....	14
4. Religious decline? Statistics .....	15

### PART ONE: SURVEY ..... 19

<b>1: CULTURAL MATRICES AND CHANGES</b>
---

1. A cultural characterization table: Geert Hofstede .....	20
2. Table analysing evolution of Western culture.... ..	24

<b>2: CATHOLICISM</b>
-----------------------

#### A. GENERAL PROBLEMS RELATING TO SCIENCE AND TECHNOLOGY

##### 1. THE POSITION OF THE HIERARCHY

1. The Second Vatican Council .....	33
2. John Paul II .....	34

##### 2. OUTLINE OF DEBATE WITHIN THE CATHOLIC CHURCH

1. IFCU.....	39
2. Feminist debate .....	41
3. Léonardo Boff, Liberation theologian.....	44

#### B. CATHOLIC DEBATE ON BIOETHICS

##### 1. POSITION OF THE HIERARCHY

1. Experimentation on the human embryo .....	48
2. Sequencing of human genome .....	49
3. Procreation technology.....	50
4. The informing logic of official Catholic thinking.....	51

##### 2. CRITIQUE OF OFFICIAL POSITIONS

1. Dissenting arguments by theologians.....	55
2. Debate on the natural law.... ..	56
3. Disaffection of Catholics .....	59
4. Critique by biologists.....	61
5. Philosophical critique.....	62

## C. CATHOLIC POSITIONS ON ECOLOGY

### CONCLUSIONS FROM THIS REVIEW OF CATHOLICISM

1. Positive contribution.....	66
2. Cultural matrix.....	67
3. Hofstede table.....	67
4. Cultural mutation table.....	68

## 3: PROTESTANTISM/REFORMED CHRISTIANS

### A. INTRODUCTION

1. Origins of Protestant ethics.....	72
2. World Council of Churches.....	74

### B. PROBLEMS LINKED TO SCIENCE AND TECHNOLOGY IN GENERAL

1. Boston Conference (1979).....	77
2. Critique by Protestant women.....	82

### C. WORLD COUNCIL OF CHURCHES AND BIOETHICS

#### 1. CRITICAL AND HUMBLE OPENNESS TO NEWNESS

1. An unprecedented mutation.....	86
2. Humility of WCC attitude.....	87
3. Church must engage technology at its source.....	87

#### 2. ANALYSIS OF MAIN WCC STATEMENTS ON BIOETHICS

1. Manipulation of human genes.....	88
2. Reproductive technology.....	89
3. Embryo research.....	90
4. Intellectual property.....	91
5. Environmental effects.....	92
6. Military applications.....	92
7. Impact on Third World.....	92

### D. PROTESTANT DEBATE ON ECOLOGY

### E. PROTESTANT DEBATE ON ENERGY: EMPHASIS ON RENEWABLE SOURCES

1. At world level.....	97
2. At European level.....	98

### F. CONCLUSION OF SECTION ON PROTESTANTISM

1. Protestantism reflects ongoing cultural transition.....	99
2. Openness to the new.....	100
3. Re-enchantment of the world.....	100
4. Towards a new spirituality.....	101

5. Differences in sexual ethics .....	101
6. Difficulty in explicitly addressing metaphysical and theological questions.....	102
7. Difficulties in dealing with new trend towards resacralization .....	102

## G. CULTURAL TABLES

1. Hofstede .....	102
2. Cultural transition/re-enchantment .....	102

## H. TWO COMPLEMENTARY CULTURAL TABLES?

### 4: THE ORTHODOX CHRISTIANS

1. Primordality of the mystical .....	107
2. A very open vision of the role of the Orthodox Church.....	108
3. Towards a World Assembly of Religions .....	108
4. Richness of Hindu mystical heritage .....	109
5. Recent positions of Greek Orthodoxy.....	110
6. Positions of Ecumenical Patriarchate of Constantinople on ecology .....	111

## APPLICATION OF ANALYSIS TABLES

1. Hofstede table .....	112
2. Cultural change table .....	112

### 5: ISLAM

## I. ISLAM BASICALLY OPEN TO THE SCIENTIFIC APPROACH

1. Exceptional openness of Mohammed .....	114
2. Remarkable flowering of the arts and sciences.....	114
3. Decline of Arab culture after 14th century.....	115

## II. CONTEMPORARY DEBATE ON SCIENCE AND TECHNOLOGY

1. Background to Islamic approach to bioethics .....	116
2. Liberal theses .....	116
3. "Islamist" theses .....	116
4. Viewpoint of the Islamic Development Bank.....	119

## CONCLUSIONS

## 6: JUDAISM

### A. SCIENCE AND TECHNOLOGY IN GENERAL

### B. THE BIOETHICAL DISCUSSION WITHIN THE JEWISH WORLD

1. Abortion .....124
2. Homologous insemination .....124
3. Heterologous insemination .....124
4. In vitro fertilization .....124
5. Surrogate motherhood.....125

### C. AN APPROACH TO ECOLOGY

### D. FEMINISM WITHIN JUDAISM

### E. CONCLUSIONS

## 7: SECULARISM AND HUMANISM

### 1. INTRODUCTION: ORIGINS OF, AND CURRENT TRENDS WITHIN, HUMANIST/SECULARIST MOVEMENT

1. Two families of precursors .....127
2. Current development of humanism.....128
3. "Towards a new secular pact?" .....129

### 2. HUMANISM AND LAICITY IN RELATION TO SCIENCE AND TECHNOLOGY

1. "Neither theocracy nor technocracy" .....130
2. Crisis of basics; non-transcendent regulation .....130

### 3. SECULARIST/HUMANIST POSITIONS IN THE AREA OF BIOETHICS

1. The values defended.....131
2. What basis for legislation?.....132
3. The beginnings of life .....132

### CONCLUSIONS

## 8: RELIGIONS IN JAPAN

1. General impression .....136
2. Comments on Japan's religions.....136
3. Japanese religions and culture in relation to science and technology: three levels of observation.....139
4. General conclusion
  - Hofstede table .....150
  - Cultural change table .....151

- Annex 1: list of people interviewed .....152
- Table 7: cultural differences between Europe and Japan.....154
- Table 3: religions and cultural changes.....155
- Table 8: summary of positions on bioethics .....156

**PART TWO: CONCLUSIONS OF THIS REPORT ..... 157****LIST OF TABLES**

Table 1: religious affiliations: world trend 1900-2000

Table 2: religious affiliations in Europe (EC)

Table 3: religions and cultural changes

Table 4: modern/"post-modern" comparison

Table 5: Catholic and Protestant cultural matrices

Table 6: comparison of European and Japanese views on bioethics

Table 7: aide-mémoire on cultural differences between Europe and  
Japan

Table 8: synopsis of religious positions on bioethics

**0: INTRODUCTION**

*My thanks to Pierre Delooz(+) and Marc Vincent (+) for their help in preparing the statistics.*

## 0.1. Reasons for this study

This report comes at a time when three major changes are under way: a qualitative change in scientific progress, the globalization of the world's economies (and thus of the issues raised by science) and a crisis of the nation state (emergence of supranational entities such as the European Community).

### \* *Qualitative change of science*

The Hiroshima bomb brusquely woke humanity to an awareness that for the first time in its history it had the means to terminate all human life, or at least to jeopardize seriously the survival of the human species. Thanks to advances in biotechnology, meantime, man is now also in a position to create life, to create living cells and to modify the genetic potential of all creation. Scientific progress is forcing us to confront what are totally new issues for humanity.

Some see the human race as playing at sorcerer's apprentice. Everywhere calls are heard for some sort of in-depth reflection - of a serious and democratic kind - on such questions as experimentation on human embryos, genetic manipulation and euthanasia, or again on the issues of pollution, energy, etc.

### \* *Prometheus encumbered in technoscience?*

Prometheus stole fire - symbol of technological innovation - from the gods to give it to mankind. His punishment was torture and death: the ancient Greeks saw the power of the gods and that of men as in unequal rivalry. Prometheus was punished for competing with the gods.

The creationist religions (Judaism, Christianity, Islam) see the creative powers of man as, rather, an extension of the creative power of God. The two are not opposed to one another. **These religions do not condemn the action of Prometheus** - perhaps one of the reasons for the flowering of science and technology in the West.

But the fire bestowed on man by Prometheus is beginning to be seen in a different light, having grown to a point where it seriously threatens to engulf the whole world in flames. Hiroshima has ushered in a new world in which, as FAST expressed it in 1981, "Prometheus is encumbered<sup>2</sup>". Science and technology have fused into "**technoscience**",<sup>3</sup> enormously boosting their power in the process but also losing their innocence and entering an **era of suspicion**. The public is increasingly conscious that their benefits go hand in hand with unprecedented powers of destruction.

My investigation of the moral perspectives of different world religions is undertaken against this background, which I portray as one of cultural mutation manifested in shifting 'Weltanschauungen' (world-views). The tell-tale sign for this mutation is the abandonment, or supersession, of the myth of Prometheus.

The question facing religious and lay people alike today is: "What ethics apply to technoscience in the wake of Prometheus?".

### \* *Globalization of moral issues relating to science and technology*

The second change is the globalization of the consequences of scientific and technological development. For example, the moral questions raised by current efforts to map the human genetic code (or genome) **concern all humanity**. The same goes for the European

Community's energy policy (in its implications for global warming). And, in a different way, for the common agricultural policy - and so on.

In the North, public opinion has come to an awareness of this globalization via ecological issues. Anyone can see that national legislation is not enough to combat acid rain or fall-out from Chernobyl. The consequences of scientific progress increasingly affect the world as a whole.

*\* Future for religions as moral debate takes on worldwide proportions*

As public opinion wakes up to the urgent need for moral debate, it is also coming to see that our politicians follow an **increasingly pragmatic and short-term logic**, probably through unawareness of an alternative way of thinking. More fundamentally, our civilization is dimly conscious that it can afford less and less to avoid the question of meaning, of the meaning of all our producing, buying and selling. **Does all this "having" enhance our "being"?** Does our civilization in practice make a majority of men and women happier?

In this light it was seen as important for FAST, **in its forward look at the development of science and technology**, to enter into dialogue with the world's religions in order to hear what the 'distilled wisdom of the ages' might have to tell us about the meaning of our civilization and about how to escape from a short-term, pragmatic logic whose shortcomings are obvious to all.

But there is a second reason for FAST to conduct this investigation of the moral pronouncements of the various religions on science and technology. Since a **moral debate is likely to start and intensify both within Europe and throughout the world**, it is becoming increasingly clear - in spite of an apparent fall-off in religious practice and belief - that people (including the European parliamentarians who are going to be involved in this debate) continue unconsciously to refer back to moral categories inherited from their specific cultural and religious backgrounds. Catholicism in Southern Europe, Protestantism in Northern Europe and the Orthodox Church in Greece have been instrumental in forging an **(often subconscious) cultural substratum**, on which moral and even political reasoning is based (e.g. the principle of subsidiarity, widely applied in European politics, is derived from Catholic encyclicals). If Europe is to arrive gradually at a moral consensus to serve as common legislative base, it would be useful to stake out the moral ground as clearly as possible. This study could serve as a first step in that direction.

*\* Importance of ethics in the construction of Europe*

With the acceleration of European integration in recent years, the political dimension is becoming increasingly central, indeed preponderant. But the greater the progress made in this arena, the more important it is that it should have a human face and that people should feel involved in a European adventure which many still perceive as **too elitist and pragmatic**. A debate on the moral implications of new scientific developments could play a major role in creating cohesion, an "**affectio societatis**", within European civilian society.

**Europe will be seen as meaningful if it is seen by Europeans and by the rest of the world as having a contribution to make to the search for a meaning for human life on earth at the end of the 20th century.** As Mr Delors has said:

*"...The ethical dimension stands out again and we must continue to discuss these quite fundamental issues affecting our conception of man and society. On the basis of what scientists tell us about the laws of nature, we must accept our responsibilities and decide, with reference to a certain conception of life and the human being, what we wish to do and I*

*for my part want ... to continue the debate in philosophical and moral terms so that as science progresses, so too does our conscience."*<sup>4</sup>

## **0.2. Method followed in compiling this study**

### Division into sections by religion

The hurried reader might have preferred an arrangement by theme as offering him an overview of the positions of the different churches at a glance. But this would have failed to convey the distinct cultural background of each religion. I opted instead for a synthetical approach as throwing into sharper relief the cultural changes currently affecting the world's religions. I accordingly arranged the study by religion rather than theme, with chapters devoted in turn to Catholicism, Protestantism, the Orthodox Church, Islam and Judaism.

Pending more detailed analysis in a subsequent report, the religions of Asia receive only cursory treatment. However Japan's religions, and their influence on science and technology policies, are discussed in some detail.

A further chapter is devoted to secular thinking.

Part Two contains my conclusions and recommendations to the Commission.

As far as possible, each chapter opens with a brief introduction; thereafter I try, where applicable, to distinguish between the official positions of the church authorities and the debates taking place among its members.

### Objectivity

I lay no claim to objectivity. St Thomas Aquinas wrote: "Everything which is perceived is perceived in the manner of the perceiver" (Quidquid recipitur ad modum recipientis recipitur) - and I am keenly aware that I am providing the reader with just one possible interpretation of the religions in question. For this reason summary tables are included elucidating my point of view (see 1).

### Exploratory, and hence limited, nature of this report

"Religion, science & technology" being such a vast field, this report could never hope to be exhaustive.<sup>5</sup> It is an **exploratory study**, staking out the ground and identifying areas for further investigation.

Nor have I tried to be exhaustive. I do not even deal with **all the world's religions**. Asia, the principal cradle of these, merits far more thorough treatment. Major religions such as Hinduism, Buddhism, Confucianism and Taoism are barely touched on. And the treatment of those dealt with is extremely restricted: e.g. Protestantism is looked at only in the context of the World Council of Churches (WCC), a great limitation when one considers the size and diversity of national Protestant churches in Europe; and there is no mention at all of the plethora of Protestant sects, most of which are not members of the WCC.

### Major areas not dealt with

The religious critique of **economic systems**, a subject meriting a report unto itself, I have deliberately passed over.

**Many areas of science are not discussed. I repeat: my aim was not to be exhaustive but to map out the ethico-religious field.**

### Inherent theological limits of this report

This report is not a work of theology. It contains **no study of sacred texts**. My aim was to brief the Commission on the moral positions of the religions on science and technology. As we will see, most religions make scant reference to their sacred texts in their ethical discussions - this for a number of reasons which I will not go into here.

Some theologian friends have accused me of extremely poor theology in segregating ethics from the image of God informing them. They are right. But the Commission did not ask for theology. It wanted to know the ethical standpoints of the religions. I believe this to be a legitimate approach, provided its limits are clearly stated in advance.

**A second report** should follow this one **taking a much more general view of the vision of God and vision of the world peculiar to each religion.**

### **0.3. Relative importance of Christianity: statistics**

The statistical section is based on the "World Christian Encyclopaedia".<sup>6</sup> Two methodological points:

Firstly, the author of the Encyclopaedia makes a distinction between the "irreligious" (or agnostic) and "atheists", atheists being those whose position is the result of a deliberate, conscious choice, the irreligious those whom the question of religion does not interest one way or the other. This distinction is debatable - criteria are difficult to establish here but useful. Secondly, the statistics cover all residents of EC Member States, whether or not EC nationals. (This makes quite a difference in the case of Islam, for instance.)

#### World religious affiliation trends (Table I)

On the basis of data in the World Christian Encyclopaedia I have, in collaboration with DG XII, prepared a graph showing the evolution of religious affiliations world-wide this century (in terms of percentages of world population). Given that the absolute figures are all obviously rising in line with world population, I opted to indicate the trends in percentual terms; by this reckoning the Catholic proportion of the world's population is relatively stable (20%). Only Islam is increasing its 'world market share'. Most religions **have a more or less stable following with the exception of Islam which is growing steadily.**

It is also interesting to note the numerical importance of the Asian religions, even if stable in percentual terms. Taken together, Buddhism and Hinduism have **more followers than Catholicism.**

#### Religious affiliations in the EC (Table II)

The second table (again drawn up with DG XII on the basis of data in the World Christian Encyclopaedia) gives a breakdown of religious affiliations

within the EC. It shows a clear majority of Catholics (58%). The members of the World Council of Churches (Protestants + Anglicans + Orthodox) form the second largest grouping with 28.86%, meaning that 86.86% of the residents of the Europe of Twelve are **Christians.**

"Non-believers" (agnostics and atheists) form the third largest group (11.15%) and Moslems the fourth (1.34%), with professed Jews accounting for just 0.38%.

#### Preponderance of Christianity in my study

The statistics show Christianity to have a not insignificant (cultural) influence on **at least 86% of Europeans**. Space, then, in this report has been allotted with two considerations in mind:

- firstly, **virtually all scientific progress world-wide** originates either in countries with a Christian culture or in Japan; I therefore give special attention to the ethical positions of the religions of these countries;
- secondly, **ahead of future ethical debates in Europe**, it seemed logical to focus principally on Christianity, without going so far as to accord it 86% of the space available. Minority religions, and irreligion, have also been looked at closely as liable to play an important role in these debates.

#### **0.4. Religious decline? Statistics**

The European Value Group<sup>7</sup> has twice conducted a survey (1980 and 1991) on the values held or observed by Europeans.

- \* Declining influence of religion on personal morals

Collation of the 1980 and 1991 results shows the moral values of Europeans to be increasingly determined by individual choice rather than automatic reference to religious precept.

- \* Declining authority of official churches, particularly in Northern Europe

Less than 50% of the French, Germans, British, Belgians, Dutch and Scandinavians have confidence in their churches. The figures are higher in Southern Europe - Italy (63%), Spain and Portugal (more than 50%) - but here too the trend is downwards. The only exception is Northern Ireland (80%).

These figures contrast starkly with North America: US (79%) and Canada (61%).

- \* Churches perceived as not helping Christians cope with the problems of daily life.

In Denmark and Sweden just 11% of the population see the churches as providing satisfactory answers to the problems of everyday life. In Northern Europe, the figure is less than 30%. In the US it is 60%!

- \* Decline in organized religion but interest in spirituality

The vast majority of Europeans claim to be religious (i.e. answer 'yes' to the question 'Do you believe in God?'). Specifically: Italy 84%, Ireland 96%, Denmark 59%, Portugal 80%, Belgium 63%, France 57%, UK 71%, Germany 64%, Netherlands 61%, Spain 81%, USA 93%, Canada 86%.

#### **CONCLUSIONS**

We are clearly witnessing a major change in the perception of values. The influence of traditional religions on political and sexual ethics seems to be declining. There does, however, appear to be significant interest in spirituality. I shall return to this subject later.

## **PART ONE: SURVEY OF RELIGIONS**

*I have taken as starting point the hypothesis that religions can only be seen in context, that they cannot be examined in a vacuum. Cultural context forms a link between religion and science & technology. Two cultural analysis tables will accordingly accompany us throughout our investigation.*

*The first (Hofstede) attempts to characterize different cultures on the basis of interviews conducted in 40 countries.*

*The second is based on the assumption that a cultural mutation is under way, brought about, particularly in Northern Europe, by a change in production techniques. Even if this assumption is open to question, it is a useful, if not essential, tool for portraying discussions and debates which have been in progress for years now, particularly within the Reformed churches.*

*My approach, then, will be:*

- first, to LISTEN, as objectively as possible, to what the various religions have to say on science and technology;*
- then, at the end of each chapter, to summarize the positions of each religion using the abovementioned tables.*

*The bulk of the study is devoted to Catholicism and Reformation, the most important religions in Europe, followed by a brief look at the Orthodox Church, Islam and Judaism. Owing to lack of time the oriental religions do not receive the attention they merit. I focus mainly on Japan, which I had the opportunity to visit on mission. I also take a look at secularist thought.*

### **1: CULTURAL MATRICES AND CHANGES**

*Of the two cultural analysis tables, the first is static, aiming at a characterization of different cultures, the second dynamic, analysing the evolution of Western culture over time.*

## 1. A CULTURE CHARACTERIZATION TABLE: GEERT HOFSTEDE

Geert Hofstede has carried out an interesting analysis of a large number of interviews.<sup>8</sup> Having evaluated how values linked to work and the organization of society operate in forty countries, he questions the assumption that there is just one (American) method of management: we need to take account of cultural differences rather than tailoring them to suit the model of a single dominant culture.

It is his tables aimed at characterizing different cultures that are of most interest to us. Hofstede is candid in acknowledging his own Dutch Protestant origins (which, in my view, colour his approach to Latin culture).

He bases his survey on four criteria:

1. "**power distance**" - measuring the distance within a given culture between superior and subordinate; this is an indicator of attitude towards authority;
2. "**uncertainty avoidance**": uncertainty as to the future is a basic fact of human life; we try to reduce uncertainty through **technology** (prevention of natural disasters), **law** (prevention of uncertainties resulting from other people) and **religion** (uncertainties we cannot defend ourselves against: death, suffering, love, etc.); this criterion is an indicator of how conflicts are managed and of religious proclivity;
3. "**individualism**": the relationship between the individual and the collectivity: is there a greater emphasis on the individual and his autonomy or on societal cohesion?
4. "**masculinity**": the impact of sexual difference on social roles.

Hofstede passes a number of interesting incidental comments on religions and dominant societal values. Without going so far as to say that certain values are present in certain regions **as a result of religion**, he does note that certain dominant values are co-extensive with the incidence of certain religions. They are, moreover, mutually supportive.

A few points culled from his extremely incisive analysis:

\* **Latin cultures** are characterized by:

1. high power distance (distance between superior and subordinate): this implies **vertical, hierarchical and centralized** political structures and work organization. Latin peoples appear to have a greater need for strong authority and a formal hierarchy of powers. Government structures tend to be oligarchical and autocratic. Coup d'états occur more frequently. There are proportionately more advisers and intermediate functions surrounding centres of power. There is also more scope for corruption and mafias, and greater differentiation between educational levels (blue-collar workers relatively less educated). There is little delegation or sharing of power. Political parties are less tuned in to legitimate popular aspirations.

2. high uncertainty avoidance: and hence a general tendency towards **low acceptance of otherness and of the future** and greater levels of anxiety among the population. In psychoanalytical terms, Latin people have a powerful superego and greater tendency to evince dogmatism, intolerance, traditionalism, racism and ethnocentrism. They find it relatively difficult to think positively about the future. Short-term strategic management predominates. The modernization of these societies is only now beginning. They are pessimistic about the possibility of real democratic control of power and about the political effectiveness of grass-roots initiatives.

The uncertainty avoidance indices for a selection of European countries and Japan: Greece: 112; Belgium: 94; Japan: 92; France: 86; Spain: 86; Italy: 75; (West) Germany: 65; Netherlands: 53; Great Britain: 35; Denmark: 23.

Belgium and Greece thus rank with Japan as the countries where uncertainty is avoided the most (p. 122).

The high uncertainty-avoidance category embraces all cultures influenced by the religions of the Book (Judaism, Christianity, Islam) plus Japanese culture.

**Catholicism** and the **Orthodox Church** appear to promote this tendency. They place greater emphasis on **life after death** and the prospects of believers in the hereafter. Catholicism stresses **certitudes** such as the infallibility of the Pope and the unity of the Church.

**Islam** and **Judaism** also show a high degree of uncertainty avoidance, but the statistics show Islam to be more egalitarian than Hinduism and more tolerant than Catholicism. Judaism also seems more tolerant than Catholicism.

3. high individualism: Latin culture is marked by a high degree of individualism and independence of the collectivity. But as dependence on authority is strong (see 1) the Latin peoples can be described as **dependent individualists**.

4. masculinity: fairly high. European Latin countries, such as France, Spain, Portugal and Belgium, do not have a very high masculinity index, whereas the countries of South America, the Caribbean and Italy rank among the highest. Machismo (male authoritarian assertiveness) cannot, then, be considered a consistent feature of Latin cultures.

Here again one notices that Catholicism tends to **bolster the masculinizing tendency of Latin culture**.

All Latin cultures have high power distance (criterion 1) and uncertainty avoidance indices (criterion 2). The strong superego of the Latin people:

"will be personified in the form of a powerful person (the father, the leader, the boss). People will be able to blame the powerful people for their ills (a favourite pastime in the Latin countries) and will feel relatively free to sin if the boss isn't looking." (p. 214)

Thus the surveys show that the Latin way of solving a problem is to refer it up the hierarchy (p. 216). **Maximum bureaucracy** is the system which makes it possible to reconcile individualism, attraction to a strong power source and uncertainty avoidance. Under this system people are simultaneously dependent on authority while having the impression of being free (not depending on anyone) in the face of impersonal and centralized rules (p. 157).

\* The **Anglo-Saxon/Germanic/Nordic** cultures (USA, UK, NL, D, DK) are characterized by:

1. low power distance: the form of government is more pluralist and democratic. Changes of government are not sudden. Political parties are more effective and fairly centralist. Trade unions are less aggressive and target practical improvements. Power-sharing ideologies meet with greater success. A plurality of theories of society is accepted. There is less tendency towards centralization and the power pyramid is flatter. There are fewer supervisory staff and less pronounced salary and educational disparities (blue- and white-collar workers closer to one another in status.)

**Protestantism** appears to favour more democratic management. It has distanced itself from the Catholic way of exercising authority (Pope, bishops, priests). Some Protestants (Puritans) even regard a belief in personalized authority as sinful (p. 104). Hofstede highlights the cultural differences between the Catholic and Protestant parts of Germany and Holland, the two countries in which both denominations have substantial followings.

2. a low uncertainty avoidance index: the (predominantly Protestant) Anglo-Saxon and Nordic countries have low uncertainty avoidance indices Germany: 65; USA: 46; UK: 35; NL: 53; DK: 23 (the lowest score); Sweden: 29. Life is taken as it comes. Time is open-ended. This manifests itself in a lower level of anxiety and greater openness to change and the future. There is also a greater aptitude for long-term management and risk taking. These societies are highly advanced. Pragmatism makes it possible for hierarchies and rules to be short-circuited when necessary. Nationalism is less emphatic. The popular view of political authorities and parties is on the whole positive: they are there to serve the citizen.

3. high degree of individualism: the United States is the great celebrator of the values of individualism as contributing to national greatness, while collectivism - identified with communism - is seen as evil. Anglo-Saxon individualism is, however, different from the Latin version in being combined with proximity to authority and a great tolerance of uncertainty.

4. masculinity: this is not a consistent characteristic of Anglo-Saxon culture. The German-speaking countries (Austria, Germany and Switzerland) rate very high on the scale, while the Anglophone countries (Ireland, UK, USA, Australia, New Zealand and Canada) have average, and the Nordic countries and Holland low, masculinity indices.

Hofstede sees **Protestantism** as bolstering the feminine pole in society (cf. prevalence of female government ministers and business executives, particularly in US).

\* Distinction between Germanic and Anglo-Saxon

Taking the first two criteria, we find a marked distinction between the **German-speaking countries** on the one hand (Germany, Austria and Switzerland) and the Anglophone countries, Scandinavia and the Netherlands on the other. The former have low power distance and high uncertainty avoidance: the principle governing their societies appears to be based more on **formal rules**, the model being the **well-oiled machine**. The latter societies are based on **implicit structure** with as model the market, where the rules of fair play and balance are implicitly observed.

\* **Japanese** culture is characterized by:

1. high respect for authority: this may have been reinforced by the importation of **Confucianism** - or, alternatively, perhaps Confucianism would not have taken hold had there not already been this latent tendency in the Japanese.

2. high uncertainty avoidance: in this quite different from the Chinese; the Japanese (92) come just after the Belgians (94) and Greeks (112) and ahead of the French (86). According to the Chinese anthropologist Hsu,<sup>9</sup> it is not generally appreciated how much more important religion is to the Japanese than to the Chinese. Ancestor worship may be a religious means of managing uncertainty.

3. a very low degree of individualism: like the Chinese, the Japanese not only have a low awareness of the individual but also think that we in the West have far too little sense of community and of the group and that this is the root cause of the weakness of our management compared to theirs.

4. highest masculinity index in the world (95)

\* The major difference between **Chinese** culture and Japan is without doubt the management of uncertainty. While the Japanese are highly anxious, Chinese culture has very low uncertainty avoidance.

\* Both tables show Hindu and Chinese culture to be broadly similar.

	Latin	Anglo-saxon	Japan	China, Taiwan, Thailand	India
Power distance	++	-	++	++	+++
Uncertainty avoidance	++	-	+++	-	-
Individualism	++	++	-	-	-
Masculinity	+(++)	-	+++	+	+++

2. TABLE ANALYSING EVOLUTION OF WESTERN CULTURE: SHIFT IN WORLD-VIEW

By the end of this survey I was more and more convinced of an intuition, which indeed is being confirmed all the time: **the world in our time is going through a slow but very profound mutation, one which is also very difficult to define.** What struck me most forcibly - and in the most unexpected quarters (the Commission, Europe, Japan ...) - was the **hunger for spirituality, and for reflection on the meaning of life and the meaning of our technological adventure.** What point is there in "having" more and more if at the same time we have the feeling of "being" less and less?

Some, mainly in the Anglo-Saxon world, talk of "post-modernity" - a term that seems rather to have negative connotations for Latin thinkers (French, Spanish, German, etc.). Others stress that the mutation taking place is not only on the level of thought: **the sum of interrelations between the three levels of thought, feeling and deeper consciousness is moving in the direction of greater harmony between the three.**

Teilhard de Chardin may have been right when he spoke of a **qualitative leap in human consciousness** resulting from the growing complexity of managing the problems of the planet in their world-wide implications.

Many people writing today speak of a cultural shift. Some approach this by looking at the **changes which have taken place in theoretical physics.** The work of Einstein, Heisenberg, Bohr and, more recently, Prigogine and Stengers has contributed to a redefinition of the relationship between science and the real world. The books penned jointly by Prigogine and Stengers<sup>10</sup> are milestones in the history of science. I have also read with great interest the much criticized works of Fritjof Capra,<sup>11</sup> which considerably enlarged my horizons. And mention should be made of the papers presented at the congress organized by France-Culture at Cordoue in October 1979 on the theme of "Science and Conscience".<sup>12</sup>

Others, including the upper echelons of the business world, see this cultural shift as a transition to an **"era of creation/communication"** in which the main challenge will be the **management of complexity**. The most valuable faculty will no longer be the analysing but the synthesizing mind, that flexibility capable of switching between intellectual and affective levels and also the deeper level of spirituality, of the ultimate meaning of things and of life.<sup>13</sup>

Reference should also be made to the work of the Michigan sociologist, Ron Inghart, in analysing all the Eurobarometer surveys over a period of years to see how EC citizens' perception of **values** have been evolving over time.<sup>14</sup> His conclusions confirm the existence of a cultural shift in the direction of what he terms **"post-materialism"**.

FAST has an analogous vision. In a recent article Riccardo Petrella, Director of the Programme, describes the technological dimension of this cultural shift<sup>15</sup>: our methods of production have changed so radically in the space of a few years that we can confidently pronounce the industrial age to be over. This objective fact is of major significance, and a tangible measure of the transition under way.

Here I should clarify one point. In some Latin countries, such as France and Spain, the concept of post-modernity has a **much more negative connotation than in Anglo-Saxon countries**. An editorial recently in Spain's leading daily, El Pais, defined post-modernity as follows:

*"Post-modernity is the end of History, the end of homogeneous, empty time, which, according to W. Benjamin, is inseparable from the idea of progress. Indeed no one any longer thinks of the ahistoric magma and the age of the vacuum in which we live as progress. Scientific and technological development has reached a critical and disturbing stage. Nobody still believes that this development is for the good of humanity. [...] Post-modernity Spanish style can be summed up in the phrase 'all values are equivalent' (Todo vale)".<sup>16</sup>*

A recent article by A. Jeannière in Etudes, a Parisian Jesuit revue, questions the use of the term "post-modernity":

*"At what point can we draw a line and say that a totally new historical period has dawned? Here again I believe radical change can come only from physics. [...] If the whole of physics came to be centred on quantum physics, this would, it seems to me, mean that we were entering a post-modern era."<sup>17</sup>*

The recent publication of the book God and science by Jean Guitton, Grichka and Igor Bogdanov<sup>18</sup> appears precisely to herald the emergence of a new vision of physics centred on quantum physics. Guitton does not use the term "post-modernity" but "meta-realism". (It would be interesting to know Mr Jeannière's reaction.)

When speaking of post-modernity I should therefore specify that I refer to the **Anglo-Saxon use of the term**.

I will here take the risk of defining my concept of cultural mutation more precisely. What exactly do I mean by modern, post-modern and pre-modern? I will use the writings of Father Wildiers in illustration ...

### **Father Wildiers' analysis: three concepts of the world**

A recent book by Father Max Wildiers<sup>19</sup> characterizes the present shift as a **change of Weltanschauung or world-view**. He distinguishes three grand conceptions of the world in the course of human history. (I see this more global approach, incorporating earlier approaches, as the most useful for our purposes.)

- The ancient/agrarian vision: hierarchical and immutable unity

The vision ushered in by the Greeks (Aristotle) was of a **unified and hierarchical, sacred and immutable whole, structured to suit man**. This meant that it was normal for society and religion to be hierarchical. No change was conceivable: everything had always been thus since time immemorial and nothing ever changed.

The **metaphor** best expressing this Weltanschauung is the **ladder spanning the space from earth to heaven**. Christianity adopted this vision of the world, adding the notion of creation by God. This vision had a single major drawback: it exists only in our imagination, it has no connection with the real world.

➤ The modern, scientific/industrial vision: a dualistic vision

Copernicus and Galileo brusquely toppled this world-view by their recourse to experimentation, a link with reality which mankind thereafter sought to consolidate by the invention of the scientific method. Descartes, Newton and many others went on to destroy the world-view of the Middle Ages and replace it with a **binary world divided into spirit and matter**. Philosophy and theology deal with the spiritual dimension while the natural sciences **analysed** (purely analytical method) the material world, which was conceived of as an enormous machine ruled by purely quantitative laws.

The **metaphor** here is of **the world as machine**.

This scientific cosmology has no room for love, death, aesthetics or for man himself as a unique being. These were looked on as subjective and thus not susceptible of scientific analysis, also, little by little, as being devoid of any quantifiable value. Scientism (still common today) considered only one half of Newton's world. **Truth consisted solely of scientifically demonstrable facts, anything else was gradually divested of the status of truth. Increasingly truth was equated with "scientific", i.e. demonstrable truth.**

Clearly this new vision of the world connoted - sooner or later - a movement in the direction of **secularization**, of segregation of the religious and the secular with the religious losing all authority in the domain of the profane. Religion in a secularized world is relegated to the private sphere.

As mentioned earlier, the Protestant/Reformed churches embraced this new world-view whereas the Catholic Church rejected it with the Counter-Reformation strategy.

➤ "Post-modern"/post-industrial Weltanschauung: holistic, non-hierarchical, participatory, responsible and spiritual; re-enchantment of culture

Progress in physics since the 1920s, Einstein's theory of relativity, advances in quantum mechanics, the Heisenberg uncertainty principle and Ilya Prigogine's penetrating studies of dissipative structures<sup>20</sup> - all have wrought a profound change in the contemporary world-view.

Other factors, such as the stunning pace of technological progress, have shifted us out of the industrial age into the **age of creation/communication and complexity management**. In the management of complexity, a synthesizing and global vision, extending to ultimate and spiritual significances, counts for more than analytical powers; **it is more important to possess information than capital.**

The Weltanschauung which I term "post-modern" is headed back towards a **unified, but this time non-hierarchical, vision of what is an increasingly complex world**. Thus there is no longer a division into two parts, material and spiritual. A third dimension is included: life. The analytical method is less important than synthetical (holistic) approaches; man is no longer excluded from the experience, and vision, of the world. And the cosmos-as-totality is no longer left out of the reckoning.

Another feature of this new Weltanschauung is that **the discussion of scientific method is throwing up questions as to the ultimate meaning of existence**. Spirituality, beauty, love, suffering - **but also RESPONSIBILITY** - are no longer excluded from the realm of scientific thought. The Cartesian bisection of the world is being left behind.

Quoting Teilhard de Chardin, Wildiers claims that our age has not yet found its own conception of God. We suffer from "**unsatisfied theism**", our concept of God still bears too many traces of an old world-view, of something, as it were, imposed from outside. As Teilhard wrote:

*"We still have not found a name to designate this mysterious Presence which we discern in the phenomena of our evolving world. All my life has been directed at discovering the 'translucence of the divine in the world'" (p. 282).*

Mention might here be made of the notion of "**COMMUNICATION**", so dear to Habermas<sup>21</sup>: **ethics** in the new age we are embarking on will no longer be deduced from eternal principles ("sub specie aeternitatis") as in the pre-modern age, will no longer be a rational, scientific construct but rather **the result of world-wide dialogue, communication and consultation on the values necessary for our individual and collective survival**.

To clarify these ideas, Table 3, based on a book by Saloff-Coste,<sup>22</sup> situates different religions in relation to Wildier's cosmological categories. Table 4 sets out the main characteristics of the modern and the post-modern worlds.

NOTE: Gilles KEPPEL : "La Revanche de Dieu"

It is, I believe, no coincidence that all three religions of the Book, and certain religions in Asia, are **currently attempting to win back territory lost since the advent of the modern age**.

With the cultural mutation becoming clearer and clearer all the time, ever larger sections of the population are coming to realize that the new world-view blurs the distinction between science and faith and the very concept of secularization no longer plays an essential role. The intellectual and cultural barriers which imposed the secularization of society on the religions seem to be being whittled away little by little. The enormous temptation for the masses and their religious leaders simply to revert to the past is understandable. If my analysis is correct, this wave of integrism (Catholic term) or fundamentalism (Protestant term) will have a **limited impact in Northern Europe** in so far as the "post-modern" Weltanschauung is also anti-authoritarian, allergic to any hierarchical approach and very open to feminist and ecological aspirations and analyses.

\* This expression ('God's Comeback') is the title of a recent work by Gilles Kepel, La Revanche de Dieu. Chrétiens, Juifs et Musulmans à la reconquête du Monde, Seuil, Paris, 1991.



**TABLE 3: RELIGIONS AND CULTURAL CHANGES**

PERIOD	WORLDVIEW	CATHOLICS VATICAN	REFORMED W.C.C.	ORTHODOX CHRISTIANS	ISLAM	JEWS	HUMANISTS
AGRARIAN PREMODERN	Unitarian Pyramidal hierarchical	Churches dominates society Natural Law Condemnation of Galileo, Huss,etc	(Reformed Fundamentalists, like Pentecostalism; revivalism, Born-again Christians, etc.)	European orthodox Churches: resistance to accept modernity	Golden age of Islam -Sunnis -Shiites condemns atheism & secularization	Orthodox jews Hallakhah, Tamud	Some atheists are aggressive against Religions
INDUSTRIAL & MODERN	Dualist view Rationalist Marginalization of the spiritual	Vatican II (1964) -Reconciliation with modernity. -Acceptance of science's autonomy  -Gallileo rehabilitated 1988	1550:REFORM -acceptance of modernity -Interests on loans accepted -autonomy of modern society -secularization is accepted		European Isamic theologians		Aufklärung and fight against any obscuratism
POSTINDUSTRIAL POSTMODERN RENCHANTMENT	Unitarian Non-hierarchical Feminine view Openness to spirituality	-Basic communities -Liberation theology (L.Boff)	WCC headquarters: Open to change & reenchantment	-WCC -Frather Mar Gregorios	Certain criticisms of science and technology are postmodern	Feminist critics Women allowed to be rabbis...	New Humanist Alliance



**TABLE 4: MODERN/POST-MODERN TABLE**

	MODERN	POST-MODERN REENCHANTMENT
ACTIVITY	<ul style="list-style-type: none"> <li>- Industry</li> <li>- Commerce</li> </ul>	<ul style="list-style-type: none"> <li>- Creation</li> <li>- Communication</li> <li>- Discussion of the meaning of our actions<sup>3</sup></li> </ul>
POWER	- Linked to financial capital	-Linked to information and human capital
INTELLECTUAL TOOL	<ul style="list-style-type: none"> <li>- Rationality</li> <li>- Scientism</li> </ul>	<ul style="list-style-type: none"> <li>- Holistic approach</li> <li>-Spiritual search</li> </ul>
SCIENCE AND TECHNOLOGY	<p>-NEUTRALITY in :</p> <ul style="list-style-type: none"> <li>- ethics</li> <li>- N/S policies</li> <li>- cultural policies</li> <li>- Sexual policies</li> </ul>	<ul style="list-style-type: none"> <li>-NON-NEUTRALITY</li> <li>-RESPONSIBILITY</li> <li>-Breaking down of Barriers</li> <li>-Non-Duality</li> <li>-At the service of all citizens</li> <li>-societal control</li> <li>Culturally rooted</li> </ul>
WELTANSCHAUUNG VISION OF THE WORLD	<ul style="list-style-type: none"> <li>-Dualism</li> <li>  Matter/science</li> <li>  Spirit/ theology</li> <li>-World as machine</li> <li>- NATURE to be dominated</li> </ul>	<ul style="list-style-type: none"> <li>-NON-Dualism</li> <li>-Unitarian view</li> <li>- Global approach</li> <li>-World = game</li> <li>-“Revanche de Dieu”</li> <li>-New role of women</li> <li>-value of cultural diversity</li> </ul>
ETHICS	- <b>Separated</b> from scientific and economic reality and without influence over them.	<ul style="list-style-type: none"> <li>- <b>Holistic</b>, taking <b>all</b> areas of life into account</li> <li>-<b>Participative</b>: Worked out after worldwide communication and cooperation</li> </ul>

## 2. CATHOLICISM

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*Upon reflection I decided - given restrictions of time and space - to concentrate on illuminating a few essential areas.*

*Thus I will first outline the little publicized but very positive general vision of science ushered in by Vatican II and since developed by Pope John Paul II. I supplement this with an account of the important contribution of the International Federation of Catholic Universities, a feminist viewpoint and an account of the views of the Liberation theologian, Leonardo Boff.*

*I then outline the logic informing Catholic thinking on bioethics, taking due account of the ongoing debate within the Catholic world on this subject.*

*I conclude with an outline of Catholic thinking on the environment, and juxtapose this with the views of Lynn White.*

\*\*\*

*I have been questioned why there is so little reference to the Gospel texts in the following. While this is indeed so, it is also true that what genuinely characterizes the Christian is the conformity of his actual behavior with the spirit of the Gospels and the logic of the Beatitudes: "Blessed are the poor in spirit, the merciful, the peacemakers ..." (Matthew, chapter 5). The Gospels are not an ethical handbook. Such exhortations as "If your right eye causes you to sin, gouge it out and throw it away", are essentially prophetic, inviting us to go beyond the limits of a moral code along the lines of the Old Testament's Ten Commandments.*

*This may be the reason why the Christian churches have found it necessary to go in search of moral standards outside the Gospels but in harmony with them. This applies particularly in the case of new issues which Christ was not in a position to pronounce on because they were completely unknown in his time (e.g. bioethics or nuclear war).*

## A. GENERAL PROBLEMS RELATING TO SCIENCE AND TECHNOLOGY

### 1. The position of the hierarchy

#### 1.1. The Second Vatican Council: reconciliation of Catholic Church with modernity

The Second Vatican Council (1965)<sup>23</sup> was a turning point in the history of the Catholic Church. Of most interest to us here is the change of attitude it marked vis-à-vis modernity. The Council helped the Church come to terms with the modern world. The famous Constitution "Gaudium et Spes" defining relations between Church and world - exemplifies this change of course. An illustrative passage:

*"In wonderment at their own discoveries and their own might, men are today troubled and perplexed by questions about current trends in the world, about their place and their role in the universe, about the meaning of individual and collective endeavour, and finally about the destiny of nature and of men. And so the Council, as witness and guide to the faith of the whole people of God, gathered together by Christ, can find no more eloquent expression of its solidarity and respectful affection for the whole human family, to which it belongs, than to enter into dialogue with it about all these different problems ... [clarifying them] in the light of the Gospel ..."*

But the Council was also aware of the risks that science and technology entail:

*"Our age, more than any in the past, needs such wisdom if all that man discovers is to be ennobled through human effort. Indeed the future of the world is in danger unless provision is made for men of greater wisdom."*

The Council also transformed the faith-science relationship by its pronouncement that the Church recognized the autonomy of science and that there was no necessary contradiction between faith and science. It went so far as to deplore the mistakes of those who had not recognized this autonomy in the past:

*"Consequently, methodical research in all branches of knowledge, provided it is carried out in a truly scientific manner and does not override moral laws, can never conflict with the faith, because the things of the world and the things of faith derive from the same God."*

#### NOTE:

It is worth noting in passing the other fundamental changes ushered in by this Council:

1. The definition of the Church was declericalized, i.e. the Church was no longer defined in terms of its clergy. "Lumen Gentium" states very clearly that pride of place within the Church belongs to the Christian people: the Church is first and foremost the Christian people, to whom the clergy administer, as a service.

2. A second change - deserving more attention than it has received - regards the Church's relation to truth. Prior to the Council the Church refused to recognize truth in other religions, as witness the adage: "Extra Ecclesiam nulla salus" (No salvation outside the Church). By acknowledging the salvatory value and thus truth of other faiths, the Council effected a change in the Catholic Church's position vis-à-vis truth. It will take time for the full implications of this change - for both theology and missions - to unfold.

These changes being so profound and so swift, it is easy to understand the difficulties encountered in applying them and the reluctance of some in important positions to do so, not to mention the nostalgia for the earlier vision evinced by certain Catholic groupings.

## 1. 2. John Paul II: a very positive vision of science as a quest for truth

If Vatican II represented a turning-point in Catholic thinking regarding modernity, John Paul II has been the most important figure in developing the dialogue initiated by that Council with the scientific world. It is he who has taken the boldest steps in this dialogue.

- He praises science's "advance toward the disinterested knowledge of truth, which scientists serve with the greatest devotion, at times risking their health or their lives."<sup>24</sup>

*"All scientific progress, if pursued with rectitude, honours humanity and is a tribute of the Creator of all things. Your research is an extension of the wondrous revelation that God has bestowed on us in His work of Creation. The Church does not address itself to your discoveries in search of easy arguments in comforting substantiation of its beliefs. Rather it seeks, through you, to extend the horizon of its contemplation and admiration for the transparency of an infinitely powerful God which shines through His creation. For the believer, then, the most specialized research can thus become a highly ethical and spiritual act. Study for the saints has always been a form of prayer and contemplation."*

- Science must be untrammelled in its pursuit of truth:

*"Yes, the Church looks to your research abilities to ensure that **no limit is put in the way of your common quest for knowledge** ... In a word, your science must blossom into wisdom, i.e. must become the growth of man and of every individual."*<sup>25</sup>

- He recognized (in 1984) that the condemnation of Galileo had been a mistake<sup>26</sup> and, on the same occasion, reviewed the last four centuries to arrive at the conclusion that through "serious misunderstandings, the result of misinterpretations and mistakes"<sup>27</sup>, the Church and science had learnt to "transcend these incidents of conflict..."<sup>28</sup> Thus the emancipation of the sciences from theology is no longer looked on with suspicion:

*"It is indisputable that the application of the experimental method has led to real progress both for the newly emancipated sciences and for theology itself, which has been obliged to be more precise in the formulation of its object of enquiry."*<sup>29</sup>

- He vigorously encouraged the broadening and deepening of dialogue between scientists and theologians and called on the world's scientific and religious communities to enter into ever closer consultation:

*"to work on the construction of a culture which is more human and thus more divine ... We must ask ourselves whether religion and science are going to contribute to the integration of human culture or to its fragmentation. This is an ineluctable choice of concern to us all. Furthermore, this dialogue can help all those who have to take moral decisions in the areas of technological research and its applications."*<sup>30</sup>

- This is a dialogue that presupposes the autonomy of both interlocutors and thus not one aimed at a "disciplinary unity between two disciplines ... neither can claim to form a necessary premise for the other". This means that the Catholic Magisterium is backing down once and for all on the issue of the primacy of theology over the sciences, the subject for centuries of conflicts and denunciations.

- This dialogue is indispensable to theology, which it challenges "far more deeply than did the introduction of Aristotle into Western Europe in the thirteenth century."

It is a dialogue which can also benefit science:

*"Scientists, like all human beings, will make decisions upon what ultimately 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."*

- This dialogue is equally indispensable to science, which should be capable of recognizing its own limits, too, as well as its need for faith:

*"From long experience the Church knows that Reason and Faith must be mutually supportive. Reason without faith is mere positivism or scientism. This much we know. We know that reason alone is incapable of finding answers to the ultimate questions ... the meaning of life, the purpose of creation and so on."*<sup>31</sup>

- ... because science and technology are not neutral entities:

*"Basic scientific research and applied research constitute a significant expression of this dominion of man over creation. Science and technology are valuable resources for man when placed at his service and when they promote his integral development for the benefit of all; but they cannot of themselves show the meaning of existence and of human progress. Being ordered to man, who initiates and develops them, they draw from the person and his moral values the indication of their purpose and the awareness of their limits. It would on the one hand be illusory to claim that scientific research and its applications are morally neutral; on the other hand one cannot derive criteria for guidance from mere technical efficiency, from research's possible usefulness to some at the expense of others, or, worse still, from prevailing ideologies."*<sup>32</sup>

- As regards the Third World, the problem is not science but economism. The clearest exposition of this point is that of Paul VI:

*"... certain concepts have somehow arisen out of these new conditions and insinuated themselves into the fabric of human society. These concepts present profit as the chief spur to economic progress, free competition as the guiding norm of economics, and private ownership of the means of production as an absolute right, having no limits nor concomitant obligations. This unbridled liberalism paves the way for a particular type of tyranny, rightly condemned by Our predecessor Pius XI, for it results in the "international imperialism of money" [Quadregesimo Anno No 117]. Such improper manipulations of economic forces can never be condemned enough; let it be said once again that economics is supposed to be in the service of man. But if it is true that a type of capitalism, as it is commonly called, has given rise to hardships, unjust practices, and fratricidal conflicts that persist to this day, it would be a mistake to attribute these evils to the rise of industrialization itself, for they really derive from the pernicious economic concepts that grew up along with it. We must in all fairness acknowledge the vital role played by labor systemization and industrial organization in the task of development."*<sup>33</sup>

Thus the finger is to be pointed not at science, or technology, or even at the process of industrialization in itself but at "unbridled liberalism".

- Guarding against science being used for non-humanitarian ends

According to John Paul II, there is a danger of the findings of science being exploited for ends running counter to the good of humanity, "for example, the purposes of destruction (nuclear, bacteriological or chemical) or in the area of genetic manipulations and biological experimentation."<sup>34</sup>

\* Responsibilities of science and technology (Hiroshima)

In a famous address at Hiroshima<sup>35</sup>, the Pope underscored the responsibilities of our post-Hiroshima era:

*"Like you I live in what I might call the "post-Hiroshima" age, and I share your anguish. Today (in Hiroshima) I feel inspired to say this to you: it is high time for our society **and especially for the scientific community** to realize that henceforth, and in a completely new way, the future of humanity depends on our moral choices. In the past it was possible to destroy a village, a city, a*

*region, even a country. Henceforth it is the whole planet that is threatened. Humanity is called on to take a new step forwards towards a civilization of wisdom ... The moral and political choice confronting us is to put all the resources of our intelligence, our science and our culture at the service of peace and of the construction of a new society which will succeed in eliminating the causes of fratricidal wars and which will prepare, in a spirit of generosity, the full progress of each individual and of all humanity."*

➤ **LIMITS:** the only area in which this openness to science is circumscribed is bioethics. This is the area where problems arise. Not because scientists refuse to reflect on the moral implications of their work but because theologians address the issues from a different perspective, endeavouring to impose absolute and incontrovertible criteria based on the "natural law". This unfortunately obscures the genuine openness of the Catholic Church in other areas of science.

### **Science and technology as human capital**

The social thinking of John Paul II features a concept which is relevant here, namely "human capital", which he develops in "Laborem exercens"<sup>36</sup>, his encyclical on work, in refutation of the notion of the opposition of work and capital.

Human capital comprises:

- all those things **bestowed on man by Nature** and thus by God;
- all those means whereby he appropriates these, transforming and "humanizing" them in the process. These means range from the most primitive to the most modern and complex means of production (machinery, factories, laboratories, computers) but also include all those accomplishments of human intelligence handed down over the centuries as knowledge.

Thus science and technology constitute a "capital" composed, on the one hand, of natural riches freely bestowed by God and, on the other, of an aggregate of work, creativity and invention inherited - again gratis from earlier generations of men and women. In this light the problem over the past century can be seen as follows:

*"[the] consistent image, in which the principle of the primacy of persons over things is strictly preserved, was broken up in human thought ... labor was separated from capital and set in opposition to it ... two production factors juxtaposed in the same "economistic" perspective. This way of stating the issue contained a **fundamental error, what we can call the error of economism, that of considering human labor solely according to its economic purpose.**" (13.3)*

This error is serious because it reverses the humanist hierarchy of values. It puts first that which is material (material gain) and,

*"places the spiritual and the personal (man's activity, moral values and such matters) in a position of subordination to material reality." (13.3)*

This idea recurs in more elaborate form in the recent encyclical "Centesimus Annus". Technico-commercial know-how counts for more than does the ownership of land or raw materials, and is unequally distributed.

*"In our time, in particular, there exists another form of ownership which is becoming no less important than land: the possession of know-how, technology and skill. The wealth of the industrialized nations is based much more on this kind of ownership than on natural resources ... It is precisely the ability to foresee both the needs of others and the combination of productive factors most adapted to satisfying those needs ... Organizing such a productive effort, planning its duration in time, making sure that it corresponds in a positive way to the demands which it must satisfy, and taking the necessary risks - all this too is a source of wealth in today's society." (C.A., 32)*

This technological know-how is the prerogative of a few. A majority of mankind is marginalized and excluded from the complexities of technological production.

"... many people, perhaps the majority today, do not have the means which would enable them to take their place in an effective and humanly dignified way within a productive system in which work is truly central." (C.A., 33)<sup>37</sup>

## 2. OUTLINE OF DEBATE WITHIN CATHOLIC CHURCH

### 2.1 Debate on science and technology within International Federation of Catholic Universities

It would be almost impossible to summarize the ongoing debate within the Church on this subject, nor will I try to here. But it is worth taking a look at the important contribution made by the IFCU in its report on the subject, which for our purposes has the twin advantages of (i) being a synthesis of this debate arrived at by intellectuals of calibre working on an interdisciplinary basis and (ii) of exemplifying an approach, adopted after long reflection at various levels (university, national, continental and finally world), which is international in scope and does not marginalize Third World concerns.

Here, then, are a few of its main themes<sup>38</sup>:

- A universal sense of bankruptcy of being

The basic question, and a profoundly uncomfortable one for us all (in the North), is the question of meaning (the meaning of existence). Using the categories of Gabriel Marcel<sup>39</sup>, the report wonders whether in a period which has seen the triumph of 'having' and 'doing' over being, the technocratic mentality is not an instrument or symptom of our collective sublimation of the question of meaning and of a universal bankruptcy of being. Such sublimation has a profoundly deranging effect on the consciences and lives of human beings (p. 79).

- Are science and technology neutral?

- Science is undoubtedly **politically compromised** in those sectors where it is linked to technology, while in others it has perhaps failed to date to fully play its role of mediator between those engaging in scientific enquiry and those who are meant to benefit therefrom (p. 186).

- Technology has a dynamic of its own which tends to invert the usual hierarchy and turn means into ends. There is here an acute risk of an erosion of responsibility at the level both of the individual conscience and - particularly - of collective authority (page 184).

- The **political status of the expert** deserves special attention here. The technical complexity of the subject-matter displaces decision-making from its rightful locus: policy has recourse to the expert - **but expertise is itself a politically designated entity, despite its claim to be scientific** (page 184). To quote Professor G. Thill (also evoked by the report):<sup>40</sup>

*"Experts alone no longer suffice for the definition of the reasons of state dictating national scientific policies. Deliberations on scientific and technological innovation must involve businesses, public administration and scientific bodies. The Eureka project is an example of this new interaction, the Minister for Scientific Policy - and his confrères in the other EC countries - gradually becoming more and more just coordinators of strategies ...*

*... a scientific and technological evaluation aimed at mastery of science and technology, which are indeed social operators, **presupposes a social evaluation of itself by society**. The technological society of today depends on geopolitical structures that go far beyond the boundaries of sovereign states ... Through the omnipresent action of new technologies, one is not only obliged to revise the traditional values regulating the Nation-State but one is caught up in geostrategic networks. It is through these networks that the power of the rational concentrates technological power in a small number of companies and administrations."*

- The report here borrows from J. K. Galbraith the notion of "technostructure". Power will tend to accrue to those who are most difficult to recruit or to replace. In the world's most advanced societies, power typically attaches to the technostructure (pp. 164-165).

- The primacy of the political and the transcendent

- The danger at present, according to the report, is of economics and the profit motive holding exclusive sway in decision-making in the area of technoscience. **We must strive therefore to ensure the primacy of the political in the technoscientific choices made, whether in the short, medium or long term.** And this is going to be a struggle because of the tendency of decision-makers and of the experts advising them to be categorical in their pronouncements which, though it be in the name of scientific rigour, tends to prevent any hypothesis that might call their decisions into question from being heard (p. 171).

- But this primacy of the political presupposes the denunciation of injustices and inequalities both in the North and between North and South. It also presupposes a project capable of mobilizing the entire population who, particularly in the South, must struggle for a fundamental change in the North-South trade imbalance.

**Without an ethically convincing political programme for a [world] society, there is a great danger that our societies will continue to be ruled by economics and technology (p. 171). I.F.Ú.C. 1979, p. 171.**

-Recourse to transcendence, i.e. constant reference to man's divine dimension, seems the only way of holding in check the tendency to absolutize (p. 193).

- Ethics must be present within politics

Ethics are not limited to the realm of the personal conscience and the philosophical and theological thinking pertaining thereto: ethics must be present in society as a measure of what is right, as a stronghold from which resistance can be organized when necessary, as guarantee and guardian of the aspirations of society against the intrusions of the State, as a refuge for civil society from absolutisms of every kind (p. 193).

- Technology and North-South relations

The long chapter on this subject is one of the report's most original and valuable contributions.

- The Christian moralist must denounce the inequitable and unconscionable contracts which too often regulate the transfer of technology. Technology producers must assume new obligations vis-à-vis the most deprived. The report also envisages cases where poor countries would be justified in confiscating technology belonging to the rich - without the latter having grounds for protest - if this is the only means open to them of meeting the urgent needs of their people.

- In addition the fiction of 'free trade' needs to be unmasked and a sharing society - a new departure from the present cycle of consumption and waste - to be promoted.

## 2.2 Catholic feminist debate on technoscience

At this point a look should be taken at a feminist approach to scientific ethics<sup>41</sup>. I should first mention that many Catholic women's associations, e.g. the European Women's Ecumenical Inter-Church Forum, hold much less emphatic views than those of I. Praetorius. The following is an extract from the Report of the Third General Assembly in York in 1990<sup>42</sup>:

*"Drawing courage from the fact that, through baptism, we have become the beloved daughters of God made in His image, we challenge the image of women in education, the media and*

advertising

...  
*We believe that our bodies belong to us and that we can take mature decisions about our lives as women. This is why we refuse to become **objects of reproduction technology research**. We refuse to be kept in the dark as to the real motives of this research. We refuse to undergo prenatal diagnostic tests at an ever younger age. We do not accept that maternity at any price should be promoted as the most desirable life model for women. We do not accept that the responsibilities attaching to pregnancy and childbirth should increasingly be withdrawn from women and put in the hands of the medical profession. We reject the pressures applied to women in respect of abortion. We have our own vision of life, of its safeguarding and of its unique character. But we oppose abortion legislation being tightened up again in certain countries and we believe that responsible ethical choices must be a possibility for all women, even the poorest."*

While all the women's associations affiliated to the World Union of Catholic Women's Organizations (WUCWO) certainly do not share the rather radical ideas of I. Praetorius, there are a number of main themes which recur in the thinking of Catholic women. Unfortunately there is not time here to go into detail.

Ethics are neither neutral nor objective

I. Praetorius' main thesis is that ethical discourse must take into account the power relationships within society which effectively exclude a majority of the human race from the ethical debate itself:

*"Feminist ethics does not start **with the abstract 'free' moral person**, but with people who live in **real conditions of domination and subjection and need real liberation**." "Feminist ethics sees the generalizing claim of established ethics to be propounding norms for 'human beings as a whole' as repressive. This claim would only be justified if in fact all people - women, men, rich, poor, black and white - had equal access to ethical discourse."*

The natural sciences are a product of a patriarchal society:

*"The natural sciences have a pressing ethical problem today because it has become more and more clear that **their destructive effects far outweigh their benefits** to humanity and the environment. Atomic and chemical weapon technology, environmental catastrophes and latterly gene technology all lead to this conclusion."*

Nor, however, does she accept the:

*"customary split between so-called value-free research and its questionable applications ... the evil lies not just in the technical use of science, but in science's fundamental way of thinking. So the ethical question arises for science as a whole, from its underlying assumptions to its 'useful' technical applications."*

The natural sciences have from the beginning been **a male reserve** from which women have been *"systematically and brutally driven out"*. And even if women today are entrusted with major scientific responsibilities, they *"hardly have any chance to influence the scientific paradigm, which was firmly established long before women were admitted, and has become an integral part of the economic and social structures of highly industrialized societies."*

But men have not limited themselves to excluding women from science - they also operated on a hypothesis:

*"that lumped female human beings explicitly together with nature to be dominated, rather than with the researcher whose job is to dominate ... key figures in the history of Western science have tended to **identify women with blind nature**."*

The **destructive impact of the sciences** is linked, in the author's view, to the **patriarchal nature of the scientific paradigm** itself:

*"a view of nature which is analogous to the patriarchal view of woman. Nature, like women, is seen as a power so dangerous and unpredictable that men are justified in controlling and making it predictable through rational research, which is ultimately for men's use."*

According to this analysis, the task here for a feminist ethic - i.e. for white women in the West - is: **"to criticize the scientific paradigm with its simplistic subject-object logic and its hierarchical models. This kind of criticism shows what is wrong and untrue in current scientific theory, which explains why Western science has such potential for destruction."** At the same time women "can reflect on [their] complicity with it both historically and in the present. What morality must they develop for themselves in order to break free of this complicity?"

This means questioning:

*"the centuries-old dogma of female morality 'you must be related to a man and submit to him' ... For this dogma demands precisely the female behaviour which makes it possible for men to do their work of destruction."*

*"One of our important duties is to withdraw our care and service from those who are destroying the world. ("Who are my mother and my brothers?" And looking at those sitting in a circle round him, he said 'Here are my mother and my brothers. Anyone who does the will of God, that person is my brother and sister and mother.'" (Mark 3:32-35))"*

Her main reproach against the Catholic hierarchy is that they have monopolized the debate and excluded women from it:

***"patriarchal ethics confuses the problems of Western educated men with the human condition as a whole. Most ethical scientists belong to this dominant group and work in a centuries-old philosophical and theological tradition, in which ethics is a process of reflection by white educated men on the morality of white educated men - and other human beings who are regarded as subordinate to them. The venerableness of this discourse does not make it true."***

### **2.3 The debate on science and technology as seen by Leonardo Boff, Brazilian Liberation theologian**

*My friend, Leonardo Boff, Franciscan monk, has agreed to outline for this report a Liberation theology perspective on science and technology. I thank him for the following contribution, which speaks for itself.*

#### ***"SCIENCE, TECHNOLOGY, POWER AND LIBERATION THEOLOGY"***<sup>43</sup>

##### ***Introduction: No salvation for the poor within the present system***

*"Liberation theology represents the thinking of those sections of the Churches committed to popular struggles aimed at social changes which will make possible the satisfaction of elementary needs and thus of fundamental human rights. Liberation theology springs from the confrontation between poverty and the Gospels, between a situation of collective poverty and a thirst for justice, on the basis of a concrete and effective liberation practice.*

*Since the sixties, people's groupings, allied with numerous Christians (including bishops and priests) have from experience reached the conclusion that the informing dynamic of the existing socio-economic system systematically frustrates the satisfaction of the fundamental needs of the majority of the population and the exercise of their most basic social and personal rights. All the available models - whether the populist model of the alliance of the indigenous bourgeoisie with the mass of the people, the "alliance for progress" model of indigenous industrial groups with multinationals or, more recently, the neo-liberal "modernization" model promote a type of development which impoverishes the mass of the people, who find themselves either exploited by or excluded from the system.*

*The major challenge in Latin America today is represented not by the poor, who fall within the ambit of the system, but by the 30% to 40% of the population who are completely marginalized and who constitute an enormous sub-proletariat.*

*Economically they do not count because their production and consumption fall outside national auditing. But they count politically because they are enfranchised and their combined weight is potentially decisive in a popular vote. The elections of President Menem in Argentina, President Collor in Brazil and President Fujimori in Peru are cases in point. The people voted for these candidates because they spoke to the heart of their concerns, articulating their most basic frustrations through the myth of the good father or national saviour who promises them bread, a roof over their heads, health care, recreation. Such is the origin of this modern populism, notable for its skill in appealing to the aspirations of the electorate but very poor in the delivery of its promises.*

*This failure to satisfy elementary needs is experienced in practice as oppressive. It not only looks improbable, it is, in real terms, impossible for the existing economic system to satisfy the basic requirements for life and its reproduction for the majority of the population.*

*Experience shows: within the dependent liberal-capitalist system, i.e. Third-World capitalism (= former colonies), there is no salvation for the poor and no practical possibility of satisfying their most basic needs or achieving recognition of their rights. A clean break with this system is therefore called for. The alternative may not be clear. But it is quite clear that the logic of capital can promise no future for the working class and the marginalized sub-proletariat.*

*When the Pope in "Centesimus Annus" affirms that the alternative to capitalism in the Third World must be sought not in socialism but in reformed capitalism (No 42), he succeeds only in deepening the despair of the oppressed. Capitalists are invited with the Pope's blessing to go ahead and condemn the world's poor to a further hundred years of sweat and tears.*

*The iron-like logic, and secret motor, of capital is the maximization of profit in the shortest possible space of time. Any business that ignores this law risks being overwhelmed by the competition of businesses adhering to it. There can be no relaxation of this logic except when the stability of the market is guaranteed or in exceptional cases. Today, amidst the intercontinental convergence of economies and markets, this law has not changed: on the contrary, its stringency has become absolute. Whoever does not win on the market goes under. And anything outside the market does not exist.*

*Such is - for the poor - the dire backdrop to our quest for liberation. Liberation is only real if the political preconditions for the achievement of social justice are in place. And such social justice presupposes power and a new way of exercising it. Hence our quest for popular power, so as to establish social justice and thus, efficiently and effectively, achieve liberty (a free society).*

### **Science and technology**

*Liberation theology situates science and technology within a triangle composed of basic needs, basic human rights and power. Thus science and technology are not neutral entities with their own autonomous rationale (instrumental rationale); rather they are dependent on the system of social, political, economic and cultural organization. For the poor in the Third World science and technology are like the galleons of new conquistadores, whose arrival portends manipulation and political dependence, ensuring the economic subjugation of those countries without ready supplies, or the means of production, of these resources. I do not mean here to make some obscurantist repudiation of science and technology. They are needed if we are to satisfy the basic needs of the human race on this planet. What we want is that they be politically integrated within a society with a more sophisticated programme of objectives than merely unlimited growth (with the ecological violence this implies) and the maximization of profit in the shortest space of time (leading to the marginalization and exclusion of the majority).*

Liberation theology identifies with the **political programme** of numerous social groupings committed to the struggle for a society centred on the dignity of the human being, enabling him, through his **work**, to satisfy his basic needs (food, housing, health, recreation) and opening up free spaces for the creativity and creative construction of society.

Liberation theology is thus opposed to the **technological messianism** (gospel of technology) of the dominant system, which thinks to solve the problem of development through the intensive application of science and technology to food production and distribution when the real root of the problem resides rather in the libertarian thinking of political and ecclesiastical authorities.

This technological messianism is a providentialist and assistentialist solution, conceived on a world scale. It is aimed only at ensuring survival (supplying with food), not at promoting life. Liberation theology is opposed to this type of equivocal good will. The problem cannot be reduced to just guaranteeing survival; its solution requires an adequate conception of the meaning of human life. As the Cuban poet, Roberto Retamar, says, the specific human being does not hunger only for bread, a hunger which can be readily appeased. He is also hungry - being human for beauty, a hunger which is well nigh insatiable. The logic of human life does not obey only the reproductive instinct, it also aspires to the promotion and expansion of systems of life. This logic is structured through freedom, communication and creativity.

Thus it is not sufficient just to give bread. If we are to respect the logic of human life, we need the conditions conducive to producing this bread. This means guaranteeing the availability of work. Through work and through creativity, the human being produces bread, constructs housing, protects health, fosters education, organizes recreation, creates codes of communication and reflects on the meaning of life.

### **Conclusion: a programme for society**

Liberation theology seeks to map out a clear model for society. Reflecting, on this basis, on the power expressed by technology today, it sees this power as profoundly problematical, because exercised within a capitalist model which produces a poor quality of life both in what is called the first world and in that other world where two thirds of the population live in poverty. The current process of globalization is happening within a capitalistic framework and not through the agency of religion, ethics or ideology. It is being accomplished by means of the total market whose needs are satisfied by science and technology. But the needs of the market are rarely co-extensive with those of human beings. Left to its own dynamic, the market ends up commercializing everything, relegating to obscurity whatever is not profitable. Even if the "**technobergs**" were to succeed in satisfying our basic needs, the questions of human liberty, creativity and the meaning of life - questions going far beyond material necessity - would remain unresolved. **Liberation theology is insistent here: the process of technological globalization must be part of a globalized political programme (new political economy) embracing citizenship for all, justice, human well-being and respect for cultural difference.**

- **Citizenship:** The general tendency of social organization must be such that no one is excluded so that, potentially, every individual can feel himself to be a citizen of the world and grows used to thinking globally while operating at a local level on the basis of his particular cultural roots. Citizenship presupposes anti-authoritarianism and a basic acceptance of pluralism.

- **Justice:** Justice means being assured of access to social benefits and of the existence of a fair correlation between the contribution made by each person and what he receives in return. Justice is a means of rendering the political ideal of equality concrete and closer to life so as to constitute a utopian horizon in the positive meaning of the term.

- **Human well-being:** The best projects, the best social practices and structures are those which optimize not just the quantity of goods and services produced but also the quality of human life resulting from the general functioning of society. This is where the **new alliance** which needs to be

established between men/women and nature on a basis of fraternalization and veneration comes in. **Spirituality** also forms part of this human well-being, being, inter alia, the capacity to communicate with human beings at the deepest level of sameness and the greatest distance of otherness. Human well-being also presupposes a **pluralism** in the expression of values and in the interpretation of history.

**- Respect for different cultures:** The human being is an historical being and has codified in various ways his responses to the fundamental questions relating to his time on this earth. As there is an external archaeology (and external ecology) so there is also an internal one (and inner ecology) which interprets, evaluates and dreams human reality on the basis of cumulative experience. This great diversity is proof of the richness of human experience. It can be communicated and can enrich everyone. In the face of the tendency of science and technology to homogenize, the appropriation of these cultural processes makes it possible to rediscover singularity. Each culture represents a distinct way of helping one another, of celebrating, of integrating work and pleasure, of relating large dreams to hard realities. Science and technology are stages in this way of men of inhabiting the world, of feeling human and integrated within a larger whole.

Liberation theology - to conclude - sees science and technology, and the power attaching to them, as forming parts of a process of redemption, of construction, of consolidation and expansion of human life and liberty. Life and liberty are the most fundamental and precious goods of existence; deprived of them we feel like slaves of necessity; enjoying them, we know ourselves to be the children of joy."

**Leonardo BOFF, Petropolis, Brazil**

## **B. CATHOLIC DEBATE ON BIOETHICS**

### **1. Position of the hierarchy**

#### **1. 1. Experimentation on the human embryo: "Donum Vitae" 1987**

The Instruction "Donum Vitae" is a very useful text in that it offers an overview of Catholic Church positions on bioethical issues.<sup>44</sup> Its first section is entitled "Respect for human embryos":

##### **- General principle**

Medical research must refrain from operations on live embryos **unless there is a moral certainty of not causing harm to the life or integrity of the unborn child or the mother, and on condition that the parents have given their free and informed consent to the procedure.** It follows that all research, even when limited to simple observation of the embryo, is illicit if it involves risk to the embryo's integrity or life by reason of the methods used or the effects induced.

##### **- Prenatal diagnosis and operations for clearly therapeutic ends may be licit**

In the case of operations that are clearly therapeutic, i.e. consisting of experimental forms of therapy employed for the benefit of the embryo itself in a final attempt to save its life, and in the absence of other reliable forms of therapy, recourse to drugs or procedures which have not yet been fully tested can be licit.

Thus prenatal diagnosis is licit if it "respects the life and integrity of the embryo and is directed towards its safeguarding or healing as an individual" (p. 459).

##### **- All other forms of experimentation on human embryos which are not directly therapeutic are illicit**

No objective, though noble in itself, such as a foreseeable advantage to science, to other human beings or to society, can in any way justify experimentation on living human embryos or foetuses, whether viable or not, either inside or outside the mother's womb. The informed consent ordinarily required for clinical experimentation on adults cannot be granted by the parents, who may not freely dispose of the physical integrity or life of the unborn child. Experimentation on embryos and

foetuses always involves risk, and indeed in most cases involves the certain expectation of harm to their physical integrity or even their death (p. 460).

*"The practice of keeping alive human embryos **in vivo** or **in vitro** for experimental or commercial purposes is totally opposed to human dignity" (p. 462).<sup>45</sup> **The freezing of embryos** is also condemned - "even when carried out in order to preserve the life of an embryo" - because it "constitutes an offence against the respect due to human beings" (p. 463).*

## 1. 2. Human genome sequencing

To my knowledge the Catholic Magisterium has not to date taken up official positions on the ethical questions raised by the current international genome sequencing project. However on 23 October 1982, Pope John Paul II received in audience the participants in a study week organized by the Pontifical Academy of Sciences<sup>46</sup>. His comments on these new techniques were very favourable and were not qualified by any misgivings (unlike the World Council of Churches - see chapter on Protestantism).

### - Yes to biological experimentation which is respectful of the human person

*"Consequently I have no reason to be apprehensive for those **experiments in biology** that are performed by scientists who, like you, have a profound respect for the human person, since I am sure that they will contribute to the **integral well-being of man** ... The experimentation that you have been discussing is directed to a greater knowledge of the most intimate mechanisms of life by means of artificial models such as the cultivation of tissues and experimentation on some species of animals genetically selected. Moreover, you have indicated some experiments to be accomplished on animal embryos which will permit you to know better how cellular differences are determined."*

### - Yes to experimentation on animals

*"It must be emphasized that new techniques, such as the cultivation of cells and tissues, have had a notable development which permits very important progress in biological sciences, and they are also complementary to experimentation done on animals. **It is certain that animals are at the service of man and can hence be the object of experimentation.** Nevertheless, they must be treated as creatures of God which are destined to serve man's good, but not to be abused by him. Hence the diminution of experimentation on animals, which has progressively been made ever less necessary, corresponds to the plan and well-being of all creation."*

### - Yes to therapeutic genetic operations

*"I have learned with satisfaction that among the themes discussed during your study week you have focused attention on in vitro experiments which have yielded **results in the care of diseases related to chromosome defects**. It is also to be hoped, with reference to your activities, that the new techniques of **modification of the genetic code**, in particular cases of genetic or chromosomal diseases, will be a motive of hope for the great number of people affected by those maladies. It can also be thought that, through the **transfer of genes**, certain specific diseases can be cured, such as sickle-cell anemia, which in many countries affects individuals of the same ethnic origin. It should likewise be recalled that some hereditary diseases can be avoided through progress in biological experimentation."*

### - No to non-therapeutic genetic manipulation

It is worth mentioning, however, that "Donum Vitae" condemns non-therapeutic intervention in the chromosomal or genetic inheritance aimed at producing human beings selected according to sex or other predetermined qualities (Verspieren, p. 464).

## 1. 3. Procreation techniques

The Catholic standpoint on the different issues involved here is as follows:

**- Heterologous artificial fertilization (at least one outside donor): No**

*"... fertilization of a married woman with the sperm of a donor different from her husband and fertilization with the husband's sperm of an ovum not coming from his wife are morally illicit. Furthermore, the artificial fertilization of a woman who is unmarried or a widow, whoever the donor may be, cannot be morally justified." (p. 467)*

All arguments based on the feelings or deepest intentions of the married couple are looked on as subjective and as lacking sufficient weight measured against the objective standards involved:

*"The desire to have a child and the love between spouses who long to obviate a sterility which cannot be overcome in any other way constitute understandable motivations; but subjectively good intentions do not render heterologous artificial fertilization conformable to the objective and inalienable properties of marriage or respectful of the rights of the child and of the spouses." (p. 468)*

The source of this objectivity? The natural law:

*"What moral criteria must be applied in order to clarify the problems posed today in the field of biomedicine? The answer to this question presupposes a proper idea of the nature of the human person in his bodily dimension ... The **natural moral law** expresses and lays down the purposes, rights and duties which are based upon the bodily and spiritual nature of the human person. Accordingly this law cannot be thought of as simply a set of standards on the biological level; rather it must be defined as the **rational order whereby man is called by the Creator to direct and regulate his life and actions** and in particular to make use of his own body." (p. 453)*

And what, according to the natural law, are the objective and inalienable properties of marriage? **Fulfilment (including sexual fulfilment) of the spouses, and procreation.** Since Vatican II it has been clear that neither of these vocations is to take precedence over the other.

**- Given, then, that**

heterologous fertilization fails to fulfil one of the aims of marriage, namely procreation exclusively through one's partner:

*"Recourse to the gametes of a third person, in order to have sperm or ovum available, constitutes **a violation of the reciprocal commitment of the spouses ... to become father and mother solely through each other** ... [Furthermore, this method] brings about and manifests a rupture between genetic parenthood, gestational parenthood and responsibility for upbringing." (p. 467)*

**- and that** the rights of the child are violated under this method, which:

*"... deprives him of his filial relationship with his parental origins and can hinder the maturing of his personal identity." (p. 467)*

**- the Catholic position must be:**

- Artificial insemination with outside donor: No**
- In vitro fertilization with outside ovum or sperm: No**
- Surrogate motherhood: No**

**- Homologous artificial fertilization (no external input): No**

- Artificial insemination using the sperm of the husband: No

The argument here is that such artificial fertilization **effects a separation** between the two purposes of marriage under the natural law:

"Artificial insemination as a substitute for the conjugal act is prohibited by reason of the voluntarily achieved dissociation of the two meanings of the conjugal act [fertility and fulfilment of the spouses, the latter of which, on a sexual level, is not achieved through artificial insemination]. Masturbation, through which the sperm is normally obtained, is another sign of this dissociation: even when it is done for the purpose of procreation, the act remains deprived of its unitive meaning." (Verspieren, p. 473)

- In vitro fertilization using cells of the parents: No

The argument here runs:

**According to the natural law:**

*"... fertilization is licitly sought when it is the result of a conjugal act which is per se suitable for the generation of children to which marriage is ordered by its nature ... But from the moral point of view procreation is deprived of its proper perfection when it is not desired as the fruit ... of the specific act of the spouses' union."* (p. 469)

**Given, then, that** in in vitro fertilization, by definition, fertilization is not sought after as the fruit of the specific act of the spouses,

**it follows that** homologous in vitro fertilization cannot be licit.

#### 1. 4. The informing logic of official Catholic thinking on bioethics: the natural law

Official Catholic morality on bioethics still today turns on the fundamental concept of an "eternal law" or "natural law" first evoked not by Jesus but by St Paul when, in his Epistle to the Romans, he castigates certain forms of behaviour (sodomy, homosexuality) as "ou kata fusin" (against nature). In so doing St Paul introduced into Christian sexual ethics a criterion which was supposedly discernible in nature.

Thomas Aquinas in the thirteenth century<sup>47</sup> supplemented and organized this perspective: this law is termed 'natural' because inscribed by God in human nature, in the heart of every man. And every man is called on to discover this law through his reason and adhere to it by his will.

##### **A law inscribed in the hearts of men ...<sup>48</sup>**

For Thomas Aquinas all morality derives from the gravitation of the rational creature towards its Creator. The stimulus for man to obey this natural law is, ultimately, absolute desire, desire for being, desire for God. Catholic morality is founded on a philosophy of being (or ontology). The goal of human life is to attain being, i.e. to attain God.

Man, as moral agent, has two standards to refer to: the first, primordial and transcendent, is **God**, the supreme Legislator, the second, closer to hand and more objective, is **human nature** as created by God and deriving from Him its own objective authority in the sphere of human activity.

From this it might be deduced that everybody, irrespective of faith, has access to the natural law and thus to ethical truth in so far as he or she is sincere. Which would mean that there was no need for the mediation of any church.

It is important to maintain a distinction here between the natural law as such, and the way in which its authority is exercised, which, in the case of the Catholic Magisterium, is vertical and authoritarian in tendency and rather of a pre-modern world-view.

But there are other possible ways of exercising this authority and one should not confuse the law with the manner of its application. It is quite possible that the "age of reenchantment", in its project of resacralizing nature, will rehabilitate this concept of a natural law but with its authority being applied in a completely new way, most probably on a communicational and participative basis.

**But which only the Church "is in a position to interpret aright".**

A vital point of Catholic doctrine comes in at this point: **as a result of original sin the ethical faculties of man have been impaired** to the point where he is incapable of reading the natural law on his own. **The Magisterium of the Church alone has received from God the ability to**

**interpret the natural law. The (Catholic) Church thus believes itself to have received a monopoly of moral truth directly from God:**

*"Application of the standard reference point of human nature would appear, in theory at least, to accord the individual access to ethical truth: but such is not the case. Since - a key tenet of Catholic doctrine - his powers of discernment have been marked, darkened, irremediably impaired by "original sin", man in his fallen state is no longer capable, by his own lights, of accurately reading the 'natural law'. The role of sole authorized interpreter of the natural law, and of the moral law implicit therein, falls accordingly to the Magisterium, to which it has been delegated by God Himself, whence the legitimacy of its claim to a monopoly of moral truth."<sup>49</sup>*

Such, then, is the theological reasoning behind the Church's ambition to rally the entirety of society to its ethical vision, which means bringing first Christians, and then the whole of secular society, to an appreciation of this law. The Church thus sees itself as constrained to intervene vigorously whenever secular society legislates in a way that is contrary to the law of God (e.g. abortion legislation).

**A unitary and hierarchical world-view that opposes all secularization**

It is also clear that this theological conception is based on a **unitary, immutable and hierarchical vision of the world** in which there is no separation between religion and secular society. Religion is no personal affair. On the contrary, it has a duty to intervene when necessary to lead politicians back to the right path. If secularization is defined as the emancipation of the secular and political spheres vis-à-vis religion and the relegation of religion to the personal sphere, it follows that it necessarily has a negative connotation for the Catholic Magisterium.

**A belief in the sacredness of life and creation**

But it is also important to note that underlying the ethical notion of a natural law is a conviction that **nature, i.e. creation and thus the human life received from God, are sacred. Such is the theological thinking implicit in prohibitions based on the natural law.**

This doctrine of a natural law, one of the cornerstones of Catholic morality, was reaffirmed by the Second Vatican Council in the Constitution "Gaudium et Spes" mentioned already in this Chapter:

*"Deep within his conscience man discovers a law which he has not laid upon himself but which he must obey. Its voice, ever calling him to love and to do what is good and to avoid evil, tells him inwardly at the right moment: do this, shun that. For man has in his heart a law inscribed by God. His dignity lies in observing this law, and by it he will be judged."<sup>50</sup>*

It is also on the basis of this fundamental concept that the notion of a "Catholic social doctrine" has been developed which, again, refers back to an "eternal law" engraved by God in the heart of every man. Pius XII spoke in 1941 of *"the immutable order of things manifested by God through the natural law and Revelation ..."*<sup>51</sup>

Naturally I would not claim to have summarized with the foregoing the full scope of Catholic morality. There are other areas - the concept of the just war, for example - where the criterion applied is that of the "lesser evil", a criterion applied by other Christian denominations precisely in the areas of sexual morality and bioethics.

**A pole star of certainty in a sea of change ...**

In an age of change such as ours where everything seems open to question, the search for stable or "eternal" values becomes all the more poignant. One can readily understand the desire of a venerable institution such as the Catholic Church to stabilize the debate on values through the application of a conceptual yardstick expressive, by definition, of the inalienable will of God. This

may explain the Vatican's tendency in all contemporary ethical debates to rise above the issues and view them "sub specie aeternitatis" (in the light of eternity).

In this context there can be no question of making concessions to the whims of fashion or the fickle pressures of public opinion. Where necessary the authority argument will be invoked and disciplinary measures taken against insubordinate theologians who call into question the pertinence of the notion of a natural law.

Which leads us to the next section, dealing with the reactions of Catholic theologians and laity to the official positions.

## 2. CRITIQUE OF OFFICIAL POSITIONS<sup>52</sup>

### 2. 1. Dissenting arguments by theologians

#### - Two yardsticks in Catholic ethics?

The reasoning underpinning the Catholic viewpoint on bioethics is the same as in the case of abortion and runs as follows:

- From the moment of fertilization the embryo is fully and entirely a human being and is to be treated as such.

- **Given that** in the area of sexual morality the Catholic Church does not apply the principle of the 'lesser evil' (although applying it in other areas of ethics)<sup>53</sup>:

*"God alone is the Lord of life from its beginning until its end: no one can, in any circumstance, claim for himself the right to destroy directly an innocent human being."*  
(*Donum Vitae, Verspieren, p. 456*)

- **it follows that**, except where there is obvious benefit for the embryo himself, experimentation on embryos is never to be authorized as it is equivalent to an attack on human life and no 'lesser evil' argument is admissible.

The main objection of numerous theologians to this line of reasoning is that it is **not consistent**. The Catholic Church cannot have "two yardsticks" as ethical criteria. In the case of the just war, the murder of an innocent person (the enemy soldier being guilty of nothing) is admitted in the name of the 'lesser evil'. But the same criterion is categorically rejected in the case of the embryo. Why is the principle of the lesser evil not applied in all cases as it is by the other Christian denominations? Alternatively, if the Catholic Magisterium advocates absolute protection for the lives of innocents, it should manifest its total opposition to all forms of war and of army and should condemn the notion of legitimate defence.

#### - Lack of tolerance or of ecumenical spirit in Magisterium's position

What other theologians - generally with closer ties to other Christian denominations - object to in the official line is its crusading spirit (in the area of abortion, for example) which does not take adequate account of the positions of other Christian churches.

#### - Denial of newness of issues

The argumentation of "Donum Vitae", for example, does not give the impression that it seriously appreciates the novelty of the issues under consideration. The tendency is rather to tailor problems to pre-existent solutions.

A majority of theologians, however, see the problems as radically new, while also seeing that it is very difficult, and stressful, for certain individuals and institutions to accept fully this newness:

*"Maybe what we are witnessing is the activation of rigid mechanisms aimed at protecting the human race from rash adventures ... Having come to know its own fragility from long and painful experience and to realize the sheer difficulty of survival and the precariousness of the balance on which human existence depends, society has developed a sort of collective instinct for self-preservation ... It is hardly, then, surprising that resistance to innovation is particularly strong in society's management of its biological and human reproduction. This being so, the greatest care must be taken in the manner in which new issues are addressed."*<sup>54</sup>

We touch here on a point central to this report. Repeatedly, here and in later chapters, we encounter two types of sensibility: those who aim at minimizing the novelty of the questions raised by scientific discoveries and then those who are fully open to acceptance of THE NEWNESS OF THE ISSUES and thus also to the anxiety which this newness engenders in us.

## 2. 2. Debate on the natural law

One of the most discussed questions within the Catholic Church is the validity of the natural law as an absolute yardstick in the areas of family morality and bioethics. I think it worth dwelling a little on this question but, to save the reader time, have had those sections which are less directly relevant to my brief from the Commission printed in small script.

### BACKGROUND

*The debate on the natural law and on the teaching of Catholic morality began just after 1950 but for a long time was restricted to the narrow world of teachers of Catholic ethics at a number of European universities.*

*This debate only went public in 1968 when, against the views of a majority of the experts consulted, Pope Paul VI banned all recourse to "artificial methods" of contraception ("Humanae Vitae"). The basic argument turned on the "natural law": "The Church ... **in urging men to the observance of the precepts of the natural law, which it interprets by its constant doctrine, teaches that each and every marital act must of necessity retain its intrinsic relationship to the procreation of human life**<sup>55</sup> ... excluded is any action which either before, at the moment of, or after sexual intercourse, is specifically intended to prevent procreation<sup>56</sup> ... it is a serious error to think that a whole married life or otherwise normal relations can justify sexual intercourse which is deliberately contraceptive and so intrinsically wrong."<sup>57</sup>*

*It became suddenly apparent that the discussion on the natural law had a direct bearing on the concrete lives of nearly all Catholics. Also that other Christian denominations thought differently in the area of family law (the 'lesser evil'). The concept of a natural law gradually came to occupy the centre of Catholic discussion of family morality and bioethics. A look at this discussion is necessary here because of its centrality to Catholic thinking on the biosciences.*

#### A. Critique of the International Federation of Catholic Universities

The I.F.C.U., which has 160 affiliated universities around the world, held a discussion at its 1980 General Assembly on our technological society seen from the perspective of its ethical implications.<sup>58</sup> It adumbrated a wider and richer vision of human liberty:

*"The main criticism is that this notion of a natural law **seems not to accord enough space to the freedom** which God gave men and women precisely so that they might continue the process of creation by managing nature, while transcending it at the same time: this all-encompassing notion explains the **recourse to nature** found in many Vatican documents. **But this line of argument must be abandoned ...***

*Why? Because man, by virtue of his condition, is continually passing from an existential situation received at birth (and thus "natural"), in which he is defined by relations and acts which depend neither on his reflexive consciousness nor on his responsible freedom, to an **ontological** situation in which he defines **himself** by his acts and by the relationships which he freely accepts or creates. Through this freedom, a gradual thing, man becomes truly himself.*

*Only through freedom, which is a precondition for morality, can good be done, but it also entails the possibility of doing evil.*

*What are the criteria of morality? The **good** is that which makes people grow and fulfil themselves (myself and those who mean something to me) by developing their interiority and opening them up to an inter-subjective communion which is universal in tendency and which, in any case, does not deliberately exclude anyone. The **evil** is that which blocks the communion of people (with oneself and with others) by making them prefer superficial pleasures, egotistical withdrawal, a proud hardness, alienation, hate; it consists especially in treating people as means, whereas their metaphysical structure raises them to the dignity of ends ... The moral criterion, then, lies not in the starting-out situation nature - but in the ideal to be attained. God created man as a being who transcends nature. Although nature can furnish us indications as to God's will, it is not a moral yardstick, particularly in a world of sinners where relations are disturbed."*

#### - Natural law and opposition to secularization

As mentioned earlier, the notion of a natural law does not admit of a positive attitude to secularization. Man being "by nature" religious, a secularized society, i.e. one which officially ignores God and is independent of all religions, is not **in conformity with human nature**. The Church therefore has no option but to oppose such societies and to judge them negatively. It sees them as in need of reevangelization in order to become more Christian or, at least, more theistic.

Such cut-and-dried views are not shared by the majority of Catholic theologians in Northern countries, who believe that we need to move with the times and to see secularization as a positive development offering the Church an opportunity to get away from a pseudo-Christianity.

Some even hold that a deep faith in a God of love is fully, or even more, compatible with a secular society, in which each individual is in a position to follow God **of his own free will**.<sup>59</sup>

#### - The natural law unduly sacralizes creation

For a majority of Catholic theologians the central truth regarding creation that emerges from the Bible is that **the world is profane**. Unlike the pantheistic religions of the region surrounding Palestine, Judaism saw the world as non-sacred, as not inhabited by all manner of divinities (water, earth, fire, etc.). In so far as Catholic argumentation based on a natural law is based on a sacred and intangible conception of life and nature, it is in contradiction with the Biblical - and Christian conception of creation:

*"The pagan cults saw divinities in springs, in trees ... The Judaeo-Christian perspective is quite different: the world is not inhabited by gods; it is profane. Though created by God, it is man's domain. ... It is man's job to administer creation. ... the exalting mission of prolonging the act of creation ... This is the heart of the Christian dogma of creation and, as if by anticipation, the legitimization of every scientific and technological project of the future ... Profane and entrusted to man, creation is no longer the taboo, no longer the intangible."<sup>60</sup>*

#### - For a morality of "human autonomy"

The evolution of thinking in such diverse fields as theology (emphasis on freedom as motor of the Reformation), philosophy (autonomy of the moral conscience: Kant), history (advent of the modern age) and anthropology (desacralization of world-view coincident with end of agrarian era and advent of industrialization) is unanimous in suggesting that, for some centuries now, Western civilization has been evolving towards a modern conception of the moral conscience. Instead of referring back to a transcendental authority (antecedent and thus totally external) which lays down eternal standards, **the modern moral conscience situates the criterion of human action in human freedom itself, seen as responsible both individually and collectively. It is in the name of this new, "modern", moral conscience that contemporary men and women feel obliged to rebel**

**against the old system of morality.** The authoritarian imposition of morality is seen increasingly as a negation of human freedom - from the perspective, that is, of the modern moral conscience. Of course by this 'freedom' is meant something quite different from the whim of the individual. Modern moralists, whether theistic or not, take rather as reference point the rich seam of philosophical reflexion on freedom dating back four centuries now in the West.

- Is an "authoritarian" morality more or less in tune with Christ's message than this latter-day emphasis on human freedom?

Many Catholic theologians have noted that the theological base of "authoritarian" morality makes more reference to certain passages in the Old Testament than, for example, to Christ's searing critique of the way in which morality operated in the religion of his time or to the infinite respect he evinced for people and for their freedom.<sup>61</sup>

Others have pointed out that the moral authority exercised by the Catholic Magisterium **evokes an image of an authoritarian God Who is distrustful of men (and women) and, in particular, of their freedom and autonomy as creatures, a God deficient in trust and love ...** In other words, an image corresponding more to the Old Testament picture than to Jesus Christ's revelation of a God the Father Who creates through love and Who accepts His Own need for men.

- Catholics have no monopoly of ethical truth

Catholics holding these views see as one of the implications of this shift in perspective the recognition that **Christians do not have and can no longer claim to have a monopoly on moral truth.** Moreover a theoretical approach to the behaviour of individuals is no longer enough. Social, economic, political, demographic and ecological factors will in future have to be taken into account, as well as the major cultural differences separating different philosophies and religions in different continents.

In the new Europe being constructed on a basis of economic globalization, then, Christians should not just take part in this process but should promote a new, high-quality dialogue on these important and urgent questions.

- Deeper level of analysis: bioethics in the current cultural mutation

Thinkers such as Rev. Pohier, Dominican, have pitched their thoughts at an even more basic level. To cite a few ideas in illustration of his extremely rich thinking<sup>62</sup>:

- Catholicism's difficulties with sexual morality and bioethics are to be seen as symptoms of a more basic problem.

A section of (Catholic and non-Catholic) public opinion habitually attributes the problems that arise in the area of bioethics to the conservative character of the positions adopted by the Catholic Magisterium. But according to Pohier:

*"the problem that sexuality poses for Catholicism is just one manifestation of the general, radical problem that sexuality (in the same way as death and guilt) poses as an element of the human condition ... Believers and non-believers are mistaken regarding both Christianity and sexuality if they think to make the problem disappear by ridding themselves of its Catholic manifestation, even if I would be the first to acknowledge that this manifestation is of a rather disquieting originality and rigour."*

- It is time to jettison certain totalitarian representations of sexuality, death and guilt

because they no longer square with the sensibility of our time, which is trammelled and bruised by "suspicions" instilled by Marx, by Freud, by feminism and, much more fundamentally, because **they evoke a totalizing conception of God which - as Pohier sees it - is contrary to Christianity's essence.** As he likes to reiterate: "GOD IS NOT EVERYTHING; BUT HE IS GOD", adding "this is what I call 'good news' - about God and about human beings." (p. 387)

- To be able to say God one must live on the "other slope".

The central thesis of Pohier's book is that this discussion on sexual ethics within the Catholic Church is **much more fundamental than some think. At issue is the proclamation of God. It is thus in the name of their most fundamental aspirations and their faith in a liberating God that certain believers are taking part in the cultural upheaval of their time.** Non-communication with the official Catholic position is here total.

*"[In this book] I attempt to show that in order to be able to say God, to live Him and to share Him in a way that is meaningful for men and women today and tomorrow, believers must cross over to the "other slope" and live the major experiences of the human condition in their new guise which today can be described only with difficulty and which will have into clearer sight only tomorrow or the day after tomorrow ... It would appear that in the area of sexuality something of the kind is already taking place ... a significant segment - both in number and quality - of believing men and women are crossing over to the 'other slope'.*

*The paradox is that this crossing over is being highlighted by precisely that which sets out to stop it from happening, namely the ceaseless hammering home of a rigid and unbending sexual ethic by the Catholic authorities, and particularly by Pope John Paul II." (p. 226)*



UK	43	49	53	45	60	65	74
France	26	34	36	36	38	5	71
W. Ger	25	28	48	37	51	69	77
Neth.	34	35	46	39	52	67	74
Belgium	24	30	39	24	33	53	64
Italy	36	40	57	57	57	77	84
Spain	38	47	55	49	47	70	77
Portugal	39	50	60	62	63	71	73
Ireland	59	71	81	77	59	82	92
Nth Ireln	64	69	72	65	63	74	90
Denmark	32	47	37	33	38	48	60
U.S.A.	57	70	64	48	57	69	55

*Source: European Value Group, sep 1991.*

#### 4. Critique by biologists: biology incapable of resolving philosophical problems

Numerous Catholic biologists and scientists do not accept official Catholic positions because these do not tally with the advanced stage reached by their research or with the complexity of the problems with which they have to deal.

Here I would cite again the work of the International Federation of Catholic Universities whose International Study Group on Bioethics has met ten times over a seven-year period to pursue an interdisciplinary dialogue on Catholic ethics as applying to the beginnings of human life.<sup>66</sup>

I would also draw attention to the article by Professor Carlos Alonso Bedate (Universidad Autonoma de Madrid) in the IFCU collection. At the end of a detailed exposition, he posits two interesting hypotheses:

**- first hypothesis: a new paradigm is needed to assess new biological realities:**

"Given the impossibility of defining or determining through biological reasoning the personal status of the human zygote or embryo and of deducing therefrom its inviolability, and given the absence of metaphysical criteria proving the identity of the same - qua biological reality - with the human being, I believe the sole means of defining the ethical value of human reality in its growing stages to consist in establishing an interdisciplinary rational dialogue with a view to arriving at ethical agreements. I believe we must search for a **new paradigm** for the evaluation of biological realities and even of what is "natural" as opposed to anti-natural." (p. 88)

It is not up to biology, then, to adjudicate in the thorny debate on the beginnings of life. This can be done only through interdisciplinarity, which the IFCU has been seeking to promote.

**- Second hypothesis:** for a new problem, a new paradigm. Old categories (e.g. the natural law) are not a suitable measure of new problems.

#### 5. Philosophical critique: necessary distinctions

The same collection contains a philosophical meditation by Professor F. Malherbe, director of the Bioethics Centre of the Catholic University of Louvain-la-Neuve. His thesis is that official Catholic thinking is philosophically weak because it rests on the presumption that the zygote (the organism resulting from the act of fertilization) is, at least potentially, a human person as of the moment of conception.

But it can be easily demonstrated "that it is absurd to think of a zygote as a person" (109) "lacking as it does the necessary contextual preconditions for entry into relation with its fellows, in particular individuality." If one defines an individual as "**an entity that alters when it fissions or fuses with another**" and given that the zygote, during a period of six or

seven days, has precisely the property of **not changing** while at the same time fissioning and even giving birth to one or more twins, it follows that the zygote cannot be considered an individual, still less a person, during its first six or seven days. (106, 107).

Catholic argumentation should, rather, be based on "respect for one's fellows, i.e. for all those beings engendered, like me, from two of my fellows of opposite sex." (109, 110)

## C. CATHOLIC POSITIONS ON ECOLOGY

### ▪ Lynn White (1967)

Christian thinking on ecology has been influenced - particularly within the American Anglo-Saxon Protestant world - by an address delivered by Lynn White Jr. to the American Association for the Advancement of Science on 26 December 1966.<sup>67</sup>

White's thesis is that **we will only surmount the current ecological crisis if we rethink, in a fundamental way, the Christian notion of the absolute primacy of man over nature.**

His argument ran as follows:

#### 1. The premise:

Our ecological behaviour derives from our conception of the relation between man and nature. And this conception has been moulded primarily by religions, even in the case of those who do not regard themselves as religious. Modern science and technology issue from Western culture, even if Western scientific culture includes elements absorbed from other cultures (Chinese, Japanese, Greek, Islamic, etc.). So world science and technology are influenced by the Christian conception of the relation between man and nature.

#### 2. Given, then, that:

"Especially in its Western form, Christianity is the most anthropocentric religion the world has seen ... Man shares, in great measure, God's transcendence of nature. Christianity, in absolute contrast to ancient paganism and Asia's religions ... not only established a dualism of man and nature but also insisted that it is God's will that man exploit nature for his proper ends ... Our science and technology have grown out of Christian attitudes toward man's relation to nature which are almost universally held not only by Christians and neo-Christians but also by those who fondly regard themselves as post-Christians. Despite Copernicus, all the cosmos rotates around our little globe. Despite Darwin, we are **not**, in our hearts, part of the natural process."

#### 3. It follows that:

**"More science and technology are not going to get us out of the present ecologic crisis until we find a new religion, or rethink our old one ... until we reject the Christian axiom that nature has no reason for existence save to serve man".**

White cites an interesting model for this necessary rethinking of Christianity, namely Saint Francis of Assisi, whom he sees as having tried to promote an alternative vision of the relation between man and nature (an alternative world-view): **all creatures, man included, are equal before God.** Saint Francis sought to dispossess man of his sovereignty over creation and to institute a democracy of all creatures. But, according to White, he failed and it is a miracle that he was not burnt at the stake. White suggests Francis as patron saint for ecologists.

### \* Pope John Paul II

For the Pope the origin of the ecological crisis lies rather in a **distortion of the relation between man and God**<sup>68</sup>:

"At the root of the senseless destruction of the natural environment lies an anthropological error, which unfortunately is widespread in our day. Man, who discovers his capacity to transform and in a certain sense create the world through his own work,

forgets that this is always based on God's prior and original gift of the things that are. Man thinks that he can make arbitrary use of the earth, subjecting it without restraint to his will, as though it did not have its own requisites and a prior God-given purpose, which man can indeed develop but must not betray. Instead of carrying out his role as a cooperator with God in the work of creation, man sets himself up in place of God and thus ends up provoking a rebellion on the part of nature, which is more tyrannized than governed by him."

He calls on contemporary man to rediscover a "**sense of wonder at nature**"<sup>69</sup>:

"In all this, one notes first the poverty and then the narrowness of man's outlook, motivated as he is by a desire to possess things rather than to relate them to the truth, and lacking that disinterested, unselfish and aesthetic attitude that is born of wonder in the presence of being and of the beauty which enables one to see in visible things the message of the invisible God who created them. In this regard, humanity today must be conscious of its duties and obligations toward future generations."

Thus there exists a hierarchy, a stable, pyramidal vision of the universe, an **immutable order of the cosmos**, which must be respected. Within this order God is primordial; man comes next as co-creator, who, however, must respect the ontological ("being"-centred) goal of creation. Then come other creatures: animals, plants and inanimate matter<sup>70</sup>.

"Theology, philosophy and science all speak of a harmonious universe, of a "cosmos" endowed with its own integrity, its own internal, dynamic balance. This order must be respected. The human race is called to explore this order, to examine it with due care and to make use of it while safeguarding its integrity."

Logically, then, ecological issues need to be reclassified as an element or subdivision of the **ecology of the human milieu**. In the Pope's eyes **the destruction of the human environment is even more serious than that of the natural environment**.<sup>71</sup> This point is - politically - well-made at a time when one sees many ecological groups giving precedence to the environment over the fate of indigenous populations.

Another positive and interesting element of the Catholic position: unlike the Declaration on Human Rights, which consecrates private property as a "sacred and inviolable" right, Catholic social doctrine **deems private property a limited right, contingent on the common good**.<sup>72</sup>

"In his use of things man should regard the external goods he legitimately owns not merely as exclusive to himself but common to others also, in the sense that they can benefit others as well as himself ... By its nature private property has a social dimension which is based on the law of common destination of earthly goods."

Given, then, that there is a consensus today that the protection of the environment is a common good, it follows that the notion of the inviolability of property cannot be invoked to block legitimate collective measures aimed at protecting the environment.<sup>73</sup>

#### \* Differences between the two positions

In the Catholic vision, ecological problems arise from modern man's loss of a sense of the transcendence of God vis-à-vis man but also of man vis-à-vis the rest of creation. In the midst of this crisis movements tending to relativize this transcendence must be opposed because they serve ultimately only to aggravate the problem.

White's thesis is almost diametrically opposed: ecological problems arise precisely as a result of human transcendence vis-à-vis nature, a notion in need of fundamental revision. The model for a Christian alternative here is St Francis, who sought to raise the rest of nature to man's level, while joyously affirming the transcendence and beauty of God.

The distance between these two positions is too great for dialogue between them. A specialist in pontifical thinking on ecology, Fr Bernard J. Przewoznyu, director of the Franciscan Study of the Environment in Rome, had the following to say on White<sup>74</sup>:

"As numerous writers have illustrated, the search for an alternative model for the relationship between man and his environment is inspired by a dishonest approach. In the

case of White, Toynbee, and others, [the search for] this model is based on primitive animism. This approach is dishonest because it is in fact ascribing responsibility for the ecological disaster not just to the Judaeo-Christian tradition but to monotheism."

### **Conclusion**

This topic will be taken up again in the section on Protestantism. But this is a good moment to recapitulate the characteristics of the Catholic conceptual framework or mind-set, which are: (a) an emphatic insistence on being, (b) unconditional respect for the human being and (c) a sense of transcendence in an age when this is not always taken for granted. It is this same sense which prompts the Pope to fear in what he terms "naturalist" approaches to the issues a flattening of the transcendence of man and even of God. This may be misguided if one accepts the hypothesis that we are going through a general shift in world-view. In which case White's approach can be seen not as crypto-panteism but as the irruption into the religious sphere of a new unitarian, non-hierarchical world-view.

## **CONCLUSIONS FROM THIS REVIEW OF CATHOLICISM**

### **1. Positive contribution of Catholic vision to world debate**

- Great openness to science and to dialogue between science and theology:

Since Vatican II the Catholic hierarchy has manifested an undeniable openness to science.

- ABSOLUTE priority of ethics and the human over technological and economic considerations:

The Popes constantly stress the primacy of the human over economic or technological logic. Science and technology are a form of **human capital which has been accumulated over generations**. This cannot be monopolized by a few for their own gain but must be made to serve all. This moral position, also found in other religions, does not exactly tally with the present state of affairs (which is thus implicitly condemned).

- Necessity of an ethically mobilizing project:

An interesting concept contributed by the International Federation of Catholic Universities: without an ethically mobilizing project for society, there is a grave danger of economics and technology continuing to rule our society.

- Openness to being and to theological reflection:

As we saw, the basis of official Catholic thinking on ethics is the natural law. There is, in the Catholic approach, an aspiration to the discovery of being, of the essence of things. The same aspiration is evinced by the IFCU when it speculates whether the triumph of having and doing over being might not be a symptom of a collective sublimation of the question of meaning and of a general sense of bankruptcy of being. This reemergence of the question of meaning could prove one of the hallmarks of the "post-modern" era.

- Desire to situate ethical thinking "sub specie aeternitatis":

In a transitional age the Catholic approach strives to rise above the transience of fashion and to achieve a continuity of thought which takes account of change while at the same time transcending it.

### **2. The Catholic cultural matrix**

It is useful to try to isolate **some cultural characteristics of the Catholic way of thinking**.

- The most salient feature is an **openness to being** which one meets across the board from official texts (on ecology, the natural law, the primacy of man over economics ...) to the

most critical of theologians ("sense of general bankruptcy of being"). In this Catholicism certainly corresponds to a profound urge within the human being, namely the absolute desire - the quest - for the eternal, for a stable reference point in a changing world.

This time of change, with the world headed towards a society of creation and communication, is also seeing a **profound desire for spirituality coming increasingly to the fore**, with certain aspects of the Catholic approach having a new attraction for people today while others are being rejected, sometimes in very summary fashion.

- Unfortunately Catholic thinking is in practice likely to be **less open to the new** than that of other religions. This is especially evident in the debate on bioethics but also, to a certain extent, in the Catholic approach to ecological issues (little consideration given the possibility of a new world-view). Openness to being and openness to the new are, however, eminently compatible. This is the deeper meaning of the vast movement of fundamental reform initiated by Vatican II - in particular the constitution *Gaudium et Spes*, whose vision of the modern world is a forthrightly positive one. (The groundwork for this major Catholic departure, incidentally, was carried out by numerous Catholic intellectuals, including Mounier and the French personalists.)

- This focussing on the essence of things makes Catholic moralists **less sensitive to the economic, political and social dimensions** of decision-making in the area of **bioethics**. We will meet the opposite tendency in the case of Protestantism, so that the two ethical approaches can be seen as complementary.

### 3. Catholicism in the Hofstede cultural table

The Hofstede table elucidates certain characteristics of the Catholic approach to contemporary ethical problems.

1. Great distance from power: If one accepts that Latin societies are characterized by a greater need for strong, centralized authority (be it only then to spend a great deal of time criticizing it and blaming it for every misfortune that supervenes), less delegation or sharing of power and

a wider divergence of educational levels, it should be no surprise to see the same tendencies recurring in theological debates. I have had to curtail my account of these debates owing to the sheer quantity of material available. But a lot of Catholic energy does indeed seem to be devoted to criticizing authority and perhaps too little to opening up to the new. Which leads me to the second criterion ...

2. Anxiety and uncertainty avoidance: According to Hofstede Latin culture combines a low level of acceptance of the new and the other with a high incidence of unspoken anxiety. This anxiety can have an impact on Catholic theology to the extent of making it less open to newness and otherness than other religions.

3. Individualism: Hofstede characterizes the Latin as a dependent individualist, which, I think, could also be taken to describe how the Catholic Church operates (though it should be added that this also has the positive side-effect that there is a greater sense of community or of church than is found among Protestants).

4. Masculinity: The critique of feminists, and of Christian women generally, suggests a parallel here too between Latin cultural traits and the typical functioning of the Church: Catholicism would appear to reinforce the Latin tendency towards masculinity.

The Hofstede cultural perspective serves to relativize the theological and political debates in progress at European and world levels. Are the ethical positions adopted by Catholics a result of the fact of their being Catholics or of the fact that the vast majority of them are

Latins? As we saw earlier, the connection between religions and cultures is circular and it is hard to winnow cause from effect.

#### **4. Catholicism in cultural (world-view) mutation table**

This table suggests that Catholicism's **penetration of the modern world** dates from Vatican II. The Pope's recognition of the autonomy of science bespeaks a modern world-view.

Catholic positions in the area of ecology suggest a pre-modern, unitary, hierarchical and immutable world-view which 'demands respect'. White's thinking is not seen as adumbrating a possible change of world-view.

The shift towards a new **(post-modern)** unitary world-view - of a more participative and egalitarian kind - is not widely acknowledged. There is thus a **risk of cultural change** being underestimated. What is acknowledged, however, is the recrudescence of the sacred and of a unitarian world-view in which the religious and the question of meaning are no longer separated

from one another, the approach being more and more a globalizing and synthetic one. There is a great temptation here to believe that it will be possible to **restore the old (authoritarian and hierarchical) world-view** and thus return to a glorious past.

While, lastly, **the Catholic attachment to the authoritarian application of the natural law is indicative rather of the persistence of the pre-modern world-view** (authoritarian, unitary, immutable), one should hesitate, in my view, to "throw the baby out with the bath-water" by confusing the concept of a natural law with the power mode within which it functions. It is not unthinkable that the age of reenchancement will rediscover this natural law in the guise of one of the limits of our finite world. But the manner in which it is rediscovered is likely to be much more participative, communicational and egalitarian.

Overleaf, in conclusion, is a table encapsulating this picture (Table 3: Religions and cultural changes):

PERIOD	WORLDVIEW	CATHOLICS VATICAN	REFORMED W.C.C.	ORTHODOX CHRISTIANS	ISLAM	JEWS	HUMANISTS
AGRARIAN PREMODERN	Unitarian Pyramidal hierarchical	Churches dominates society Natural Law Condemnation of Galileo, Huss,etc	(Reformed Fundamentalists, like Pentecostalism; revivalism, Born-again Christians, etc.)	European orthodox Churches: resistance to accept modernity	Golden age of Islam -Sunnis -Shiites condemns atheism & secularization	Orthodox jews Hallakhah, Tamud	Some atheists are aggressive against Religions
INDUSTRIAL & MODERN	Dualist view Rationalist Marginalization of the spiritual	Vatican II (1964) - Reconciliation with modernity. -Acceptance of science's autonomy  -Gallileo rehabilitated 1988	1550:REFORM -acceptance of modernity -Interests on loans accepted -autonomy of modern society -secularization is accepted		European Isamic theologians		Aufklärung and fight against any obscuratism
POSTINDUSTRIAL POSTMODERN RENCHANTMENT	Unitarian Non- hierarchical Feminine view Openness to spirituality	-Basic communities -Liberation theology (L.Boff)	WCC headquarters: Open to change & reenchantment	-WCC -Frather Mar Gregorios	Certain criticisms of science and technology are postmodern	Feminist critics Women allowed to be rabbis...	New Humanist Alliance



### **3. REFORM or PROTESTANTISM**

*My thanks - for both advice and written contributions - to: Mrs Freda Rajotte, Deputy Director for Church and Society at the World Council of Churches, who wrote a very useful memo for this study; Rev. Wesley Ganberg-Michaelson, Director for Church and Society, who invited me to the World Assembly in Canberra; Rev. P. Abrecht, former Director for Church and Society and organizer of the Boston Conference (1979); A. Hulbert of the European Ecumenical Commission for Church and Society, Brussels.*

## A. INTRODUCTION TO THE REFORMED / PROTESTANT VIEW

*"Reform" or "Protestantism" is a very broad term embracing a wide spectrum of churches. This report does not attempt an encyclopaedic account of European Protestantism, trying rather to indicate a number of characteristics of the cultural background - the way of posing questions - common to the majority of Protestants.*

*Thus I have limited myself to presenting those positions of the World Council of Churches which enjoy the support of a majority of Protestant churches. In so doing I have disregarded:*

- *the views of Protestant churches not affiliated to the WCC,*
- *often highly interesting ongoing debates within the various national churches,*
- *the views of the Lutheran World Federation,*
- *the views of the World Alliance of Reformed Churches,*
- *Anglican views,*
- *Quaker views.*

*The differences between the positions of the various churches are substantial and merit treatment in a separate, more detailed report.*

*The history of Protestantism and of its influence on the development of capitalism in Europe would make another fascinating subject from the theories of Max Weber back to those of the theologian-economist Adam Smith his notion of nature as material to be exploited, his conception of God and of man, etc. - which played their part in creating the culture implicit in our "scientific" economy. Unfortunately these are areas falling outside my brief here.*

### 1. The origins of Protestant ethics

- Luther and the indulgences

When considering the reformed mentality we should keep in mind that the springboard for the Reformation was a **debate on ethics**, a debate which bore not on the content but on the **meaning** of ethics.

The Catholic practice of trading in indulgences<sup>75</sup> prompted the justified indignation of one Martin Luther, Augustinian monk, who accused the Church of practising what amounted to the "sale" of eternal salvation to Christians. Going further, he reacted to the very notion of procuring salvation through good works and affirmed that human salvation was decided

freely by God alone Who was not constrained by any human practice. Gradually the fundamental Protestant concept of "salvation by faith" evolved. Church theologians responded by pointing to the Scriptures' insistence on the "need for works" - i.e. for actions in accordance with the Gospels - in order to be saved. Thus began a debate which continues to this day.

Since Luther rejected any notion of "salvation by works", his ethics were based on **justification**. Men are justified or saved by the grace of God, which no human action can "earn"; **thus Good and Evil do not exist "per se"**. An act is good if it is accepted by the grace of God. Even if a Christian keeps the Commandments, his acts have no value in the eyes of God without faith in justification by grace. "There is no 'per se' for Luther: things are what they are by the grace of God who accepts them and gives them being."<sup>76</sup>

**This perspective - of which I have provided only the barest outline - was to completely transform spirituality and the way of living Christian ethics and the Christian life.**

- Doing good for its own sake, not in order to earn salvation

Since actions have no value in themselves there is no longer a hierarchy of values in Christian life and the Christian is free to perform any act that the situation may require. He can serve mankind in an entirely devoted and spontaneous way **without the ulterior motive of earning his salvation thereby.**

- Rehabilitation of secular life and of marriage

There are no longer any "perfect states" and there is no inherent superiority of the monastic life or celibacy over secular life and marriage. Luther thus effected a fundamental modification of the hierarchy of Christian values and made a major contribution to **rehabilitating the secular life of the Christian.** "Max Weber saw clearly ... that Luther ... paved the way for the modern human adventure by his rehabilitation of the profane".<sup>77</sup>

- Admissibility of interest-bearing loans

Calvin, like Luther, did not recognize any inherent value in good works. There is therefore no compelling reason to reject, for example, interest-bearing loans. The Old Testament prohibited them for the Jewish people but, according to Calvin, a distinction has to be made between a "sustaining" loan and a "productive" loan. And it is not possible to transpose a prohibition into a completely new context.

- Unified but more pessimistic anthropology

The Protestants have no time for the anthropology of St Thomas Aquinas, which distinguishes between human nature - essentially unaffected by original sin and therefore "ontologically" **good** - and the supernatural which indeed is destroyed by original sin.

For the Reformers **the entirety of human nature was affected by original sin:**

"The human being in his integrality and his unity is a natural being, a creature. Grace can take hold of this being in its entirety. But grace never takes hold of a being without leading it through a death unto itself, without plunging it into baptism in the death of Christ."<sup>78</sup>

It would be worth investigating more thoroughly these basic differences in the very conception of man which lie at the root of those unconscious behavioural patterns and moral "prejudices" which make political negotiations on ethical matters so difficult.

- A forward-looking ethics of critical hope

According to Roger Mehl (whose thinking derives from Calvin and Barthes and who would not claim to represent all strands of Protestantism or Anglicanism):

"Catholic ethics **seek their basis in an original and ontological datum, which is difficult to grasp and which has a tendency to designate as eternal injunctions which are in fact relative and sociologically conditioned** (e.g. the right of ownership or, some centuries ago, the divine right of kings) whereas Protestant ethics seek their basis in an **eschatological hope which, by the weight it brings to bear on the present, promotes the constant renewal of social structures and laws.**"<sup>79</sup>

This, he suggests, is why Catholic ethics tend to be **conservative** while Protestant ethics are by nature more **"progressive and critical"** of the established order and more open to hope in a Kingdom of God in which the poor will be blessed.

*We can see evidence of this more critical attitude toward the established order in the way in which the Protestant churches deal with the European Community.*

- Frank acceptance of "secularization"

Secularization is a theological concept describing the evolution of the relationship between the churches and secular society. Since the Middle Ages this has been marked by a progressive **dissociation** or, as some would term it, emancipation, to the point where churches and religion are gradually being relegated to the private sphere after having for centuries directed, controlled and inspired the whole of social life.

The vast majority of Protestants **accept secularization as something positive**. They see it as man coming of age, finally liberating himself from the hold of superstition on society and from the religious terrors of the past. At last unburdened of **religion's** dross, man will be able to live in **faith** a relationship with God which is purified and adult. Dietrich Bonhoeffer's life's work explores the prospects for a-religious Christianity in a secularized world.

*We touch here on the basic cultural difference between Protestantism and Catholicism in Europe.*

## 2. The World Council of Churches (WCC): a democratic assembly<sup>80</sup>

### ○ History

On the initiative of a handful of exceptional men, notably Visser 't Hooft, 140 European and North American Protestant churches came together in Amsterdam in 1948 to form the World Council of Churches. Today it has nearly 300 affiliated churches on five continents.

The Catholic Church has not joined whereas all the Orthodox Churches have, despite the fact of being theologically much further from Protestantism than is Catholicism.

### ○ Mode of operation: very different from Vatican

The WCC operates on a basis of democratic consensus. The supreme body is the general assembly which meets every seven years or so and which determines the broad lines of WCC thinking and action. The 8th Assembly was held in Canberra (Australia) in February 1991.<sup>81</sup>

Catholic Church councils, synods and conclaves bring together only **senior** clergy (bishops or cardinals). In the WCC the member churches send official delegates to represent them at the Assembly, delegates who are not necessarily ordained clerics. As a result there are many women present and the composition is much more representative of the population of countries around the world. This Assembly, which I had the opportunity to attend, **is perhaps one of the most interesting structures in the contemporary world, where it is possible to take the pulse of world public opinion in the making.**

### ○ Power? ... to convince through dialogue

The General Secretary is obviously subject to the decisions of the World Assembly and has neither the will nor the power to impose his own views on the member churches. Sometimes certain churches contest decisions of the Assembly or of the Central Committee which they consider too progressive (e.g. the anti-apartheid campaign). The Assembly sometimes adopts **disciplinary measures**: certain pro-apartheid churches were expelled from the WCC until they changed their ways, which they eventually did.

### ○ Are there conflicts between Christians and hierarchy?

Catholic readers are warned against projecting Catholic characteristics onto other churches. There are indeed conflicts within the Protestant church, but they do not take the same institutional form as in Catholicism.

Sometimes whole churches find the pronouncements of the WCC too critical in tendency (racism, nuclear weapons, world economy, etc.). In other cases there may be a split between minority, theologically more critical churches and powerful majority churches which are more favourably inclined towards the established order.

It does not therefore make as much sense to distinguish between hierarchy and laity positions as, for example in the preceding chapter.

- Moral authority? Yes, by inspiring discussion among ordinary Christians throughout the world using moral metaphors of our common future

As we have seen, Protestant ethics tend to look towards the future and to hope in the Kingdom promised by Jesus rather than seeking ontological solutions that are in harmony with the essence of man and with eternal principles. It is no surprise, therefore, to see the WCC down the years

coming up with concepts which express the hoped-for future for humanity in terms of images, images which speak not just to the intellect but also the heart, imagination and deeper spiritual aspirations. I refer to these concepts as **metaphors**, because they inspire in a similar way to the parables of Jesus Christ.

- First metaphor : "JPSS"

Towards a **just, participatory, sustainable** society

This first metaphor - the first unifying concept or focus around which all WCC discussions revolved for a number of years - was launched in 1974. One can see in it a response to the problems raised by the "Club of Rome". This metaphor was defined as follows:

The goal must be a robust "stabilized" society, in which:

- each individual can feel assured that his quality of life will be maintained or improved (stabilized),
- there is a (just) redistribution of material wealth, food requirements are met by world food production and pollution levels do not exceed the capacity of ecosystems to absorb them,
- the use of non-renewable resources does not exceed the growth in resources coming on line through technological advances,
- a maximum level of consumption is regulated by a transnational social security system which divides up responsibility for the fate of the individuals composing mankind.<sup>82</sup>

Such was the concept "in the raw". It was subsequently debated and reworked by member churches throughout the world, which in turn gave birth to a more comprehensive concept embracing - besides "stability" and "justice" - another value: "participation". (Needless to say, this last emphasis was added at the instigation of Third World representatives.) The process of collective growth towards maturity continued, resulting in the emergence of a slightly altered metaphor from the 1983 Vancouver World Assembly:

- Second metaphor: "JPIC" : "**Justice, peace and integrity of creation**"

Over the years discussion revealed that the concepts of the first metaphor focussed essentially on man, more or less ignoring non-human creation. This new awareness of the respect due **the whole of creation** is reflected in the concepts contained in the second metaphor.

## **B. PROBLEMS LINKED TO SCIENCE AND TECHNOLOGY IN GENERAL**

### **1. Boston Conference (1979): "FAITH AND SCIENCE IN AN UNJUST WORLD" - remarkable democratic discussion of impact of science and technology in global terms**

Since its foundation in 1948, the WCC has repeatedly called for a "responsible society" in terms of justice and public order, one of the causes of disorder being "uncontrolled technological development".

In the late 1960s, largely on the initiative of Paul Abrecht, Director for Church and Society, a process of thorough reappraisal and consultations with the member churches began.<sup>83</sup> Much high-quality material was published.<sup>84</sup> This work culminated in the twelve-day 1979 World Conference on Faith and Science in an Unjust World,<sup>85</sup> which brought together more than 750 people from all parts of the world and all denominations. The direction these discussions were to follow was defined by the 1975 Nairobi Assembly:

*"The responsibility that now confronts humanity is to make a deliberate transition to a **sustainable global society** in which science and technology will be mobilized to meet the basic physical and spiritual needs of people, to minimize human suffering and to create an environment which can sustain a decent quality of life for all people. This will involve a **radical transformation of civilization, new technologies, new uses for technology and new global economic and political systems**. The new situation in which humanity now finds itself has been created in less than a generation. There is even less time to create the transition to a sustainable global society if humanity is to survive."<sup>86</sup>*

*"The responsibility that now confronts humanity is to make a deliberate transition to a sustainable global society [...]. This will involve a radical transformation of civilization, new technologies, new uses for technology and new global economic and political systems. The new situation in which humanity now finds itself has been created in less than a generation. There is even less time to create the transition to a sustainable global society if humanity is to survive."*

World Assembly, Nairobi, 1975

- An impassioned debate on the neutrality and objectivity of science and technology

It is worth dwelling a while on the impassioned debate which took place in Boston - in my view a milestone in the lamentably underpublicized debate taking place between science and modern society. I see it indeed as **one of the first post-modern/re-enchantment debates** on the role of science and technology.

- *The scientists' view*<sup>87</sup> (H. Brown)

Professor Brown presented the perspective, and ideals, of scientists. His contribution can be summarized as follows:

- The scientific community is governed by four moral imperatives:
  - **universalism**: science is independent of race, colour or creed;
  - **communalism**: scientific knowledge is public knowledge;
  - **disinterestedness**: the diametric opposite of propaganda;
  - **systematic scepticism**: nothing taken on trust.

Human institutions often preserve ideas in the same way as rocks preserve fossils. Science, through its rigorous scepticism, can help society (and the church) to remain flexible and open to reality.

- Research must be guided principally **by its own internal logic**, not by our momentary needs. Necessity is the mother of invention but not of discovery.

- Modern science is **one of the greatest achievements of the mind and spirit of man**. It is not to be treated simply as a vehicle of social or political goals. It is one of the vital pillars on which our civilization and our hopes for the future rest.

However, as Professor Brown points out, this applies rather to **basic** science than to applied science. **In the past few decades science has been industrialized** to such an extent that **less than 5% of the world's expenditure on science now goes on basic science**. **The above-listed moral imperatives cannot possibly be adhered to by the 95% of scientists engaged in applied science**.

Moreover, science tends to be **concentrated in rich countries**. Only 4% of the world's research and development is conducted in the South, where 70% of people live.

○ *Social criticism from the Third World*<sup>88</sup>

The situation of science and technology in the world prompted Professor Alves of Brazil to recount the parable of the philosopher lamb who, deciding to learn the truth about wolves, wrote to one asking for a definition. The wolf's reply **omitted all reference to eating habits**, which in his view had no bearing on the essence of wolves. The lamb only learnt about these later when he paid the wolf a visit ... The moral being: **"If you want to find out what a wolf is, you don't ask a wolf"**.

This is the key concept behind the social analysis of scientific discourse. It is a principle applying equally to the discourse of politicians, clerics, etc. The explanations given by interested parties are less likely to be objective fact than the justification of what people are actually engaged in doing.

Science claims to be the **disinterested** quest for truth. But, said Professor Alves, "from what I know of psychology and sociology, particularly the sociology of knowledge, knowledge is always a function of practical interests. **If science denies this, when it thinks about itself, we are forced to propose the hypothesis that science is trying to hide from itself the practical interests which are at its foundation.**"

Science also claims to seek truth for truth's sake. It is in the interest of scientists to believe this, because it allows them to undertake any kind of research without facing embarrassing questions about the potentially disastrous consequences of their work.

Professor Alves also warned against the "myth of the expert": "Since the problems of our world are extremely complicated, it belongs to the experts to interpret them to the ignorant public. The world is divided between those who know and those who don't. And everybody knows that decisions must be made by those who know. [...] I must confess that I never saw scientists giving advice to the poor and oppressed. Advice is always given to [...] those who have political and economic power, those who pay the bills. [...] *Indeed, scientists believe very often that science has found a method which puts them above common human beings.*" (p. 42)

This version of science, moreover, is based on the tacit assumption of the **superiority of Western, technological civilization**. For Alves, this assumption needs serious examination - we should be **a bit more scientific (!)** in our approach here - and concludes that "lamb knows more about wolves than wolves do. **A wolf to a lamb is what he does to the lamb, not what he thinks himself to be.**"

○ *Critique by RAVETZ a philosopher of science*<sup>89</sup>

Jerome R. Ravetz protested the high regard in which he held scientists but said that to assume every scientist to be an Einstein was as naive as to assume that every clergyman is another St John of the Cross. Our focus therefore should be on **the structures according to which**

**modern science operates rather than on trying to incriminate individual scientists.**  
According to Ravetz:

- Many scientists are **ignorant** of the limits and pitfalls of science because they are not taught about them. Scientists act in good faith but are ignorant of their ignorance, they are "skilled barbarians".

- Scientists with technological training **are not adequately informed about or prepared for worst-case scenarios**. For example technicians in the nuclear power industry are not trained to deal with nuclear accidents. It is as if the only eventualities contemplated by the experts training them were profit and loss.

- There is real **(structural) corruption in the area of scientific policy**. Experts are a new breed of scientist working far beyond the limits of objectivity and certainty. They are required to provide decision-makers with answers, however shaky the foundations on which these are based. They are moreover as often as not in the decision makers' employ.

**"For now we have a paradoxical inversion of the classic programme of scientism. Whereas before there was a faith that human values could ultimately be derived from scientific knowledge, [...] now we see that the crucial problems [...] depend on values held by the community that cannot and will not be reduced to scientific facts."**  
Prof. Ravetz

- *"There is a constant and inevitable tendency by employed experts and their masters to reduce every problem to the technical, preferably quantitative dimension. Thus we, that is the public, are criticized for failing to recognize the 'acceptability' of the risks of nuclear power, given the small size of the estimated probabilistic damage. This effort not only conceals the social aspects of the problem, including those political power struggles involved in every determination of a technological risk. Even more significant, it attempts to remove the questions of value and commitment from the problem altogether. And it is on this point, the values implicit in every technological policy decision, large or small, that the scientific programme of our high-technology civilization has finally shipwrecked. For now we have a paradoxical inversion of the classic programme of scientism. Whereas before there was a faith that human values could ultimately be derived from scientific knowledge, [...] now we see that the crucial problems [...] depend on values held by the community that cannot and will not be reduced to scientific facts."* (pp. 94-95)

○ Conclusions of the Conference: limitations and control

*"The general discussion of the conference reflects the growing awareness of society that there must be some limitations, stemming from considerations of human values, in the exercise of science and technology."*<sup>90</sup> (p. 23)

The Assembly recognized that many scientists were ardent supporters of freedom of research and science:

*"Theoretically, we know that freedom is essential for the fruitful development of science and technology. The argument for this freedom of inquiry is rooted in the basic openness of science: it cannot know ahead of time the relevance of its observations to fuller knowledge of the world and hence must be free to follow its own internal logic, if its understanding is not to remain incomplete. **Moral limitations on science and technology** represent intrusions from outside its own internal logic and **are considered by scientists and technologists as an obstacle to a full understanding of the phenomenal world.**"*

Three criteria were proposed:

(i) There is a **moral duty to inform** people of technological risks, whatever the social status or educational level of the people concerned.

(ii) There must be **respect** for all creation: animals, plants and the environment.

(iii) The **burden of proof of the moral acceptability of new scientific or technological activities is on those proposing them.**

○ **A control structure needs to be established based on the above criteria**

(i) Individual control: scientists and technologists are called on to exercise moral control over their own activities, knowing well as they do the implications of the same.

(ii) Peer control: groups of scientists engaged in the same or similar areas of work also share a collective responsibility.

(iii) Control by society in general

*"We affirm the right of the society to exercise ethical control of scientific and technological activities. We further affirm that when the ways the moral decisions to be made and executed are determined, the varying interests and views of all persons who might be affected by the scientific and technological activities should be adequately represented. Safeguards should be provided against corruption of the ethical control system by undue pressure, by greed or favouritism. The way in which this ethical control is structured gives substantive meaning to the phrase 'participatory society'."*

○ **A humble approach to new ethical problems**

Here again the tone is very different from that of the Catholic Church. There is a recognition that the issues are new and that there is no ready-made arsenal of answers.

"The church cannot pull out of its storehouse of tradition the concrete and specific answers to contemporary social problems in situations never before experienced by people."<sup>91</sup>

"Christians cannot, should not and must not claim to possess all ethical truth. The ways in which they have tried to live out God's love may have been distorted by any number of misleading influences. [...] Christians are called to work with all people of good will to build a just and peaceful society, in which the work of human minds and hands may serve the loving purposes of the Creator."<sup>92</sup>

\* **A new science, new economics?**

In the book of preparatory readings for the conference one senses an embryonic vision of the need for fairly fundamental changes in our way of thinking about science, particularly that science called economics. These ideas were developed extensively during the following years, as we shall see in the work of the Canberra Assembly.<sup>93</sup>

**A NETWORK ON FAITH AND VALUES IN TECHNOLOGY EDUCATION**

There exists in the United Kingdom a "Network on Beliefs in Technology Education" (part of a general programme of the British Council of Churches entitled "The Gospel and our Culture"). With their Anglo-Saxon pragmatic sense, the British have launched a programme of education in religious values tailored specifically to **those undergoing technological training.**

The aim of this education is precisely to inculcate a critical vision **equipping trainees to discern the implicit values of which technology can be a vehicle** (contrary to the view of those who persist in seeing it as essentially neutral). The originality of the experiment resides in its extremely positive approach and its aim of preparing generations of post-modern/re-enchantment men and women to be able to make the value judgements called for "in the field".

This type of experiment, representing a practical response to the basic problems raised by Jerome Ravetz (see preceding page), could usefully be extended to all parts of the EC. It is currently limited to the Anglo-Saxon world.

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## 2. Important critique by Protestant women

**A feminist perspective - radical at times - is welcomed by the WCC.** I focus in the following on a document by Freda Rajotte, Deputy Director for Church and Society at the WCC, which provides an overview of a whole range of feminist literature that deserves greater attention. As far as I can see, **the Protestant churches are the only ones which are gradually integrating into their outlook the shift in male and female roles taking place in society at large.** They are particularly interesting to observe from this angle.

The main theses of her paper:<sup>94</sup>

### 1. Critique of science and technology in general

Science is essentially one and indivisible; nevertheless there are too few women scientists:

*"The science done by women is no different in research methodology or findings from that done by men." However, women scientists work within a social setting that makes them and their work peripheral. (N. Tuana)*

Science tends to **further the concentration of economic, political and cultural power** in the hands of men rather than women, the rich rather than the poor, multinational firms rather than small producers and humans rather than animals, plants (V. Shiva) or the environment (S. George).

Research is **directed towards the acquisition of power, not towards the common good of humanity.** Vast funds are poured into arms and nuclear fission rather than renewable sources of energy and the biological interdependence of humanity and nature (C. Merchand).

### 2. Erroneous epistemological basis (S. Curry)

#### a) *Science is not "objective"*

Here the feminists are of a mind with eminent physicists like Prigogine.<sup>95</sup> There is no such thing as "neutral" or objective observation in science because the act of perceiving modifies perception itself. Thus reality is **subjective**. Also the observer interprets what he observes by means of language and **a paradigm**, which is susceptible of variation according to time and place.

#### b) *Science is not neutral (value-free)*

Science is not neutral in that it is not universal, i.e. serving the **common good**. On the contrary it operates as a tool consolidating the power of those already in possession of power, namely white western men.

However, the myth of the neutrality of science **frees scientists from all moral obligation or constraint**. In fact ethical questions relate not just to the applications of science but also to the **type** of questions put and the **way** in which they are put, the way in which research is planned and data collected, analysed and presented. **The answer obtained depends largely on the question put and the information sought**: e.g. What is a tree? Is it: potential lumber, a resource, a source of shade, a living organism, a habitat for birds and insects, a hydrologic pump, an oxygen producer, a primary energy convertor, food for herbivores, a joyful response to divine creative energy, a carbon fuel, a prop for climbing plants, a spiritual entity, an aggregate of molecules, a self-replicating organism, an economic commodity, an aesthetic inspiration ... ? (B. Savan)

c) *Inadequacy of analytical method (reductionism)*

\* Modern scientific methodology regards nature as a set of isolated components without interaction. This **analytical** approach, which has been formidably effective in the past, appears increasingly inadequate to the **complexity** of contemporary issues. The **interrelations** between problems must absolutely be taken into account. (The ecological crisis is an eloquent example.)

\* The current approach is **dualistic**. It dissects reality into just two options: 'zero' or 'one'.<sup>96</sup> It also juxtaposes the material and the spiritual, the sacred and the profane, male and female, science and ethics, **according priority to the material, to the male and to science** to the progressive exclusion of the other member of each dyad.

d) *The present paradigm is based on order and force, not on life.*

The ancient paradigm of the earth as living organism or nurturing mother sustaining life was rejected by Bacon and Descartes in favour of a paradigm based on **order and power**. Matter consists of independent particles obeying mathematical laws and physical forces. (Merchand)

*“Man is at the centre of the universe thus conceived, **manipulating and dominating** it. He is not part of nature; he is above it. The current paradigm is **hopelessly anthropocentric, even androcentric**.” (L. Margulis & D. Sagan).*

e) *In practice the current paradigm restricts access to information.*

If one accepts the hypothesis that science, behind its façade of objectivity, is used to consolidate the power of the powerful, it is **logical that access to information should be strictly limited, although officially - the championing of objectivity goes hand in hand with the championing of freedom of information**.

*“Women wishing to enter into the ethical debate and seeking exact information on human reproductive technology, the testing of drugs and contraceptive devices, surrogacy, sex selection, why women receive more hysterectomies in one country than another, how and from where ovaries, ovocytes and foetal tissue are obtained and the ethics of the economic and/or social coercion of women are unable to get exact answers to their questions.” (R. Rowland)*

As, moreover, most research is conducted by multinational corporations, findings are increasingly kept secret. Pressure for the authorization of patents for new living species promotes this trend.

f) *The human being is the end, science the means.*

*"In our society people are evaluated in terms of their usefulness as labour inputs to the production process. If you try to reverse the judgment and evaluate technology as it serves man, you meet with great resistance."*(U. Franklin)

**People are ends not means. [...] However, to reverse the process and critique modern technology as an inappropriate means towards human autonomy and satisfaction meets with great resistance.**

**Freda Rajotte, Deputy Director for Church and Society, WCC**

- Why do men want to take over women's procreative powers?

After a very interesting discussion on the nuclear arms build-up and the macho-erotic language of missiles and other "phallic" objects, the focus switches to reproduction technology and genetic engineering:

Arditti, Klein, and Minden raise the worth-while question:

*"Why are men focussing all this technology on woman's generative organs? [...] Why do men want to control the production of human beings? Why do they talk so often about producing 'perfect' babies? [...] **Man is possessing women's procreative power.** [...] The next step - ectogenesis - is the growth of the foetus outside the human body without the need for a womb at all".*

A similar question is put to the **churches**:

*"It is, therefore, not only arrogant, but basically unjust, for groups of predominantly or exclusively male theologians, few of whom are geneticists and none of whom have given birth, to make pronouncements on reproductive technology." (p. 4)*

## **Conclusion**

### **1. Towards an alternative technoscience**

**The feminist critique is not "against" science and technology.**

It is against **bad science**.

The women's movement calls for a **change in the nature of knowledge** with a view to improving the quality of life. It exhorts **science and Christianity to abandon dualism and a purely analytical methodology and to enrich itself by recourse to a holistic approach that interconnects the different facets of life in service to the greatest number of people. There is also a need for reconciliation with nature and the reconsecration of nature.** (N.B. The reconsecration of nature runs directly counter to the Protestant theology of secularization.)

### **2. Fundamental questions**

I have devoted a lot of space to the feminist critique because the questions involved seem to me serious ones. While expressing themselves in angry terms that may be off-putting to some, the feminists are raising **fundamental questions about the future of our society at a juncture when it is shifting to one of creation and communication in which, as they have**

**intuited, holistic, global and spiritual approaches are going to be needed more and more.**

Some commentators believe that in a few years there will be a growing number of women among those taking political decisions.<sup>97</sup>

Should an ethics committee be set up at European level, it should be a primary concern of the European Commission to **ensure equal male and female representation.**

## **C. THE WORLD COUNCIL OF CHURCHES AND BIOETHICS**

Here I base myself mainly on a recent report by the World Council of Churches entitled "Biotechnology: its challenges to the churches and the world" (August 1989).<sup>98</sup> This report recapitulates the extensive work on bioethics carried out by the WCC since 1969 at the instigation of Paul Abrecht, ex-Director for Church and Society.

### **1. CRITICAL AND HUMBLE OPENNESS TO NEWNESS**

I see the WCC as **one of the religious groupings most open to new questions, precisely because of its ethic of critical hope in the future.** A real openness and positive attitude to the future is to be encountered among Protestants, particularly in the United States. The American mentality also has a distinct influence on the WCC.

#### **1.1. An unprecedented mutation accepted as such**

##### Definition of biotechnology

*"Modern biotechnology is an effort to combine the scientific analysis of biological processes with technical ingenuity to cultivate and modify single cells and tissue probes in order to use their metabolic capacities for medical and industrial purposes." (p. 5)*

##### An unprecedented transformation

The WCC is well aware of the "unprecedented transformation" wrought by the "radically new possibilities controlling human reproduction choices" and by power over the "internal composition and structure of living matter [...] capable of redesigning the inner fabric of life for biological organisms, including ourselves". (p. 5)

This transformation is characterized by:

- precise targeting
- ever increasing speed
- an immense range of potential results

"... thus conferring a new power and opening up unthought of possibilities".

This new power of man over biological systems is based on information: "biotechnology can be understood in this way as the art of mastering several of the 'languages' - especially the genetic and thus universal code - of living matter".

This power opens up vast possibilities:

- \* for the production of medicines which cannot easily be obtained by other methods (insulin, hepatitis B vaccine, growth hormone, alpha-Interferon, tissue plasminogen activator, erythropoietin, gamma-Interferon, etc.);
- \* for curing genetic illnesses and infertility;
- \* for improving the quality of agricultural production (plants and animals) to the advantage of the poorest members of society, within a more just economic order;
- \* for reducing pollution and developing non-polluting sources of energy (ethanol, methane).

Francis Bacon's words - "Knowledge is power" - come true. And **power has always raised moral issues.**

## 1.2. Humility of WCC attitude, its openness to dialogue: no ready-made answers

The churches have no ready-made answers:

*"Churchmen cannot expect precedents from the past to provide answers to questions never asked in the past".<sup>99</sup>*

But science doesn't have the answers either. The churches bluntly reject the scientific (modern) claim that ethical problems can be answered by science and technology.

*"On the other hand, new scientific advances do not determine what are worthy human goals. Ethical decisions in uncharted areas require that scientific capabilities be understood and used by persons and communities sensitive to their own deepest convictions about human nature and destiny. There is no sound ethical judgment in these matters independent of scientific knowledge, but science does not itself prescribe the good."<sup>100</sup>*

## 1.3. The church must engage technology at its source (reference framework), not just in its consequences

This approach to the source and theoretical bases of technology has, according to the WCC, a **political, philosophical** and **theological** dimension.

### \* Political dimension

*"Technology is not neutral or value free: it is as much an ideology as it is a tool of science. It has in fact become an instrument of power and is itself trapped in vast networks of power which are complex, systemic, often multinational, and exists primarily to maximize profit. [...] As churches [...] we also recognize that science does not function in an isolated vacuum, but rather, is subject to wider perceptions and influences, which express loyalty to certain networks of power." (p. 7)*

### \* Philosophical dimension: critique of modernity

Getting beyond the modern, scientific world-view presupposes people becoming conscious of their deeper convictions, but also with their conceptual framework or mind-set, which, as currently constituted, is:

- **anthropomorphic**, i.e. focuses too exclusively on man so that it "denigrates both matter and the extra-human species"; (p. 5)
- **mechanistic**, reducing living organisms to "self-replicating molecular machines that can be snipped, programmed, cloned, designed, replicated and manipulated at will. Life is

thus **objectified** and can be reduced to assemblages of molecules designed for purely utilitarian and instrumental ends"; (p.5)

- **materialist**: "the primary goal [...] is not the welfare of the global biosystem, nor even the welfare of the human species within it, but rather the maximizing of material advantages for [the few]"; (p. 5)
- **dualist/hierarchical**, i.e. "affirms a radical divide between spirit and matter, soul and body, male and female. [...] The hierarchical view of creation puts women and the rest of creation in a position of powerlessness - to be owned, exploited and violated. Many churches and Christians also subscribe to this world-view and uncritically support the economic and political forces which reinforce it." (p. 8)

\* Theological dimension

The biotechnological revolution obliges the churches to **re-examine the fundamental Christian understanding of the relationship between God, humanity and the created world**. For example, certain technological practices might be considered contemporary forms of the sin of idolatry. (This re-examination is only just beginning.) (p. 8)

## 2. ANALYSIS OF MAIN WCC STATEMENTS ON BIOETHICS

### 1. Manipulation of human genes

\* Genetic analysis

The WCC describes the attempt to map and sequence the human genome as a "grandiose" and "controversial" project.<sup>101</sup> But it pays more attention to the **new social ethics dilemmas** of genetic analysis in the fields of heredity (identification of parents), crime-detection (genetic fingerprinting) and, especially, prenatal diagnosis of handicaps (3% of fetuses tested have a serious genetic disease but 95% of handicaps are not of genetic origin).

*"The danger lies in subtle assumptions that could hold parents responsible for handicapped persons posing a 'burden' to society that supposedly could have been prevented [by aborting the foetus]. [...] Some feel that several genetic diseases can ethically justify the abortion of a child, while others disagree." (pp. 10-11)*

But the most serious problem is the systematic use of genetic techniques for **sex selection** (India, Korea).

*"The World Council of Churches calls for the prohibition of genetic testing for sex selection, and warns against the potential use of genetic testing for other forms of involuntary social engineering." (p. 12)*

The WCC also wondered whether governments, employers, insurance companies or educational institutions should have **access to each individual's genetic make-up, warning that genetic information could become an instrument of discrimination**.

\* Genetic therapy

The WCC is concerned primarily about therapies which modify reproductive cells because of the **danger of their being used for discriminatory or eugenic ends**:

*"The history of eugenic movements, from Plato to the present day, shows many examples of individuals and groups, including scientific leaders and often so-called experts, who institutionalized their prejudices of race, sex and class through programmes that caused*

*tragic harm. In short, alteration of the human genes could become the ultimate tool of discrimination and eugenics." (p. 14)*

Here again the WCC takes a firm line:

*"The WCC proposes a ban on experiments involving genetic engineering of the human germline at the present time, and encourages the ethical reflection necessary for developing future guidelines in this area; and urges strict control on experiments involving genetically engineered somatic cells, drawing attention to the potential misuse of both techniques as a means of discrimination against those held to be 'defective'." (p. 14)*

## 2.2. Reproductive technology

The report distinguishes between old technologies (mechanical contraception, hormonal contraception, sterilization, abortion and Caesarean section) and new technologies (pre-conception sex selection and post-conception sex determination techniques, artificial insemination by spouse or donor, in vitro fertilization, embryo replacement, embryo transfer, embryo freezing, cloning, artificial placenta, surrogate motherhood).

- Artificial insemination

Artificial insemination by the husband (AIH) is **morally admissible**.

*"Artificial insemination by donor (AID) has been **questioned** on the grounds that it confuses genetic identity and compromises the sanctity of marriage." (p. 16)*

- In vitro fertilization (IVF)

Here the WCC focuses on the **negative impact on women**. Reproductive technology can be used to promote the fulfilment of women but can also subject them to a whole new set of pressures (economic, technological, sociological, etc.).

- *Economic and technological pressures:*

Birth rates for women using IVF are under 7%. So for every 100 women using IVF, paying between 15 000 and 25 000 US dollars a time and subjecting themselves to an extremely arduous procedure, 93 will have no child, with all the psychological effects of that disappointment.

- *Sociological pressures:*

In many societies, the decision to use IVF or artificial insemination is the result much more of social pressures (a woman's duty to bear a son) than of the couple's real desire to have a child. These pressures are sometimes reinforced by legal and social systems (difficulty of adoption, inheritance, etc.).

- Techniques separating parenthood from the sexual act: surrogate motherhood, sale of ova and sperm, etc.

The WCC refers to these as

*"the most exploitative aspects of reproductive technology. [...] In these instances women become merely expendable commodities in the market-place that has appropriated human reproduction." (P. 18)*

It asks a set of questions about conception technologies which

*"separate parenthood from the sexual act [and] can pose challenges to traditional understandings of the family in many cultures and societies, and raise significant theological questions as well".*

Unfortunately, the WCC does not elaborate on these "theological questions".

In conclusion,

*"the World Council of Churches calls for the banning of commercialized child bearing (i.e. partial or full surrogacy) as well as the commercial sale of ova, embryos or foetal parts and sperm".*

### **2.3. Embryo research**

*"The present main positions adopted within the Christian community on embryo research are a total ban on one hand, and a general prohibition with specific exceptions on the other. Conditions for exceptions are high, including therapeutic purposes, sufficient research on animals in advance, and restrictions on well-defined time spans." (P. 20)*

For the WCC,

*"the basic theological question is if and how we recognize our neighbour in the living organism that evolves out of the merging of human sperm and ovum". (P. 20)*

The WCC categorically rejects the position of those who *"perceive the human embryo [...] to be human biomass"* and who accordingly think that *"we are free to experiment on it without hesitation"*. However, the theological reasoning behind this position is not spelt out. Here again one would like more theological justification of the positions adopted.

The WCC's position on experimentation is firm but non-authoritarian:

*"the World Council of Churches advises governments to prohibit embryo research, with any experiments, if agreed, only under well defined conditions". (p. 20)*

### **2.4. Intellectual property**

Since 1985 the USA has authorized the patenting of genetically engineered animals. A similar recommendation from the European Commission provoked a heated discussion in the European Parliament. The debate in Europe continues.

The WCC highlights the potentially catastrophic social consequences, namely:

- further marginalization of small farmers: "As patenting further concentrates agricultural biotechnology in the hands of the multinational corporations, farmers could be forced to pay patent fees to corporations every time they reproduce a patented plant or animal." (pp. 21-22)
- misappropriation of Third World genetic resources by corporations from industrialized countries;
- incentive for explosion of creation of new cross-species, resulting in cruelty to animals;
- release into environment of genetically engineered organisms;
- loss of genetic diversity;

- legal recognition of a reductionist conception of life, effacing distinction between living and non-living things: "reverence for all life created by God may be eroded by subtle economic pressures to view life as if it were an industrial product invented and manufactured by humans". (p. 22)

The WCC accordingly concludes:

**"The World Council of Churches believes that animal life-forms should not be patented and calls for further study of the profound moral and social implications of patenting life forms."** (p. 23)

## 2.5. Environmental Effects

According to the WCC the problem is urgent and major because:

*"throughout the world, the biotechnology industry is preparing to release scores of genetically engineered viruses, bacteria, plant strains and transgenic animals into the environment in the next few years. [...] One approach now being undertaken in **Japan** and in **several European countries** is to have a moratorium on the deliberate release of any and all genetically engineered organisms."*

Accordingly:

***"The World Council of Churches urges the swift adoption of strict international controls on the release of genetically engineered organisms into the environment."*** (p. 25)

## 2.6. Military applications

Since 1982 a number of countries have expanded their biological and chemical warfare research programmes. In the United States government funding of biological weapons has increased 700%, that of chemical weapons 300%. Then there are the various more or less secret programmes in Third World countries carried on in spite of 1972 Convention banning the use of biological weapons.

Biotechnological weapons are even more dangerous for the public than nuclear weapons as they allow for no reasonable possibility of the protection of the population.

***"The World Council of Churches calls on nations throughout the world to cease all use of genetic engineering as part of any biological or chemical warfare research programme, and to reconvene conventions on biological and chemical weapons in order to create new and effective protocols which prohibit their development, production and use."*** (p. 27)

## 2.7. Impact on Third World

Having previously referred several times to potentially disastrous consequences for the Third World, the document, recapitulating, affirms that the new technologies could be made to serve the needs of the most economically disadvantaged but in that case the shape and structure of biotechnology would have to be very different from what it is at present. In fact the opposite is taking place: the new technologies are further marginalizing the poor.

## D. PROTESTANT DEBATE ON ECOLOGY

In the section on Catholicism I referred to Lynn White's radical critique of Christianity, which he holds largely responsible for the ecological crisis in which we find ourselves, Christianity having insisted so much on transcendence and on the distance separating man from creation that creation has gradually become an "object" exposed to unstinting exploitation.

As we saw, the Vatican, though generally open on ecological issues, has taken little note of this critique, continuing to affirm the pre-eminence and transcendence of man.

The World Council of Churches, on the other hand, has taken it very seriously. The Canberra Assembly (1991) marks a **turning point** in Protestant creation theology or, more simply, in Christians' conception of the **relationship between man and nature**.

### \* Reinterpretation of Genesis

The creation story in Genesis is not to be taken to mean that God gave man creation to exploit at will.

*"The scriptures teach that human beings were created by God from the earth. In addition, God gave them the breath of life (Gen. 2:7) and created them in the divine image and likeness (Gen. 1:26-27). A special aspect of the image of God in human beings is to reflect God's providence for the created world, to **care for it and to serve as its protector**. Thus, humanity is both **part of the created world** and charged to be God's **steward of the created world**. Human beings are charged to 'keep' the earth and 'serve it' (Gen. 2:15), in an attitude of that blessed **meekness** which will inherit the earth."<sup>102</sup> (I,9)*

### \* Humanity is not "set over" creation, it is part of creation

*"The biblical creation stories affirm that humanity is an **integral part** of the creation, but has a special responsibility for it. This relationship between the Creator, creation and humanity is often expressed in covenants, beginning with the covenant made with Noah, and renewed with the people of God. Human sin has broken the covenant and subjected the creation to distortion, disruption and disintegration [...]. Our economies and greed have brought it to the brink of destruction." (I,10)*

### \* Admission of "theological failures" of the past

The text from which the following quotations are taken is courageous in the lucidity and humility with which it recognizes past errors.

#### \* *Domination understood as exploitation*

*"Many streams of the tradition have misunderstood domination (Gen. 1:28) as exploitation and God's transcendence as absence." (I,13)*

#### \* *Transcendence misunderstood*

*"The more theology stressed only God's absolute transcendence and distance from the material sphere, the more the earth was viewed as a mere object of human exploitation and 'unspiritual' reality. Nature has been subjected to human ownership and unqualified manipulation." (I,13)*

#### \* *A divisive, dualistic world-view*

*"Dualistic thinking about spirit and matter, male and female, and the relationship among races has resulted in structures and patterns of domination and exploitation that parallel the domination of nature." (I,13)*

The Assembly a little further on returns to the damage wrought by a dualistic vision (world-view):

*"One of the major obstacles to a realization of the biblical vision for the fulfilment of creation lies in ideologies which **separate** subject from object, mind from matter, nature from culture. Political economic thinking still sees progress as production and consumption of more and more goods while development is equated to growth. But the planet is finite and its capacity to sustain growth already is seriously affected." (I,19)*

\* *Which has been sanctioned by theology*

*"While we repudiate these consequences, we have to confess that they belong to life-styles and power structures which have received theological support and sanction." (I,13)*

\* The world ecological and social crisis is very serious

The report of the Canberra Assembly sees the world today as facing an extremely serious crisis:

*"For the first time, cumulative human activity threatens destruction not only of local and regional ecosystems but the planetary ecology as a whole."<sup>103</sup> (I,6) Ecological problems cannot be solved without removing the flagrant social injustices found throughout the world: "We want to say as forcefully as we can that social justice for all people and eco-justice for all creation must go together." (I,5)*

\* Need for a comprehensive new approach EMBRACING ECONOMICS

The WCC first recapitulates its main objections to capitalist economics:

*"The free market economy provides a mechanism for rapid response to those needs which can be expressed in money and which are backed by a money income. Essential as such systems of markets and prices may be, they do not possess any inherent morality." (I,23)*

*"The world ecumenical movement has a long history of moral criticism of the economic order. Points of critique included the lack of economic democracy, social injustice, and the stimulation of human greed. Although in some parts of the world it has been possible to correct gross inequality and complete unaccountability of those holding economic power, there still persists a flagrant international inequality in the distribution of income, knowledge, power and wealth while acquisitive materialism has developed into the dominant ideology of our day. There is a constant urge to move up in the hierarchy of possessors of goods." (I,24)*

But this time it goes on to add a new ecological dimension to its critique:

*"To the still valid critique of the economic order that was expressed by previous ecumenical gatherings, we have added the **totally irresponsible exploitation of the created world, resulting in a horrific degradation of the planet earth.**" (I,25)*

\* *Reform of international economic order*

*"Particularly the churches in industrialized countries must put pressure on their governments to establish just patterns of trade and to share their resources with the poorer nations. [...]"*

*control of the immense power of the global corporations still presents the largest challenge at international levels of decision-making." (I,31)*

\* **RETHINKING ECONOMICS**

▪ Price not synonymous with value

*"To think that price equals value is a conventional economic fallacy. Price is only one specific way of looking at value: the value in exchange. In a market economy price is based on demand and supply, which are both being calculated on a very **narrow, short-term basis**. Immaterial needs get no price; hence these needs are often increased instead of being satisfied through consumption. Waste, in which all material production ends, is usually disregarded. And since the poor have little money, their needs get excluded. In measuring supply, the market responds only to those costs which can be expressed in money. Moreover, it is an advantage to producers to leave out those costs which they do not pay for themselves, such as environmental degradation and human disease that may result. As a consequence, a good deal of environmental damage is being caused without entering 'into the books'." (I,32)*

▪ A new concept of economic value

*"What we need, therefore, is first of all a new concept of value, based not on money and exchange but rather on sustainability and use. Humankind has failed to distinguish between growth and development. While advocating 'sustainable development' many people and groups in fact often have found themselves promoting 'growth'. **Growth for growth's sake** - the continued addition to what already is present - **is the strategy of the cancer cell**. Growth for growth's sake is increase in size without control, without limit, in disregard for the system that sustains it. It ultimately results in degradation and death. **Development on the other hand** - like the strategy of the embryo - **is getting the right things in the right places in the right amounts at the right times with the right relationships**. [...] True development, as opposed to simple growth, focuses on the ecosystem level." (I,33)*

▪ Prices must be corrected

*"It is necessary, then, to correct prices in such a way that they take into account the need to maintain the ecological functions which nature is offering humankind. For example, those living in wealthy nations would have to pay far more for the use of exhaustible energy resources. It should be noted that particularly energy prices, prices of raw materials and agricultural prices are already subject to effective manipulation. The means of public manipulation of prices **should be used to reflect both ecological requirements and the need for distributive justice**." (I,34)*

▪ Direct allusion to European Community's Common Agricultural Policy

*"The churches in the European Community, for example, should press for a radical change in the Community's agricultural policy, detrimental as this policy presently is to both the environment and African, Asian and Latin American farmers. The practice of the USA to dump their agricultural surplus in developing countries should also be vigorously opposed." (I,34)*

▪ The paradigm of free trade in agricultural products is out of date

The Assembly expressed its support for a recent conference of churches from Northern industrialized countries organized by the Swiss churches on problems relating to climatic change. The report explains very clearly the urgent need to rethink the free trade model, particularly as regards agricultural products.

*"[...] A free market in renewable resources such as food and forest and marine products accelerates their over-utilization and finally prevents their renewal.*

*"All unnecessary trade, be it in food, other renewable resources, or any luxuries of a materialistic world, involves consumption of energy and contributes to global warming.*

*"We cannot therefore accept the terms of the GATT talks, or the European Community's common agricultural policy as being in the long-term interests of the South, or even of the rich countries of the North who dominated them."<sup>104</sup>*

## CONCLUSION: DARING TO CHANGE OUR HORIZONS

Regarding ecology, the WCC (Canberra Assembly) adopted an **all-inclusive, holistic** approach, which sets out to correct the theology of creation and, above all, to take into account **all aspects of the problem, since otherwise no results are going to be obtained**. It called on all believers to have the boldness of faith and strength of hope to change their horizons.

*"We envision a world in which the needs of all creation are integrated with the workings of governments and international business, where importing and exporting do not spell hunger and environmental degradation for the poor. In such a world **bio-regions are more important than national boundaries**. Our vision is that the **industrialized countries develop new patterns of energy consumption** in order to slow down considerably the dangerous process of global warming.*

*"In our new vision, the resources of the various sciences, technological research and economic development coming from intellectual work will respect the integrity of all life-forms. The goal of technology will be to work with nature and its mysteries and not to master it." (I,17)*

**"The goal of technology will be to work with nature and its mysteries and not to master it."**

**Canberra Assembly, 1991**

*"Neither can we close our eyes to the potential misuse of biotechnologies in which the moral and spiritual dimensions of life are ignored." (I,21)*

*"We need a spirituality that connects our lives to past, present and future and to God, who sustains it all. With a spirituality based on global interdependence we can recognize the unity of all creation." (I,43) "We desperately need the dynamic power of the Spirit that integrates our faith with our daily lives [and] our worship with our action [...]." (I,22)*

## E. THE PROTESTANT DEBATE ON ENERGY: EMPHASIS ON RENEWABLE SOURCES

### 1. At world level

There was an intense ongoing debate within the WCC on this subject in the years 1974-83 (which has lessened somewhat in intensity in the years

since then) with the "Church and Society" subunit organizing numerous conferences.<sup>105</sup> Rather than try to be exhaustive, I will concentrate on the most important statement to emerge from this debate, namely the Boston Conference declaration:

○ In the short term

The Boston Conference called for a "moratorium on the construction of all new nuclear power plants for a period of five years; the purpose of this moratorium is to encourage and enable wide participation in a public debate on the risks, costs and benefits of nuclear energy in all countries directly concerned". This call was taken up by the US press. Shortly afterwards a moratorium was indeed introduced, a decision which the Protestant churches may well have influenced.<sup>106</sup>

○ Medium- and long-term

The Boston Conference also distinguished three strategies:

- (i) the "hard path", involving large-scale, capital-intensive nuclear power stations with fossil fuels being phased out entirely in favour of breeders and possibly fusion;
- (ii) the "soft path", focussing on "soft", less capital-intensive technologies (solar, biomass, geothermal), with renewable energy sources replacing fossil fuels in the long term;
- (iii) the "hard-soft" path, a middle way favoured by most government planners.

***"For the long term we believe that no options should be excluded per se, but for the short and medium terms we make a strong plea for a major shift towards the development of an effective implementation of the huge, as yet untapped, potential of the soft option."***<sup>107</sup>

*"[...] the CO<sub>2</sub> problem cannot be a decisive factor in deciding one way or the other on nuclear power [...]". (p. II 97)*

However, and<sup>2</sup>this is perhaps the most important point, the WCC insisted **the nuclear power option ("hard investments") offered no solutions in the long run**, even while generating short-term profit.

## 2. At European level

\* The Basel Assembly on "Peace and Justice" (1989), which **for the first time in five centuries** brought together official delegations from the Orthodox, Protestant and Catholic churches, took a similar stand.<sup>108</sup>

*"Nuclear power should not constitute the main source of energy in future because of the related social, technical, ecological and military risks." (N° 87 c).*

\* The "Evangelische Kirche in Deutschland" - the largest Protestant grouping in Europe - recently published a document on nuclear power. Its experts are divided on the subject.<sup>109</sup>

**Previously (1987) the regional synods (Landeskirchen) had taken a stand in favour of the rapid abandonment of nuclear power.** A working party was set up, which produced a report entitled: "The renunciation of nuclear power: obstacles, conditions, consequences".<sup>110</sup>

\* In January 1991 the Swiss churches (Protestant and Catholic) organized a major conference on **the protection of the atmosphere**.<sup>111</sup> The great merit of the resulting report is its global and holistic approach. The positions adopted on energy reflect this holistic vision (p. 12). The text calls for a **political decision to reduce CO<sub>2</sub> emissions in the**

**industrialized countries by 3% a year** and a massive effort in favour of renewable energy sources both in the Third World and in industrialized countries.

## Conclusion

I have dwelt on this important ongoing debate within the Protestant churches not only because of its immediate interest for the European Commission but also as being eloquent of the Protestant cultural matrix. For example, **the subjects debated** are not (as in the case of the Catholic Church) dictated by church authorities in the name of intangible principles. The Protestant churches see themselves rather as a **forum for sincere high-quality debate on moral themes in which Christians (called on to sanctify themselves in and through their secular lives) can measure their secular options against the message of the gospels.** (I may have overstated the difference here, given that the Basel Declaration suggests a profound shift in the Catholic sensibility too.)

It follows that the **subjects debated** are determined much more by the current concerns of ordinary people than by eternal principles to be adhered to by society in obedience to a natural law.

## F. CONCLUSION OF SECTION ON PROTESTANTISM

### 1. Protestantism reflects the ongoing cultural transition

The clearest example is the debate on science and technology at the Boston Conference in 1979, which demurred at investing science with the kind of aura of probity and objectivity traditionally accorded figures such as Madame Curie - this not out of some ideological choice but simply as a result of opening the floor to representatives of Christian groupings from all over the world. This debate was symptomatic of the contemporary shift in world-view which, inter alia, entails **a profound modification of the status of science.** Science is no longer the undisputed queen of intellectual disciplines, the guardian of technological and economic progress. Rationalism and scientism are no longer the preeminent approach to reality. The vision called for by the new unified world-view is a holistic one. The analytical approach, while it has its uses, is no longer seen as adequate to the new issues resulting from progress (ecology and climatic change, underdevelopment and increasing marginalization of the Third World, new moral problems linked to biotechnology, etc.).

*Thus science is being dethroned as being too exclusively rational and analytical and, at the same time, society is calling scientists to account and rescinding their privilege to remain aloof. Science is seen less and less as neutral and objective.* As the Boston meeting clearly showed, the critiques may be emanating from different quarters (ecologists, women, industrial society's poor and excluded, the Third World) but all converge in the direction of a new conception of science and technology.

### 2. Openness to the new

The **quality of the information** accumulated by the Protestant churches on modern problems (bioethics, energy, climate, the debate on science, etc.) is striking. This is probably linked to there being **no bias against the new.** Dialogue is not impeded by mutual distrust. The distinction between clergy/specialists and ordinary Christians is more blurred. Everyone is on more or less the same footing in discussing the best way of living a secular Christian life.

This openness to the new has deep roots in Protestant theology, which, as we have seen, is less concerned with the essence of actions than is Catholicism and more deeply anchored in the **Christian hope in the Kingdom of justice and peace** proclaimed by Jesus in the Gospels and having its beginnings here on Earth.

One of the WCC's achievements is its having transposed this Christian hope into one of the new categories of communication, namely **the metaphor**. The power of metaphors comes from their encapsulating in a single expression a message that speaks not just to the intellect but also to the heart and to the deeper spiritual level of "ultimate meanings" of contemporary man (who is habitually inundated by a sea of contradictory data). A whole literature exists on the art of governing through metaphors.<sup>112</sup> Which leads us to the ethics of the cultural transition in the direction of reenchantment currently under way ...

### 3. Re-enchantment of the world?<sup>113</sup>

The strength of the paradigm proposed by the WCC is that it **dethrones the paradigms produced by the bad conscience of the rich**, who persist in holding to "scientific" paradigms which their own children have jettisoned. The WCC suggests a **different horizon of hope and spirituality**. The mobilizing power of this paradigm comes from its simultaneous appeal to the intellectual, emotional and spiritual levels of man. Our technoscientific civilization needs to rediscover a goal, a purpose (cf. the admirable "On Purpose" by Charles Birch, Australian biologist and former colleague of Paul Abrecht at the WCC, published in 1990<sup>114</sup>).

According to G. Winter - one of the leading thinkers in the area of ("post-modern") Protestant ethics - the WCC critique of the dominant ideology and of the symbolic horizon controlling that ideology is very much a theological undertaking and one which is **liberating mankind and showing man the salvation and Love of God by giving him renewed hope**.<sup>115</sup>

### 4. Towards a new spirituality

In the midst of this re-enchantment of the world, we glimpse in the WCC's work the quest for a new spirituality capable of reunifying our disjointed lives and helping Christians rediscover a faith rooted in the intellect, the emotions and the deeper spiritual level of the psyche.

But this spirituality must not be used as a means of escape from the urgent problems facing contemporary man.

### 5. Differences in sexual ethics

Given the general characteristics of the new Protestant ethics as outlined in the foregoing, the Protestant approach to sexual ethics is going to be very different, paying greater attention to the perspective of women and of the Third World and to the negative repercussions which certain political decisions can have which, to the North, appear innocuous. The criterion of the **lesser evil** is implicit. There is no sharp divide between sexual ethics and other areas of ethics as in Catholicism. Clear-cut judgments and condemnations are rare. Relations with the political authorities are based more on dialogue and advice than on moral imperatives. The importance of economic interests and systems is stressed.

However someone looking for a discussion of the essence - the ontology - of individual acts is going to be disappointed. **Theological discussion is not particularly developed, which I see as a major shortcoming.**

## 6. Difficulty in explicitly addressing metaphysical and theological questions

There is no discussion on the nature of things or the essence of acts, an area of reflection disregarded by Protestant culture since Luther. One might ask oneself nevertheless if Protestantism should not promote more **philosophical reflection**.

There is also a certain **weakness of theological discussion**. Some WCC officials are conscious of this. Theological and philosophical reflection are particularly important in a period of cultural change. This is probably one of the weaker sides of the WCC.

However we should not underestimate the importance and impact of "process theology", mainly in North America. Theologians such as John Cobb B. Jr.<sup>16</sup> have been trying for years to construct a theology adapted to the post-modern world, based mainly on the philosophical foundations of Whitehead's work.

## 7. Difficulties in dealing with new trend towards resacralization?

The more holistic approach resulting from the cultural transition no longer makes a sharp distinction between the sacred and the profane. Since Protestantism has come to a full acceptance of such a separation, i.e. of secularization, even seeing it as an opportunity to purify faith, do Protestant theologians see the cultural transition as bad news for faith? If not, why not?

## G. THE CULTURAL TABLES

### 1. Hofstede table

The workings of the WCC exemplify characteristics featuring in the Hofstede tables. The correspondence is quite close, confirming my hypothesis that cultures mediate the relation between religions and science & technology.

A low power distance index encourages more democratic management, low uncertainty avoidance encourages an openness to newness and otherness and a greater pragmatism. Is the non-Latin version of individualism the cause of the splintering of Protestantism into a large number of churches and sects?

### 2. Cultural transition/re-enchantment

The characteristics of Germano-Anglo-Saxon-Nordic culture seem in the past to have helped Protestantism accept the cultural transition that was the Renaissance. One might even see one of the causes of the Reformation as the Germano-Anglo-Saxon desire for a more positive religious perspective on the cultural transitions that was taking place in the 16th century.

Today again Anglo-Saxon cultures seem more open to the new, helping the Protestant churches lead the way in accepting the new cultural transition.

It is, then, possible to read the current situation as **a sincere - but ponderous - embracing of modernity by Catholicism while Protestantism is already engaged in a full discussion of the transition from the modern to the post-modern age**. If this hypothesis - which is not a value judgment - is confirmed, it could serve as an interpretative key to contemporary European debates which - transposed into cultural terms - would suggest that **the cultures of Northern Europe are fully embarked on the cultural transition while the Latin and Greek cultures are still reconciling themselves to modernity**.

## H. TWO COMPLEMENTARY CULTURAL TABLES?

Catholic morality is more interested in permanence, **eternity, being**, the essence of things. It has its internal disagreements as to whether the natural law should serve as ultimate moral yardstick. Also as to how to regard secularization (deplored by the Vatican). These polemics aside, however, when faced with moral questions Catholic culture tends as a rule to look for precedents, to aim at consistency with **tradition** and at **communion** with other Catholics. The Catholic Church offers **stability** in a changing world; it agrees concordats with political authorities. Yet the age of re-enchantment is likely - surprisingly - to prove Catholic culture right on certain points.

The Protestant ethics of the World Council of Churches are less concerned with the **essence** (whether good or evil) of human actions. They accord full respect to the **autonomy of the human person** as co-creator and welcome the passing of the "Christian" age (secularization). They are **directed towards the future** prefigured by Jesus in the Beatitudes (the Kingdom), which relate first and foremost to life here on earth and **seek in the evangelical (eschatological) future a yardstick by which to judge the present**. They are thus much more open to socio-cultural change in this world, and they look more deeply into the problems of Church and Society without any ulterior motive or hidden agenda of recovering, reevangelizing or saving; but they are less inclined to dialogue with the establishment, of which they tend to be more critical.

In the context of the current cultural shift one can see weak and strong points in both these cultures. Protestantism is clearly more open to modernity and post-modernity and has given more thought to a number of contemporary issues (role of science and technology, bioethics, energy, media, etc.). Protestant culture also offers the public powerful multi-faceted metaphors which are making an impression on Christians generally. Lastly, Protestantism has embarked through the WCC on a "re-enchantment of the world".

However, it is also true that Protestantism is going to be faced with the need for **in-depth theological discussion** of subjects such as **Christian specificity** and, especially, what attitude to take to **secularization** in a culture which is tending more and more towards **resacralization**.

Catholics, on the other hand, seem at first glance poorly equipped to deal with the post-modern/re-enchantment age with its hierarchy apparently still negotiating the transition from pre-modernity to modernity. The paradox is, however, that **certain Catholic pre-modern, sacralist stances bear a resemblance to the aspirations of the cultural shift toward resacralization**. This shift will perhaps be easier for Catholicism from this point of view, as a fundamental review of its relationship to the sacred will not be necessary, which is the hardest task for a religion. It would be **naive to believe in the possibility of restoring** the old order. The decisive factor is rather going to be the means by which the Truth is transmitted, with the new sensibility apparently **allergic to all authoritarian or antifeminist modes of transmission**.

**TABLE 5: CATHOLIC AND PROTESTANT CULTURAL MATRICES**

	CATHOLIC	PROTESTANT
TIME	-Stability, immutability amidst change. -Eternity, reflection on the essence of things	-Openness to change the future, the Kingdom of God to come -Life is for living today
PRE-MODERN	-Christian nostalgia -Secularization is negative -Pre-modern conception of sexual ethics	-Refusal of the pre-modern age. -Secularization is positive
MODERN	-Modern conception of science. Galileo rehabilitated	-Open acceptance of modernity
CULTURAL TRANSITION REENCHANTMENT	-Little debate on the cultural transition -Openness to the sacred	-Progressive acceptance of cultural transition in technoscience
POWER STRUCTURES	-Promotion of vertical hierarchical structures. Lots of advisors. Sense of “community”	-Promotion of more democratic structures, training of those lower down the hierarchy -Participation -Exaltation of individual values
VISION	-Disenchantment of the World.	-Re-enchantment of the World. -Metaphor JPIC Justice Peace, Integrity of Creation.
PHILOSOPHY	-More optimistic conception of man -Interest of actions “in se” -Need for conversion, need to earn salvation -Guilt erased by confession, acceptance of ambiguity -Secular life = imperfection	-More pessimistic concept of man. -Grace is crucial Good deeds free from ulterior motives -Salvation by grace -Deeper sense of guilt, no forgiveness! -Secular life = sanctification

## 4. THE ORTHODOX CHRISTIANS

*Western Christians are generally neglectful, or ignorant, of the Orthodox tradition. Perhaps because to us it is rather something intriguing than something that seems amenable to "rational" understanding.*

*It is also a church that has not dealt much with science and technology in an explicit way - though it would take a great deal of time to sift through so rich and diverse a tradition, which extends from Greece to the furthest reaches of Russia and even India.<sup>117</sup>*

*Given the limitations of my brief, I will focus on an exposition by Paulos MAR GREGORIOS, the Syrian Orthodox Metropolitan in New Delhi, who has participated in all the WCC's discussions on science and technology and who was one of the chairmen of the 1979 Boston Conference on Faith and Science in an Unjust World. His perspective on his own church is a very free one, which has been influenced by Indian thought, something which many of his Orthodox confrères do not appreciate. He is, however, one of the Orthodox representatives to have played a major role within the WCC and carries thus a certain institutional weight in an ecumenical context.*

*I also take the opportunity to take a side-look, through his eyes, at some beautiful and arresting concepts from Hindu spirituality, with which he is familiar.*

*I conclude with a brief account of Greek Orthodox positions in the area of bioethics and of the extremely interesting perspective of the Ecumenical Patriarchate of Constantinople on ecology.*

## 1. Primordially of the mystical

The following is based on a work by P. Mar Gregorios (which appears to provide a lucid account of the Orthodox perspective.)<sup>118</sup>

The door of entry into the Orthodox vision is the mystical experience of God; the principal vehicle of this is the liturgy, whose function is to prompt a movement in the depths of the participant's soul.

### Eucharistic liturgy as shaping mystical experience

Based on a distinction of three psychic levels - intellectual, affective and spiritual - the Orthodox liturgy, by an implicit knowledge of the mechanisms of the human body, helps believers through sounds and smells as much as by its content to **descend into their depths - their spiritual level - so as there to have a mystical experience of the divine presence as well as of communion with nature and with other people living and dead.** (The Orthodox tradition - cf. especially St Gregory Palamas - studiously avoids speaking of an experience of God; rather it is given to men only to perceive "divine energies".)

*"For an Eastern Christian, the Eucharist ... is not a "sacrament" [Catholic connotation of a contract between man and God] or a "means of grace" [Protestant connotation] ... [but] the enactment in our presence with our participation, of the New Covenant ... between God and humanity in Jesus Christ who is inseparably united God and human person ..."*

- In the first movement:

*"on behalf of all humanity ...[the] community of the Church ... lifts up the sacrifice of the created order, in a thank-offering to God ... [thus] **the world of science and technology, of political economy and philosophic reflection is lifted up and offered to God as the fruit of our labors ... of [our] bodies and minds ... Science-technology ... will not rule the Eucharistic offering. It subsumes them and lifts them up to God as offering.**"*

- The second movement is:

*"God's giving Himself to us ... feeds us, nourishes us, empowers us to go on working in the created order, ennobling and sanctifying it ... **[in particular through] science-technology ...**"(p. 231)."<sup>119</sup>*

Wisdom for man consists in accepting his finiteness and his triple belonging which is mystically celebrated in the Eucharist

(Theology here mirrors Freudian theories on castration.) Man attains adulthood only by accepting that he is not omni-potent (= castration). Without this basic recognition of our finiteness, real faith is not possible. Faith is the wondering discovery of our finiteness as received and shared. The human being is called on to discover his **TRIPLE BELONGING:**

- to the Creator:

*"The essence of human freedom is in accepting this contingency of humanity's existence and calling, and in creating, as God's presence, that which reflects the glory of God which is the glory of humanity also." (p. 234).*

Or in the famous formulation of Iréné of Lyon:

*"The glory of God is the living man, and the life of man is the knowledge of God".*

- to Creation:

The universe reveals its true nature through its culmination in humanity but, at the same time, man can subsist only as the fruit of this cosmos which has produced him. Man is thus mediator (methorios) in the fullest sense of the term. **He is connected to the cosmos without which he would have neither roots nor sustenance.**

- and to the communion of other human beings living and dead:

*"This spirit pours forth love, wisdom and power, beauty and truth" into the heart of each individual and into the midst of the community (p. 235). It is the Spirit which empowers man to mediate between good and evil and to resist individual and collective sin."*

## 2. A very open vision of the role of the Orthodox Church

*"The temptation for all religious leaderships is to take over the place of God and to tell other people what to do. But it is humanity, and not just the Church or the religious leadership that has to be the presence of God in the world ... The Church is differentiated from the rest of creation ... by its conscious recognition of its foundation in Jesus Christ, by its discernment of the Spirit in the world ... [It] invites others to participate in" praising, and offering up humanity and the cosmos to, God. "Those who heed are ... received. But those who do not heed remain just as much in ... caring and compassion. They, that is those who remain outside the community of the Spirit, have every right to call the community to task, when it ignores the way of the Spirit ..."*

## 3. Towards a World Assembly of Religions

*"Modern science is characterized by the principle of domination and modern technology by the ethos of exploitation ... In such a world ... we can seek to abolish the spiritual homelessness of the affluent and the material poverty of the poor." (215)*

In order to reorient science and technology towards real service of the maximum number of people and at the same time towards an active respect for nature, Mar Gregorios proposes the setting up of a *"Global Concourse of Religions and Ideologies, with a view to a New Humanity"*. He conceives of this assembly as *"a school of learning for all who participate, and for all human beings"*. Clearly it would have to include agnostics and atheists, who would contribute to the freedom of its thinking. A critical eye would be directed not just at science and technology but also at the religions themselves ...

Naturally such an assembly would, in its deliberations on the reorientation of science and technology, **align itself with the poor and the oppressed**. Unfortunately those involved in interreligious dialogue today have little contact with these sections of the population.

An interesting idea worth looking at more closely ...

## 4. Richness of Hindu mystical heritage

The Hindu tradition boasts a vast body of traditions and writings, beside which the Christian tradition of just twenty centuries can look very thin. Mar Gregorios singles out three elements of the Hindu heritage as especially deserving our attention.

### Self-sacrifice (yajna) aimed at restoring cosmic harmony (rta)

The universe is an ordered whole with its own rhythm and organic unity. But it is also as fragile as a chick fresh from the egg-shell, "growing, dynamic, but needing care". Within this cosmic order human beings are those with responsibility for the cosmos - but also with the ability to disrupt its harmony by their self-willed actions. Order can only be restored by yajna, a sacrifice in which gods and humans collaborate in a ritual act. The meaning of this

sacrifice is **"self immolation on behalf of the whole"**. The focus is not on the salvation of the self-sacrificer but on the restoration of global harmony (rta).

The same notion of the relationship of everything with everything, of the non-neutrality of the observer, is found in modern physics.

But the author warns against the interpretation of this vision in Western terms:

*"These are not concepts. When expressed in words they sound pale and unconvincing [yet they are experienced by Hindus in rituals dating back thousands of years]. Ritual was the deepest experience of early humanity, and there the most profound perceptions are experienced." (226)*

#### The teaching of the Gita, jewel of the Indian tradition:

Mar Gregorios cites the Hindu sage Sri Arubindo's summary of the message of that poetic invitation to experience, the Gita:

*"Reposing one's mind and understanding, heart and will in Him (the Brahman) with self-knowledge, with God-knowledge, with world-knowledge, with a perfect equanimity, a perfect devotion, an absolute self-giving, one has to do works as an offering to the Master of all self-emergence and all sacrifice. Identified in will, conscious with that consciousness, that (Tat) shall decide and initiate the action."*

According to Mar Gregorios, all the values needed to heal society are contained in this experience and the vision underlying it.

#### A mystical approach to the Truth

Our approach to truth is often too exclusively analytical and discursive. The Vedanta's teaching is different:

*"Under the expert guidance of one who has already experienced it, a guru, the disciple goes through a long period of self-discipline in withdrawing the tentacles of the mind constantly reaching out to things, in keeping the sharpness of one's mind without using it as an instrument to objectify and dominate the outside world. The disciple enters through nonreflective meditation into levels of the mind that the ordinary humanist or religious person does not even suspect to exist.*

*At long last, there comes illumination where the duality of subject and object gives place to the experience of a nondual unity of knowledge at a higher or deeper level. In that experience the difference between knower, known and knowledge yields to a nondifferentiated knowledge which unites the three into one; there the disciple experiences the fact that the self is identical with the higher self of Brahman, and that same higher self is what is manifested to our senses at the lower level as the world of multiplicity ... to the Siddha, the one who has attained, the certainty of the experience needs no validation by criticism or consensus ... The theoretical reflection that follows upon this experience of praxis is secondary. It is the experience, the realization, the illumination ... that is primary ...*

*For those who have not practiced and attained this emancipation, this project remains weird and illogical ... No humanist critique of the ... epistemological-critical-hermeneutic enterprise can do justice to this experience. It lies beyond ...*

*The experience itself leads to a new perspective on reality, a new attitude towards human beings, animals and all beings as manifold manifestations of the One who is beyond all Being and is yet identical with one's own self - the higher self. Care, compassion and respect for others should be the natural outcome of this experience. The Siddha then devotes the rest of his life drawing others to the same experience." (pp. 227-9)*

## 5. Recent positions of Greek Orthodoxy on bioethics and European integration

### ○ Bioethics

The Metropolitan Athenagoras of Phocis (Delphi) studied in the United States and has for years had a special interest in bioethical issues.<sup>120</sup> In a text dating from 1983 he spells out the official positions of the Greek Orthodox Church:

*"All methods of artificial fertilization whatsoever are forbidden by our (Greek Orthodox) Church and by the Catholic Church and by the authorized representatives of the Protestant Churches because they are contrary to the reproductive mechanisms created by God*

...  
*I should point out, however, that distinguished Catholic and Protestant theologians and moralists such as Haering, Rahner, Curran, Mc Cormick, Ramsey, Thielicke, Gustafson, Fletcher, etc. ... while normally in accord with the declarations of their churches .... take a sympathetic view of homologous and in vitro fertilization ..." (p. 17)*

### ○ Greek Orthodoxy and Europe

On 4 March 1990, the "Feast of Orthodoxy", the Metropolitan Athenagoras delivered a homily to the Holy Synod on "**The role of Orthodoxy in a unified Europe and in Greece**" summarizing the official Greek Orthodox position:

*"Our holy church - itself par excellence democratic - greets with joy the return to democracy and the affirmation of human rights and of the right to religious freedom in these countries and prays in hope that the new political projects and programmes being put into place there will be committed to service of man and of the common good. Our revered Patriarchate... and the local churches can play a decisive role in a united Europe. They can bear their theological witness, present the treasures of the orthodox faith and life and make a great contribution as in the past to the political, social, spiritual and moral renaissance of a united Europe and to the foundation of the faith, of justice and of love within the 'Common European Home'. A united Europe needs the 'Greco-Christian education'. It needs, as Dostoyevsky prophesied, the 'Christ of Orthodoxy'. Yes, Europe still needs Hellenic Orthodoxy."<sup>121</sup>*

## 6. Positions of Ecumenical Patriarchate of Constantinople on ecology

Note: A rigid hierarchy along Catholic lines does not exist within Orthodoxy. National churches are "autocephalic, i.e. independent of one another and thus at times have difficulty preserving their autonomy vis-à-vis national States. However the Ecumenical Patriarchate of Constantinople (in Istanbul) exercises an "honorary" primacy over the other churches, which is why it was with the Patriarch of Constantinople that the Pope met.

The Ecumenical Patriarchate of Constantinople in 1990 published a booklet on ecology in collaboration with the World Wide Fund for Nature International.<sup>122</sup>

This document exemplifies the strengths of Orthodox theology, which is **symbolic and mystical** in emphasis. Man's relation to creation is signified and symbolized in the Eucharist. In this central act of the Christian cult man offers to God this creation which he has received from Him, **including all scientific and technological work which is seen as a responsible extension of creation**. But this sacrifice or offering also symbolizes the dialogue between man, who offers alongside Jesus Christ, and God, who accepts the offering. And it is an

eschatological prefiguration of the last hour when creation will be swept away along with mankind to ultimate salvation.

## CONCLUSION

The Orthodox perspective is a very **important one but also, for a Westerner, an unsettling one**. It gradually dislodges the Western point of view, relativizing it in favour of **mystical experience**. Some adherents to this Church conceive of their role within Europe precisely along such lines, i.e. as bridging the gap between the cultures and religions of the East and West.

In his enthusiastic presentation of certain Hindu themes, Mar Gregorios accentuates this, for us, unbalancing shift of centre of gravity. While never denying the merits of reason, he awakens in the reader a kind of nostalgia for illumination, for vision, for an interior, all-subsuming experience ...

## APPLICATION OF ANALYSIS TABLES

### 1. Hofstede table

Greek culture is rather similar to Latin culture according to Hofstede, whose analysis, however, is a detailed one showing numerous characteristics specific to the Greeks. But it is possible to generalize that they have the same large power distance and spend a lot of time and energy criticizing strong and rather undemocratic power sources, which at the same time they seem to need in some confused way. However power within the Orthodox Church appears to operate in a less centralized way than in Catholicism. Criticism, on the other hand, seems much more widespread.

The avoidance of uncertainty, a key religious indicator, is very pronounced in Greek culture (112). This would suggest a poor aptitude for change and little acceptance of otherness, and thus a greater tendency to dogmatism and ethnocentrism. These traits should be borne in mind as a working hypothesis.

### 2. Cultural change table

It is possible to say that, in the face of a changing world-view, the thinking of the Orthodox Church in Europe takes place within a pre-modern world-view and hesitates to modernize itself. Mar Gregorios is rather the exception in apparently having a "**post-modern**"/**reenchantment** perspective.

## 5. ISLAM

*My thanks are here due especially to Professor B. Etienne, A. Zahlan, Dr Roshdi Rashed and Dr Mohammed Brich who made a major contribution to the quality of the information contained in the following.*

*I am conscious of the limited and superficial nature of this brief overview. I nevertheless thought it worth while including an account of Islam, however elementary. I beg the indulgence of specialists in this field and would be interested in any critical observations they might have to make.*

## 1. ISLAM BASICALLY OPEN TO THE SCIENTIFIC APPROACH

We are so used in the West to conflict between science and faith that we expect to meet the same state of affairs in other religions and cultures.

### 1.1 Exceptional openness of Mohammed

Mohammed was exceptionally open to science. Tradition ascribes to him such often-quoted sayings as:

*"The student's ink is more precious than the martyr's blood."*

*"Whoever leaves his home to go in search of knowledge follows the way of God."*

*"The study of science has the value of fasting, the teaching of science the value of prayer."*

*"Go in search of science, even as far as China if need be."<sup>123</sup>*

While 'knowledge' to the Prophet certainly included knowledge of the things of God, the entire Islamic tradition is there as testimony that he also meant any search for truth, including science as we understand it today; thus it is possible to speak of the positive status of the man of science within Islam.

### 1.2 Remarkable flowering of arts and sciences within Islamo-Arab culture over a period of five centuries (10th - 15th centuries)

This teaching of the Prophet had a powerful impact on Islamic culture, which began by translating the most important scientific works of neighbouring civilizations. Translations from Aristotle's Greek proved the most influential. Meanwhile the Arabs also imported the Chinese technique of making paper, with the result that they had extremely rich libraries available to them four centuries before anything comparable existed in the West. (That in Baghdad numbered 1 000 000 volumes in 815, that in tenth-century Cordoue 400 000.)

This **exceptional openness** to other cultures was not long in bearing fruit as generations of scholars gradually developed a genuinely new and creative school of thought which in time was to have an indisputable impact on Western civilization as a whole.

The most famous names are of course **Averrhoes**, **Ibn Snâ (Avicenne)** and **Maimonide** but there are others: **Ibn Tufayl** and **Ibn Hazn** were at once theologians, philosophers, mathematicians, doctors, poets, specialists in agricultural irrigation, ... While their major contribution was in the natural sciences and medicine, the other facets of their genius should not be overlooked.

**Al-Khwarizmi** (9th century) introduced into Europe the Arab numerals today in general use throughout the world. He was also the inventor of algebra (his treatise was entitled "Al gebr") in both its mathematical and geometrical applications.<sup>124</sup> **Al Hashani** was the first to calculate the value of **pi**. **Ibn-al Haitam** (10th century) is regarded by Professor **Abdus Salam**, Nobel Prize winner for theoretical physics, as one of the greatest physicists of all time.<sup>125</sup>

**Ibn Khaldun** (14th century and thus towards the end of this golden age of Arab culture) can be regarded as one of the founders of modern historiography ("A people can create History once it realizes it is not ruled by Providence.") He also invented the notion of historical cycles (khaldunian cycles). He represents the first break with sacred history. Man is seen for

the first time as responsible and autonomous in the order of secondary causes (foreshadowing the spirit of the Renaissance?).

The major stimuli for this birth of modern science - besides the opening up of caravan routes criss-crossing the known world - appear to have been **a rupture with the qualitative categories** applied by Aristotle to the study of nature and **a rupture with sacred time, leading to the progressive emancipation of man vis-à-vis God and the autonomy of the secular sphere, i.e. a secularization** presaging the Renaissance and the Protestant Reformation.

The legitimacy of science was the subject of debate among theologians: did the discovery by science of fixed laws which the elements appeared invariably to obey not mean, in some way, that nature escaped from the power of God? Was this not a sacrilegious limitation of His power? Some theologians (the Mo'atazilites) saw no problem, since a distinction had to be made between **primary** and **secondary causes**: God was the primary cause of all that existed but refrained from intervening in secondary causes, which followed their own autonomous logic; these scientists should be free to investigate.

But a more conservative school (the Asha'arites) rejected this distinction, holding that God also intervened directly in secondary causes, so that there could be no invariable objective laws for scientists to "discover"; there was in fact no place for rigorous scientific investigative procedures.

The remarkable thing is that **this theological debate appears to have had no negative impact - rather the contrary - on the development of science.** Probably because the forces in the society of the time conducive to opening-up (trade, caravans) far outweighed those resistant to change (tillage, grazing).

Finally I should mention here in passing the efflorescence of science and technology in the Islamo-Turkish world in the 14th and 15th centuries.

### 1.3 Decline of Arab culture after 14th century

It is indisputable that Arab and Islamic culture went into decline in the 15th and 16th centuries (Turkey a little later). Discussion of the reasons for this decline lies outside my brief here.

## II. CONTEMPORARY DEBATE ON SCIENCE AND TECHNOLOGY

### 2.1 Background to Islamic approach to bioethics

Though such issues do not play a central role in Islamic society, it is interesting for our purposes to take a look at Islamic bioethics.

For Islam the embryo is only considered a human being **after ninety days**, from which point on the adage "If you kill a man, you kill all humanity" applies. Fertilization in vitro is acceptable provided the sperm comes from the husband. Heterogeneous fertilization (sperm of a donor) is unacceptable as breaking the family line.

But the criteria for fatherhood are also much broader than among Christians. A child engendered by an uncle or other relative of the father will more readily be regarded as a son than in the West.

### 2.2 Liberal theses

A selection of views culled from Islam specialists in Europe, notably Professors B. Etienne, M. Arkoun, Berque, Roshdi Rashed and Dr Zahlan, Nobel Prize winner Abdus Salam in Trieste, etc.:

- There is nothing in the essence of Arabo-Muslim culture rendering this culture incompatible with science and technology.
- On the contrary, history shows Islamic culture to have been the cradle of a variety of scientific disciplines. **Europe would not be what it is today without the contribution made by Islamic culture.**
- But history also shows this same brilliant and richly creative culture to have changed, in the space of a few centuries, into one that is turned in on itself, evincing very few signs of creativity.
- Islamic scientific and technological creativity, then, would seem to be inextricably tied up with the hegemony within Islam of economic and social forces depending for their prosperity on openness to other cultures.
- It is accordingly vital that the European Community **encourage, and support financially, fundamental theological thinking within European Islam.** History clearly shows that, when economic and political conditions favour a climate of freedom in the Islamic world, Islam is capable of thought of a very high calibre, enriching the lives of all humanity.

### 2.3 "Islamist" theses

#### - A blanket rejection of all secularization

For S. Hossein Nasr in Teheran, the prime source of the decadence of Islam, and of the decadence of the entire Western world, is secularization, i.e. modern man's aspiration to a culture devoid of any reference to God or to anything sacred. **"A humanism cut off from God necessarily leads to the sub-human;"**<sup>126</sup> Similarly **"the Renaissance is diametrically opposed to the essence of Islam, which is submission to God."**(p. 148).

The decadence of Islam cannot be explained by sociological factors as these do not go to the heart of the matter and themselves are expressions of a secular vision of history. There is only one explanation for the decadence of Islam, namely a progressive diminution of faith through creeping contamination by modern, secularized culture.

#### - the West must turn back to God

The decadence of the West is a result of its having created a civilization and a culture which leave God totally out of the reckoning. The symbol of the failure of the technological and scientific West is the ecological crisis. The prime cause of the ecological crisis is **the pollution of the human soul resulting from Western man's decision to play the role of divinity throughout the world and to exclude the transcendental dimension from his life, meaning also exclusion of the very notions of evil and sin.**

One notes the striking similarity of the Pope's condemnation of secularization and of the autonomy of reason in relation to faith, particularly in his recent encyclical "Centesimus annus" No 55.

#### - Truth is like a sharp-edged sword ...

A second characteristic of this way of thinking is its conception of Truth. **"The Truth contained in the Tradition (al-din) is the criterion for ALL activity, whether in the East or the West, in the past, present or future. Islam is the definitive earthly expression of**

*this Truth, it supplies the criteria necessary for judging, beyond considerations of space and time, the thoughts and actions of men living on Earth, whether they be non-Muslim Westerners or Muslims." (preface, page xi).*

There is thus no place for any other truth, or any other school of philosophical belief, in time or in space. The Islamic solutions have universal applicability.

A constantly recurring image is that of a sharp-edged sword whose mission is to cut through dead wood without demur. Charity towards those languishing in error consists in "sharpening your sword well so that should it be necessary to cut off one of their limbs it won't hurt (too much)." (page 131)

An interesting parallel can be drawn here with the pre-Vatican II adage of the Catholic Church cited earlier - "No salvation outside of the Church" which is based on that same philosophical notion of an absolute and exclusivist truth often encountered in the three "religions of the Book" (Christianity, Islam, Judaism), a perspective in evidence again in recent writings of Pope John Paul II, for example where he claims that he himself and the Gospels contain the solution to all social problems, that "there can be no genuine solution of the 'social question' apart from the Gospel" (Centesimus annus, No 5).

- Restoring the dignity of Islamo-Arab culture

"Modernized" Muslims - who suffer from an enormous inferiority complex vis-à-vis the West - must **revert to faith in God and rediscover their pride in being Muslim**. They will thus be able to collaborate in the reconstruction of a strong Islamic culture which is conscious of its own values in the midst of the modern world. Needed are intellectuals capable of accomplishing for Islam a work of assimilation of other cultures similar to that whereby, in the past, the "orientalists" enriched Western culture.

- A cultural reappropriation of a prestigious past

It is very important to understand the, in my view, highly worthy and positive project of cultural reappropriation underlying this "Islamist" movement, a project born of the desire to leave behind centuries of political and economic - but also cultural - defeats and humiliations. Muslim intellectuals today feel torn between their Western (secularized) education and a desire to reappropriate their culture and faith in Allah - a quandary which the Islamists seek to put an end to because it has led only to the copying of Western culture:

*"Muslims have produced nothing for two centuries ... not one school, college, university or generation of scientists capable of competing with the West ... All this is the result of a lack of vision. The Western educational model is based on a single Vision ..." (al Faruqi, page 23)*

For example refutations of Marxism have to date been based on the religious texts of Islam (naqli). This is not adequate. More solid arguments, drawing on the intellectual sciences (aqli), are required (Nasr, page 138). A whole wealth of natural sciences was developed by Islam fifteen centuries ago without any disruption of equilibrium or of harmony with nature (Nasr, Page 147).

Much work still needs to be done. Darwin, Freud, Jung, existentialism, etc. also need to be refuted ...

The Islamists aspire to creating a **third category of intellectuals**, the first (ulema') being those well versed in scripture and case law, the second those who have been educated in the West and who generally have a poor knowledge of Islam. The third category would consist of intellectuals equally at ease in both worlds.

- Islamization of science and technology<sup>127</sup>

THESIS:

- ❖ Science is a cultural phenomenon, e.g. Western science reflects the vision of Western societies.
- ❖ Ergo: an Islamic cultural vision of science is needed.
- ❖ Whereas Western science portrays itself as universal and objective (and thus valid for all cultures), "**value-free**" (and thus disconnected from any ethical code or any single culture), radically segregating the sacred and the profane, disinterested with regard to its findings, exclusively analytical, dualistic ...
- ❖ the Islamists believe that they in the past had a different approach to doing science that was a brilliant one in its own way and that their culture is capable of forging a different relationship with science from that forged by Western culture.

At its apogee Islam produced a science which was "value-full", explicitly at the service of Allah and of all humanity, at the service also, therefore, of ethics. Useless or aimless ("value-free") science was prohibited by Islam. The Islamic scientific approach was eminently synthetic (holistic) and presumed a unity of man and his knowledge.

Faith, however, is going to be an indispensable precondition if this conception of "Islamic" science is to be rediscovered and if science is to be re-Islamicized.

The approach to truth here I would categorize as pre-modern.

<b>ISLAMIC SCIENCE/CULTURE</b>	<b>WESTERN SCIENCE/CULTURE</b>
<b>HOLISTIC : SYNTHETIC</b>	<b>ANALYTIC</b>
Linked to culture: science as a cultural phenomenon	Science as universal and objective, independent of cultures
Value-full, not separate from ethics	Value-free, objective and independent of ethics and politics
Unity	Dualism
Integrating the sacred and the profane	Secularized: separating sacred from profane
Science must serve humanity	Science disinterested as to its findings
For scientist, knowledge means responsibility	Non-responsibility of scientist for consequences of his research

## **2.4 Viewpoint of Islamic Development Bank**

In November 1986 the United Nations Conference on Trade and Development (UNCTAD) organized a seminar in Jeddah (Saudi Arabia), in collaboration with the Islamic Development Bank, on ways of promoting development through technology. This seminar, the first of its kind, brought together, besides national representatives:

- the Islamic Foundation for Science and Technology;
- the Turkish Council for Science and Technology;
- the Scientific and Technological City of King Abdulaziz of Saudi Arabia;
- the Gulf Organization for Industrial Consultation;
- the Pakistani Atomic Energy Commission.

Compiled in concertation with the Islamic Foundation for Science, Technology and Development, which invoked God's blessing on the meeting, the seminar report devotes just two pages to the questions of geopolitical interdependence and cultural difference and makes no mention at all of these in its conclusions. Its priority was to encourage Islamic governments to collaborate more closely and to come up with science & technology policies explicitly aimed at quickly acquiring the technology without which development is not possible.

## **CONCLUSIONS**

- It is undeniable that certain Islamist positions run counter to our profoundly secularized mentality and culture, e.g. the rejection of atheism and the totalitarian conception of Truth.
- At the same time one has to acknowledge their comparability with certain Catholic pronouncements, some even of recent date, which feature the same totalitarian approach to truth and the same rejection of secularization.

- The Islamist vision has some highly interesting elements suggestive of a more unitary, non-hierarchical and sacralist world-view (which could be interpreted as either pre- or post-modern), namely:
  - importance of **cultural dimension** in struggle of oppressed and humiliated peoples to retrieve their identity;
  - precedence accorded **synthetical (holistic) approaches** over analytical ones;
  - tendency towards **resacralization**, particularly of man's relationship with nature;
  - rejection of "value-free" science, i.e. science which is neutral and not answerable for its actions to society.
  
- **The theses of the Islam experts in Europe deserve, in my view, the Commission's fullest attention.** If the European Community is to start playing a role at world level, it is very important that it encourage and support high-calibre Islamic theological thinking within Europe. A climate of freedom and prosperity could favour the emergence of an Islamic theology corresponding to the aspirations of modern, and even "post-modern", society. Moreover the emergence of an important school of Islamic thought in Europe could assist Europe in listening and opening up to cultural diversity (as affecting, inter alia, science & technology issues).
  
- It is also very important to make a clear distinction between Islamic culture and Arab culture. There are three kinds of Muslim living in the Community: Arab, Turkish and Persian/Iranian. A better understanding of Islamic culture would provide an informed and unprejudiced basis on which to take the decisions called for in respect, notably, of Turkey.

## 6. JUDAISM

*My thanks to Rabbi Sitruk, Chief Rabbi of France, to Rabbi Guigui, spokesman for the Conference of European Rabbis to the European Community, and to Rabbi Bismuth, for their help in documenting and drafting of the following brief exposé.*

*Here again I am conscious that I have only skimmed over the surface; but my aim was to cover, however sketchily, all the religions which have played a role in European history.*

Judaic teaching rests on two pillars. The first is **the Torah**, which is the sacred text of the Bible. The Jewish Bible has substantially the same content as the Christian except that it stops at the Book of Daniel, the texts that follow being considered apocryphal.

The second is **the Talmud** (or commentaries). Up until the second century A.D. commentaries on the sacred texts were transmitted by word of mouth from generation to generation of rabbi. These commentaries were intended to assist the faithful in managing their individual lives and in deepening their spirituality and wisdom. When, in the second century, the Romans outlawed such transmission, the rabbis, regretfully, set to writing the commentaries down. Thus was born the Talmud, which has two parts: the **Mishnah**, dating from 168 A.D., and the **Gemara**, a supplement thereto which was completed only in the fifth century.

What sort of thing does the Talmud talk about? To take an example: where the Biblical text speaks of "an eye for an eye, a tooth for a tooth", the Talmud explains that what is at issue is the reparation of damages, and that such reparation must not only cover the actual material damage caused but also the psychological implications - moral suffering and social consequences (unemployment, etc.) - of such damage. (Its interpretations are sometimes quite surprising.)

The ethical teachings of Judaism are contained mainly in the **Halakha**, a section of the Talmud. The Gemara consists primarily of the moral injunctions of the elders. The word Halakha derives from the Hebrew for "to walk", implying that morality must move with the times and adapt to new issues. And the Halakha is indeed in continual evolution, with new thinking being constantly added to the tradition. The approach applied to new issues (e.g. "surrogate motherhood") is to start from what the Talmud already contains and then try to relate the new case to that by analogy. It is up to the rabbis enjoying the greatest respect for the quality and perspicacity of their judgements to adjudicate new or contentious issues. In this way the Halakha is progressively enriched. But this "theological case law" is built up via lengthy debates that also bring to light the differences between different currents within Judaism.

## A. SCIENCE AND TECHNOLOGY IN GENERAL

The attitude of Judaism towards science and technology is **basically positive but conditional**.

*"Lacunae in our comprehension of other sciences will multiply our miscomprehension of the Torah a hundredfold."<sup>128</sup>*

The main idea is that science and the Torah have always been united in their service to the (Judaic) Law. The **centre of gravity, the source of value, is service to the Law** and thus to the Most High. Progress is therefore **not in itself a source of value**. It is not for science to define its own ultimate values and objectives.

*"It is well to remember that technical prowess is not an end in itself ... This is not in any way to imply that Judaism is opposed to scientific progress, that it favours immobilism. On the contrary, Torah and science have always been united in service to the Law and not the Law in service to progress. It is up to the Law to define goals, values and guiding principles, it is up to scientific research to turn these into reality."<sup>129</sup>*

What is meant by 'the Law'? In Judaism salvation is through the Law rather than through faith - though one does not exclude the other. The criterion of the good is the Law, which defines the ways of acting which correspond to the choice of life. But underlying this obedience to the Law is a vision of man as co-creator next to the radical transcendence of God the Creator of all things:

*"Man is a creature endowed with the power of creating in his turn but who must nevertheless keep an awareness of the limits of this power, knowing that he has himself been created by God, Who transcends the totality of the human being and his acts."<sup>130</sup>*

However the rabbis recommend that members of the Jewish community - as a rule a minority in any society - **should not place themselves in direct opposition**<sup>131</sup> to national laws running counter to, or showing ignorance of, the religious requirements of Judaism. The rabbis are distrustful of all legislation on ethical issues adopted by simple majority vote **without account being taken of the views of minorities**, advocating instead **exhaustive and informed dialogue**. Experience of dialogue within the various ethical committees has shown that dialogue, by getting people to know and accept each others' point of view, can help **uncover practical and unexpected areas of agreement**.

The Jewish critique of science and technology echoes that of other religions, deploring:<sup>132</sup>

- the **fragmentation** of knowledge into separate areas entrusted to increasingly isolated specialists;
- **excessive recourse to the analytical approach** at the expense of the synthetic;
- the criterion of **immediate applicability and profitability** increasingly paramount in scientific and technological circles.

## B. THE BIOETHICAL DISCUSSION WITHIN THE JEWISH WORLD

There are different schools of thought. Lasker and Palmer<sup>133</sup> divide these into the orthodox, the conservatives, the reformers and the reconstructionists, the last-named being the most open-minded and liberal (in the American sense of the word). I will not here go into detail on the views of each of these groupings and the debates between them, which, increasingly, vary from country to country.

A majority of rabbis point to dangers inherent in the development of biotechnologies. The therapeutic utility of some of these technologies is not always self-evident. One has the impression that they are developed simply because they are technically feasible or for reasons of **profit**. The techniques involved in artificial or assisted procreation could be **put to eugenic uses against the wishes of the scientists who devise them**.

### 1. Abortion

Judaism **authorizes** abortion only **for strictly therapeutic ends**, i.e. to save the life of the mother. For Judaism the child in its mother's womb is a new and distinct being whose life may not rightfully be terminated, although this life is less sacred than that of the mother.<sup>134</sup> The embryo is still a part of the mother. Thus abortion is as a general rule prohibited as being a wound inflicted on the mother without grave cause.

## 2. Homologous insemination

This operation (injection of husband's sperm into his wife's uterus) is generally **admitted but without enthusiasm**, masturbation being forbidden under Jewish law. Certain rabbis worry about the uses to which surplus sperm might be put.

## 3. Heterologous insemination (external donor)

Where the donor is not the husband, most rabbis are **categorically against** because "certitude as to the identity of the child without any risk of error is vital to the survival and perpetuity of the Jewish people."

## 4. "In vitro" fertilization

European rabbis appear to **categorically reject** all "in vitro" fertilization - even where the cells involved come from a married couple - as offending against the order of creation, being a laboratory operation carried out by a third person with no participation by the mother.

Most orthodox rabbis in the United States appear to **accept IVF, especially where the donor is the husband**. Rosner quotes Shlomo Goren, former chief Askenase of Israel, as describing IVF as "morally repugnant but legally admissible".<sup>135</sup> The argument here (Rabbi David Feldman, United States, conservative) is that "we are God's partners in the completion of creation and must avail ourselves of this creation in order to fulfil the duty of 'mitzvah'" (= fertility, which is considered to have precedence over the Halakha).

## 5. Surrogate motherhood: No

**Condemnation here is unanimous.** The principal objection is that "the child is treated as a means rather than an end", becoming in this way an "object subject to the laws of supply and demand and thus potentially, under current economic conditions, an object of violence."<sup>136</sup>

However James Rudin of the American Jewish Committee and David Bleich, Professor at Yeshiva University, consider certain arrangements involving another mother as acceptable provided the surrogate mother is fully agreeable to giving long-term custody of the child to the couple in question and provided no payment or intermediary of any kind is involved.<sup>137</sup>

## C. AN APPROACH TO ECOLOGY

At the root of Judaic thinking on the environment<sup>138</sup> is a line from Genesis (2.15):

*"The Lord God took the man and put him in the Garden of Eden to work it and take care of it."*

*"It is not just a question of preserving an environment whose impairment would disrupt the equilibrium of the world and thus of humanity ... For Judaism respect for nature is, first and foremost, an expression of respect for the Creation and of submission to the Creator and to His will."*

Thus the Jewish tradition, in Midrash Kohelet (7), takes the notion of respect for creation and interiorizes it.

*"When the All-Powerful created Man, he took him on a walk around His garden. Behold My works, he said, see how beautiful and well-ordered they are! All that I have created I have created for you. Take care, therefore, not to damage or destroy My Universe. Were you to do so, no one could remedy it."*

And Rabbi Guggenheim concludes:

*"Thus nature does not truly belong to us. It is something entrusted to us. It cannot therefore be a source solely of profit and enjoyment but also of obligations: nature is one of our obligations towards God. Their fulfillment will make it possible to sublimate it and transcend it, to **elevate simple physical enjoyment to the level of the sacred.**"*

#### D. FEMINISM WITHIN JUDAISM

There is a feminist movement within Judaism which is generally at odds with the views of the rabbis.<sup>139</sup>

The main contention of the feminists is that even the most progressive rabbis in their thinking on bioethics just shore up the legal code and thus the **patriarchal system of marriage, procreation and inheritance**, which explains, for example, the rabbis' objections to methods involving an external male donor, such methods representing a direct threat to the whole patriarchal system.

The feminists' concern is rather to put an end to male-dominated marriages in which wives are forced into risky operations for the sake of their husbands (e.g. where the husband's sperm is not mobile enough and recourse is had to IVF, the woman is exposed to the risks of this treatment although she herself is in perfect health.) The protection of male privilege, the perpetuation of the male line, the transmission of property from father to son, etc. are conditioned reflexes which the feminists want to change. This means they are quite favourably disposed to heterologous fertilization as giving women control over their procreative capacity and allowing them to conceive without a husband.

However they share the serious misgivings of most rabbis about surrogate motherhood:

*"From very different, indeed conflicting, vantage points, the two groups [rabbis and feminists] see the new reproductive technologies as **capable of bringing the well-being of individuals into conflict with the integrity, and the priorities, of the populations whose interests they represent**".<sup>140</sup>*

#### E. CONCLUSIONS

As said earlier, the relationship between different religions and science & technology is mediated by - normally unconscious - cultural matrices.

Orthodox Judaism I would situate in a **pre-modern world-view** (unitary, hierarchical) because of its constant reference back to an ancient standard, the Halakha, which still today structures much of Jewish ethical thinking, although certain new trends - **feminists, reformers, reconstructionists ...** - are suggestive of a post-modern world-view. But these are just working hypotheses.

Judaism also has a feminist movement which, as in other religions, contests the patriarchal and hierarchical world-view underpinning the orthodox religion.

Again like other religions it contains sub-groupings susceptible to fundamentalist hankerings after a reconquest of apostates and a crusade against non-believers. This tendency, while a minority one, has a major political impact, particularly in Israel.

## 6. SECULARISM AND HUMANISM

*My thanks here are due to Rob Thielman, President of the "Humanistisch Verbond" (Netherlands), Dr Liénard, Vice-President of the "Centre d'Action Laïque" (Belgium) and M. Morineau, National President of the "Ligue Française de l'enseignement", all of whom devoted time to providing me with valuable information on the ongoing debates within their movements.*

*"The search for meaning through the thinking of the laity, such is the aspiration of the "secular pact" for our time ... Democracy is falling so far short of the aspirations of our time ... that the only option is to explore every possible avenue; and dare I say, apart from this one, I do not see many others." M. Morineau*

## **1. INTRODUCTION: ORIGINS OF, AND CURRENT TRENDS WITHIN, HUMANIST/SECULARIST MOVEMENT**

To my knowledge an exhaustive history of the humanist/secularist movement has yet to be written. R.A.P. Thielman, Chairman of the "Humanistisch Verbond" (Netherlands), recently published a tentative historical outline, on which I have based myself in the following.<sup>141</sup>

### **1.1 Two families of precursors**

Humanism/secularism is descended from two distinct families of thought.

#### **The first derives from the churches,**

particularly the Protestant denominations, which, as we have seen, have fully embraced the logic of secularization, i.e. of the relegation of religion from the public domain to the area of private conviction. It is thus normal that questions of social ethics should be dealt with on a non-confessional basis. Humanism can be viewed as an extension of the (Protestant) theology of secularization. In addition, reformers such as Calvin put the emphasis on the moral responsibilities of the individual, another major feature of humanism.

To cite a few of the associations exemplifying this current: the American Ethical Union (AEU) (1889 - ...) with F. Adler, Society For Ethical Culture, etc. (many of these American humanists were ex-members of the Unitarian Church); Bund Frei-religiöser Gemeinden Deutschlands (BFGD) (1859 - ...), the Wiener Ethische Gemeinde (1902 - ...) and the now defunct British Ethical Union (1886-1963) and Nederlandse Vrije Gemeenten.

Also belonging here is the "Humanistisch Verbond" founded in the Netherlands in 1946 by Jaap Van Praag, an association which has flourished remarkably and to which 25% of the Dutch population now belong. It was also instrumental in the founding of the "International Humanist and Ethical Union" (IHEU), which has already held 11 international congresses the most recent in Brussels in 1990 - and which seems to aim at building a bridge between the two schools of thought, which in any case have a tendency to blend into one another.

#### **The second current is of anti-clerical origin.**

It is strongest in countries with Catholic majorities (especially Southern Europe), in the Soviet Union, India and a number of Third World countries where it acts as a bulwark against fundamentalist tendencies.

In Belgium it is exemplified by the "Centre d'Action Laïque", which in 1970 split with its Flemish-speaking half, and the "Ligue Belge de l'Enseignement".

In France the most powerful association is undoubtedly the "Ligue Française de l'Enseignement" (1866 - ...), which has 6 million members. The "Union Rationaliste" (1930 - ...) and "La Libre Pensée" (1906 - ...) have several thousand members each.

In Germany the "Deutscher Freidenker Bund" has existed since 1881, founded by Ludwig Büchner. (It was banned during the Nazi period.)

England has the important "National Secular Society" (1866 - ...).

The humanist movements of Ireland, Portugal, Spain and Italy are weak and not very organized, but in all these countries there are intellectuals engaged in active opposition to the power of the Catholic authorities<sup>142</sup>. This opposition is today much less virulent than in the past, however, the hold of ecclesiastical law on the general population having loosened very considerably.

## CONCLUSION:

The terms "humanism" and "secularism" will be used hereinafter in the following to denote these two strands, respectively the less anticlerical and more humanist movement in the North and the more polemical and anticlerical version of the South.

### 1.2 Current development of humanism

Humanists do not define themselves in negative terms (opposition to religion). They refuse to define themselves as atheists, free-thinkers or agnostics (as Thielman points out, Stalin was an atheist but not a humanist). They prefer a positive definition such as **"an emancipation movement working for a society of ... freedom, equality and solidarity with everyone."**

Thielman, looking at the prospects for humanism as an organized movement, sees little future for an anti-religious stance. Humanism has to become a modern social movement serving the concrete needs of society by contributing to the breaking down of barriers and to democratic debate on issues such as voluntary euthanasia, voluntary prostitution, pornography, drug abuse, extra-marital relations, abortion, protection of the rights of non-believers, of women, of homosexuals, of Aids patients, etc.

*"All these ... activities are much more important for the future of the humanist movement than is the question of whether or not a higher power exists, a question which has lost a lot of its relevance in what is now a secularized and technocratic society."*<sup>143</sup>

### 1.3 "Towards a new secular pact?"<sup>144</sup>

In an interesting postscript to a book by Baubérot, Michel Morineau, National Secretary of the (French) "Ligue de l'Enseignement", warns against the fossilization of laicity (= secularism) into a kind of "catho-laicity". There is a danger, through loss of contact with the thinking informing the great founding texts<sup>145</sup> of a misunderstanding spreading among the members of the Ligue:

*"Since secularism means the separation of Church and State (including that offshoot of the State, the educational system) and since secularization is now an established and irreversible fact, why keep alive a concept that is just a relic of a bygone struggle - and what on earth is the point in invoking it in discussions of democracy, morality and scientific and social issues?"*<sup>146</sup>

Secularism, then, needs to be rethought in the light of our mutating society. Mr Morineau, citing E. Moring, proposes a positive and forward-looking definition:

*"Secularism - at first glance merely the promotion of a public space for pluralism, the free discussion of ideas and tolerance is in fact something more profound and more fundamental than that which the secularist movement of republican France espoused at the outset of this century. **It is the source of the originality of European culture** as this has evolved since the Renaissance ... and defines itself not in terms of truths or doctrines but by the antagonistic, complementary and active interrelation of opposing ideas."*(241)

He proposes that secularism concentrate its attention on the basic problems of contemporary society, confrontational areas such as:

- inequality/exclusion;
- the secular clericalism of "experts" and other "high functionaries";
- democracy versus science;
- cultures/identities/citizenship;
- relationship between religions and society.

Elaborating on ideas of Baubérot's, he proposes that secularism create the conditions for a democratic debate, i.e. a debate which is pluralist, open, informed and from which no one and nothing is excluded.

*"The search for meaning through the thinking of the laity, such is the aspiration of the "secular pact" for our time ... Democracy is falling so far short of the aspirations of our time ... that the only option is to explore every possible avenue; and dare I say, apart from this one, I do not see many others." M. Morineau*

## CONCLUSION:

It is important to understand the major transformations which humanism and secularism have undergone in this period of cultural change.

My contacts impressed on me that it would be a mistake to continue to identify these movements with stereotypes belonging to past frames of reference.

## 2. HUMANISM AND LAICITY IN RELATION TO SCIENCE AND TECHNOLOGY

### 2.1 "Neither theocracy nor technocracy"

This formula of Thielman's encapsulates the awareness within these movements that a fundamental change has taken place in the role of science and technology.

The humanist tradition in the period from the Renaissance to the Enlightenment and the French Revolution saw the separation of Church and State, democracy, human rights and untrammelled scientific investigation not as ends in themselves but as means of promoting the autonomy and emancipation of the human being.

Nineteenth century humanists harboured rather a vision of science as the great liberator from the superstitions and clericalism which stood in the way of the emancipation of the human being.

Science was now seen as neutral and liberating, and something that ought to be free from every constraint. The secularists were among those who subscribed to the "cult" of scientific rationalism as an antidote to obscurantism and clericalism. Obviously secularist thinking has since then been through many convulsive revisions. Cultural change spares no one. And it is this attitudinal change that Thielman's formula - "neither theocracy nor technocracy" expresses.

### 2.2 Crisis of basics; non-transcendent regulation

Gilbert Hottois<sup>147</sup> makes a philosophically interesting diagnosis of contemporary technoscience.

- Man's capacities have made a quantum leap: **what we are witnessing is no longer cultural evolution but the mutation of the human species:**

*"The potential, the capacity for action and transformation developed by contemporary technoscience has grown and continues to grow to such an extent that man is acquiring the power not only to regulate his own condition but to **transform it completely**. Which puts him again in a position of transcendence, but one which is at once both effective and without basis. This is the position occupied by the image of man 'playing at God' and thus distorting it into that of Satan ..."*

- If this process has to be halted or slowed down, how is one to justify doing so?:

*"If it is necessary to stop at some point, this "thus far and no further" has to be justified philosophically. Affirming bases is, traditionally, a metaphysical or theological question, and thus a transcendent one. The basis - principle, axiom, value or dogma - is intangible. It defines a domain of the sacred, meaning, here, that which is above and beyond manipulation. In fact the question is no longer posed with such urgency today, given that what was in the past considered sacred was genuinely out of reach of our powers of manipulation. This is no longer the case today."*

- For Professor Hottois, then, reference to a religious or dogmatic basis is impossible because:

*"it delimits the possible in an absolute and transcendental, i.e. totally dogmatic way" which is not acceptable to science.*

And humanism he also sees as unsatisfactory, being:

*"an inadequate philosophical framework for the evaluation of contemporary technoscience."(105)*

- *"We must bid farewell, then, to (religious, philosophical moral) bases. They no longer exist. All humans can do in this new era of their history is to organize non-transcendental regulation through a democratic interdisciplinary debate which accommodates pluralism, respect for differences and minorities, flexibility and reversibility."*

### 3. SECULARIST/HUMANIST POSITIONS IN THE AREA OF BIOETHICS

#### 3.1 The values defended<sup>148</sup>

Humanist-secularist thinking here is based on a set of values, which should first be specified:

1. The first is the **autonomy** of the individual, the right to do with one's life as one will, even to the point of ending it, so that, for example, no one should be obliged to undergo medical treatment.
2. The second is the **equality** of everyone in their entitlement to care, i.e. no discrimination. But each person must also - thirdly - have a sense of **responsibility**, which comes into play in the innumerable cases where values conflict with one another. For example, abortion: clearly society and individuals must assume their responsibilities vis-à-vis the embryo, which, though it is difficult to ascribe to it a precise and incontrovertible value, has a right to ever increasing protection according as it grows. What is to be done with surplus embryos resulting from artificial fertilization? This human potential may in some cases be sacrificed to further certain types of research. But here again nothing is absolute. There is no question of giving a blanket go-ahead to the use of embryos for research. **Solidarity** is another important value, applied in the donation of organs but also in surrogate motherhood. But here again the good of the "giver" may never be subordinated to that of the "receiver": no one may be forced into solidarity.
3. Lastly the **greatest circumspection** is in order in the case of those incapable, or not fully capable, of exercising their powers of judgement (comatose patients, new-born babies, the insane, young children, psychiatric patients, the mentally handicapped, etc.). The recommendation in the case of painful terminal disease where the patient is no longer in possession of his faculties is that, when a decision on euthanasia is being taken, a legal representative should be present to act on the patient's behalf as advocate for his survival.

#### 3.2 What basis for legislation?

The premise is that we are moving from a society where Christian morality was the standard point of departure for all forms of legislation to a pluralist one where **a number of ethical visions coexist**. As a rule humanists and secularists advocate **minimal legislation** with maximum recognition accorded the individual's right to self-determination. But fundamental in their eyes is the **method** by which this legislation is adopted. If majority rule alone applies, minority ethical views are going **to be marginalized**. **An intelligent dialogue** is therefore needed between the different ethical visions within society so that future legislation takes account of, or accommodates, them all. That, in their view, is the yardstick of a real democracy today.

It is important that legislation is seen as provisional and not definitive.

Regarding **ethical committees**, the challenge, according to Madeleine Moulin, author of a book on the subject,<sup>149</sup> is a double one. The legislator must indeed be informed and enlightened but - an aspect receiving less attention - the **public must also be enlightened and be assisted in the assessment of new issues affecting all our lives**. The problem here is one of communication ethics (to use Habermas' term). The real challenge is organizing a debate about society and assisting Europeans in making informed judgements on technoscience. **Under no circumstances may ethical committees take the place of civilian society or the individual conscience**.

#### 3.3 The beginnings of life<sup>150</sup>

- **Legislation on adoption must be made more flexible** as a contribution towards solving the problem of unwanted infertility;
- **Sperm** and **ovum donation** should be seen as acts of solidarity with those without "good" seed. This gift must be a totally free one, with no conditions applied.
- The primordial criterion regarding **new fertilization techniques** must be the quality of the parents. But here the humanists dispute the rarely questioned presumption that the only guarantee of quality of parenthood is a convergence of genetic, physiological, legal and socio-affective attributes. This presumption cannot serve as basis for legislation. **Socio-affective parenthood** is rather the most pertinent consideration from the child's viewpoint.
- A child procreated by anonymous sperm donation can have identity problems. **He has a right to ask to meet his father.** This request must be communicated to the father who can then decide, in his turn, whether or not to come forward.
- **Prenatal diagnosis** should only be conducted with a view to preempting pathological malformations.
- **Abortion** should be legal as being the solution to a situation of conflict between a qualitatively developed life and a qualitatively undeveloped life. The decision must be taken by the woman, preferably in concert with her partner if she has one.
- The **manipulation of embryos** resulting from abortions or from in vitro fertilization is only admissible if it contributes to the improvement of the human genome.

## GENERAL CONCLUSION

I have concentrated here on those schools of thought which have occupied themselves to a greater or lesser extent with the cultural mutation in progress. (There are others.)

The principal theme to emerge from this brief account is **the need for a democratic debate not just at national but also at European level**, a debate which truly accommodates minorities and is conducive to tolerant standards, without on the other hand allowing technocratico-economic interests to dominate our society.

The **Hofstede table** confirms the cultural difference separating the Anglo-Saxon/Dutch/Scandinavian/German North, where humanism is a sort of by-product of Protestantism, from the mainly Catholic South, where secularism has set itself up against the influence of the Catholic Church on legislation and civil life.

But it also suggests that this dialogue on ethical standards is more advanced and easier to conduct in the North, whereas in the South the tendency is to discuss the concept and necessity of such dialogue at great length without getting round to actually initiating it, precisely because of the high degree of uncertainty avoidance, and therefore difficulty in accepting otherness, that characterizes Catholic cultures.

The **Wildiers table** shows the enormity of the 'rethink' into which the cultural change has plunged humanist-secularist circles. I am thinking here mainly of the change in the role of technoscience within society. But more generally the change in the status of rationalism - no longer perceived as an infallible guide - has led to a fundamental revision of positions. The main contribution of the humanist/secularist movement to the reenchantment process is perhaps this insistence on the **dialogue-ethical component in communication.**

## 8. RELIGIONS IN JAPAN

*"Aime l'autre, qui engendre en toi l'esprit."*

Michel Serres, 1991<sup>151</sup>

## SUMMARY

1. In Japanese culture public humiliation is the greatest of all evils. 1945 was such. The Japanese have various approaches to **purging this humiliation**, e.g. by beating their conquerors at their own game or by being taken seriously as partners who are EQUAL BUT DIFFERENT in the management of tomorrow's world.
2. I would advance the hypothesis that **as long as the Japanese are not taken seriously in their "Japanese-ness", i.e. in terms of their own cultural and religious values, they will continue to apply Western concepts "their way"** (free trade, bioethics, environmental protection). Why indeed should they respect unwritten rules (familiar only to those who devise them) if they are not taken seriously as partners in world politico-ethical debates? **And if their values are not taken into account when these rules are drawn up?**
3. A section of intellectuals, politicians and scientific associations is **sincerely interested in political dialogue of a new kind with Europe and the United States on world problems, with each partner participating from the perspective of his own culture** (in the areas of ecology, climatic change, Third World). This is also the group with the greatest awareness of Japan's cultural riches.
4. Buddhism is the art of limiting desire (by definition infinite). The problem raised by the development of science and technology and by our ways of doing and living is, precisely, the waste of resources. This problem is situated in the heart and spirit of man. **We must learn, collectively and individually, to limit our desires.** Intercultural dialogue could prove very fertile and be a **basis for more balanced relations between Japan and the Community**, promising better management of the problems confronting the world today (ecology, Third World).

*The author of this report visited Japan on mission in February 1991. My thanks are due in particular to Mr Nagahama of NISTEP in Tokyo, Mr Bourène and Mrs Hachiya of the Tokyo delegation, Mrs J. Watford of DG XII and all the people I met (see attached list) who gave me of their valuable time.*

## 1. General impression

### A vast cultural difference

All foreigners who have lived in Japan for a number of years stress the vast cultural gap dividing Europe from Japan. Commonly-used terms - time, space, person, group, power, work, truth, history, etc. - often have quite different semantic connotations (see Annex 2).

### The impression of putting the "right" question to people of calibre

From beginning to end of my trip I was pleasantly surprised to find that I was asking the right question, i.e. the question that went to the heart of their culture and religion, their reasons for living, their attitude to dying.

I had the good fortune to meet highly eminent people: religious leaders such as the high priest of the national Shinto sanctuary (Mr Yano), one of the most revered Buddhist monks (Mr Hirata), a famous philosopher and poet (Mr Umehara), a novelist (Mrs Takeda), university professors and, last but not least, officials responsible for Japanese science & technology policy.

With a number of these I had the impression of having established a high quality of dialogue, which we would have liked to have been able to pursue.

## 2. Comments on Japan's religions

A detailed typology of Japan's religions is not possible in this study. I shall limit myself instead to a few general remarks aimed at facilitating an understanding of what follows. A proper study would require a critical comparison of the various points of view on the subject. That, however, lies outside the scope of an exploratory report.

- \* **The term used by the Japanese** to translate our term "religion" does not have the same semantic content. Our word emphasizes the relationship between man and God (re-ligare). The Japanese concept "shu-kyo" contains the notion of "**faithfulness**", and thus refers more to behaviour, to the art of living well in order to be in harmony.
- \* Japan had its own **very ancient religions** in the Jōmon (gathering and hunting - more than 4000 BC) and Yayoi (agricultural) periods.<sup>152</sup> There are some intellectuals who urge their countrymen to retrace these roots and return to these multimillenary cultures which continue to influence the Japanese mentality to this day, even if unconsciously.

**From the sixth century AD** Buddhism, Confucianism and Taoism were introduced into Japan, where they took on a specific local colouring. One characteristic was a **tolerance** towards other religions.

- ❖ **Shintoism**<sup>153</sup> is a very ancient form of nature worship. It apparently has its roots in a forest (i.e. gathering and hunting) civilization, the oldest stage of civilization.

The central idea of Shintoism is that *nature is sacred* (kami), and certain wild animals (wolves, snakes) are also "kami": they are not really gods, but they symbolize a superhuman force. Mountains, water and the elements are also kami: they have a mysterious force beyond our ken. The central divinity of Shintoism is the Sun goddess. The sun is what makes nature live and the rice grow. The emperor plants rice each year and cultivates it.

At birth man receives a pure heart (wake mi tama) but, during his life, corrupts it. He can purify it again through prayer.

Shintoism contains a **notion of grave collective sin (amatsu tsumi), meaning serious damage to nature, e.g. fields of rice or animals**. In contrast sexual debauchery within the family (incest) is considered an individual, and hence lesser, misdeed. Moreover, grave sins can be forgiven only by and in the sea (umi). *We sense here a much greater ecological rationale underlying Japanese religions than Western religions*. Indeed, the conference of churches held in Canberra clearly showed how ecological disaster is forcing Christianity to modify and rethink its conception of the relationship between man and nature.

In the seventh century AD (4 700 years after its origins and when Japan first developed a national identity), Shintoism became a "state religion", a situation which lasted for a century or two. Shintoism again became the state religion during the 19th and 20th centuries, and was used as a vehicle for Japanese nationalism.<sup>154</sup>

Shintoism is closely associated with **ancestor worship**. The ancestors meet the living members of the family four times a year. Some (Umehara) believe that after living in the other world they return to earth and are reincarnated as a child in the same family.

One of the main treasures of the imperial court, jealously guarded in the national Shinto sanctuary at **Ise**, is a mirror, wherein each person as he ages can progressively discern the face of his ancestors.

Ancestor worship is also closely linked to **self-abnegation**. It is essential to dedicate oneself body and soul to one's work, since that work has probably been designated by the ancestors.

Emperor worship ("emperor" would be better translated as "high priest") is a symbolization of the respect owed one's ancestors.

❖ **Buddhism**,<sup>155</sup> although basically the same as in India (Hirata), took on a specific colouring in Japan.

While in Indian Buddhism only a small minority of people stand a chance of becoming a Buddha, in Japan this hope is held out to **everyone, even to animals and nature as a whole**. This profound belief of Japanese Buddhism is expressed in the renowned maxim:

*"every living thing holds within it the potential of becoming a Buddha"*.

Under the influence of Shintoism, Japanese Buddhism holds that everyone after his death becomes "kami", sacred, divine. The Shinto high priest explained that when a person dies he becomes "**hotoke-sama**" (Japanese Buddhist term), but that after 100 years he becomes "**kami**" (Shinto term), since no-one knows him any more. Thus it is in Buddhism that ancestor worship becomes ritualized. However, the intuition is also of Shinto origin.

One of the main forms of Japanese Buddhism is "Jodo Shinshu", preached by Shinran in the 13th century. The doctrine of "nembutsu", which is associated with spirituality of a very high level of altruism, affirms that Bodhisattva, instead of becoming Buddhas, continue to be **reincarnated indefinitely** to help with the salvation of other men. This could be the influence of Shinto reincarnation.

It is important to note that the Buddhist world-view **does not make a clear distinction between respect for human life and respect for animal life**, since the

cycle of reincarnation involves animals becoming men and vice versa. The rule is respect for all living beings.<sup>156</sup>

### ❖ **Confucianism,<sup>157</sup> the power behind productivity?**

Some authors (Umehara) describe Confucianism as an ethics of life in society, based on respect for one's parents and loyalty to one's superiors. While in Chinese Confucianism ethical principles are essentially limited to the extended family and friends, **Japanese Confucianism introduces the dimension of society and lends it decisive weight**. Thus in Japan **public or professional duty** always takes **priority over private duties** (e.g. sick child or dying parents). The centre of gravity is quite clearly placed on society; **personal existence acquires meaning through accomplishment of its social role**.

According to some authors, Confucianism is a decisive factor in increased productivity: the countries influenced by Confucianism (Korea, Taiwan, Singapore and Japan) being those where productivity has increased the most.

Other authors (T. Hayashi) cite the case of mainland China, the cradle of Confucianism, where there has been no spectacular increase in productivity. Perhaps this is because Chinese Confucianism is too restricted to family life?

### **3. Japanese religions and culture in relation to science and technology: three levels of observation**

My approach here reflects the way in which the Japanese themselves answered the question. Often the answers given, sometimes by the same person, were on quite different levels.

One of the greatest specialists in bioethics in Japan, Professor Yonemoto, distinguished **three concentric circles** in Japanese culture.

- \* The outermost is that most in contact with the outside world, but also the most superficial one. Here evolution is rapid (1-year cycle). Fashion, music, advertising, etc., things susceptible to Westernization and which change very quickly.
- \* The second circle includes such areas as family and sexual ethics; the pace of change here is slower (10-year cycle).
- \* The third circle, the innermost and most secret, is the **heart of Japanese culture**. It contains the strongest religious element, although this is less influential, or influential in another way, than in the West. Change is **very slow** (100-year cycle). This is the level at which the Japanese bioethical debate (on the criteria for ascertaining death and the rejection of organ transplants) takes place.

On this basis, I provide three levels of answer to the question as to the relationship between science & technology and the religions.

#### **1st level: rational and sociological approach**

3

At the beginning of conversations with Japanese people on the subject, the first answer is often that the religions have no influence on science policy, technological choices or even ethics.

*"The religious context is much weaker in this country, and moral behaviour is influenced more by cultural customs which, in my opinion, are not religious" (Kenji Makino, journalist).<sup>158</sup>*

One hears the same story from the many DG XII officials who have had the opportunity to travel to Japan. Many have the impression that religion has little impact on the questions facing society.

I received the same answer at the Japanese Cultural Centre in Brussels, where I was told that this kind of question was quite exceptional.

This point of view should be taken very seriously, and certainly contains part of the truth. However, my investigation revealed other levels of analysis.

### *Consequences for the relationship between science & technology and religion*

At this level, the influence of Japanese religions on science and technology is **more or less non-existent**, or at least in no way comparable to that of religions in the West.

## **2nd level: ambiguous attitude of Japanese towards their culture and their religions**

3

### *Debate on Japanese culture*

- \* According to anthropologists such as Umehara, the 1945 defeat was also a defeat for the fascistic and racist ideology dominant in Japan during the Second World War, which was openly associated with Shintoism and emperor worship.

The lack of enthusiasm among young intellectuals after the war for Shintoism, and for Japanese religions and culture in general, is understandable. The discredit of defeat was tacitly extended to the whole of Japanese culture.

- \* The United States also played an important role. They not only imposed a constitution but also persuaded the Japanese to adopt their cultural values and world-view. It is the custom in Japan to recognize and accept fully the victor. Thus the Americans and their culture were accepted and studied with great care. The Japanese applied certain aspects of Western culture. However, as with all other cultural imports throughout Japanese history, they integrated them within their millenary cultural tradition.

Nevertheless, in certain private conversations it became clear to me that in this process of adaptation to Western culture the Japanese felt deeply humiliated. Not only by their military defeat, but also by the cultural superiority complex of Americans and Europeans. This superiority is all the more aggressive because subconscious. Thus the relationship between Japan and the West contained a rarely articulated **combination of a cultural superiority complex (ours) and an inferiority complex (theirs)** (Fujii). So much so that for years cultural dialogue has been limited to a Western monologue and polite silence from the Japanese.

- \* Mrs Takeda advances the hypothesis that part of Japanese culture takes the form of a kind of Jungian "**collective subconscious**", one, however, which can be very **creative** - in its impact on technological progress in Japan, for example. According to some observers the strength of the Japanese approach to markets and management is precisely that they **are continually using and exploiting their very rich cultural tradition and incorporating it in their strategies**. The obvious success of the Japanese in this area also gives rise to a sense of superiority, which seems to coexist with the abovementioned feelings of inferiority.
- \* That the European Commission had dispatched an official to study "the attitude of Japanese religions and culture to science and technology" was perceived, I found, as **something new and very positive**, which could contribute to overcoming

complexes subsisting in both Europe and Japan. It could lead to a new kind of dialogue on our respective cultural strengths and weaknesses in the face of pressing world problems.

### *Consequences for relationship between science & technology and religion*

According to most of the people I interviewed, Japanese culture has a real influence on science and technology, **but it is not really formalized**, i.e. spelt out, as in Christian dogma.

The most striking example is the intense bioethical debate raging in Japan, although the issues at stake and the way the debate is being conducted are completely different. A second example is the way in which the Japanese are increasingly structuring their science policy in such a way as to afford much more room to ethics and the environment.

## **BIOETHICS: NO TO ORGAN TRANSPLANTS**

The debate centres on issues linked to the **end of life**, whereas in the West it centres much more on its beginnings. Everything started with a heart transplant carried out 20 years ago in Japan. The reaction of all sections of public opinion was so strong that since then **no further transplants from corpses** have taken place in the country. There is thus a complete impasse resulting from cultural or religious factors.

I asked many people how they explained this. I had the distinct impression that I had to do with a **real, solid, vigorous, but almost subconscious ethico-religious dimension**. This emerged from the very vagueness of the reasons cited in explanation of the opposition of Japanese public opinion to organ transplants from the bodies of brain-dead people.

For **Professor Yonemoto**, author of the only major work on bioethics in Japanese,<sup>159</sup> the obstacles to further transplant operations have their roots in the innermost core of Japanese culture. These obstacles do not necessarily derive from religion. According to him the 1945 defeat **brought back the fear of death to Japan** after a period during the war when death by kamikaze (kami = sacred) was venerated and the fear of death was in suspension.

These psychological obstacles have to be overcome but it is a slow and difficult process. The solution would be to introduce advanced technologies and thus force the pace of change.

According to Professor Murakami, the obstacles to transplantation are linked to the profoundly Japanese (Shinto) notion that **the natural is pure and beautiful, the artificial impure and ugly**. Thus any foreign part introduced into the body is impure and unacceptable.

According to Professor Fujii, an expert on Buddhist ethics, there are two forms of obstacle.

The more important is the Buddhist conception of a "oneness of life and death". A transplantation which attempts to prolong life artificially "denies the transitory nature of life and death". To delay the cycle of reincarnations is impious and pointless. An opinion poll showed a majority of Japanese **prepared to donate an organ but not to receive one!**

The second relates to the criteria for establishing death. Scientists propose the Western criterion (brain death), but this collides head-on with the Buddhist viewpoint. Says Fujii: "the brain death criterion sees the body as an assemblage of organs, of which the brain is the most important. Thus if the brain dies, the body is declared dead, even though other organs continue to function, and the removal of living organs is authorized from the body of a brain-

dead person. This practice is incompatible with the Buddhist ideal, since **it interrupts the cycle of life and death.**"

For Mrs Takeda, the Japanese attitude to bioethical issues, whether organ transplants or genetic experiments, is characterized by a **fear of violating nature (which is sacred in Shintoism) and hence by circumspection.** She also notes that no more than 10% of the members of the various ethics committees are women.

\* **Abortion:** law amended in 1991

The 1948 law permitted abortion for eugenic and financial reasons. However the demographic index has since fallen to 1.57%. The new law is more restrictive, limiting abortion to the first 22 weeks. Buddhism condemns abortion in theory but has never campaigned against abortion in Japan, and has even authorized it in certain circumstances. It condemns all forms of active euthanasia outright.<sup>160</sup>

#### PATENTING OF LIFE: NO DISTINCTION BETWEEN HUMAN AND ANIMAL LIFE

In Japanese culture, the important and morally decisive distinction is between plant life and animal/human life. Respect for animal life is very deeply anchored in the Japanese mentality as a consequence of belief in reincarnation and ancestor worship.

**If Westerners start accepting the principle of patenting animal life, the Japanese are very probably going to interpret this as meaning that human life can also be patented.**

**This suggests an interesting new angle on the current debate in the European Parliament.**

**TABLE 6**

**COMPARATIVE TABLE OF CERTAIN RELIGIOUS/CULTURAL DIFFERENCES  
IN THE BIOETHICAL DEBATE**

	<b>JAPANESE RELIGIONS</b>	<b>CHRISTIANITY</b>
GENETIC ENGINEERING AND EXPERIMENTING ON ANIMAL EMBRYO'S	NO (Limited polemics)	YES (no polemics)
GENETIC ENGINEERING AND EXPERIMENTING ON HUMAN EMBRYO'S	NO (Limited polemics)	NO (extensive Debate)
BRAIN DEATH = DEATH	NO (Extensive Debate)	YES (No Debate)
TRANSPLANTING of Living Organs when Brain is dead	NO (Extensive debate)	YES (No Debate)
EUTHANASIA	NO	NO
ABORTION	YES (in practice) And NO (in theory)	NO (catholic) NO, but YES, to the lesser of two evils (Protestant/Orthodox)
SELF-IMMOLATION (Hara-Kiri) (Kamikaze)	YES but no post-mortem organ donation	NO

***It is time for Japan to return to its roots***

\* Debate on the philosophy of science

In a recent article,<sup>161</sup> and in other publications, Fumihiko Satofuka, Professor of the philosophy of science at Sagami University, Kanagawa, pinpoints the problem:

*"Having caught with the West, for its own tradition [Japan] has to return to itself. In order to be truly traditional, it will have to have a meaningful dialogue with what it left behind. It will have to engage itself in a dialogue not only with Europe's shadow but also the richness of Japan. Japan fought a war under the militaristic slogan of the extermination of the Western Brutality. Japan has now become the*

*leading economic force in the World. The search by Japan of scientific tradition utilizing some religious spirits that it left behind will help it truly become a part of the World again. Then only will it become truly traditional and also in the process fulfill its responsibility."*

\* Interesting debate among Christian minority

A major congress on "Science, Technology and Spiritual Values: An Asian Approach to Modernization" was held in 1987.<sup>162</sup> It was organized by Sophia University, in cooperation with the United Nations University, the Pontifical Council for Culture (Vatican) and the World Conference of Religions for Peace. Although Christianity is professed by only an extremely small minority (2%?), it is accepted and has a real impact on Japanese culture.

### **3rd level: in search of the heart of Japanese culture/religion and its dialogue with Europe and the United States on world problems**

We now turn to the deepest level, at the heart of Japanese culture.<sup>163</sup> It was at this level that discussion was at its most open, frank and profound. **As soon as my Japanese interviewees realized that dialogue on this level was possible, the tone of the conversation changed.**

It is possible therefore to advance the hypothesis that the Japanese are in the process of defining their culture and its essence and that **any authentically Japanese ethical discussion, particularly on the subject of science and technology, will be conducted on the basis of this in-depth rethink.**

It is at this level that we discover a sincere desire to engage in a debate on world issues on the basis of the distinct culture of each partner.

#### *Debate at deeper level of Japanese culture*

\* The philosopher Hayao Kawai and anthropologist Taddao Umesao

According to both of these authors, neither of whom unfortunately I had an opportunity to talk with, the centre of Japanese culture is empty. The Japanese must accept this fact and resign themselves to it.

From a Western perspective the very fact of a discussion as to whether or not Japanese culture exists is astonishing. Can one imagine a discussion on whether or not French or German culture exists?

\* Professor Murakami

Professor Murakami is Director of the Programme of Ethical Reflections on Science at the new Centre for Advanced Science and Technology, and was a speaker at Europalia. He challenges the negative vision of Japanese culture put forward by Umesao and Hayao. In his eyes "the centre of Japanese culture is alive and well, but as soon as you try to describe it in words it escapes, like all subconscious things it evaporates as soon as you talk about it".

He nevertheless attempts to describe it. He calls the centre of Japanese culture "soul" (= anima = tamashi = inotchi). This Japanese soul is composed of three layers:

- the deepest is the sea = "Umi" = Nature = the Mother, source of all life: to here everything returns, she it is who washes sin away (Shinto);
- our individual lives, derived from Umi;

- the principle of community: "Shakai coso".

According to Professor Murakami, **all ethical and aesthetic judgements and all behaviour patterns derive from this centre.**

\* Professor Hayashi

Professor Hayashi, sociologist and Buddhist, describes the composition of Japanese religious feeling as follows:

- there is a supernatural, mysterious entity which transcends our understanding and is not pervious to our senses;
- unlike Westerners, who set out to conquer nature, the Japanese feel themselves to be and to live as *part of nature*, not above nature;
- ancestor worship, as practised in Japan (Shinto), implies the reincarnation of ancestors and hence *cyclical temporality*. Union with the ancestors can be described as a mystical *union*.

\* Mr Umehara

*Mr Umehara* is one of Japan's most famous intellectuals and Director of the new International Research Centre for Japanese Studies at Kyoto.

For him "*Japan's strength is to have preserved, more than other supposedly civilized peoples, a 'belief in an eternal cycle of life and death'. The forest civilizations probably had a similar philosophy*".

Thus the Japanese have no reason to be ashamed of the "primitiveness" of their deep beliefs, at a time when the whole world is discovering that "we have to reconsider our feeling of superiority over nature" and at the precise moment when "modern science has shown that life is one and that living beings and their environment form part of the same ecosystem. After our death, our genes live on in the next generation, in a continual cycle of rebirth. We must revert to the multimillenary wisdom of pre-agricultural civilizations."<sup>164</sup>

The Japanese must escape from their cultural inferiority complex and have confidence in the value of their culture in the world-wide debate on the ecological future of our planet.

If at the same time the West were to shed its cultural and scientific superiority complex, a fruitful dialogue could take place.

*"Many Europeans do not consider Japan capable of contributing to the international debate on world problems. Yet we can no longer survive with the modern paradigm of uncontrolled growth. That is the essence of post-modernism. If Mr Delors is interested, I am available."*<sup>165</sup>

Mr Umehara categorizes himself among "post-modern" intellectuals. For him "**it is time for Japan to understand that it can no longer live with the paradigm of modernity**". Unfortunately the time is still not quite ripe to link ethics with politics. Politicians do not appear to be ready for this yet, but a minority of intellectuals are asking these essential questions, which will appear self-evident in a few years' time".

The Institute which Mr Umehara heads recently set up a study group to look into the "**creation of new paradigms**".

\* Reverend Hirata

Reverend Hirata is a Buddhist monk, the head of a community and Director of the Zen Culture Research Institute in Kyoto, one of the main Buddhist-Zen science & technology study centres.

He considers Buddhism's most important contribution to science and technology to be "*the art of limiting one's desires, which are by definition infinite. Buddha teaches us to be content with what we have here and now*".

This is precisely the problem which a world science & technology ethic has to address. Science and technology make everything we want possible. However, we waste more of the world's resources than we need. Technology is neither good nor evil. In any case it is impossible to hold back its development. The problem resides in the hearts and minds of humans.

*"We must learn collectively and individually to limit our desires and not to consume more than we really need. [...] I recognize that the Japanese are among the worst polluters and greatest consumers of resources. But I can tell you that over the last two years things have been changing and some leading industrialists come here to reflect on the ultimate utility of their work and on their future plans. I invite Europeans to join in this dialogue."*

#### ***Consequences for the relationship between science & technology and religion***

\* The Japanese are in the process of reappropriating or clarifying the essence of their culture. **Any authentically Japanese ethical discussion, particularly on the subject of science and technology, will be based on this in-depth rethink.**

\* For the moment - as far as we know - only intellectuals and theologians, and perhaps certain science policy makers, are thinking at this level. The striking thing is that **it should be precisely at this level that dialogue is most frank, open and profound.**

\* Japan's religious and cultural background appears in some respects to be rich and useful for rethinking at world level our relationship with nature just when the Christian churches are being forced to reconsider their theology of nature and creation. Here are a few examples of Japanese religious thinking which could be very enriching for a debate at world level:

***Many Europeans do not believe that Japan is capable of contributing to the international debate on world problems. I am convinced that it is.***

***(Umehara)***

- the belief in an eternal cycle of life and death (Shinto), in cyclical time
- the notion of grave collective crime against nature (Shinto);
- the art of individually and collectively limiting our desires (Buddhism);
- a sense of working "together", of collective responsibility (Confucianism) - though this will have to be extended to the whole world, deprovincialized;
- a sense of the sacredness of nature (Shinto), which under Christianity has been (over?) desacralized;
- awareness of original beauty, purity, naturalness (Umi);
- a way of looking at man as a part of nature;
- a far less clear distinction between humans and animals, resulting in much greater respect for animals.

### ***Structuring Japanese science policy around globalization and ethics***

From consulting a whole range of sources I would suggest that the above-listed values are still alive deep down in the "Japanese subconscious" (Takeda). It is from this deep level that the current redirection of science & technology policy draws its inspiration.

#### \* *Science Council of Japan*

At its 1988 Assembly this Council, which represents scientists before the Prime Minister, assigned itself three priority objectives, the first being the "promotion of science in consideration of its relations to peace, human welfare and the natural environment". The first of the research topics selected on the basis of these three objectives was "**ethics and the social responsibility of scientists**".

A report on the globalization of science and technology adopted by the Ad Hoc Committee on International Affairs (Chairman: Shinichi Saba) in December 1990 recognizes that Japan has achieved great economic power and scientific and technological capacity and should take the lead in fostering world-wide collaborative research aimed at resolving problems affecting all mankind and at coping with the amplified scale of scientific and technological activity. It should also provide funds to subsidize such activity.<sup>166</sup>

#### \* *Japan Society for Technology*

In a recent note<sup>167</sup> Mr Bourène, Science & Technology Adviser to the Tokyo delegation, drew attention to a **Declaration on Technology and Well-being** by the **Japan Society for Technology**, which is characteristic of this (new) Japanese desire to give serious consideration to world problems and to gain recognition at world level through its initiatives in this field.

An extract from the summary of the declaration:

*"The aim of this proposal is to show how human wisdom can be used in relation to technology, and in what direction we should head to further our creative activities and achieve the essential goal of technology in the years ahead. This involves presenting a new paradigm for technology."*

#### \* *Scientific Society of Japan.*

This association of several thousand scientists was founded just three years ago. It is headed by the philosopher Sakamoto and concerns itself with various ethical issues - beginning of life, end of life, terminal care, birth control... - but also with the environment and climatic change. It is also interested in engaging dialogue with similar organizations in Europe and the United States (Tokuyoshi Tamaru).

### ***Political will to take initiatives to promote ethical dialogue on world problems***

My impression from conversations with representatives of the world of science and scientific planning was that this Japanese desire to **promote a world dialogue** on the challenges of science and technology **should not be seen as merely strategic. It is rooted in a rich cultural tradition, which the Japanese are in the process of reappropriating and which is omnipresent in their day-to-day perceptions.** As they rediscover their roots, they are also becoming aware of the derangement of the industrial society of which they are a part and beginning to feel a sense of guilt about the defilement of nature, which is perceived as a profanation of their millenary cultural values.

**\* POLITICAL SIGNALS HAVE ALREADY BEEN SENT OUT, BUT HAVE PASSED ALMOST UNNOTICED IN THE WEST**

The Director of NISTEP (National Institute for Science & Technology Policy), Mr Kawasaki, told me that Japan had already given various political signals of its interest in promoting, and engaging as a fully-fledged partner in, ethical discussions of world problems.

He cited a few examples:

- The **international ethics conferences** launched within the G7 framework at the instigation of the then Prime Minister, Mr Nakasone, at Hakone, followed by Paris-Rambouillet, Bonn, Ottawa, Rome and Brussels, at which the topic of environmental ethics was first raised, particularly by the EC (Bourdeau).
- The initiative launched by the Japanese aimed at evaluating the **Intelligent Manufacturing System**.
- The **Human Frontier Programme** research proposed by Japan to the EC, USA and Canada, funded mainly by the Japanese and managed by DG XII.

The conference on **Pain and Society** (26-27.10.1989) organized as part of Euroalia Japan, an EC initiative backed by Japanese funding (Honda Foundation).

**\* CONCRETE PROPOSALS FOR FUTURE COLLABORATION**

A number of proposals were made by different parties (Mr Nagahama of NISTEP, Mr Tamaru, Mr Umehara, Mr Hirata):

- Organization of a **major international conference on climatic change, in which Japan, Europe (and the United States) would discuss new paradigms for science and technology, EACH ON THE BASIS OF ITS OWN CULTURE.**
- Organization of a "**dialogue between senior European and Japanese industrialists at Kyoto on the world responsibilities of industrialists**", chaired by the monk Hirata. (N.B. The Association for Monastic Dialogue between Japan and Europe could be asked to coordinate our side.)
- Intensification of dialogue with authoritative associations such as the Scientific Society of Japan, the Japan Society of Technology, the Science Council of Japan, etc.

**GENERAL CONCLUSION**

**1. Unexpected contributions from Japan to incipient world debate**

- \* At first glance Japanese religions and culture would appear to have little influence on science and technology.

- \* On closer examination one sees that ethical decisions, particularly those affecting science and technology, **are in fact very markedly influenced** by a rich but inexplicit cultural background.
- \* Discussion at a deeper level with certain intellectuals and experts on Japanese religions revealed the richness of Japan's multimillenary religious tradition. Some Japanese intellectuals believe that **it is now time for Japan to return to its roots and to reappropriate its millenary culture**.
- \* These same intellectuals and politicians are also those most sincerely interested in a new kind of political dialogue with Europe and the United States on world problems, with each taking part on the basis of its own culture (ecology, climatic change, Third World and bioethics).

## 2. Hofstede table

- \* The most striking thing emerging from the Hofstede table is the very low level of individualism in Asiatic cultures or, to put it in a less Western way, the **very high sense of community**. The Japanese think that our religions generate a sense of community in Western culture, but that the community is badly neglected by Western anthropology. What Hofstede considers a positive factor (a high degree of individualism) is **seen by the Japanese almost as a serious drawback**.
- \* Some anthropologists, such as Hsu, think that the very high degree of uncertainty avoidance could be indicative of **great interest in religion and related ethical questions**. This conclusion goes against the grain of traditional Western conceptions of Japan.
- \* The very high masculinity index (the highest in the world) runs directly counter to the non-authoritarian nature of the new world-view. This makes women's movements in Japan valuable indicators of the direction in which this society is going.

## 3. Wildiers table

- \* In Japan as everywhere else, intellectuals appear to be divided on this change of world-view. Some are still totally immersed in the scientific universe and pay unreserved homage to technology, a field in which Japan excels. The few politicians I met appeared to share this mentality.

Certain intellectuals, like Hirata, Umehara, Yanase, Satofuka, Murakami, etc., seem to be moving progressively towards a **unitarian world-view** and to be measuring the scope of the imminent cultural transition. **It is these intellectuals**, who are still in a minority, who are most interested in dialogue with Western intellectuals and politicians.

## **ANNEX 1: LIST OF PEOPLE INTERVIEWED**

- Mr Maurice Bourène: Science-&Technology Adviser to the delegation of the Commission of the European Communities in Tokyo
- Mrs Machiko Hachiya: assistant to Mr Bourène, organizer of my visit, interpreter
- Mr Serge Plattard: Science-&Technology Adviser to the French Embassy in Tokyo
- Mr François Grout: Science-&Technology Attaché to the French Embassy
- Rev. Ballon: Belgian Jesuit, living in Japan for 45 years, Emeritus Professor of Sophia University, Director of the International Management Development Seminars, Lecturer on the Executive Training Programme in Japan organized by the European Commission
- Rev. Noel Keizo Yamada: Japanese Jesuit, whom I had already met in Washington in 1988, Director of the Office of Academic Affairs, Professor of Economics, Sophia University (Catholic University)
- Rev. Yanase: Japanese Jesuit, physics graduate (Tokyo and Princeton), Chancellor of Sophia University, Tokyo, expert on the relationship between science and faith, author of a forthcoming book on "Hidden Realism"
- Rev. Kitahara-Frisch: Jesuit, Professor of Science Ethics and Bioethics, Sophia University
- Prof. Fumihiko Satofuka: Professor at Sagami University, philosopher of science, collaborator on EC's FAST programme
- Mr Yukio Wakamatsu: Graduate of Tokyo University, working on doctoral thesis in Denmark (Roskilde University) on "Science and the Mass Media"
- Mr Hiroshi Kataoka: General Manager of Mitsutoyo, a multinational corporation which manufactures weighing instruments and is run on the basis of Buddhist ethics
- Mr Hiroshi Hanaoka: Adviser to Mitsutoyo
- Mr Yusaku Shibata: Capacitation catalyst collaborator on the CAPIRN network set up by FAST
- Prof. Masuda: Economist, interested in the link between the economy, culture and religions in Japan, future collaborator on FAST programme
- Mrs Kiyoko Takeda: Emeritus Professor of the Anthropology of Religions, renowned novelist
- Mr Takeshi Hayashi: Professor of International Relations at Daito Bunka University
- Mr Yoichiro Murakami: Professor at Centre for Advanced Science and Technology, Director of the Programme of Life Science and Society, Organizer of a conference on Science, Technology and Religion held in October 1990
- Mr Shohei Yonemoto: the most famous bioethics expert in Japan, spoke on bioethics in Brussels during Europalia, author of the most important work on bioethics in Japan

- Mr Masao Fujii: Professor of Anthropology and Sociology of Religion at Taicho University (Buddhist)
- Mr Ken'ichi Yano: High priest (Negi) of the Shinto National Sanctuary at Ise (Ise Kotaijingu)
- Mr Zenko Hirata: Director of the Zen Culture Research Institute at Hanazono University, Head of a Buddhist monastic community at Kyoto, highly respected Buddhist personality
- Mr Takeshi Umehara: Historian, poet, famous in Japan, Director of the International Research Centre for Japanese Studies at Kyoto
- Mr Akio Hata: Administrator of the International Research Centre for Japanese Studies
- Mr Masahiro Kawasaki: Director General of NISTEP (National Institute for Science & Technology Policy), Tokyo
- Mr Hajime Nagahama: Head of Research at NISTEP, actively involved in the International Comparative Study of the Public Understanding on Science and Technology (Japan - EC (DG XII) - USA)
- Mr Kenji Makino: Former Chief Editor of Manichi (Japan's second daily newspaper, with a circulation of 3 million copies), medical journalist and President of the Society of Medical Journalists
- Mr Tokuyoshi Tamaru: Professor at the University of Tokyo, organizer of the Japanese Bioethics Society (about 3 000 members)
- Mr Klaus Otte: Protestant clergyman, philosopher and disciple of the Japanese Buddhist philosopher Nishitani, university lecturer at Kyoto (Doshisha) and Kwansei Gakun University, Nishinomiya, studies the conditions for a philosophical and theological dialogue between Japan and Europe, participant in the Assembly of the Ecumenical Council of Churches, Canberra
- Mr Masao Takenaka: Professor of Social Ethics at Doshisha University, Observer at the Canberra Assembly, researches contribution of Japanese traditions to the solution of world problems

**TABLE 7**  
**AIDE-MEMOIRE ON CULTURAL DIFFERENCES BETWEEN EUROPE AND JAPAN**

<b>EUROPE</b>	<b>JAPAN</b>
<b>RELIGION:</b> monotheism or atheism	<b>"WAY OF LIVING"</b> , existence of Gods?
Priority to the <b>INDIVIDUAL:</b> ++ Ex: Honeymoon alone on an island	Priority to the <b>GROUP:</b> xxx Ex: Group honeymoon
Love thy <b>NEIGHBOUR</b>	Love thy <b>FELLOW CREATURES</b>
Individual <b>ETHICS:</b> commandments + Ethics of the common Good	<b>ETHICS</b> limited to group (Japanese) Precepts
Positional <b>ETHICS:</b> rigidity of principles, but sense of collective principles. Good - Evil + Guilt ... Original Sin Purity-impurity	Contextual <b>ETHICS:</b> rigidity of codes, but also code of knightly honour: "Bushido" <sup>3</sup> Good – Evil + Beauty - ugliness (aesthetics)
<b>PHILOSOPHY:</b> the truth is ONE. Everyone must be taught the truth, by force if necessary <sup>3</sup> NTOLERAINCE is often unconscious!	<b>PHILOSOPHY:</b> there are various ways to find the TRUTH truth. There are several gods, and several religions. TOLERANCE
<b>LOGIC</b> is limited to YES and NO.	<b>LOGIC</b> knows 4 possibilities: 1. YES, 2. NO, 3. YES AND NO, 4. <b>NEITHER YES NOR NO</b>
<b>FREE MARKET:</b> yes, but with respect for the implicit rules of not destroying the economy of other countries + <b>censure</b> of recalcitrants	<b>FREE MARKET:</b> Let us exploit to the full this ideology which has been imposed on us and which in any case does not fit in with our culture; <b>no feeling of guilt.</b>
<b>BIOETHICS:</b> "Conflictual" debate on the beginning of life experiments on the human embryo (respect for all life)	<b>BIOETHICS:</b> "Consensus" debate on the end of life and organ transplants (ancestors)

<p><b>POWER:</b> class differences Authority of the State, of the EC</p>	<p>Different clans, vendettas, mafias. <b>MULTIPOLAR</b> system: the Government is ONE of the poles of power</p>
<p>Priority to intuition and rational intellection</p>	<p>Pre-eminence of feelings, Emotions</p>
<p>Priority to the intention: e.g. <b>European marketing</b> is intended to sell as much as possible</p>	<p>Priority to the end: e.g. <b>Japanese marketing</b> is intended to satisfy the customer</p>
<p><b>WORK</b> is a consequence of original sin. It is a punishment which we must endeavour to cut short as possible and compensate with a salary.</p>	<p><b>WORK</b> is a kind of food which enables man to bring the best in himself (Buddhism) It is also sent by the ancestors (Shintoism) "I was shocked by Keynes' definition of salary as compensation for the hardship of Labour" (Prof. Masuda).</p>
<p><b>HISTORY</b> = conquests, crusades, missions, Messianisms (for freedom, etc.)</p>	<p><b>HISTORY</b> = <u>collective survival</u> on an island; a history of perpetual change to remain themselves.</p>
<p><b>PHILOSOPHY:</b> The Truth is ONE. Be taught the Truth, by force if necessary!  INTOLERANCE: is often unconscious.  LOGIC: is limited to YES or NO.</p>	<p><b>PHILOSOPHY:</b> -There are various ways to find the Truth There are several Gods, and several religions. -TOLERANCE is needed.  LOGIC: Knows 4 possibilities YES, NO, YES &amp; NO, Neither YES, Neither NO.</p>

TABLE 8: SUMMARY OF RELIGIONS/HUMANISMS POSITIONS IN BIOETHICS

SUBJET	CATHOLICS	REFORMED	ORTHODOX	ISLAM	JUDAISM	HUMANISTS	JAPAN
<b>Insemination Husband</b>	No	Yes	No	Yes	Yes	Free Choice	Yes
<b>Insemination Donor</b>	No	More No than Yes...	No	No	No	Free Choice	Yes
<b>Reproductive Cell Banks</b>	No	No	No	No	No	Free Choice	Yes
<b>In vitro fertilization Husb.-wife</b>	No	Questions	No	Yes	US:Yes EU: No	Free Choice	Yes
<b>In Vitro Fertilization Donor</b>	No	No (?)	No	No	No	Individual choice	Yes
<b>Surrogate Mothers</b>	No	No	No	No	No	Individual Choice	(No?)
<b>Abortion</b>	No	Yes	No	Yes (90 days)	Yes if mother's life in danger	Individual Choice	Yes/No
<b>Transplant of organs</b>	Yes	Yes	Yes	Yes	Yes	Individual choice	<b>No</b>

## PART TWO : GENERAL CONCLUSIONS OF THIS REPORT

Having reached the end of this exploratory report, it is time to identify the main lines of thought and recurrent themes and to try to relate them to the process of European construction.

### 1. What ethics for science and technology after Prometheus?

Prometheus stole fire - symbol of technological innovation - from the gods to give it to mankind. His punishment was torture and death: the ancient Greeks saw the power of the gods and that of men as in unequal rivalry. Prometheus was punished for competing with the gods.

The creationist religions (Judaism, Christianity, Islam) see the creative powers of man as, rather, an extension of the creative power of God. The two are not opposed to one another. **These religions do not condemn the action of Prometheus** - perhaps one of the reasons for the flowering of science and technology in the West.

But the fire bestowed on man by Prometheus is beginning to be seen in a different light, having grown to a point where it seriously threatens to engulf the whole world in flames. Hiroshima has ushered in a new world in which, as FAST expressed it in 1981, "Prometheus is encumbered".<sup>168</sup> Science and technology have lost their innocence, entering an **era of suspicion**. The public is increasingly conscious that their benefits go hand in hand with unprecedented powers of destruction.

My investigation of the moral perspectives of different world religions is undertaken against this background, which I portray as one of cultural mutation manifested in shifting Weltanschauungen (world-views). The tell-tale sign for this mutation is the abandonment, or supersession, of the myth of Prometheus.

"Prometheus struggles on but encumbered, stymied, weighed down by the very shackles from which he continues to liberate mankind."<sup>169</sup>  
The question facing religious and lay people alike today is: "What are the ethics apply to science and technology in the wake of Prometheus?".

## **2. In the formulation of science & technology policy, the criteria of profitability, profit and technoscientific logic cannot take precedence over human values or the common good**

The Pope and all Catholic social doctrine denounce what they term the "**error of economism**", which consists in seeing all human activity exclusively in terms of its economic utility. Pius XI inveighed against the same error decades ago under the name of "money imperialism".

The Federation of Catholic Universities warns that technology has its own dynamic which tends to invert the means-ends relationship and to **impose means as ends**. More fundamentally it speculates whether the technocratic mentality might not be an instrument and/or symptom of a **collective sublimation of the question of meaning** and of a global sense of bankruptcy of being.

Christian women insist that people are too often evaluated in terms of their usefulness on the labour market, which is **tantamount to evaluating men and women as a function of technology rather than the other way around**.

The Ecumenical Council of Churches points out that technology has too often become a tool of power and is itself prisoner of **vast power networks whose primary raison d'être is profit**.

I myself advance the hypothesis that humanity is going through a fundamental change in its way of perceiving the world in this post-industrial age and that a new world-view is being ushered in which is **synthetic, holistic, non-hierarchical, participative, spiritual and more open to women and to cultural diversity**. Rationalism is no longer an absolute and incontestable yardstick but one that must interact with other values such as spirituality, ethics and cultural diversity in a new inclusive vision. Certain sciences traditionally seen as rational - e.g. physics - seem to have already embarked down this road. **The question of how long it will take economics to follow the same course is the drama of our time**.

## **4. Technoscience cannot be considered a neutral entity. Democratic debate and control are accordingly called for at local, European and world levels.**

The Pope sees science as the disinterested quest for truth but rejects the notion of its moral neutrality. The most pertinent Catholic critique here is that of the Federation of Catholic Universities, which warns against **the hijacking of ethical debates by experts**. What is needed, rather, is the rehabilitation of **ethics within politics** so as to form together a mobilizing political project, which is the only way of preventing our societies from being ruled by technology and economics.

Christian women and liberation theologians point out that the way in which technoscience is currently conducted excludes a large section of humanity and has thus a destructive effect.

The World Conference of Boston organized by the World Council of Churches came out in favour of the creation of a **structure for monitoring** science and technology. Such monitoring should be carried out by the scientists involved themselves, by other scientists and by society at large. It is essential that **all those affected** by scientific and technological activity be represented. **Henceforth the burden of proof of ethical acceptability must be on the party proposing new activities.**

The Islamic position, too, is that science is not a neutral entity, and should serve society.

Humanism/secularism proposes a monitoring structure on several levels. Ethical committees are required to ensure that the political authorities are ethically informed, but **democratic debate** needs also to be organized which is informed, open to the public at large and respectful of minorities.

As a Catholic theologian recently remarked,<sup>170</sup> what creates a sense of belonging to a political whole such as Europe is the fact of sharing a set of values. Launching a debate on ethical values is therefore an **essential stage in the process of building Europe**. It could also be a way for Europe to show itself to the world as a great and responsible power at the outset of the twenty first century.

The Cartesian perspective segregated science and economics from philosophy and ethics. As this report has shown, this perspective is losing its ascendancy. Another vision is shaping up, one that is unitary but non-hierarchical and **without an ethics-politics dualism**. This is why ethics is becoming, in our current post-industrial culture, **a political factor of prime importance**. In one way we are getting back to Aristotle, who did not separate ethics from politics. Thus the insistence of the religions on the need for an ethical debate on science and technology takes on, in the context of the cultural mutation under way, **unexpected political importance, particularly at a juncture in the European project calling for the instillation in Europeans of an "affectio societatis"**.

#### 4. Consequences for scientists

This is a good moment to summarize the picture of the science of the future evoked by the religions. They emphasize:

- **A new image and new social role for science**, and a new relationship to public opinion; numerous scientists (including some at the Commission) seem not to see the mutation taking place before our very eyes and **believe that the problem lies solely in a failure to inform public opinion adequately.**
- **A new relation to rationality**; what is being superseded here is not rationality per se but the application of a **radical dichotomy between rational and non-rational approaches to the real.** It is in Latin countries and in Greece that this trend appears to be meeting the fiercest resistance, i.e. the countries evincing - in Hofstede's schema - the greatest tendency towards uncertainty avoidance.
- **A progressive de-compartmentalization of the scientific spirit**; engaging in scientific activity is increasingly going to mean decompartmentalizing our minds and **accepting the otherness and newness of the questions, from whatever source they may come**, be it from advances in theoretical physics, from Japanese culture, from feminism, from liberation theology, from Islam ...
- **Science increasingly called on to help in the management of complexity and increasingly holistic in character**; even if science no longer plays the same dominant social role as in recent centuries, it will be called on in the coming decades to play a decisive part in humanity's apprenticeship in the management of complexity. To do this it will have to invent a new synthesis of the analytical spirit and the synthetical spirit.

The foregoing also means, however, that **in-depth philosophical reflection on the implications of this neo-rationality<sup>171</sup> within the new (post-modern) world-view needs to be initiated and promoted** if the dominance of the rational is not to be simply replaced by that of the irrational. Reenchantment will only be accomplished if it integrates rationality in a new way.

##### **5. The gradual penetration, despite dogged resistance within the religions, of the feminist critique confirms an essential element of the present cultural mutation**

With the exception of Protestantism it is almost always "in spite of themselves" that the world's religions give witness in this area. An evolution is taking place in the feminist vision, which is growing more holistic, non-hierarchical and open to otherness despite the resistance of the ecclesiastical authorities of almost all religions.

Thierry Gaudin, in his "2100, Récit du prochain siècle"<sup>172</sup> sees **women as likely to hold the most responsible positions in society in the next century** precisely because they are better suited to managing complexity.

##### **6. My contacts with Japan confirmed for me the importance of the CULTURAL dimension not just in the relationship between religion and science-&-technology but also in international political relations**

My contacts with Japan enabled me to experience at first hand the importance of the cultural and ethical dimension of our political and scientific relations with them. At the same time I was struck by how many people, within the Commission and in the industrialized West generally, are convinced of the opposite view.

My thesis is that this divergence of views corresponds to the difference between modern and post-modern perspectives. **Those confining themselves to a Cartesian approach will lend the cultural dimension only cursory attention.** Those looking for a more holistic approach take the cultural dimension seriously and are quick to see as one of the obstacles to political dialogue precisely this Western superiority complex, well camouflaged by a reassuring rationalist veneer.

According to Mahdi Elmandjra, president of the Futuribles:<sup>173</sup>

*"science and culture have become the prime motors of the international system ... Westerners must absolutely get rid of their superiority complex, which equates modernization with Westernization ... the convergence of science and culture and their fusion are a precondition for communication and survival. This is a systemic necessity, particularly given that by the end of the century more than 50% of doctorates in the world will be of non-Western origin."*

**7. Ethical debates among church members on ecology and climate are pushing the Western religions toward certain doctrinal revisions. Meanwhile the Asiatic religions, such as (Japanese) Buddhism, appear to offer a particularly useful concept for our time: THE COLLECTIVE LIMITATION OF DESIRES.**

Though the most positive reaction to the views of Lynn White have come from Protestants, Christianity still appears less qualified to assist humanity in administering the finitude of the world than do certain Asiatic religions, even though the real influence of the latter on society is in decline, particularly in Japan. An intercultural and interreligious dialogue on ethics appears not just useful but indispensable for the responsible management of the planet.

**8. Are we witnessing a "come-back" by God, a world-wide recrudescence of fundamentalism? Or is what we are seeing another sign of cultural mutation, which is being misinterpreted by religious leaders?**

My interpretation of the phenomenon of religious revival is that, with the shifting world-view, the Cartesian perspective is being shaken, the secularization of society is being called into question and we are gradually reverting to a situation of non-segregation of religion and life. Certain religious leaders, in registering this change and the reenchantment of the world that is getting under way, have interpreted it simply as a return to the past, a new Middle Ages, which will enable them to win back their power over society. They have misunderstood, failing as they do to see the other facet of this change which is precisely an allergy to all authoritarian attitudes, which are seen as non-democratic. And their attitude is authoritarian. The impact of fundamentalism in the North is therefore probably going to remain marginal.

But in the South, where the cultural mutation is less advanced, political theologies could grow more intense and become the sole available means of effective protest and revolt on a world-wide level. The EC will in the coming years have to enter into dialogue with these religions. Which leads us to the social dimension of globalization ...

### **9. The globalization of the ethical debate on science and technology makes North-South SOCIAL analysis imperative**

If one accepts the need for Europe to begin seeing itself in a world perspective and if, therefore, one accepts the globalization of the ethical debate on science and technology, the analysis of cultural difference and cultural mutation is not enough; social injustice in North-South relations must also be highlighted.

Among Catholics, the contribution of Léonardo Boff and, among Protestants and Orthodox Christians, those of Professors Alves and Sadovsky highlight this North-South dimension without excluding the other two. The same warning bell is being rung by Islam, but this aspect I did not have time to develop in detail.

My thesis then is that **religions could well become, in the South, one of the main theatres of protest against North-South injustice** and against the economic marginalization of a majority of world youth. In this area too, therefore, they should be listened to with the greatest attention.

## 10. TOWARDS A EUROPE REENCHANTED BY AN ETHICALLY MOBILIZING METAPHOR?

As the International Federation of Catholic Universities has observed:

**"Without an ethically convincing political programme for society, there is a grave risk that our societies will continue to be ruled by economics and technology."**<sup>174</sup>

I would add, in line notably with the World Council of Churches, that this project needs to be expressed in the form of a **metaphor** if it is to be registered and understood by an over-, and poorly-, informed public. Speaking in metaphors could be a "post-modern/reenchanted" way of governing.<sup>175</sup>

Why? Because people today seem less and less receptive to the tried and tested language of analyses and reports (including this one). Perhaps they are intuitively searching for a **global** approach which can help them find their bearings in the modern world, for a message that speaks not only to their minds but also to their hearts and souls. There is a dearth of, and hunger for, comprehensive visions and aspirations which is evidenced by a widespread allergy to analytical approaches and piecemeal information. In such circumstances we see the full power of the metaphor, which, like the parable, can indicate a direction without stating (and thus restricting) it.

The metaphor of a "**single market**" for 1992 has made an extraordinary impact on European and world consciousness. Similarly the metaphor of a "**common European home**" has echoed around the world.

What emerges from this report is the need to invent a new metaphor enabling Europe to enter the 21st Century embarked on a process of cultural mutation, i.e. of reenchantment.

This metaphor will have to be **holistic, ethical and participative**. It presupposes a European (and world-wide) debate on the values and **responsibilities** of the Europe of tomorrow vis-à-vis the weakest, both in our society and in the rest of the world, but also on a short- and long-term vision of an **economic, social and ecological order** which we can be proud to bequeath to our children. Such is the challenge today confronting Europe and the European Community.

END.

## NOTES

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2. Jean Jacques SALOMON, Prométhée empêtré, la résistance au changement technique. Recherche « FAST », coll. Futuribles, Pergamon Press, Paris, Oxford, New-York, Toronto, Sydney, Frankfurt, 1981, Préface by Etienne Davignon, (Vice-President of European Commission).
3. See For example Gilbert HOTTOIS, Le paradigme bioéthique, une éthique pour la technoscience, Brussels, 1990.
4. Jacques DELORS : « Discours de clôture de la Conférence : Droits de l'Homme et Communauté Européenne, vers 1992 et au delà ». European Parliament, Strasbourg, 20-21 november 1989.
5. For an overview of the Litterature on this subject, see Jürgen HUBNER, « Der dialog zwischen Theologie und Naturwissenschaft. Ein bibliographischer Bericht. » KaiserVerlag, München, 1987. 4000 titles in several languages.
6. “World Christian Encyclopedia” edited by D. BARRET, Oxford University Press, Nairobi, 1982.
7. “The European Values group”: Press information on September 16, 1991, Northumberland avenue, Trafalgar Square, London, WC2N5BW, authors/coordinators: R. DE MOOR, J. KERKHOFS, N. TIMMS.
8. Geert HOSTEDE: “Culture’s consequences, International Differences in work-related values”, abridged edition, SAGE publications, Beverly Hills, London, New Delhi, 1984.
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10. Ilya PRIGOGINE & I. STENGERS : (1984). Order out of Chaos: Man's new dialogue with nature. Flamingo. [ISBN 0-00-654115-1](#). (1997). *The End of Certainty*. The Free Press. [ISBN 978-0-684-83705-5](#). & PRIGOGINE, I. "Time, Dynamics and Chaos: Integrating Poincare's 'Non-Integrable Systems'", Center for Studies in Statistical Mechanics and Complex Systems at the University of Texas-Austin, [United States Department of Energy](#)- Office of Energy Research, Commission of the European Communities (October 1990).
11. F. CAPRA's work include: The Tao of Physics, The Turning Point, Conversations with remarkable people, etc.
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14. Ronald INGELHARDT: Sociopolitical change in global perspective: Preliminary findings from the 1990 World Values Survey. Institute for Social Research. University of Michigan, Pro Manuscripto, Déc. 1990.
15. Riccardo PETRELLA: The globalization of thechological innovation, in Three Analyses of globalization of thechology and economy. FAST. DG XII. European Commission, Jan. 1990.
16. Ramon NETO: Postmodernidad a la Espanola, in "EL PAIS", 1° Juillet 1991, P. 14.
17. Abel JEANNIERE: Qu'est-ce que la modernité? In "ETUDES" Paris, Novembre 1990.
18. Jean GUITTON, Grichka & Igor BOGDANOV: Dieu et la science, vers le métaréalisme? Grasset. Paris, 1991.
19. Max WILDIERS: Kosmologie in the Westerse Kultuur, Historisch-Kritisch Essay, Pleckmans, Kappellen/Kok Agora, Kampen, 1988. And note an Asian approach of the paradigm shift by Sohail INAYATULLAH: Rethinking Science, P.R. PARKAR's reconstruction of science and society in IFDA Dossiers, N°81, Nyon, Suisse.
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26. **“Church officials have erred in condemning Galileo”** in *Origins*, NC Documentary Service, 16, 1986,
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28. John Paul II: Discours à un groupe de scientifiques le 9 mai 1983...
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31. John Paul II: Les réalités profanes et les réalités de la foi ont leur origine dans le Dieu Créateur même. Speech of 26.9.1987.
32. John Paul II: Donum Vitae N°2. English version, Vatican City, 1987.
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34. John Paul II: Discours à l’UNESCO le 2.6.1980. *Origins*, 10, 58.
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37. John Paul II: Centesimus Annus N°32-33.
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46. John Paul II: Speech to the participants to a study week organized by the “Pontifical Academy of Sciences” 23.10.1982.
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50. Vatican II, Council, Constitutio “Gaudium et Spes” N° 16.
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52. Some publications dealing with the debate on bioethics within the catholic Church:
  - a) G. MATON, Procreation, Catholicism, t. XI, (1988) Vol 1111214.
  - b) E. BONE, Le genie génétique ou puissance de l'éthique, Revue Théologique de Louvain, V. 21, 1990. Pp.311-328.
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55. Paul VI: Humanae Vitae, N°11
56. Paul VI: Humanae Vitae, N° 14
57. Paul VI: Humanae Vitae, N° 14
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59. Works of some young catholic theologians who take this line:
  - a) Jacques VALLERY(+): Un peu de sens, Foi en Dieu, engagement et sens de la Vie dans une société en rupture culturelle. Conseil de la jeunesse catholique belge, 1990.
  - b) José REDING: Pour réussir, ne pas se tromper d'enchantement. In “*Pour réussir*” E.N.E.Se.C. rue Guimard 1, Brussels, Janaury-February 1991 pp. 74-93.
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61. There is a wealth of literature on this subject in all languages. The easiest thing might be to reread the “Parable of the Grand Inquisitor” at the beginning of Dostoyevsky’s “Brothers Karamazov”. This scene brings Christ face to face with the Grand Inquisitor, who reproaches Jesus for having given man freedom, this onerous gift. It would have better to have been realistic and lay down a precise code of conduct for Christians. We would lose our God-given freedom. But how easy things would be!
62. Jacques POHIER: Dieu, fractures, editions du Seuil, Paris, 1985.
63. Achille ARDIGO e Franco GARELLI, Valori, Scienza e Trascendenza, Volume primo p.142. Edizioni della Fondazione Agnelli, Torino, 1988.
64. SOFRES, Sondage: Les Français jugent l’Eglise, un sondage SOFRES-FIGARO- La marche du siècle, in “*Le Figaro*” 28.12.1990.
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67. Lynn WHITE, Jr. The historical roots of our ecological crisis, in *Science*, 155/3767/10 March, 1967, p.1203-7
68. John Paul II, Centesimus Annus, N° 37.
69. John Paul II, Centesimus Annus, N° 37.
70. John Paul II, Peace with all Creation, Message for the World Day of Peace, January 1, 1990. *Origins*, 19, p.465.
71. John Paul II, Centesimus Annus, N° 38.
72. Gaudium et Spes, N° 69 & 71
73. Bernard PRZEWOZNY, An International Tribunal to protect the Commons, at the “*Congress on International law and the environment; Project for an International Court of Justice for the environment within the U.N.*” Florence, 11-12 may 1991. p.3-4.
74. Bernard PRZEWOZNY, La dimensione culturale ed etica della crisi ambientale, in “*Volto della Terra, volto di Dio*”, *Quanderni di Città di Vita*, Firenze, 1990, p. 29.
75. Indulgences are a highly respectable origin. They date back to the second century, when no rite for the remission of sins existed, except for Baptism. Once baptized the only way to have your sins forgiven was to ask a prospective martyr to intercede on your behalf after his death. This written promise was known as “indulgence”. Unfortunately the Church took to selling indulgencies, particularly when St Peter’s was under construction.
76. Roger MEHL, Ethique catholique et éthique protestante, Delachaux & Niestlé, Paris 1970. p.17

77. Roger MEHL, Ethique catholique et éthique protestante, Delachaux & Niestlé, Paris 1970. p.18 See also Max WEBER's thesis in '*The protestant ethic and the spirit of capitalism*, showing that some US protestant (-puritan) entrepreneurs have gradually associated, business success and eternal salvation.
78. Roger MEHL, Ethique catholique et éthique protestante, Delachaux & Niestlé, Paris 1970. p.48
79. Roger MEHL, Ethique catholique et éthique protestante, Delachaux & Niestlé, Paris 1970. p.56-57
80. For further background, see the lucid introduction by Marlin VAN ELDEREN: Introduction to the World Council of Churches
81. For more info on the WCC look at WIKIPEDIA : [https://en.wikipedia.org/wiki/World\\_Council\\_of\\_Churches](https://en.wikipedia.org/wiki/World_Council_of_Churches)
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83. It was in the UPPSALA Assembly in 1968, that Margaret Mead put forward the idea of an ecumenical study on Science and Technology.
84. Readers will find traces of this very interesting and Forward-Looking reflexion process in the collection of *Anticipation* edited by the WCC between 1960 and 1970.
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86. Breaking Barriers, Nairobi 1975, ed. David M. PLATON, London
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88. Rubem ALVES, On the eating habits of Science, A Response, in Faith and Science... Volume1. Prof ALVES is a theologian and prof. of Philosophy at the University of Campinas, Sao Paulo, Brazil.
89. Jerome RAVETZ, The scale of complexity of the problem, in Fait and Science.. , Volume 1 p. 89-96. The author is professor of History of Science at the University of Leeds, UK.
90. Reports and recommendations, in Faith and Science..., WCC, Geneva, p. 27.
91. Faith and Science and the Future, Preparatory readings for the 1979 conference of the WCC. Geneva, 1978, p.27.
92. Faith and Science in an unjust World Volume 2, p.151.
93. Faith, Science and the Future p.4.

94. Here are some of the quoted authors by Freda RAJOTTE Deputy Director of Church and Society. Rita ADRITTI, Helen CALDECOTTE, Herman DALY, Elizabeth FIORENZA, Suzan GEORGE, Hazel HENDERSON, Lynn MARGULIS, Rosemary REUTHER, VANANDA SHIVA, Brigitte UTNE, etc.
95. I. PRIGOGINE & I. STENGERS : (1984). Order out of Chaos: Man's new dialogue with nature. Fontana Book 1985.
96. As the Asian religions insist, there are other options, such as “yes & no”, “neither yes neither no”, etc.
97. Thierry GAUDIN: 2100 Récit du prochain siècle. Payot ed. Paris, 1990.
98. Biotechnology its challenges to the Churches and to the World, WCC, Geneva, 1989.
99. Genetics and quality of Life, Report of a consultation Church & Society, Zurich, June 1973. WCC, Geneva, Study Encounter, N°53, Vol X, N°1, 1974, p.4-5.
100. Ibidem
101. “In February 1988 the “US. National Academy of Sciences” gave the green light for a programme aimed at...drawing up a map of all Human genes. This controversial programme will take 25 years and cost 3 billion \$. Recently Japan, Germany, The Soviet Union, and the European Commission announced their intention to devote tens of millions of \$ each, to research on the Human Genome”. In *Biotechnology its challenges...* WCC, 1989, p.11.
102. CANBERRA WCC ASSEMBLY, Final report, Section 1, N°9.
103. All the quotations are from section 1 of the Final Report of the Canberra WCC Assembly. The numbers in brackets refer to section and paragraph respectively.
104. Draft Report of an Ecumenical Consultation of Churches in the Northern Industrialized Countries held in Gwatt, Switzerland, January, 13-18, 1991. p.11, N° 4.
105. The main WCC CONFERENCES on Science and Technology were held in
- a) 1974, Bucharest (Ro): Science and technology for Human Development
  - b) 1975 Sigtuna (SE): Facing up with Nuclear Power
  - c) 1975 Nairobi: Braking Barriers.
  - d) 1976 Glion (CH) Consultation
  - e) 1978 Bossey (CH)
  - f) 1979 Boston (USA) Faith & Science in an unjust society.
  - g) 1980 Madras assembly (India)

- h) 1981 Chang Mai (Thailand)
  - i) 1982 Lima (Peru)
  - j) 1989 Kinshasa (Congo)
106. Faith & Science in an unjust society. Report Volume II, p.102, B.VIII
107. Faith & Science in an unjust society. Report Volume II, p. 96.
108. European Ecumenical meeting in Basel on “Peace and Justice for all creation”. See publication by CEC, Conference of European Churches. 1989.
109. Energieeinsparung Umrisse einer Umweltgerechten Politik im Ansicht der Klimgefährdung. EKD, Hannover, 1990.
110. Ausstieg Aus der Kernenergie, Hindernissen, Bedingungen, Konsequenzen. Ein Handreich für den Verantwortlichen umgang mit Energie, edited by Aussaat Verlag + Neukirche Verlag, January 13-18, 1991.
111. “The churches’ Role in Protecting the Earth’s Atmosphere” Report of an Ecumenical Consultation of Churches in Northern Industrialized Countries held in GWATT, (CH) January 13-18, 1991.
112. There is a bibliography of more than 300 titles on this subject in “Encyclopedia of World Problems and Human Potentials, Vol.II. p.583-585.
113. This expression is taken from the title of a Book, namely: M.BERNAM, The reenchantment of the world. Ithaca, NY, Cornell University Press.
114. Charles BIRCH, On purpose, a new thinking for a new Millenium New South Wales University Press, Kensington, NSW Australia, 1991
115. Gibson WINTER, Liberating creation. Fondation of religious social ethics. Crossroads, New-York, 1981, p.125-135.
116. J. COBB’s most important work = “Process Theology as political”
117. For an introduction to Orthodox Church, see:
- a) Paul EVDOKIMOV: L’orthodoxie, Delachaux et Niestlé, Neuchatel, 1965.
  - b) Jean MEYENDORFF, Le Christ dans la Tradition Byzantine, Paris, Cerf, ed. 1969.
118. Paulos MAR GREGORIOS, Science for sane Societies, Paragon House, New-York, 1987.
119. See also “Ecumenical Patriarchate of Constantinople” Orthodoxy and the ecological crisis, “World Wildlife Fund”, Gland (CH) 1990.
120. Athenagora ZAKOUPOULOU: Συγχρονη Βιολογια και Εθικη. ΔΝΑ- Γενετικη Μεχανικη, Προοπτικες και Ανισιχιες, Αθηναι 1983.

121. Athenagora ZAKOPOULOU, bishop of Phocidia. Le role de l'Orthodoxie dans l'Europe unifiée en Grèce. (in greek) in *Ekklesia* Athens 1.04.1990.
122. "Ecumenical Patriarchate of Constantinople" Orthodoxy and the ecological crisis, "World Wildlife Fund", Gland (CH) 1990.
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124. See for example the works of Prof. Roshdi RASHED (CNRS).
125. Abdus SALAM: Islam e la Scienza Armonia o Conflitto? In *Ideali e realtà, Saggi scelti.* Edizioni LINT, Trieste, 1986, p.287.
126. Seyyed HOSSEIN NASR, Islam and the plight of modern Man, Par Longman, London, New-York, 1974. See Note N°6, p.23.
127. M.A LOHDI, Islamization of attitudes and Practices in Science and technology in *Islamization of Knowledge Series*, N°9, Washington, 1989. See also M.A KAZI, Islamization of Modern Science and Technology.
128. Ernest GUGENHEIM (Great Rabbi), Les portes de la Loi, Etudes et Réponses, ed. Albin Michel, Paris 1982, p.90
129. Ernest GUGENHEIM (Great Rabbi), Contre le bébé-éprouvette, in *Information Juive*, March 1984. Quoted by A. GUIGUI (Rabbi), Inventaire des textes de la Morale Juive et analyse des fiches représentatives des problèmes qui se posent au médecin dans l'exercice de ses fonctions par rapport aux textes de la morale juive, in "*Le médecin face aux Droits de l'Homme*" Conseil de l'Europe, Institut International d'étude des Droits de l'Homme, Cedam, Padova, 1990, p.1224.
130. Emmanuel CHIOUCHENA (Chief Rabbi) Le point de vue juif.
131. Emmanuel CHIOUCHENA (Chief Rabbi) Le point de vue juif.
132. A. GUIGUI (Rabbi), Inventaire des textes de la Morale Juive et analyse des fiches représentatives des problèmes qui se posent au médecin dans l'exercice de ses fonctions par rapport aux textes de la morale juive, in "*Le médecin face aux Droits de l'Homme*" Conseil de l'Europe, Institut International d'étude des Droits de l'Homme, Cedam, Padova, 1990, p.1197.
133. LASKER Judith, N. PARNET, I. HARRIET, Rabbinic and Feminist responses to reproductive technology, in *Journal of Feminist Studies in Religion* Spring 1990, p.117-130.
134. GUIGUI, A. (Rabbi), Ibidem, p.1209. The author cites the following text from Talmudi literature Oholot, VII, 6. : "In the case of a difficult birth, the child may be cut from his mother's womb, limb by limb, for the life of the mother takes precedence over the life of the child. But if the greatest part of the child is out of the womb, it should not be touched, because one cannot refuse new life."
135. ROSNER Fred, Modern medicine and Jewish Ethics, Hoboken: Ktav Publishing House, 1986, p.116-118. See also ROSNER F. In vitro fertilization and surrogate motherhood: the jewish view, in *Journal of religion and Health* N°22, Summer 1983, p.139-160.

136. GUIGI, A., Ibidem, p.1207.
137. TENDLER Moshe, Infertility Management: Cure or ill, in *Sh'ma* 17, (15.05 1987) p.109-110. And SILOW CAROLL A., Rabbis back ban on Surrogate Motherhood pacts, in *The Jewish Week*, 10.06.1988, p. 9.
138. I base myself here on an article by Rabbi Miche GUGGENHEIM, Ecologie et Judaïsme
139. Some Rabbis, e.g. Rabbi GUIGUI, see neither superiority, nor equality in the relation of man and woman in Judaism. Rather there is complementarity. What the one lacks, the other supplies. Furthermore, whether or not one belongs to the Jewish people, depends on one's mother: if she is not Jewish, it does not matter even if the father is. Thus women have enormous power within Judaism. In this respect "*man is totally inferior to woman, a Jewish men's liberation movement is called for*".
140. LASKER Judith, N. PARNET, I. HARRIET, Rabbinic and Feminist responses to reproductive technology, in *Journal of Feminist Studies in Religion*, Spring 1990, p.129.
141. R.A.P. THIELMAN, Humanistische emancipatiebewegingen, in \*\*\* collective work: *Geschiedenis van het Humanisme, Hoofdfiguren uit de Humanistische Traditie* ed BOOM & MEPPPEL, Amsterdam, 1990, p.289-301.
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- a. Pietro BARCELLONA, L'egoismo mature e la follia del capital, ed Bollati, Boringhieri, Torino, 1988.
  - b. Silvia VEGETTI FINZI, Il bambino dela Notte, Divenire Donna, Divenire Madre, Mondadori ed. Milano 1991.
143. R. THIELMAN, Humnistische Emancipatiebewegingen, p. 301.
144. This heading is borrowed from a recent book by Jean BAUBEROT, Vers un nouveau pacte Laïque, ed Seuil, Paris, 1990.
145. See GAUTHIER Guy & NICOLET Claude, La laïcité en mémoire, ed. Edilig, February 1987.
146. Michel MORINEAU, Questions pour la laïcité de l'an 2000, (p.242.) Postscript in BAUBEROT Jean, Vers un nouveau pacte Laïque, Seuil, Paris, 1990.
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  - ii. Japan which has achieved great economic power and high scientific and technological capacity should take the lead in bolstering the “globalization of science and technology” and make efforts for its common recognition throughout the world... The promotion of this “globalization...” is an indispensable task to examine this problem, including the ways to secure funds necessary for a third purpose, from a national viewpoint.
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