



Address to the Study Week on the Subject 'Modern Biological Experimentation'



John Paul II emphasises that science must be guided by wisdom and that 'science and wisdom' are 'at the service of man'. He condemns 'experimental manipulations of the human embryo' because the human being cannot 'be exploited for any purpose whatsoever'. Animals may be experimented on but they 'must be treated as creatures of God' and not abused by man. The benefits of scientific advance should be made available to developing countries through fruitful and disinterested exchange. This applies in particular to the question of food supplies because 'one of the greatest challenges that humanity must face', together with the danger of a nuclear holocaust, is 'the hunger of the poor of this world'.

Mr. President, Ladies and Gentlemen,

1. I desire to express to you my deep gratitude for your visit and to present my best wishes for your activities, of which Professor Chagas has spoken. Permit me, first of all, to offer my felicitations to the President of the Pontifical Academy of Sciences for the intense work performed in various areas of science and for the initiatives undertaken for the well-being of all humanity, such as the recent appeal against nuclear war, endorsed by approximately forty Presidents of Academies throughout the world and by other scientists who gathered on 23-24 September last in the Casina Pio IV, the headquarters of our own Academy.

2. The work which you have accomplished during these days, besides having a *high scientific value*, is also of *great interest for religion*. My predecessor Paul VI, in his address to the United Nations Organisation on 4 October 1965, spoke from the viewpoint of being an 'expert in

humanity'. This expertise is indeed linked with the Church's own wisdom, but it likewise comes from culture, of which the natural sciences are an ever more important expression.

In my talk to UNESCO on 2 June 1980, I mentioned, and now I wish to repeat it to you scientists, that there exists 'an organic and constitutive link between culture and religion'. I must also confirm before this illustrious assembly what I said in my address of 3 October 1981 to the Pontifical Academy of Sciences, on the occasion of the annual study week: 'I have firm confidence in the world scientific community, and in a very particular way in the Pontifical Academy of Sciences, being certain that, thanks to them, biological progress and research, as also all other scientific research and its technological application will be accomplished in full respect for the norms of morality, safeguarding the dignity of people and their freedom and equality'. And I added: 'It is necessary that science should always be accompanied and guided by the wisdom that belongs to the permanent spiritual heritage of humanity, and which is inspired by the design of God inscribed in creation before being subsequently proclaimed by His Word'.

3. Science and wisdom, which in their truest and most varied expressions constitute a most precious heritage of humanity, are *at the service of man*. The Church is called, in her essential vocation, to foster the progress of man, since, as I wrote in my first Encyclical: '... man is the primary route that the Church must travel in fulfilling her mission: *he is the primary and fundamental way for the Church*, the way traced out by Christ Himself'.¹ Man is also for you the ultimate term of scientific research, the whole man, spirit and body, even if the immediate object of the sciences that you profess is the body with all its organs and tissues. The human body is not independent of the spirit, just as the spirit is not independent of the body, because of the deep unity and mutual connection that exist between one and the other.

The substantial unity between spirit and body, and indirectly with the cosmos, is so essential that every human activity, even the most spiritual one, is in some way permeated and coloured by the bodily condition; at the same time the body must in turn be directed and guided to its final end by the spirit. There is no doubt that the spiritual activities of the human person proceed from the personal centre of the individual, who is predisposed by the body to which the spirit is substantially united. Hence the great importance, for the life of the spirit, of the sciences that promote the knowledge of corporeal reality and activity.

4. 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*. On the other hand, I condemn, in the most explicit and formal way, experimental manipulations of the human embryo, since the human being, from conception to death, cannot be exploited for any purpose whatsoever. Indeed, as the Second Vatican Council teaches, man is 'the only creature on earth God willed for himself'.² Worthy of esteem is the initiative of those scientists who have expressed their disapproval of experiments that violate human freedom, and I praise those who have endeavoured to establish, with full respect for man's dignity and freedom, guidelines and limits for experiments concerning man.

The experimentation that you have been discussing is directed to a greater knowledge of the most intimate mechanism 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.

It must be emphasised 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.

5. I have learned with satisfaction that among the subjects discussed during your study week you have focused attention on *in vitro* experiments which have yielded *results for the cure of diseases related to chromosome defects*.

It is also to be hoped, with reference to your activities, that the new technique 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 anaemia, 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.

The research of modern biology gives hope that the transfer and mutations of genes can ameliorate the condition of those who are affected by chromosomal diseases; in this way the smallest and weakest of human beings can be cured during their intrauterine life or in the period immediately after birth.

6. Finally, I wish to recall, along with the few cases which I have cited that benefit from biological experimentation, the important advantages that come from the increase of food products and from the formation of new edible plant species for the benefit of all, especially people most in need. In terminating these reflections of mine, which show how much I approve and support your worthy researches, I reaffirm that they must all be subject to moral principles and values, which respect and realise in its fulness the dignity of man. I express the hope that the scientists of those countries which have developed the most advanced modern techniques will take into sufficient account the problems of developing nations and that, beyond every economic or political opportunism which reproduces the schemes of an old colonialism in a new scientific and technical edition, there can be had a fruitful and disinterested exchange. This exchange must be that of culture in general and of science in particular, among scientists of nations of different degrees of development, and may there thus be formed, in every country, a nucleus of scholars of high scientific value.

I ask God, who is the merciful Father of all, but especially of the most abandoned and of those who have neither the means nor the power to defend themselves, to direct the application of scientific research to the production of new food supplies, since one of the greatest challenges that humanity must face, together with the danger of a nuclear holocaust, is the hunger of the poor of this world.

For this intention and for the overall genuine progress of man, created in the image and likeness of God, I invoke on you and on your scientific activities abundant divine blessings.

1 John Paul II, *Redemptor Hominis*, n. 14.

2 *Gaudium et Spes*, n. 24.