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Address to the Symposium on 'Science in the Context of Human Culture II'

The Pope stresses that since the beginning of his pontificate he has sought 'to encourage reflection on culture and all its components'. He welcomes the collaboration of men and women of culture, science and faith. The Pope then warns against the dangers of the fragmentation of knowledge and calls for culture and science to act together. Scientific progress, especially in the sphere of genetics, must be guided by sound ethics so that 'science and culture may deserve to be called "human"'. He observes that scientists are increasingly adopting an ontological approach and adds that they are now called to act against the dangers of a wrong use of the earth's resources and to work for 'genuinely human progress'. After referring to the 'lived faith of so many scientists who are believers', the Pope affirms that co-operation between religion and science will contribute to a 'decisive renewal of culture'.

Your Eminence,

Mr. President,

Your Excellencies, Ladies and Gentlemen,

1. I am happy to welcome you at the end of your study days in the Vatican City, organised under the auspices of the Pontifical Academy of Sciences and the Pontifical Council for Culture. Your symposium on 'science in the context of human culture' appropriately follows the one which took place here in October of 1990. Your carefully chosen subject is timely; it will be useful to pursue the questions it raises.

2. You are well aware of *the interest which the Church and the Holy See have in the progress of science and its relationship to culture*. Since the beginning of my pontificate, I have been anxious to encourage reflection on culture and all its components. Human destiny depends on this. The earth-shaking events which are undermining society and threatening peace convince us of this.

Your symposium marks a step in the necessary, but difficult, collaboration of science, culture and religion. In spite of mutual prejudices, both old and new, which have been able to keep them distant from each other, your labours attest to our common will to work for the good of man. So I am particularly delighted with this programme, which brings together men and women of culture, science and faith. I express my gratitude to all of you who have been willing to participate in this reflection. I hope that this kind of collaboration can take place again in the future. I especially thank the Pontifical Academy of Sciences and the Pontifical Council for Culture, who made it possible for this meeting to run so smoothly. These two institutions of the Holy See will certainly be called upon, each according to its own competence, to play an increasing role in the dialogue you have begun. I am certain that they will fulfil this mission generously.

3. *The fragmentation of knowledge*, caused by specialisation in each science and by dividing up their technical applications, often makes it impossible to see the human being in his ontological unity and to understand the harmonious complexity of his faculties. In fact, there is a real risk of seeing science and culture growing apart, even to the point of disregarding each other. But both of them are at the integral service of the human person. The Church has profound respect for men and women of science and culture, for they have been given a specific and undeniable responsibility with regard to the human race and its future, especially on the eve of the Third Millennium, in the midst of a world undergoing profound change, in which human destiny is more than ever in their own hands.

4. *Culture*, in the full sense of the term, is a concept which embraces everything of which man is at once the centre, the subject and the object. It includes all his capabilities, both as an individual and as one who lives in society. It humanises persons, manners and institutions. *Science*, for its part, instead of being in competition with culture, is actually a fundamental and now indispensable element of all culture which is ordered to the good of the whole person and every person. In the most diverse fields, scientific and technical progress aims to guarantee the human person a better life so that he can completely and more readily fulfil his specific vocation.

5. *Men and women of science*, you are asking yourselves: 'What is the profound meaning of our vocation, as research workers, in today's culture?'. To answer this question, which many of our contemporaries are asking as well, we must turn to man as a cultural being, to the person as the subject who cannot be reduced to the level of all other creatures.

We are witnessing an extraordinary scientific and technological development. The limits of knowledge seem to be endlessly receding. But, at the same time, we shudder with fear when we see the uses to which it is put. The agitated history of our century confronts us with our respective responsibilities. Today we are more aware, than in the past, of the ambivalence of science. Man can use it for his betterment, but also for his destruction.

Science has so many implications that it calls for an increased awareness on the part of conscience.

Men and women of science, you feel in the depths of your being that the human person cannot, without denying himself, avoid asking the most decisive questions, which science rightly excludes from its field, because these questions belong to another sphere of knowledge.

Scientific progress, particularly in the field of genetics, keeps conscience on the alert and stimulates ethical reflection. This progress cannot be limited to technical aspects which one could consider morally neutral, because it directly concerns the human person in regard to his most valuable possession: his very structure as a person. Even if their value judgements diverge and their political doctrines are extremely different, a number of political authorities have established national ethics committees in many countries. Beyond the divergent viewpoints which these institutions can inspire, the sole fact of their recent establishment clearly shows that those responsible for civil society perceive, along with the tragic loss of consensus on fundamental moral convictions, the complexity and the seriousness of the interests at stake. It is your responsibility to use your expertise to assist this necessary development of moral awareness. Promoting the ethical dimension of scientific and technical progress means helping it to become genuinely human, in order to build a society which is on a human scale. Not only do ethical concerns not prejudice in any way the scientific rigour of researchers and their work, but in addition they give them a hitherto unsuspected human importance. In the absence of this kind of ethical reflection, all humanity and even the earth itself would be in danger. Men and women of science, men and women of culture, the world needs you, your witness and your personal commitment, so that ethics may enlighten science and technology, so that the primacy of the person over things and that of the spirit over matter may be respected, and so that science and culture may deserve to be called 'human'.

6. The evolution of thought and the march of history show, often by means of crises and conflicts, *an unstoppable movement towards unity*. People are becoming aware that they can no longer live alone and that isolation leads to certain decline. Cultures are opening up to what is universal and are mutually enriching each other. Presumptuous philosophies and ideologies, such as scientism, positivism and materialism, which wanted to be exclusive and claimed to explain everything at the cost of reductionism, have now been overcome. Reality has been discovered in its immensity and complexity, and now produces an attitude of humility in research workers. The experimental method allows one to grasp only certain partial aspects of reality, whereas philosophy, art and religion grasp it in a more or less global way in their specific approaches.¹

During recent decades, a significant change of attitude has led many scientists to be concerned not only with the effectiveness of their work, but with its meaning as well. They are rediscovering an ontological approach, which for a long time had been rejected for methodological reasons that were legitimate in themselves. It is now clear that *human nature is at stake* in scientific applications. Man could not remain unconcerned about universality and transcendence with impunity. Redefining different approaches to reality, without excluding any, will help man to understand himself better. He longs for the harmonious development of all his faculties. He could not manage without culture, ethical values or religion. In an increasing way, science contributes to this harmony, to the extent that its ultimate purpose and ways of acting are ordered to the human person's benefit. With its new possibilities, science enriches culture, broadens the area of personal and collective responsibility, and contributes to the progress of humanity.

7. Men and women of science, *our contemporaries are turning more and more to you*. They expect from you and your research *an increased protection of the human person and nature*, the transformation of their living conditions, the improvement of society, the establishment and preservation of peace. Stricken by accidents and mistakes in judgement which assume the dimension of ecological catastrophes, they are more aware of the dangers resulting from the irrational use of nature, which has been put at their disposal by their Creator. They see that the exploitation of the earth's resources has consequences for culture and human beings. As one example, think of the crisis of the Amazon aborigines, who are threatened with extinction, as extensive deforestation compromises their fragile ecological and cultural balance. Reasonable and decent planning in the use of the planet's natural resources will greatly contribute to preserving nature, the human person and his culture.

Your role has the same primary importance *in regard to culture*: your competencies allow you to expel the irrational, to denounce aberrant traditional behaviour and to encourage a genuinely human progress. I recently wrote in the Encyclical *Centesimus Annus*: 'From this open search for truth, which is renewed in every generation, the culture of a nation derives its character'.² Every day we experience *the influence of scientific and technological culture* on our contemporaries, to the point of profoundly changing their way of living, viz.,

their tastes, the focus of their interests, and their personal and collective behaviour. Therefore, see that scientific and technological progress is truly at the service of man and that it does not turn him into its servant, incapable of providing for himself, should it fail. May your discoveries assist the human person in fully developing his talents of creativity, intelligence, self-mastery, knowledge of the world and solidarity. Be open to building a new and truly human world!

8. When they follow their own, respective methods, *religion and science are constitutive elements of culture*. On the eve of the Third Christian Millennium, instead of being opposed, they are marked by a complementarity which is illustrated by the lived faith of so many scientists who are believers. Recent decades have witnessed the beginning of a new dialogue between scientists and religion. This dialogue has frequently permitted the clarification of misunderstood positions resulting from confusion between the methods and areas of research that are proper to religion and to science. Today, astrophysicists study the origins of the universe and theologians and exegetes study the creation of the universe as God's gift to man, in a happy complementarity, without suspicion or competition. In the face of anti-scientific movements and irrational impulses, which appear as the anguished cries of individuals whose lives have lost all meaning and whom technology is overwhelming, the Church defends the dignity and necessity of scientific and philosophical research, to discover the still hidden secrets of the universe and to shed light on the nature of the human being. Scientists and believers can form a great spiritual family and construct a culture which is genuinely searching for the Truth. Without a doubt, after a separation, even an opposition, between science and religion, the joining of different types of knowledge and wisdom, which is so necessary today, will produce a decisive renewal of culture. Religion and science will have to answer to God and humanity for how they have tried to integrate human culture, thus avoiding the risk of a fragmentation which would mean its destruction.

9. Your Eminence, Mr. President, dear friends, the future of humanity 'is in the hands of those who are capable of providing the generations to come with reasons for life and optimism'.³ At the end of this conversation, which I would like to prolong with each of you, I strongly encourage you to continue your efforts to achieve a harmonious cooperation between science, culture and faith, for the good of all human beings. On the eve of the Third Millennium, during this period of so many upheavals, the human family turns to you, men and women of culture and science, to help them to improve their conditions of life and to make clear their reasons for living. On this path, you will always find a committed and impartial partner in the Church.

I am happy to have had this opportunity to express my esteem, and I invoke upon you, your families and your co-workers blessings of the Lord, the Creator of nature and the inspiration of culture, of which He is the beginning and the end.

1 Cf. 'Address at the European Centre for Nuclear Research' (15 June 1982), nn. 4-5.

2 N. 50.

3 *Gaudium et Spes*, n. 31.