



Address to the Members of the European Physical Society

The Pope refers to his previous personal contacts with physicists and hopes that such contacts will continue in the future. Proceeding to reflect on the relationship between science and faith, he stresses that research forms an act of respect to God the Creator. Modern science, which brings with it both benefits and dangers, should be guided by 'moral norms' in its approach to man and nature; it should be 'humanising' in its impact. If scientific research is carried out in the proper way, and Scripture is read correctly, 'there can be no opposition between faith and science'. The two branches of knowledge can have a positive relationship: 'Faith does not offer resources to scientific research as such, but it encourages the scientist to pursue his research knowing that he meets, in nature, the presence of the Creator'

I would like first of all to express my gratitude to you, Professor, for this initiative to pay me a visit today. I cannot express how grateful I am for this initiative and for this presence of yours. For me it is a continuation of my previous experiences, when I was still in Poland, in Krakow, when it was a usual thing for me to meet scientists, and especially physicists, for different talks. So this day, and our meeting, are for me a first promise that this way of acting, these meetings, will have a future, that they do not belong just to my past but will have a future on another plane. I am also so grateful for what you said, and I think that all that you said was rather the essential talk of our meeting. What I can say now will be rather some allusion, some reference.

Actually, having the fortune to meet you today, I thought that I was not prepared. I would like to be better prepared, but I said to myself: well, let us go as things are, we must take a step, the first stage, as we are, and then, perhaps, we will prepare together with future meetings. But I must say that the things you expressed are really essential for the content of this meeting of ours because they are the fundamental problems: the problems of the very nature of science, and then the problems of the relationships of science and faith, religion. These are problems which are not just, let us say, internal problems of science, but problems of him who is the subject and who is the bearer, the author, of science, and who creates with science an environment of his own for himself: a cosmos of his own, a human cosmos for the problems of man. And so all the other things that you expressed are essential; but I am particularly happy that you should say that the effort that science is making will, perhaps, be a happier one than the effort made by others, such as, for example, politicians. They have not succeeded in reconstituting the unity of Europe, of our continent, while, on the contrary, scientists, you, are convinced that you will be able to obtain it. Then I am with the scientists; I am with you.

Contacts with the scientific world

Allow me, Professor, to make a change of language now. I want now to speak in French because it will perhaps be easier for all the participants to translate my sentiments and then also some ideas.

Ladies and gentlemen, I am happy to greet in you a group of eminent scientists, members of the European Physical Society, presided over by Professor Antonino Zichichi. The meeting this morning gives me particular pleasure. In fact, if my personal formation has been rather, and still remains, humanistic (I must say that I know very little about your subject), geared, afterwards, to philosophical, theological, and moral questions, your concerns, however, are not alien to me. It was even a little strange, but I was always given a good reception by physicists, by the people, by the professors, who represent your profession, your specialisation; and, though knowing so little of your problems, your science, I felt rather at home with them. It was possible to understand one another, and so we did so. In Krakow I always sought, and found very fruitful, contacts with the scientific world and particularly with specialists in physical sciences. This tells you the value this moment has for me, conjuring up so many other meetings, in particular, perhaps, the one with the 'Rome Club' – the results of the work of this Club are well known in our country, in Poland – even if the circumstances do not make it possible to give it that aspect of personal exchange which I appreciated so much. But we will try to give, perhaps, more of this aspect of personal exchange to our meetings in the future.

Important problems

The problems you have set forth yourselves in the course of this international meeting are of great importance and are very topical, for they may constitute a point of reference for the development of modern physics. You have, in fact, dealt in your work with very topical scientific problems which range from very high energies for study of sub-nuclear phenomena to nuclear fusion, from astrophysical radio-interferometers to the light of synchrotrons. Excuse me if I utter these words and if I am unable to give a personal significance to all these expressions, to this terminology. But it is also, I think, our situation when we live in this highly specialised world; we lose the facility of speaking all possible languages, not just languages in the linguistic sense, but also languages in the scientific sense. Thanks to knowledge of the classical languages (Greek, Latin), we understand a little of what these words mean, but the real significance, the correspondence with the reality determined by this terminology, must certainly be brought by you. Your society, furthermore, which comprises several thousand physicists belonging to twenty-eight European nations, is also an appeal to the cultural unity of the whole community of European countries.

Work of researchers

I do not intend to make a profound speech today but just some remarks on the problem, always new and relevant, of the mutual position of scientific knowledge and faith. You are in the first place researchers; I must say that this is a word particularly dear to me. Researchers! It is opportune to point out this characteristic of your activity and to encourage the rightful freedom of your research in its own object and method, according to 'the legitimate autonomy of culture and especially of the

sciences', recalled by the Second Vatican Council.¹ I must say that this paragraph of *Gaudium et Spes* is really important for me. *Science in itself is good since it is knowledge of the world, which is good, created and regarded by the Creator with satisfaction*, as the book of Genesis says: 'And God saw everything that he had made, and behold, it was very good'.² I am very attached to the first chapter of Genesis. Original sin has not completely spoilt this original goodness. Human knowledge of the world is a way of participating in the Creator's knowledge. It is, therefore, a first degree of man's resemblance to God, an act of respect towards Him, for everything that we discover pays tribute to basic truth.

Humanising man

The scientist discovers the still unknown energies of the universe and puts them in man's service. Through his work, he must, therefore, cause man and nature to grow at the same time. He must humanise man more, while respecting and perfecting nature. The universe has a harmony in all its parts and every ecological imbalance leads to harm for man. So the scientist will not treat nature as a slave but, taking inspiration, perhaps, from the *Canticle of the Creatures* by St. Francis of Assisi, he will consider it rather as a sister called to cooperate with him to open new ways for the progress of humanity.

This way cannot be traversed, however, without the help of technique, of technology, which make scientific research efficient. Allow me to refer to my recent Encyclical *Redemptor Hominis*, where I recalled the necessity of a moral rule and ethics which enable man to take advantage of the practical applications of scientific research, where I spoke of the fundamental question of the deep disquiet of modern man. 'Does this progress, which has man for its author and promoter, make human life on earth 'more human' in every aspect of that life? Does it make it more 'worthy of man?''.³

There is no doubt that from many points of view technical progress, born of scientific discoveries, helps man to solve very serious problems, such as food, energy, the struggle against certain diseases more than ever widespread in the third world countries. There are also these great European projects, with which your international seminar dealt, which cannot be solved without scientific and technical research. But it is also true that man, today, is the victim of great fear, as if he were threatened by what he produces, by the results of his work and the use made of it. In order to prevent science and technique from becoming slaves to the will for power of tyrannical forces, political as well as economic, and in order positively to ordain science and technique to the advantage of man, what is necessary, as is usually said, is a supplement of soul, a new breath of spirit, faithfulness to the moral norms that regulate man's life.

Abiding by moral norms

It is incumbent on scientists of the different disciplines, and particularly on you, physicists, who have discovered immense energies, to use all your prestige in order that scientific implications abide by moral norms in view of the protection and development of human life.

A scientific community such as yours, comprising scholars of all European countries and of all religious convictions, can cooperate in an extraordinary way in the cause of peace. As you have

just said, science, in fact, transcends political frontiers and calls, especially today, for collaboration of a worldwide character. It offers specialists an ideal place for meetings and friendly exchanges which contribute to the service of peace.

In an increasingly higher conception of science, in which knowledge is put in the service of mankind in an ethical perspective, you will allow me to present to your reflection a new degree of spiritual ascesis.

There is a link between faith and science, as you were able to affirm, too. The Magisterium of the Church has always said so and one of the founders of modern science, Galileo, wrote that 'Holy Scripture and Nature both proceed from the divine Word: one, as being dictated by the Holy Spirit, and the other, as the very faithful executor of God's orders'; so he wrote in his letter to B. Castelli in 1613.⁴

If scientific research proceeds according to absolutely rigorous methods and remains faithful to its own object, and if the Scripture is read according to the wise directives of the Church, given in the conciliar Constitution *Dei Verbum*, which are, let us say, the most recent directives – previously there were other similar ones – there can be no opposition between faith and science. In cases in which history stresses such an opposition, the latter always derives from erroneous positions which the Council has openly rejected, deploring 'certain attitudes (not unknown among Christians) deriving from a short-sighted view of the rightful autonomy of science: they have occasioned conflict and controversy and have misled many into opposing faith and science'.⁵ When scientists advance humbly in their search for the secrets of nature, God's hand leads them towards the summits – of the mind, as was noted by my Predecessor, Pope Pius XI, in the *Motu Proprio* which set up the Pontifical Academy of Sciences; the scientists called to be members of it 'did not hesitate to declare, rightly, that science, in whatever branch it may be, opens and consolidates the way leading to Christian faith'.

Faith encourages

Faith does not offer resources to scientific research as such, but it encourages the scientist to pursue his research knowing that he meets, in nature, the presence of the Creator. Some of you are walking along this way. All of you are concentrating your intellectual forces on your specialty, discovering every day, with the joy of knowledge, the indefinite possibilities that fundamental research opens for man, and the formidable questions that it sets him at the same time, sometimes even for his future.

I would like us to be able to continue this conversation in the future, finding the opportunity and methods of an indirect exchange – my occupations, like yours, do not leave any other possibility – which will enable me to get to know your concerns better and what you would like to hear from the Pope. I think that these few observations are, in a way, preliminary ones. I hope, ladies and gentlemen, that the blessing of the Almighty will descend on your work and on your persons, and will give you the comfort of contributing to the real progress of humanity, to physical and spiritual health, and to solidarity and peace among peoples. Thank you.

1 *Gaudium et Spes*, n. 50.

2 *Gn* 1:31.

3 Cf. n. 15.

4 *Opere*, vol. V (Florence, G. Barbèra, 1968), p. 282.

5 *Gaudium et Spes*, n. 36.