

PAPAL AUDIENCE (*)

On September 21, 1982, His Holiness John Paul II granted an Audience in the Sala del Concistoro of the Pontifical Palace in Castelgandolfo to the Members of the Accademia Nazionale delle Scienze detta dei XL and to the Presidents and Delegates of 47 Academies and Cultural Institutions of the world together with the representatives of Italian Academies of Sciences gathered in Rome for the celebration of the Bicentenary of the Accademia Nazionale delle Scienze detta dei XL and to the participants in the meeting, organized on this occasion on "The Academies of Sciences towards the year 2000". The Director General Prof. Francesco Sisinni represented the Ministry of Beni Culturali e Ambientali.

The group, introduced by the President of the Accademia Prof. G.B. Marini-Bettòlo, was paternally received by His Holiness, who at the end of the Audience wished to greet personally all the participants.

Holy Father,

On the occasion of its Bicentennial, the National Academy of Sciences, known as the XL, and colleagues from the Italian and foreign Academies of Sciences throughout the world, are deeply grateful for your reception. We are gathered here in Rome to celebrate that happy occasion and to discuss together the present function and the future of the Academies of Sciences.

Our Academy traces its origins to a group of Italian scientists who, toward the close of the 18th century wanted to bring together in a single academic body, similar to the great national Academies which at that time did honor to the great nations of Europe, the scientists of the entire Peninsula.

There were many serious difficulties that had to be faced in creating this organism to represent Italian science, for Italy at that time was divided into many sovereign states.

In fact we might say that the *Italian Society* — that was the name of our Academy when it was founded — represented one of the first concrete manifestations of national unity, and thus the initiative of the scientists preceded the Risorgimento by half a century.

The founding of the Academy, which was initiated by Lorgna of Verona, was actively attended by scientists from every part of Italy; and among these were men of the Church, such as Lazzaro Spallanzani, Felice and Gregorio Fontana,

(*) Translation of the pp. 31-36.

Ruggero Bosovich, Carlo Barletti and Barnaba Oriani, to mention only the most famous, together with men of Science, such as Alessandro Volta, Domenico Cotugno, Domenico Cirillo, Leonardo Ximenes and Angelo Saluzzo.

The Italian Society of the XL has survived with its fragile structure two centuries of profound upheavals in Italy and in the world, from the Napoleonic wars through those of the Risorgimento, and all the way to the profound changes of today's society following the two great world conflicts of this century.

Through favorable and unfavorable conditions it has assured the continuity of knowledge, handing down the spirit of science to the younger generation, encouraging research, competitions and awards, and collecting in a periodical publication since 1782 the scientific contribution of its members and of other scientists.

During the early 19th century, as the only representative of Italian science, it brought together the most outstanding scientists of the time, from Amedeo Avogadro to Angelo Secchi, preserving an important function during that period and constituting the center of dissemination, even abroad, of the results of the Italian scientific community.

The evocation of a glorious past, the knowledge regarding so many problems preserved in its archives, has led us to reflect and to meditate on the question of whether the era of the Academies — which in the past were irreplaceable — is today ended and whether the Academies must today take on a new form.

To reply to these important questions, it has been decided to invite the Academies of Sciences of the whole world in order to discuss together the functions of such Academies in the modern world, which is rapidly evolving towards forms and structures previously inconceivable.

Our Academy hopes that from this meeting there will emerge a new direction for the activity and the development of the Academies. As expressions of the activity and thought of men of science who revere the truth, the Academies must approach from a scientific and moral viewpoint the great problems which the applications of scientific discoveries present to the conscience of scientists, in order that they may be directed only toward the welfare of humanity.

This will be possible if scientists of good will from all over the world, beyond fictitious ideological and political boundaries, can, like the first XL, create a new unity, "come together in order to form a single body".

His Holiness answered with the following speech:

My dear friends,

1. I am pleased to welcome you, the Presidents and representatives of the Academies of Sciences, who have come from many countries to celebrate the bicentenary of the foundation of the National Academy of Sciences, called the Academy of the Forty, which is presided over by Professor Gian Battista Marinetti-Bettolo, whom I have had the pleasure of knowing for a number of years as a member of the Pontifical Academy of Sciences.

The theme of your meeting is "The Academies of Sciences towards the Year Two Thousand". This programme of work proves the vitality of your Academies, as they go towards the third millennium of the Christian era with the firm conviction that they can continue in the future, in *the spirit of your centuries-old traditions*, their work of promoting the sciences and of international collaboration.

The Academies of Sciences arose in the seventeenth century in the various nations, and became especially firmly established in the eighteenth. They were institutions prompted by the need to enable scientists of the individual countries to work together, through correspondence and discussions, in a manner similar to the experimental method of Galileo and Newton. Today, the Academies have widened their field of activity to include collaboration with other institutions, and they are often called upon to make pronouncements on scientific and technical questions of great social importance and of national and worldwide scope.

2. Your present meeting, through its addresses and debates, demonstrates the intention of the Academy of Sciences to promote, in a spirit of international collaboration, *scientific research*, its orientations and its main lines of development. We also see demonstrated its intention to represent, before the whole world, the influence of science upon modern society. Likewise, it tries to show the impact of scientific discoveries and of technological choices upon human life. Given these several tasks, the Academies are called upon to build up culture,

insofar as culture includes everything that is at the service of man, in accordance with truth, freedom, justice and love.

It is the strictly scientific task of the Academies to advance the frontiers of science. But it is also their *social mission to respond to the questions and pleas of society*. It is their moral duty to carry out their activities at the service of humanity and of peace among peoples.

Particularly during the last hundred years, science has been one of the major influences in the development of society and of man's future. But often, the ever more sophisticated and deadly technology that has stemmed from science has been used against man, to the point of creating fearsome stockpiles of both conventional and nuclear arms, and of biological and chemical weapons, capable of destroying a large part of humanity.

3. By an exemplary act of *international collaboration*, based upon the fundamental and universal values of culture and ethics, the Academies of Sciences can effectively influence the attitudes of governments and of public opinion, in order to bring about a decisive change of direction in the history of mankind. This will be brought about through a new constructive policy of peace and solidarity between all nations and States, a policy that will respect the rights of individuals and promote the well-being of those people who, in the present world economic system, are becoming steadily poorer, with tragic consequences, especially for the children.

4. The invention of ever more perfect machines relieves people of physical toil and helps them in non-creative intellectual work. But it has also brought about a state of dependence on machines. The development of *technological methods* used by some industries has a grave effect on the environment, causing ecological imbalances that seriously harm the lives of individuals and whole peoples. The contamination of the food chain, caused by the use of insecticides and other means of protecting crops, raises disquieting questions regarding human health.

Serious reservations must be expressed regarding the application to human beings of techniques of genetic engineering. *Techniques*, on the other hand, when properly applied, could be *priceless tools* in solving many serious problems, in the first place those of hunger and disease, through the production of more advanced and vigorous strains of plants, and through the production of valuable medicines.

5. In view of the negative aspects of modern technology, many people today regard science with feelings of misgiving. We hold that the Academies of Sciences, made up as they are of scientists of world fame and undoubted probity, as faithful disciples and seekers after truth, and in view of their independence and freedom of judgment, can give a *valid response to the doubts that assail the modern world*. With their knowledge and conscientiousness, they can likewise direct technology towards the true good of humanity.

This task is an arduous one, to be undertaken in the face of entrenched interests and unscrupulous powers. But it is a fine and noble mission, inseparable

from the efforts of scientific research and indissolubly linked with the *moral character of the scientist*. It is a mission that must involve individual scholars and the entire scientific community, committing them to the real good of individuals, nations, the whole of humanity. This noble mission was carried out by the Pontifical Academy of Sciences, with the full support of the Holy See and with my own, when, at a moment in which the problem had not yet been authoritatively placed before the Heads of State and public opinion, it made known the effects of the use of nuclear weapons. With full scientific competence and moral awareness, it demonstrated that science and medicine can offer no remedy to the effects caused by an atomic bombardment. I have quoted this example of the Pontifical Academy, which is presided over with such wisdom and incisive initiative by Professor Carlos Chagas, in order to reaffirm that Academies of Sciences cannot ignore, over and above their traditional tasks, the task of providing accurate information about the use of scientific discoveries; nor can they abdicate the commitment to use their authority in order to direct such discoveries towards the true good of humanity.

6. This duty of providing information and guidance for the public authorities and for public opinion proves that the Academies, while preserving their necessarily very selective structures, must not close themselves within the ivory tower of their private debates. They must be open to discussions, with the whole of humanity, on *the problems that assail people today as they face the next millennium*. Such problems include the energy problem, the problem of non-renewable raw materials, the problem of hunger in the world, the problem of the illnesses and endemic diseases which torment hundreds of millions of people, reducing their efficiency and work-capacity. Added to these is the problem of the abuse of drugs that affect the mind and life itself, especially of the young. The future destiny of man therefore demands that all those who are called to membership of an Academy on the basis of the scientific merits that have brought them renown should consider their grave obligation conscientiously to strive, for the common good of the whole world, using their specific skills to this end.

7. The Academies already set up or to be set up in the countries that are seeking a better future through industrialization must cooperate in the formation of the scientific consciences of the peoples of those countries. In this way they will be able to guide scientific and technological efforts and correct errors. Through the linking up of the Academies of the more developed peoples with the Academies of those still in the phase of development, on the level of parity in the world scientific community and animated by a spirit of collaboration, free of material or sectional interests, it will be possible to achieve that international cooperation which is ever more necessary, in the spirit which animates the Encyclical *Populorum Progressio* of my predecessor Paul VI, a document that is full of love for the less favoured peoples, yet which is based upon concrete suggestions.

Today more than ever, science must contribute with all its power to true human progress and it must banish the impending threat of the criminal use of

its discoveries; therefore it is necessary that the scientific community, aware that science constitutes an essential element of human development, must watch over the correct use of the fruits of its research in the service of humanity.

8. Today there no longer exists the ancient opposition between true science and authentic faith, as the Second Vatican Council emphasized and as I myself have had occasion to say on various occasions. Therefore *the Church is your ally*, and wishes to support your moral commitment, both individual and collective, which is absolutely essential, over and above all territorial or ideological barriers, in order to ensure peace for humanity, and, together with peace, the fulfilment of the essential needs of a life worthy of man, created by God in His own image and likeness.

On you and on your work I heartily invoke the blessing of the Lord.