THE PONTIFICAL ACADEMY OF SCIENCES

EXTRA SERIES

17

STATEMENT

on the

Cultural Values of the Natural Sciences

PLENARY SESSION
8-11 November 2002

VATICAN CITY
2003

STATEMENT

on the

CULTURAL VALUES
OF THE NATURAL SCIENCES

The Academy or the School of Athens by Raphael in the Vatican Palace
'In those people you will have recognised your oldest predecessors in the investigation
of both matter and spirit' (Pius XII, Address to the Academy's Plenary Session, 3 December 1939)

STATEMENT

ON THE CULTURAL VALUES OF THE NATURAL SCIENCES

At its Plenary Session of 8-11 November 2002, the Pontifical Academy of Sciences discussed the various contributions made by scientific activity and education to the culture of humankind. Seeing 'culture' as a set of free and responsible learned ways of acting, behaving and taking decisions, as opposed to inherited patterns of behaviour and instincts, the Pontifical Academy of Sciences wishes to issue the following Statement.

If by science we mean the sophisticated arts of mathematics, aesthetics, architecture, metallurgy, it is possible to describe ancient Egypt, China, Mesopotamia as the first homes of science. The knowledge base built up by studies in the natural sciences beginning with the theoretical practice of the ancient Greeks as a selfless form of the search for truth, and then developed by the method of Galileo and his heirs, constitutes a fundamental dimension of human culture. Since that time, this dimension has shaped human history and is now an irreversible part of one's destiny. It is a value in itself which provides both a science-based view of the world and people and extensive opportunities to improve living conditions through applications in such areas as health, life expectancy, food security, sustainable growth, energy and water resources, information and communication, and the preservation of the environment. In the context of these applications, a worldview where science and its values play their role in the quest for truth, together with the ethical wisdom developed down the centuries, can be of great help in assessing policies and technology so as to reduce the possible risks that accompany many such applications. Thus, a global awareness of the need to engage in a responsible evaluation of human impact can lead to the implementation of sustainable developments which

guarantee good for all people. Many national and regional Academies of Science, as well as international scientific unions and inter-academy organisations, are ready to help political and cultural leaders, governments and companies in a careful and prudent assessment of the new technologies.

The rigorous standards generally applied in scientific research with regard to data collection and interpretation and experimental design, and the ethical rules that govern scientific practice, impart intrinsic cultural value to scientific work. Similarly, the steadily enriched scientific knowledge base, sharing the values and contents of science, represents a force of great value for education and can act to improve the conditions of human lives. For these reasons, the broad knowledge base of the natural sciences constitutes a dynamic and open trans-disciplinary foundation that is of relevance to all human beings at all levels of education. In order to benefit fully from this knowledge base, societies should develop scientific education, starting from primary school, and ensure that their scientists responsibly take care that the progress of science and technology goes to the advantage of all men and women.

Successful scientific research strongly depends on originality, creativity and invention. These requirements are similar to those of other cultural activities in the various fields of the arts and in the social and human sciences. All of these fields make their specific contributions to the heritage of human culture; they are complementary and cannot replace each other. Today, more than ever before, what is required is a new humanism which takes into account all aspects of human culture, and where human, social and natural sciences can work together as partners. This will greatly contribute to improving the overall knowledge of our world and our place in it, to increasing the respect for future generations, to promoting what is human in people, to safeguarding the environment, and to fostering sustainable growth and development. In this way, science will help to unite minds and hearts, encourage dialogue not only between individual researchers and political and cultural leaders, but also between nations and cultures, making a priceless contribution to peace and harmony amongst the peoples of the world. Science, so much appreciated in the teaching of John Paul II, when it is in harmony with faith can fully participate in this new humanism. The members of the Pontifical Academy of Sciences make an appeal to the readers of this Statement to fully recognise the valuable contribution made by the natural sciences to human culture.

Published by
The Pontifical Academy of Sciences
00120 Vatican City