



## Science in the Context of Human Culture - Part I



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### Foreword

The theme of this Plenary Session of the Pontifical Academy of Sciences was chosen in response to a need arising from a critical situation in present-day culture: the almost complete dichotomy between the sciences and the humanities (religion, philosophy, literature, the arts). This anomaly appears to be, essentially, the result of a historically conditioned situation. Thus, there was in the seventeenth century, on the one hand, the Church's incomprehension and suspicion of Galileo's astronomical discoveries. This culminated in the famous trial and the condemnation of the great scientist. On the other hand, there was the resulting anticlerical reaction - often quite violent, which during the ensuing centuries rejected any infusion of religious or philosophical points of view into the domain of experimental, rational research. Although the two fundamental components of knowledge, the scientific and the humanistic, necessarily employ different methods and advance along separate paths, there is no doubt that this dichotomy, which occasionally even borders on mutual repulsion, is a major hindrance to achieving a unity of knowledge. Indeed, there is today an opposite tendency which envisages a higher synthesis where all the aspects of knowledge would be unified in a general framework, and where each aspect could find its proper place and meaning in relationship to the others. This unifying tendency is basic to the numerous present-day interdisciplinary initiatives which aim at establishing connections and common approaches among fields of knowledge, however distant they may be one from another. It was in fact such an aim which lay behind the convocation of the Academy for this Plenary Session. To move toward this goal however, it was first necessary to make a detailed articulation of the theme, and to focus on the different aspects and areas of inquiry. Given the vast differences and variety of points of view, it was deemed indispensable to subdivide the theme and to examine it at various levels. For an Academy of Sciences, the natural point of departure, and thus the first stage to be discussed, had to be the contemporary situation of certain main branches of science - physics, cosmology, biology - with a view to ascertaining those aspects which would best lend themselves to interdisciplinary comparison. Following upon this first part, which was dedicated to scientific aspects exclusively, the task of the next two parts was to examine the present relationships between science and culture. Here, in order to arrive at some of the fundamental issues, it was necessary to make a rather detailed and differentiated examination of various regions and populations with regard to two aspects which could be said to follow one upon the other. The first concerned the receptivity of various regional cultures to science and to its applications. Included in the examination of this aspect was, of course, the impact of science on education, on politics and on industrial development. The second aspect comprised the influence which science was seen to be exercising on the character of various cultures, and also the social and moral repercussions which the applications of science can produce. The reader will immediately discover, in the papers and the discussions presented in this volume, how penetrating and how wide-ranging the deliberations were. This will be seen in the main points and perspectives which emerged from the scientific part, and also in the wealth of concrete examples drawn from different countries illustrating the possible forms of contact between the two types of culture. It should be no surprise that this abundant documentation of the basic issues and data within the theme of the Session took up most of the available time, with the result that there was almost no space left in which to identify the interdisciplinary bridges which might be built between the different branches of knowledge. In fact, only a very few of the contributions to the meeting touched on this matter. An obvious conclusion to be drawn from this is that the theme of the meeting was so comprehensive that it could

not be examined in all its phases. In any event the 1990 Plenary Session put down an excellent foundation upon which a later Plenary Session may build, and where attention can be concentrated on the many interdisciplinary aspects, especially on the deep-seated connections which certainly exist between science and the other forms of human culture, and which can already be inferred from the material presented in this volume.

The theme of the 1990 Plenary Session of the Academy was further examined in a Symposium, "Science in the Context of Human Culture II", which was jointly organized by the Pontifical Academy of Sciences and the Pontifical Council for Culture, and which was held at the seat of the Academy from 30 September to 4 October 1991. The proceedings of the Symposium, now in preparation, will be published in the Academy's *Scripta Varia* series.