G. B. MARINI-BETTÒLO (*)

Opening Remarks (**)

First of all I wish to welcome and thank you who have accepted our invitation to come here undertaking a long trip with all its discomforts, and all those who have accepted to collaborate in the success of this conference, such as the Italian Society of Tropical Medicine and the Italian Society of Pharmaceutical Sciences.

The holding of this congress in this historic place — which shows us the continuity of the civilization of Rome through the medieval corporations of the Aromatari, who were in charge of the preparation of pharmaceuticals, up to the present industrial reality — is a symbol of the continuity of man's progress as he faces the future.

In the constructive spirit which should inspire these meetings, I invite the speakers, after having spoken on the theme of our conference, to give constructive consideration to the various problems involved and their relative priorities and to discuss approaches to solutions.

The results which we will arrive at can be of great help to governments for a new policy which takes into consideration both the social needs and cooperation in improving the standard of living of the developing countries.

Among the duties of the Academies of Sciences there is certainly that of promoting all those scientific initiatives which call public attention to those questions which science might be able to solve and which regard science itself and present important social and ethical aspects.

Today the Academy, in agreement with the Department of Science and Research and Development of the European Community, proposes the theme of those pharmaceuticals necessary to cure some rare diseases — pharmaceuticals which are necessary for the patients but absolutely uneconomical and therefore

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not considered for production and commercialization by the pharmaceutical industry, forgotten pharmaceuticals which have been suggestively defined for these peculiarities of theirs as "orphan drugs".

Naturally such an important event, from the social point of view, could not fail to attract the attention of public authorities in the developed world. The government of the United States has taken measures to promote the research and production of orphan drugs by a special law. In Italy certain initiatives have been taken through programs of the CNR (National Research Council of Italy) and research by the Istituto Superiore di Sanità (Department of Health).

At this point I think it would be very necessary to establish on the international level — and for this we have with us numerous scientists from all parts of the world — a credible definition of orphan drugs; this would lead us consequently to the recognition of some rare modern diseases which are also called "orphan diseases".

Once we have established our aims and limits, we would then create a series of premises to assure basic research and development of these pharmaceuticals on an international basis, in view of the limited market nationally.

At the same time, the individual countries would have to study procedures on the technical and administrative levels — such as the registration and protection of patents — so that there would not be obstacles to their production and distribution.

It will not be easy to guide production along these lines and I myself have had personally a very clear manifestation of the desire of a large sector of the pharmaceutical industry not to be involved in this debate, so that it is difficult to find speakers to discuss actual industrial themes.

However, the discussion of orphan drugs is not limited to rare diseases; there exist in the tropics endemic diseases, parasitic and otherwise, from leprosy to malaria, which affect almost two billion people — half of the present world population — for whom the pharmaceuticals necessary to cure them have been outdated or inadequate. I might mention chloroquine, to which today the plasmodium of malaria has become resistant in vast regions of the world. Other pharmaceuticals for malaria and other tropical diseases are not always effective and often too toxic.

Endemic disease means a very serious obstacle in the path of development. It is necessary in this field to do the research again from the beginning. A start in this direction was made in 1973 by the World Health Organization with the program on Tropical Disease Research, but this is not adequate and should be expanded and made more effective on the level of the individual nations which should cooperate for development.

Today the difficulty of finding a new pharmaceutical requires that almost all oriented research be carried on only by structures which are economically and scientifically valid, that is, by large pharmaceutical industries. However, these companies, which must give an accounting to their stockholders, cannot undertake costly projects which may have limited commercial success. In fact, tropical diseases too are orphan diseases, since the pharmaceuticals to cure and prevent

them are also orphan drugs, for although they would have millions of potential buyers the economic conditions of the countries do not provide a paying market and would not assure the producers a return which would justify the scientific effort and the financial investment.

I believe this is the most important front on which we must act with regard to the orphan drugs. For this reason we have invited scientists who are working in Africa and Latin America in order to review with them the objectives and priorities, and especially to propose a new strategy to the operators and to public opinion, not only in Italy but in the whole world.

In this there are already some favorable signs: the research for vaccines against malaria, carried on in the United States and in England, the search for a vaccine against leprosy which Convit in Venezuela is carrying on after the discovery that the armadillo makes it possible to do experiments *in vivo*, the studies on rickettsiosis and trypanosomiasis being made in various African research institutes, the biochemical research at the cellular level of *Trypanosoma cruzi* by our colleague Stoppani in Argentina.

It is a vast field of fascinating research on the scientific frontier. Today in order to combat a parasite or a microorganism, it is necessary to know its biochemical life cycles: in recent years the capacity of certain protozoa to modify their membranes and to adapt themselves to new situations has been discovered. Surely the biochemical and immunological approach of this research can give extraordinary results.

The Academy and the European Community, in proposing the subjects for this meeting, wanted not only to bring these problems to the attention of the organizations responsible for research, health and development in each nation, but especially — as should be the case with every scientific conference — to determine from your presentations and discussions the requirements for a feasible project in this very important, somewhat neglected sector which can lead to a new concrete undertaking to make its influence felt in the battle against diseases.

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