„GAPS IN TECHNOLOGY: PHARMACEUTICALS“

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PREFACE AND CONCLUSIONS

A.) PREFACE

The Ministers responsible for science and technology in the OECD member states and Yugoslavia, at their second meeting in January 1966, recommended that the OECD should "be asked to strengthen its work and links between science and technology and, in particular, on the following subjects:

- Technologically advanced industrial sectors, whose economic development requires relatively large-scale research and development efforts, or may be influenced significantly by government-financed research and development;
- The effects of foreign investment on the development of national scientific and technological potential;
- The methods being used by Member governments to identify economic and technological sectors where it would be appropriate to encourage some degree of concentration of both industrial and governmental research and development effort;
- The experience of Member governments in the use of specific measures to stimulate technical innovation; such as civil development

contracts, government procurement, technical information and advisory services for industry."

The OECD Council referred the matter to the Committee for Science Policy, which established a special Working Group on Gaps in Technology between Member countries, under the Chairmanship of Dr. J. Spaey of Belgium, to study the problem. One of its principal tasks was to initiate studies on the problem of technological gaps in specific industrial areas.

It was decided to study nine sectors, which were considered representative of different types of industry. Six sector studies were carried out by the Committee for Science Policy: electronic components, electronic computers, non-ferrous metals, pharmaceuticals, plastics, scientific instruments. Three sector studies were carried out by the Committee for Industry: iron and steel, machine tools and man-made fibres.

In the case of the studies carried out under the responsibility of the Committee for Science Policy, including the one which is the subject of this Report, it was decided that a Group of Experts should prepare a report on each sector. These Groups of Experts were composed of national rapporteurs, nominated by the countries that wished to participate in the work of the sector concerned, and experts from industry and the universities.

A questionnaire was prepared to cover all sectors and sent o each of the participating countries, and the national rapporteurs collected and co-ordinated national replies. The data submitted by Member countries were supplemented by visits to firms, discussions with experts, and the analysis of available statistical date by the OECD Secretariat. On the basis of this information, the Secretariat prepared a first draft of a report, which was thoroughly discussed by the responsible Group of Experts, and finally agreed by the Group of Experts for submission to the Ministers of Science.

At their Third Meeting, in March 1968, the Ministers of Science recommended that the reports of the Groups of Experts should be published. It should be noted, however, that in the context of the constant and rapid evolution of industry, each report can only be considered as a preliminary assessment of a particular sector at a particular time.

In addition to the vast amount of information on the scientific, industrial and economic aspects of each sector that the Groups of Experts have been able to bring together, these studies have also been of value in the interest they have raised in scientific, industrial and academic circles.

The Council of the OECD has decided that this report should be published under the responsibility of the Group of Experts on the Pharmaceutical sector.
The Chairman of the Group was Dr. M.N.G. Dukes, Research Manager, N.V. Organon, Oss, The Netherlands. Sector Rapporteurs from the following Member Countries have participated in the Group of Experts: Belgium, France, Germany, Italy, Japan, Netherlands, Spain, Sweden, the United Kingdom and the United States. In addition 12 Experts from OECD Countries have contributed to the work of the Expert group.

B.) CONCLUSIONS

I. EVIDENCE FOR THE EXISTENCE OF A GAP: MANPOWER UTILISATION IN RESEARCH AND TECHNOLOGY PERFORMANCE

There are signs of differences in the capacity to discover and develop new drugs between OECD Member Countries. It would appear that there are far fewer pharmaceutical research workers in the United States than the rest of the OECD countries. The number of doctorate-level scientist involved is rather lower in the United States than in Europe. In spite of this, the largest number of original drugs of scientific and commercial importance available in the majority of countries originated in the United States. Whereas the contribution made by most individual European pharmaceutical houses to the drug market varies greatly from country to country, the major United States pharmaceutical companies occupy an almost uniformly strong position in all the countries studied.

The above conclusions have been drawn up without regard to Japan, which must be considered as a special case.

In view of the current lack of equilibrium in the process of drug introduction and marketing, it is difficult to compare satisfactorily the present performance of the pharmaceutical industry in various countries. Irrespective, however, of any existing gaps between European and United States pharmaceutical companies, it has become evident that many factors are operative in individual countries, some of which can lead to the appearance of gaps in the next few years. It is especially, in view of these future prospects, that government action will be recommended.

Among these factors are:

II. FACTORS CONDUCIVE TO THE FORMATION OF THE GAP

(a) Size of organisation and its consequences for research an development

Due to the continuing fragmentation of Europe (due to national, legal, linguistic, social and other barriers) there is a tendency for many firms to remain within the confines of national boundaries. This results in smaller industrial units. Such units can maintain only a limited research effort and cannot for example engage in the basic research which is now being undertaken by many American drug companies and is essential to much future progress. It is very noticeable that in the United States research staff is concentrated into relatively few companies and this may constitute a partial explanation of their apparently better research performance.

(b) Differences in education and in the supply of highly skilled manpower

(i) Academic staff in universities of some countries have little interest in performing productive research which could result in new drugs, or in training scientist for a career in industrial drug research.

(ii) In several European countries there has been a real shortage of biological scientist.

(iii) Most European countries have little or no provision for training in business techniques and management at university level. In particular it is difficult to find scientist trained in industrial management.

(c) Management

There is evidence that certain management and marketing techniques are less widely employed in Europe than in the United States. This is largely due to the question of relative size (see above). Smaller firms are less receptive to modern marketing and management techniques.

Moreover, the establishment of a correct relationship between the commercial and research departments of a company has been solved more frequently in the United States than in Europe.

(d) Government policies

(i) Differences in drug laws

These frequently result in wasteful repetition of work before a product can be marketed in a different country, and to unnecessary delays before a drug can be employed. The harmonisation of drug law in Europe is particularly urgent.

(ii) Attitudes of state controlled health systems towards drug pricing

Whilst such system is necessarily anxious to avoid unnecessary expense, it must be recognised that the sum paid for drugs forms the financial basis for almost all pharmaceutical research in western society.

(iii) Divergences in patent practises

Inadequate patent protection in any country can form a major obstacle to drug research as is shown for example by experience in Italy.