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- \*\* Between 1967 and 1971 public spending on research and development (R&D) within the Community increased by about 39%, totalling about 5,000 million units of account in 1971. This is the estimate put forward by the experts of the Commission of the European Communities in a report on THE PUBLIC FINANCING OF RESEARCH AND DEVELOPMENT IN THE COMMUNITY COUNTRIES (1967-71), drawn up at the request of the Committee on Scientific and Technical Research Policy (Aigrain Group). ANNEX 1 contains a summary of the growth in public R&D appropriations over the last five years.
- \*\* The White Paper which the British Government has just published on THE ACCESSION OF THE UNITED KINGDOM TO THE COMMUNITY includes important passages on the industrial and technological aspects involved, extracts of which are given in ANNEX 2.

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*The information and articles published in this Bulletin concern European scientific cooperation and industrial development in Europe. Hence they are not simply confined to reports on the decisions or views of the Commission of the European Communities, but cover the whole field of questions discussed in the different circles concerned.*

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\*\* THE CONSUMPTION OF ENERGY IN THE COMMUNITY amounted to about 850 million tonnes of coal equivalent in 1970, or 9% above the 1969 figure. Oil alone now accounts for 59% of the Community's energy consumption, whereas the share of coal is no more than 23%. These facts were quoted by Mr Bousch in a report on the energy situation in the Community presented to the European Parliament at Strasbourg on 7 July on behalf of the Parliamentary Committee for Energy, Research and Atomic Problems. This is the fourth occasion since April on which the European Parliament has debated energy problems. During this debate Mr Haferkamp, Vice-Chairman of the Commission of the European Communities with special responsibility for energy problems, remarked that several of the Commission's proposals on this subject were now before the Council. During July the Commission will make further proposals concerning measures designed to overcome supply difficulties and to promote the creation of the common energy market and the establishment of a joint supply policy.

ANNEX 3 contains a summary of Mr Bousch's report on the energy situation in the Community and the new guidelines concerning a joint energy policy.

\*\* Replying to a written question from Mr Westerterp, a Dutch member of the European Parliament, concerning the FUTURE OF THE EUROPEAN TEXTILE INDUSTRY, the Commission of the European Communities voiced its conviction that the gradual strengthening of healthy competition inside and outside the Community was bound to help to guide the textile industries towards increased rationalization and productivity, provided the conditions favourable to the necessary adaptation and reorganization could be ensured by adequate measures at both national and Community level. At the same time as the textile industry is being rationalized, the opportunity should be taken to develop the areas of the Community in which this industry occupies an important place.

\*\* The Commission of the European Communities has decided to extend during 1971 a contract concluded in 1967 with the French Institut National de la Recherche Agronomique (INRA). The research programme in the contract concerns the EFFECT OF IONIZING RADIATIONS ON CERTAIN HEREDITARY CHARACTERISTICS. The experimental material is a hymenopterous insect, and the quantitative characteristic forming the subject of the study is the fertility.

\*\* An international symposium on NON-DESTRUCTIVE MEASUREMENT AND IDENTIFICATION TECHNIQUES IN NUCLEAR SAFEGUARDS will be held at the Ispra Establishment of the Joint Research Centre on 20-22 September 1971. More than one hundred specialists of all nationalities (member and non-member countries, including the USSR and Japan) will attend.

\*\* THE EUROPEAN OCEANIC ASSOCIATION EUROCEAN held its first General Assembly in Monaco on 25 June 1971. Eurocean is a non-profit-making association. Its Chairman is Commandant Cousteau, and it brings together some of the main European industries with a view to exploiting the resources of the sea while at the same time ensuring the conservation of the marine environment. According to the experts, oceanology offers Europe a new and immediately profitable market estimated at 200,000 million dollars for 1980 and 2,000,000 million dollars for the year 2000.

\*\* Replying to a written question from Mr Dröscher, a West German member of the European Parliament, concerning BARRIERS TO TRADE caused by the French system of licences and endorsements, the Commission of the European Communities points out that it has always considered that formalities such as licences and endorsements thereof - even if they are granted automatically and without delay, and are therefore compatible with the obligations deriving from Articles

30 et seq. of the Treaty - nonetheless constitute a hindrance to the achievement of a genuine common market among the Member States, since they are a source of delay and expense. With a view to remedying these drawbacks, the Commission submitted to the Council in December 1966 a draft decision decreeing the abolition, with certain exceptions, of the formalities to which imports or exports are subjected. The Commission will continue as in the past to press for the abolition of such formalities.

The Public Financing of Research and Development  
in the Community Countries (1967-71)

Between 1967 and 1971 public spending on research and development (R&D) within the Community increased by about 39%, totalling about 5,000 million units of account in 1971.

This is the estimate put forward by the experts of the Commission of the European Communities on the basis of the available data, in a report on the public financing of research and development in the Community countries (1967-71), drawn up at the request of the Committee on Scientific and Technical Research Policy (Aigrain Group). (NB. These estimates are intended to indicate trends and establish orders of magnitude; they should not be considered as absolute data, since R&D statistics, perhaps even more than other figures, need to be interpreted circumspectly).

| Growth of Public Spending on R&D |   |   |
|----------------------------------|---|---|
| Financial year                   | Total R&D appropriations<br>in thousands of millions<br>of u.a. | Growth with<br>reference to<br>the previous<br>year (%) |
| 1967                             | 3.6   | -   |
| 1968                             | 3.8   | 4.9   |
| 1969                             | 4.0   | 6.8   |
| 1970<br>(provisional)            | 4.4   | 9.9   |
| 1971<br>(provisional)            | 5.0   | 13.5  |

The average annual growth rate, which was only 5.9% between 1967 and 1969, rose to 11.3% between 1969 and 1970, i.e., it almost doubled. But in real terms (with due allowance for the effects of price increases), the overall growth rate appears to have been nil or even negative during the period 1967-70, and to have improved only slightly since then. Between 1967 and 1971, retail prices have increased or will increase by 3-7% a year in the Community countries; but countries with a high R&D expenditure are among those in which this increase is most marked.

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If we add that during the period in question the Community population increased by 0.6% a year and that R&D costs undoubtedly increased more rapidly than the retail price index, it may be concluded that between 1967 and 1971 the real per capita increase in the R&D effort was generally speaking very modest.

At the same time, however, since R&D funding for military purposes fell steadily in all Community countries (from 24.7% in 1967 to 17.7% in 1971, and from 892 to 878 million units of account), civil appropriations rose more rapidly than the general average, increasing by 50.9% during the period 1967-71, or by an average of 10.8%.

During this period France gave only a very modest stimulus to its public appropriations for R&D, with an increase of less than 15% over the five-year period, which is less than the rise in prices (apparently reflecting the French government's intention to commit private industry more deeply in certain research sectors and to reduce the amount of large programmes while making better use of the existing potential). At the same time the other countries all increased their public R&D spending substantially.

Within the Community the relative positions of the various countries tended towards the general average, which itself rose from 19 to 23 units of account per inhabitant between 1967 and 1970.

| <u>Growth of Public R&amp;D Spending per Inhabitant (1967-70)</u> |         |        |              |       |             |     |
|---|---------|--------|--------------|-------|-------------|-----|
| Community mean = 100  |         |        |              |       |             |     |
|   | Belgium | France | West Germany | Italy | Netherlands | EEC |
| - total R&D funds   |         |        |              |       |             |     |
| - 1967  | 55      | 183    | 104          | 28    | 85          | 100 |
| - 1970  | 64      | 147    | 125          | 33    | 102         | 100 |
| - civil R&D funds   |         |        |              |       |             |     |
| - 1967  | 72      | 161    | 109          | 35    | 107         | 100 |
| - 1970  | 78      | 130    | 128          | 40    | 120         | 100 |

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The average growth of R&D appropriations in fact covers very different rates, depending on the sector and the various categories of objective.

1. The proportion of funds intended for the improvement of the environment increased in all countries and reached almost 10% in 1971 (the relatively greater increase in France is no doubt due to the greater leeway to be made up owing to the fact that spending on higher education is much lower than in other countries).
2. The total proportion of funds for mainly industrial and technological purposes remains constant, the decreases in some countries (France and the Netherlands) being offset by increases in others (West Germany and Italy). Within this category, the relative importance of the nuclear programmes has greatly diminished. More funds have thus been made available for other large-scale technological programmes together with programmes of more modest scope and/or relating to more traditional sectors. This trend is especially apparent in Italy, where the share of the advanced technologies has been greatly reduced while the overall industrial research effort has increased.  
West Germany and France are today devoting an equal part of their public R&D budgets to large-scale technological purposes.
3. Appropriations earmarked for the general promotion of knowledge have appreciably increased within the Community, particularly owing to the acceleration in the needs of higher education.
4. The contributions of the Community Member States to bilateral or multilateral projects have fallen in relative value from 13.1% of total spending in 1967 to 9.2% in 1971, owing mainly to the difficulties of Euratom and a levelling-off of R&D funding for civil aviation (reduction in the research heading of the "Concorde" programme in particular because of its progression to the industrial stage).

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In 1971, with a mean increase in R&D appropriations of 13.5% (at current prices) with respect to 1970, rates of growth are observed ranging from 2.8% for military research to 39.9% for computer science. In four other fields - space, environment, health and industrial productivity - spending has risen by more than 20%.

Public R&D Spending by Major Categories of Objective (1967-71) and as a %  
of the Total

The Industrial and Technological Implications of the Accession  
of the United Kingdom to the European Community  
(extracts from the British Government's White Paper)

The effects of membership of the Common Market on British industry will stem principally from the creation of an enlarged European market by the removal of tariffs between the United Kingdom and the Community countries.. Manufacturers will be operating in a "domestic market" perhaps five times as large as at present. There will in consequence be a radical change in planning, investment, production and sales effort...

It is generally agreed that for advanced industrial countries the most favourable environment is one where markets are large, and are free from barriers to trade. These conditions favour specialization, the exploitation of economies of scale, the developing and marketing of new products, and a high level of investment in the most modern equipment. Through increased competition, they foster the more efficient use of resources over a wide area of industry and help to check the trend to monopoly positions on the part of large-scale organizations ...

In recent years Western European markets for jet aircraft and aero engines, for computers and advanced electronic equipment, for nuclear fuel and power, for motor vehicles and for many other products have been increasingly dominated or penetrated by the much larger international corporations based outside Europe. Together, the Western European nations can organise themselves to compete with these giants, which are otherwise bound to go on increasing their share of European industrial markets...

The Community industries will have a home market of some 190 million people, with preferential markets in other European and overseas countries. British industries would have a home market of some 55 million people, with perhaps another 45 million in EFTA, as against the home market of some 290 million people the United Kingdom should have if it joined the Communities.

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The rapid growth in manufacturing productivity in the Six was a key factor in their impressive economic record in the past decade. But other indicators also show clearly the extent of the advances made by comparison with the United Kingdom. For example, in 1958 average earnings in Britain were similar to those in France, Germany, Belgium and the Netherlands and well over half as high again as those in Italy. By 1969 average earnings in Italy had caught up with British earnings, and in the other Community countries earnings were now between a quarter and a half higher on average than those in Britain. In real terms (i.e., after allowing for inflation), average British earnings had increased by less than 40% between 1958 and 1969, while in the Community countries average real earnings had gone up over 75%. Similarly, all the Community countries enjoyed rates of growth of gross national product (GNP) per head of population, or of private consumption per head, roughly twice as great as Britain's.

Moreover, at the same time a high proportion of the Community's output continued to be channelled into investment, so providing the basis for further rapid growth. In the period 1959-69, the Six devoted 24% of their GNP to investment, whereas the figure for Britain was 17%...

In the light of the experience of the Six themselves, and their conviction that the creation of the Community materially contributed to their growth, and of the essential similarity of the Community and British economies, the British Government are confident that membership of the enlarged Community will lead to much improved efficiency and productivity in British industry, with a higher rate of investment and a faster growth of real wages. This belief is shared by a substantial majority of British industries, whose own interests are at stake, and who are in the best position to judge. A more efficient United Kingdom industry will be more competitive not only within the enlarged Community but also in world markets generally.

ANNEX 3 p.1

The Energy Situation in the Community and the New Guidelines  
for a Joint Energy Policy

(summary of a report presented to the European Parliament at Strasbourg on 7 July 1971 by Mr Bousch, on behalf of the Committee on Energy, Research and Atomic Problems).

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The Community's energy needs amounted in 1970 to about 850 million tonnes coal equivalent (tce), or an increase of 9% with respect to 1969 (see "Industry, Research and Technology" No. 87). Oil alone now accounts for 59% of the Community's energy consumption, while the share of coal is only 23%. Moreover, pit coal production in the Community fell in 1970 by 6 million tonnes to 161 million tonnes, and it was necessary to increase coal imports from 24 to 31 million tonnes; Community exports reached their lowest figure for 10 years with 1.6 million tonnes. The share of natural gas in meeting the Community's energy requirements rose to 8.5%. Electricity of nuclear origin represents only 2.5% of the total production, reactors in operation supplying 3,150 MW at the beginning of 1971.

This rapid growth in the Community's energy needs has further aggravated Europe's dependence on its foreign suppliers. Nonetheless member countries' energy policies are still for the most part formulated by their national governments, and the frequently proclaimed desire to institute a genuine energy policy has rarely withstood the inveterate defensive reflexes of national interests.

These points are made by Mr Bousch in a report on the energy situation which he has just presented to the European Parliament on behalf of the Parliamentary Committee on Energy, Research and Atomic Problems.

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The important changes which have taken place in the world energy market since the oil crisis of 1970, and the subsequent reversal of the power relationship between oil-producing and oil-consuming countries, herald the approach of a period of high-cost dear energy, during which Europe's supplies will increasingly depend on the vicissitudes of international politics and the goodwill of the producer countries, who from now on can impose their terms on the consumers. A review of the Community energy supply structure will therefore be necessary, together with greater cooperation among the Six, leading ultimately to the implementation of a genuine Community energy policy.

It is to be regretted that the Community was not present at the Teheran and Tripoli negotiations, where the interests - they may without exaggeration be termed the vital interests - of the Six were defended by the representatives of the oil companies, whose interests did not necessarily coincide with theirs.

Community intervention would appear to be particularly desirable in that the oil problem is political as much as economic. Western Europe should therefore establish a new type of relationship with the oil-producing countries by virtue of which producers, consumers and operating companies would cooperate more closely in providing Europe with stable supplies of petroleum products at equitable prices.

The increased use of the available energy sources within the Community and the search for new energy sources should make it possible to strengthen the Community's position in the energy sector considerably.

The requirement for dependable supplies could be met by re-examining the part played by coal, the only source of domestic energy which the Community possesses in sufficient quantity. A Community policy governing imports from non-member countries is also necessary both for coal and for other sources of energy.

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On a more general plane, it will be important to ensure the best use of the energy sources available on Community territory, and in particular to intensify the search for new deposits of natural gas.

In view of its competitive cost (the operating costs of nuclear power stations are only one-third of those of thermal installations, although their construction costs are still much higher) and because of the reliability of Community supplies of natural uranium, the growth of nuclear power appears capable in the next ten years of putting an end to Europe's position of dependence as regards energy supplies.

A fuller use of nuclear energy should therefore be strongly encouraged. But this raises the question of the construction of a Community uranium enrichment plant. The Six must also step up their cooperation on breeder reactors, which will eventually take over from the existing nuclear power plants.

Until such time as nuclear energy begins to play a decisive part in the Community's energy supplies, oil will continue to provide by far the greater part of the energy consumed in the Member States. There are a number of measures which could considerably reduce the Community's dependence in this respect on its suppliers, such as increasing the Community's storage capacity, expanding the Community's oil-tanker fleet and diversifying the sources of supply.