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** SCIENTIFIC AND TECHNOLOGICAL COOPERATION IN EUROPE was the subject of a wide-ranging debate in the Council of Europe arising out of a report presented by Mr. Lloyd, a British Conservative MP. While deploring the fragmentation of effort involved and the paucity of the results achieved by partial projects worked out with a view to frequently diverging national interests, the Assembly gave its backing to the rapporteur when he stressed that European and international organizations for technological cooperation must not hope to carry on a peaceful existence unless a watch-dog system is set up for supervising their work and convincing public opinion of their efficacy. The Assembly asked the Committee of European Ministers to ask an independent research body to draw up a functional survey of international cooperation in science as a first step towards correcting the situation.

** A TOTAL OF 27 EUROPEAN LABORATORIES are among the 142 to which NASA, the American Space Agency, has distributed the 8 kg of lunar material brought back by Apollo 11. These European laboratories include 17 in Britain, two in Switzerland, seven in Germany and one in Belgium. The experiments planned by the eight Community laboratories are listed in ANNEX 1.

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2

** ELECTRONICS RESEARCH AND DEVELOPMENT IN THE COMMUNITY COUNTRIES AND THE MAIN NON-COMMUNITY COUNTRIES. This is the title of a survey carried out by the "Bureau d'information et de prévisions économiques" (BIPE), Paris, in collaboration with the "Studiengruppe für Systemforschung", Heidelberg, and the "Centro studi investimenti sociali", Rome, on behalf of the Commission of the European Communities (see Newsletter No. 25). A short analysis of the findings of this study will be found in ANNEX 2.

** MR. LEE A. DUBRIDGE, President Nixon's scientific adviser, and his principal aides, held discussions in Brussels with President Jean Rey, Vice-President Hellwig and Commissioner Haferkamp of the Commission of the European Communities regarding the possibilities for INCREASING SCIENTIFIC COOPERATION between the United States and the Community.

** GREATER COLLABORATION BETWEEN THE COMMUNITY'S EDUCATIONAL INSTITUTIONS and the JOINT RESEARCH CENTRE has been recommended by science lecturers from Belgian, French, German and Italian universities and institutes who recently took part in a fact-finding visit to the Joint Research Centre's Ispra Establishment.

** One of the major problems posed by the radioactive pollution of the environment is the PROTECTION OF NATURAL WATER RESOURCES, which makes it a leading concern of health protection authorities. However, the recent expansion of the nuclear industry entails the production of waste whose processing and discharge raise two very complicated problems (the difference compared with conventional waste lies mainly in the persistence of radioactivity and the fact that it is passed on).

3

Following a series of meetings with experts in the relevant disciplines, the Commission of the European Communities recently published a booklet entitled "Principes et méthodologie générale en vue d'établir la capacité radiologique limite d'un réseau hydrobiologique" ("Principles and General Methods for Establishing the Limiting Radiological Capacity of a Hydrobiological System"), which will enable the health authorities of the six Community countries to adopt a common outlook and thus tackle one of the key problems of health protection on a coordinated basis.

** THE COMMUNITY'S POLICY with regard to nuclear and energy matters was the subject of a press conference held in Basle on 6 October, on the occasion of the Nuclex Fair, by Professor Michaelis, Director-General for Research and Technology of the Commission of the European Communities, flanked by several other senior officials from the Commission.

Some twenty specialized journalists from Community and non-Community countries subsequently took part in a tour of the Karlsruhe Establishment of the Joint Research Centre, where they were shown over the Institute for Transuranium Elements.

** The European physicists who gathered at the Joint Research Centre's Ispra Establishment for an exchange of views on the SCRA PULSE REACTOR project (see Newsletter No. 27) felt unanimously that as a tool for the investigation of condensed states this reactor (average power 1 MW, pulse time 50 μ sec, pulse frequency 50 per sec, flux 10^{15} n/cm²/sec) can be favourably compared to the IBR-2 reactor, whose construction at Dubna, USSR, was recently decided on, or the accelerator proposed for the Los Alamos laboratories in the USA.

4

** The Commission of the European Communities recently informed the Council of Ministers of the outcome of the negotiations that it had conducted with a view to the extension, for the fourth time, of the Dragon Agreement for a further three-year period (from 1 April 1970 to 31 March 1973). This Agreement, drawn up in April 1959 by 12 Member States of the OECD's European Nuclear Energy Agency, including the six Community countries, covered the construction (completed in 1964) and operation on a joint basis of an experimental 20 MWth high-temperature gas-cooled reactor sited at Winfrith, England. This further extension will bring the total contributions of the parties to the Agreement since the start of the joint programme to £37,935,000, of which Euratom has provided about 43%.

** Italian industrialists, members of the Italian Nuclear Energy Forum, and representatives of public nuclear research bodies met at the Joint Research Centre's Ispra Establishment to review the possibilities for increased COLLABORATION BETWEEN INDUSTRY AND THE ISPRA ESTABLISHMENT.

** Problems relating to PLUTONIUM RECYCLING IN THERMAL REACTORS will form the subject of an exchange of views at a colloquium to be held by the Commission of the European Communities in Brussels and at Mol Nuclear Research Centre on 13 and 14 October 1969.

** A EUROPEAN SOCIETY OF NUCLEAR METHODS IN AGRICULTURE (ESNA) has just been founded. The prime movers in this were the Technische Universität Hannover, Germany, and the Instituut voor Toepassing van Atoomenergie in de Landbouw, Wageningen. The members of ESNA include the main laboratories concerned in both Eastern and Western Europe; the aim of the new organization is to foster cooperation between research workers and firms with a

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view to better coordination in the use of nuclear techniques in all aspects of the production and processing of vegetable and animal produce.

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Research carried out by Laboratories in Community
countries which received lunar specimens

Research Worker	Institution	Subject of experiment	Quantity of lunar material (g)
W. von Engelhardt	University of Tübingen	Mineralogy of shock and metamorphism	21
W. Herr	University of Cologne	Determination of Mn ⁵³ content	5
H. Hintenberger	Max Planck Institute, Mainz	Determination of rare gas content	15
J. Jedwab	Université Libre, Brussels	Determination of the nature and composition of magnetites	10
P. Pamdohr	Max Planck Institute, Heidelberg	Opaque mineralogy	12
H. Wanke	Max Planck Institute, Mainz	Determination of nuclides generated by cosmic rays	200
H. Wanke	Max Planck Institute, Mainz	Minor and major elements	207
J. Zohringer	Max Planck Institute, Heidelberg	Effects of solar wind	17

A Strategy for the European Electronics Industry

The gap between Europe and the United States in the electronics sector has its roots not only in research but rather, and in particular, in the structure of the industry and its markets. If each of the Community countries wishes to develop its industry along purely national lines, American firms will inevitably take over complete control of Europe's electronics industry sooner or later.

This pessimistic forecast was made by a group of three research teams (French, German and Italian) which the Commission of the European Communities asked to carry out a study, due to be published shortly. The report, which is a logical follow-up to the study on American investment in the electronics industry (see Newsletter No. 25), analyses and compares the structure of the electronics industries in the Community and certain non-member countries, stressing the research and development aspects and drawing conclusions as to possible strategies.

A comparison of the turnovers of the different companies reveals the absolute predominance of the American industry over its rivals, be they European (five to one), British (11 to one) or Japanese (13 to one) and points up a revival of the consumer durables sector in the USA since the introduction of colour television, a trend that has not yet appeared in the other countries, where the market represented by the general public is far from saturated.

Another finding is that the degree of concentration in the electronics industry is inversely proportional to the size of the market. Thus, in 1965 the four largest groups in the USA accounted for only 25% of output, compared with more than 40% in the EEC and almost 60% in Japan.

It was also found that, within the electronics field, only small American firms had a highly specialized product range, but these "small" firms had a turnover eight to ten times that of their counterparts in the different countries of Europe. In fact, specialization is only possible if the market is large enough.

Outlets, and particularly orders for hardware placed by public bodies, are therefore seen to be the dominant factor. This being the case, and since the Community countries cannot resort to artificial methods such as the United States' military and space programmes, an agreement should be reached between governments to give preference to European manufacturers in the placing of orders by public bodies for equipment which is at present imported.

Research and Development in Electronics Industries in 1965

Country	Financing (millions of US dollars)						
	Public sector	Private sector	Total	Public sector Direct	Public sector Indirect	Total	Private sector
France	82.0	175.4	257.4	82.0	55.4	137.4	120.0
Germany	57.0	155.0	212.0	57.0	30.0	87.0	125.0
Italy	5.0	22.4	27.4	5.0	1.1	6.1	21.3
Belgium	0.8	9.9	10.7	9.9	0.1	0.9	9.8
Netherlands	1.0	34.0	35.0	1.0	0.2	1.2	33.8
Total, Community:	145.8	396.7	542.5	145.8	86.8	232.6	309.9
United States	950.0	4,050.0	5,000.0	950.0	3,300.0	4,250.0	750.0
Japan	52.9	93.2	146.1	52.9	1.4	54.3	91.8
United Kingdom	84.0	197.0	281.0	84.0	94.0	178.0	103.0

The proportion of research and development carried out in the private sector of the electronics industry can be seen to be 73% in the Community and 31% in the United States, but the proportion financed by public funds is 16 and 66% respectively.

As a result American firms can afford to spend a relatively smaller proportion of their turnover on research and development than their European competitors (3.5 compared with 7.1%). Here again, however, the effects of size are felt and the amount of money put up by American firms exceeds the combined total for private firms and public authorities in the Community (\$750 million compared with \$542.5 million).

Proceeding from this analysis the study goes on to consider the various strategies open to European firms. Having rejected the development of foreign techniques - the "Japanese" approach - which is politically dangerous, and the policy of "market gaps", which tends to concentrate efforts on a particular area while abandoning others, the report finds that most large European firms have adopted what is known as the "controlled gap" policy and strive, with the aid of multidisciplinary research centres, to keep up with technological progress.

While this strategy prevents the gap from widening, however, it can hardly close it. Herein lies the explanation for governments tending increasingly to intervene directly in the industrial sector. What happened in the particularly sensitive field of data processing is now being extended to the components field. However, while rationalization moves leading to the establishment of publicly-backed national groups may enable heavy research costs to be borne, such an approach may also seriously hamper the formulation of a common policy by the Member States which would ultimately result in the reorganization of the Community's electronics industry.

In the absence of such a common policy the Community countries would with the passage of time be condemned to allow the complete control of an industry which is universally recognized as being of fundamental importance to pass into American hands.