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The information and articles published in this Bulletin concern European scientific cooperation. 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 circles concerned in European cooperation in science and technology.

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** THE AEROSPACE INDUSTRY of the Community member countries meets only 15.2% of the Community's requirements in aeronautical equipment, whereas the corresponding industries in the UK and the US cover almost 72% and 97.9% respectively of the national requirements. The Commission of the European Communities will shortly present to the Council a study of the situation in the Community's aerospace sector and the prospects which might be opened up for it by certain industrial policy measures on the lines of the memorandum recently submitted by the Commission (see "Research and Technology" No. 48).

ANNEX 1 contains details of the situation of the aerospace industry in the Community.

** THE USE OF COMPUTERS FOR THE CONTINUOUS AND AUTOMATIC MONITORING OF THE VITAL FUNCTIONS OF THE SERIOUSLY ILL is already under study in several Community countries. But the number of avenues requiring to be explored in order to obtain rapid results in this sector is so great that a cooperative project at European level appears highly desirable. The Community Committee on Scientific and Technical Research Policy (Aigrain Group) has taken up the problem, and a short summary of a possible European cooperative project in this sector is given in ANNEX 2.

** The Commission of the European Communities has recently undertaken a methodological study with a view to the establishment and operation of a computer-controlled SYSTEM OF INFORMATION ON THE MAJOR EUROPEAN ENTERPRISES. The relevant card index should be capable of keeping up to date economic and financial information concerning about 10,000 enterprises.

- ** The Community Committee on Scientific and Technical Research Policy (Aigrain Group) has agreed to encourage TRAINING IN THE FIELD OF COMPUTER SCIENCE. Five experimental training courses for teachers will be arranged before the summer of 1972, by West Germany, France, Italy and (probably) Belgium and the Netherlands respectively. These courses will be organized nationally, but will be coordinated by liaison with the Aigrain Group experts.
- ** An international symposium on the BIOLOGY AND RADIOBIOLOGY OF ANUCLEATE SYSTEMS, by the Centre Belge de l'Energie Nucléaire, Mol, and the Commission of the European Communities, will be held at Mol (Belgium) on 21-23 June 1971 and will bring together for the first time some 80 specialists from all parts of the world, who will compare the results of their work on the systems obtained on the basis of experimentally anucleated cells. Information concerning this event can be obtained from the Symposium Secretariat, Centre Nucléaire de Mol, B-2440 Geel, Belgium.
- ** THE REPERCUSSIONS OF THE COMMON MARKET IN THE ELECTRICAL CONSUMER GOODS SECTOR is the English translation of the title of a study just published by the Commission of the European Communities in the "Industry" series (1970 - 3). This study is available in German, French, Italian and Dutch, and can be obtained from the Sales Office for Official Publications of the European Communities (37 rue Glesener, Luxembourg).
- ** The Community Committee on Scientific and Technical Research Policy (Aigrain Group) has put forward a number of recommendations on the subject of EXCHANGES OF SCIENTISTS (see "Research and Technology" No. 88). One of the most important is that scientists should be provided with complete and fully up-to-date information about the facilities for and conditions governing residence abroad, and that they should be given sufficient financial aid, in particular by means of grants for which purpose a Community information system should be set up.

Furthermore, in order to reduce as far as possible the feeling of loneliness among scientists abroad, and also to facilitate the return of those who may wish to do so, the country of origin should maintain regular contact with its scientists residing abroad by means of an adequate national system.

- ** THE PROCEEDINGS OF THE 6th SYMPOSIUM ON FUSION TECHNOLOGY have just been published in English by the Commission of the European Communities under reference EUR 4593 e. They can be obtained from the Sales Office for Official Publications of the European Communities (37 rue Glesener, Luxembourg).

- ** An INTERNATIONAL COLLOQUIUM ON THE APPLICABILITY OF QUANTITATIVE RELIABILITY ANALYSES to complex systems and nuclear installations will be held on 26-28 May 1971 in the Ispra Establishment of the Joint Research Centre.

The Aerospace Industry in the Community

The aerospace industry of the Community meets only 15.2% of the Community's requirements in aeronautical equipment, whereas the corresponding industries in the UK and the US cover almost 72% and 97.9% respectively of the national requirements.

This relative weakness of the aerospace industry within the Community is traceable to various causes, and in particular:

- the unduly low profitability of research and development and of investments, due mainly to the lack of adequate markets.

It is true that in the last twenty years there have been various movements towards concentration at national level in the West European aerospace industry. Within the Community, the number of enterprises has been reduced in the airframe sector from 12 to three in West Germany (between 1963 and 1970), and from five to two in France (between 1952 and 1970); in Italy there are still four groups, one of which is much larger than the others as a result of a concentration movement. In the engine sector there is now only one major firm in West Germany, two in France and three in Italy, which are working partly under licence.

Despite these moves towards concentration, the European firms remain much smaller than the US firms (the average size of the five leading Community firms is one-eighth that of the five leading US firms). The production runs are not long enough, nor the rates of output rapid enough, to amortize the launching costs. As a result, there is a considerable gap between the European and US aerospace industries as regards the profitability of R&D, which in the civil aircraft construction sector absorbs 49% of the turnover in the Community as against 19% in the US.

ANNEX 1 p. 2- shortcomings of cooperative construction projects.

During the last twenty years the European governments and the aerospace firms have succeeded in improving the profitability of efforts in research and development, production and marketing by cooperating on a series of aerospace programmes.

At the same time, efforts as regards concentration and cooperative construction projects at national level appear to have reached the limits of their effectiveness, and are unlikely to bring about the fundamental improvements required in order to meet US competition, particularly in the field of civil aircraft. There are too many instances of cooperation with a multiplicity of different prototypes and several assembly lines, which entail supplementary development and production costs of 25-50% as compared with work done by a single constructor.

- the absence of a real common market in the aerospace sector.

Up to now the markets of the Community Member States have continued to be mainly for domestic production, both in the military field, where each State is the sole buyer, and in the civil field, where the national airline and its associated companies are the sole major domestic customer.

- inadequacy of exports to third countries.

The present production and market structures act as a hindrance to large-scale penetration of external markets by Community production (with a few exceptions in the military sector), and the Community industry manages to supply only 3.8% of the equipment in use in the Western world, whereas the Community market represents more than 10% of the world market.

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It is thus seen that the maintenance and development of the Community aerospace industry are linked to the creation of a Community market in this industry's products and to the promotion of exports to third countries.

- creation of a common market in the aerospace industry's products.

The Community's civil aircraft industry has at present five major programmes; the aircraft are either in commercial service now or will be by 1974-75 - Concorde, A-300B, Airbus, Mercure, F.28 Fellowship, VFW 614. All the Member States, (except Luxembourg) are concerned in one at least of these programmes, which cover a range of types tailored to the needs of the European airlines.

But in spite of the sound lines followed by the programmes under way in the Community, and particularly their dovetailing and theoretically favourable marketing prospects, the Community airlines' commitments as regards purchases of these aircraft remain faint-hearted. It therefore appears necessary to promote a policy of Community purchases of the Member States' aeronautical equipment, having as its prime objective the establishment of a single internal Community market.

- the promotion of exports to third countries.

In view of the foreseeable requirements of the Community market, exports to third countries are indispensable. But the prior setting-up of the Community market should help to eliminate the handicap at present suffered by the European industry in competing with its US rival on third countries' markets. European aircraft should be able to exploit the advantage afforded by a minimum run with an assured sale in the Community before turning to export markets, having first acquired a favourable position.

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The Use of Computers for the Continuous Monitoring
of the Vital Functions of the Seriously Ill Could
Be Developed More Rapidly by Scientific and
Technical Cooperation at Community Level

The use of computers for the continuous and automatic monitoring of the vital functions of the seriously ill would enable doctors to prevent the dangerous failures which are liable to occur in such patients' cardiovascular, pulmonary, nervous and metabolic systems.

The method consists in the automatic collection, starting from the sickbed, of a large number of physiological data (cardiac rhythm, venous and arterial tension, etc.) which are immediately processed by the computer. Thanks to this continuous monitoring the doctor is at all times in possession of data enabling him to make a more rapid and objective decision as regards therapy.

Among the member countries, several research institutes have already undertaken studies on the automation of monitoring. However, in order to establish a complete programme, including the collection and integration of all the relevant parameters (those which are significant for the patient's survival, and suitable for dissemination to non-specialized clinical centres), it is necessary to have resources in manpower and money which far exceed those of most clinics and hospitals in the Community. In fact, the development of a system of continuous automatic monitoring for the requirements of a single physiological parameter at present calls for programming which takes approximately five to eight man years.

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It therefore appears highly desirable for efforts in this field to be coordinated as soon as possible, so as to obtain maximum efficiency by avoiding dispersion of effort and overlapping and by speeding up the process of defining and implementing standardized systems, which, moreover, would stimulate the industrial-scale development of small or medium-sized computers and of the associated hardware.

The pilot project envisaged by the Community countries should make it possible to coordinate and promote the automated monitoring of patients in medical laboratories and hospitals in the member countries, which are already actively engaged in the automation process or have prepared very advanced programmes in this field.

The programme for a cooperative Community project should extend over four years and include the following points:

- the exchange of computer programs and of research workers actively engaged in this sector;
- continuous assessment of the state of the art and determination of new lines of development;
- the choice of joint projects and the assignment of specific tasks to participating groups in the light of their skills and main interests;
- the establishment of regular contacts with Community industries, so as to guide technical developments;
- the creation of an information system embodying the publication of periodic reports and the setting-up of a central program library;

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- the adoption of a common high-level programming language (FORTRAN) whenever possible;
 - the setting-up of a standing committee to ensure continuity and coordination of the project as a whole.
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