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** Mr Spinelli, member of the Commission of the European Communities with special responsibility for industrial affairs and research, will preside over the celebrations to be held at Geel, Belgium, to mark the tenth ANNIVERSARY OF THE CREATION OF THE CENTRAL BUREAU OF NUCLEAR MEASUREMENTS at the Geel establishment of the Joint Research Centre. ANNEX 1 contains a short note on this establishment.

** THE PRESERVATION OF FOODSTUFFS BY IRRADIATION will be the subject of a symposium to be held at Wageningen, in the Netherlands, on 26 November by Euratom/ITAL Association (ITAL = Instituut voor Toepassing van Atoomenergie in de Landbouw, or Institute for Agricultural Applications of Nuclear Energy).

Because of the work done on mushrooms, the Dutch authorities have already given the go-ahead for the marketing of irradiated mushrooms, which are now on sale in a large chain-store in the Netherlands.

A short note on this subject is given in ANNEX 2.

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- ** On 10 November 1970 THE MILLIONTH DOCUMENT OF NUCLEAR INTEREST will be fed into the memory of the computer used by the semi-automatic nuclear documentation system of the European Communities' Centre for Information and Documentation (CID). A brief description of this system will be found in ANNEX 3.
- ** In a reply which it recently gave to a written question submitted by Mr Glinne, a Belgian member of the European Parliament, the Commission of the European Communities also included a table of the DIRECT INVESTMENTS MADE IN JAPAN BY THE COMMUNITY MEMBER STATES. This table, which is reproduced in ANNEX 4, is in addition to those on Japanese investment in the Community published in "Research and Technology" No. 63.
- ** In reply to a written question from Mr Glinne, a Belgian member of the European Parliament, on PROBLEMS RELATING TO THE INDUSTRIALIZATION OF THE AFRICAN CONTINENT, the Commission of the European Communities recently stated that it "broadly shares the opinion that investments for industries based on advanced technologies are not usually the best solution to the problems encountered in the developing countries... On the contrary, it often appears preferable for these countries to base their industrialization on technologically simpler processes which are generally of more immediate benefit to them... It is, however, clear that it is for the developing countries themselves to assess the various factors which should govern the degree of sophistication of the/..

techniques adopted, the part played by outside bodies for cooperation and assistance being limited to supplying, where necessary, objective data and setting out their point of view in a dialogue on equal terms with the beneficiaries..."

** An international colloquium on the PROBLEMS OF RADIATION PROTECTION CONNECTED WITH THE EMISSION OF SPURIOUS X-RAYS BY ELECTRONIC SYSTEMS will be held by the Commission of the European Communities and the Centre of Atomic and Nuclear Physics of the University of Toulouse on 3-6 November 1970. About 200 persons from 17 different countries will discuss 46 communications dealing with possible sources of soft X-rays, measuring methods, biological aspects, standards, regulations and methods for monitoring and inspecting electronic devices.

** In reply to a written question from Mr Vredeling, a Dutch member of the European Parliament, the Commission of the European Communities recently said:

"STUDIES ON WATER POLLUTION are essential to public health, and form the basis for a solution of the problem of the elimination of waste waters, which because of the expense entailed directly affects the competitive position of industrial and agricultural enterprises and can lead to the distortion of competition in the event of disparities between different legislative systems. As regards the Rhine in particular, the Commission has for some years been conducting a large-scale study on the radioactive contamination of water under the terms of the Euratom Treaty.

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It has also developed the concept of the limit radiological capacity of a hydrobiological basin, which can also be used in the prevention of non-radioactive contamination. This work has been based on common radiation protection standards, which were adopted by all the Community countries in 1959.

The Commission therefore approves the recommendations adopted by the European Consultative Committee on Fishing in Inland Waters, which may help to solve this group of problems."

The Central Bureau of Nuclear Measurements (CBNM)

Precise knowledge of the neutron physics properties of the various materials used in a nuclear reactor is obviously essential to the physicists responsible for reactor calculations and for improving existing prototypes. In particular, data on cross-sections (reaction probability) are necessary in order to determine the optimum dimensions and type of fuel; they also help to reduce the cost of reactors while increasing their reliability.

These important neutron physics parameters can only be measured in highly specialized and specially equipped laboratories, which are too expensive for private industry.

In order to provide the Community with facilities of this kind, capable in particular of supplying nuclear industry with the data it needs, the Treaty of Rome provided for the creation of the Central Bureau of Nuclear Measurements (CBNM).

Located at Geel in Belgium, the CBNM has since 1960 been one of the establishments of the Joint Research Centre of the Community. It is responsible for developing increasingly accurate nuclear measuring techniques by the continued improvement of instruments and working methods, and also for drawing up basic nuclear standards.

The essential tasks of the CBNM are thus the measurement of neutron physics parameters and constants and the establishment of standards required for the development of reactors and nuclear industry in general. ..//..

Its equipment includes a 3 MV Van de Graaff accelerator and a 90 MeV electron Linac. It also has access to the BR-2 high flux reactor at the Belgian Nuclear Centre at Mol. However, because of the growing interest in fast reactors, the demand for neutron physics data has for some time now shown a trend towards higher neutron energies, necessitating the use of accelerators which the CBNM does not yet possess.

The CBNM programme and the order of priority of the measurements to be performed are drawn up in the light of the needs of nuclear industry, and on the basis of consultations with various international committees, particularly the European-American Nuclear Data Committee (EANDC) and the Joint Euratom Nuclear Data and Reactor Physics Committee (JENDRPC).

The CBNM is also working on the calibration of instruments and the production of standards which are essential for exchanges. In particular, it specializes in the determination of reference samples and since 1962 has possessed a laboratory specially responsible for the preparation and definition of high-purity materials for research which are not available on the market. It supplies these materials on request to laboratories, universities and industries in various countries.

The work of the CBNM is virtually unique within the Community. It must therefore equip itself to meet new trends in requirements, and thus plans to improve and extend its experimental facilities with this end in view.

The Preservation of Foodstuffs by Irradiation

The difficulties of preserving foodstuffs are well known - fish which goes bad, potatoes which sprout, mushrooms which turn black, etc.

Using the fact that ionizing radiations influence the cell division of vegetable products, Euratom and ITAL (Instituut voor Toepassing van Atoomenergie in de Landbouw, or the Netherlands Institute for Agricultural Applications of Nuclear Energy), in association and collaboration with the Netherlands Sprenger Institute, have since 1963 been undertaking research into the loss of quality of mushrooms after picking. This is due to the fact that the mushroom continues to grow after picking, so that the cap opens and the stem lengthens.

A series of studies have led to the development of irradiation techniques (by gamma rays) which slow down the growth of mushrooms after picking and hence preserve their freshness.

It was then necessary to ensure that mushrooms irradiated in this way did not present any danger to the consumer. Numerous experiments on edibility (from the angles of toxicity, alimentary assimilation, etc.) were performed over a period of more than three years and controlled by the competent Netherlands authorities. In 1969 the Netherlands Ministry of Social Affairs and Public Health then granted an authorization for the marketing of irradiated mushrooms.

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An effort was then made to determine the most efficient forms of retail and wholesale packaging for the various types of market. A few weeks ago a large Dutch chain-store finally put irradiated mushrooms on sale; this was the first time an irradiated product had appeared on the free market in a Community Member State.

The results obtained by the application of irradiation techniques to a fairly exclusive product suggest that this method will in the future be extended to other foodstuffs. In this way it would be possible to prevent - or rather slow down - the rotting of fish or meat, the sprouting of potatoes, the destruction of cereals by insects, etc.

Fifty Community specialists (industrialists, directors of pilot plants for the irradiation of foodstuffs, public health authorities) are to attend in an information meeting to be held by the Euratom/ITAL Association at Wageningen, in the Netherlands, on 26 November 1970. They will be able to review on the spot the prospects which the use of irradiation techniques is opening up for foodstuff preservation.

ANNEX 3

The Computer Aided Nuclear Documentation System
of the Centre for Information and Documentation
of the Commission of the European Communities

On 10 November 1970 the millionth document of nuclear interest will be fed into the memory of the computer used by the Nuclear Documentation System of the Centre for Information and Documentation (CID) of the Commission of the European Communities.

Between the years 1800 and 1900 the number of scientific publications available throughout the world doubled; from 1900 to 1950, this number doubled again; it needed only ten years to double a third time between 1950 and 1960; and between 1960 and 1966, it doubled yet again.

In view of the fact that 90% of all the scientists ever known are living today and are therefore today producing scientific information, this is not surprising. In the field of nuclear science and technology alone, over 100,000 new documents a year are published throughout the world, which means 500 for each working day, in addition to some 600,000 documents that already existed in this field at the end of 1967.

Obviously, to hunt through this mass of information for a specific item needed by a particular researcher at a certain stage in his work has rightly been compared to looking for a needle in a haystack.

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Yet - and this has become a commonplace - speed in converting new technological knowhow into industrial reality is the order of the day; this entails having the means not only of tracking down all the relevant scientific information, but of tracking it down fast.

The only way of mastering the vast heritage - badly utilized because of its very vastness - of available scientific and technical knowledge is therefore to make use of modern computers. This is what has been done by the Euratom Centre for Information and Documentation (CID), which was the first in the nuclear field to devise and develop methods of selecting, analysing and storing in a computer nuclear information published throughout the world, in order to be able to retrieve information on a particular subject quickly when wanted. These various methods and their application constitute what is known as the Euratom Computer-aided Nuclear Documentation System.

This system has been operating since 1966. All the available nuclear documentation (a million documents at the moment) was abstracted and analysed in terms of "keywords" which are stored (about 15 million so far) in the memory of a computer at Luxembourg. When a scientist or an engineer wants to know what has been done up to now in a specific sector which interests him, he asks the CID. Expert documentalists analyse his question, also in terms of keywords, and transmit it in these terms to the computer. The computer consults its memories in the record

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time we expect from computers (20 seconds) and prints out at a speed of 1,100 lines a minute the references of these documents published so far which are likely to meet the requirements of the scientist or engineer concerned, who is thus spared laborious document searches, or in many cases the need to repeat scientific research done elsewhere.

Better still, some of the system's customers have allowed CID documentalists to convert their "interest profile" into keywords. This interest profile is stored by the computer and enables it automatically to notify the customer of any newly stored document of interest, thus keeping him abreast of developments throughout the world in his particular field.

Soon, researchers will be able to use consoles installed in the chief Community laboratories to consult the central CID computer directly. Soon, moreover, the methods devised by the CID and hitherto applied only in the nuclear sector will be able to serve as a model for other scientific or technical sectors in which documentation is multiplying at such a rate as to render it practically unusable, cases in point being medicine, metallurgy and even agriculture.

Direct Investments Made by the EEC Member States
in Japan (net of disinvestments)¹

(Balances in millions of dollars)

	1965	1966	1967	1968	1969
Germany	0	1	1	4	4
France	1	0	- 2	1	- (2)
Italy	(0)	(0)	(0)	(1)	11
Netherlands	- 1	0	5	0	0
Belgo-Luxembourg Economic Union	0	2	0	2	4
Total EEC	0	3	4	8	17

¹ When the figures in the table above are preceded by a minus sign (-), the movement in question corresponds to a net "disinvestment" in Japan by the EEC country concerned (i.e., to a movement representing the sale of previous direct investments which is greater than the movement representing the creation of new direct investments).

Source: Member States' balances of payments published by the Statistical Office of the European Communities, and in the case of figures in brackets, SOEC estimates.