the OECD OBSERVER

ASKS FOR OECD IN THE YEARS TO COME

EVIEW OF PROGRESS TOWARDS THE

ROWTH TARGET. OPPORTUNITIES FOR

O-OPERATION IN INTERNATIONAL AID

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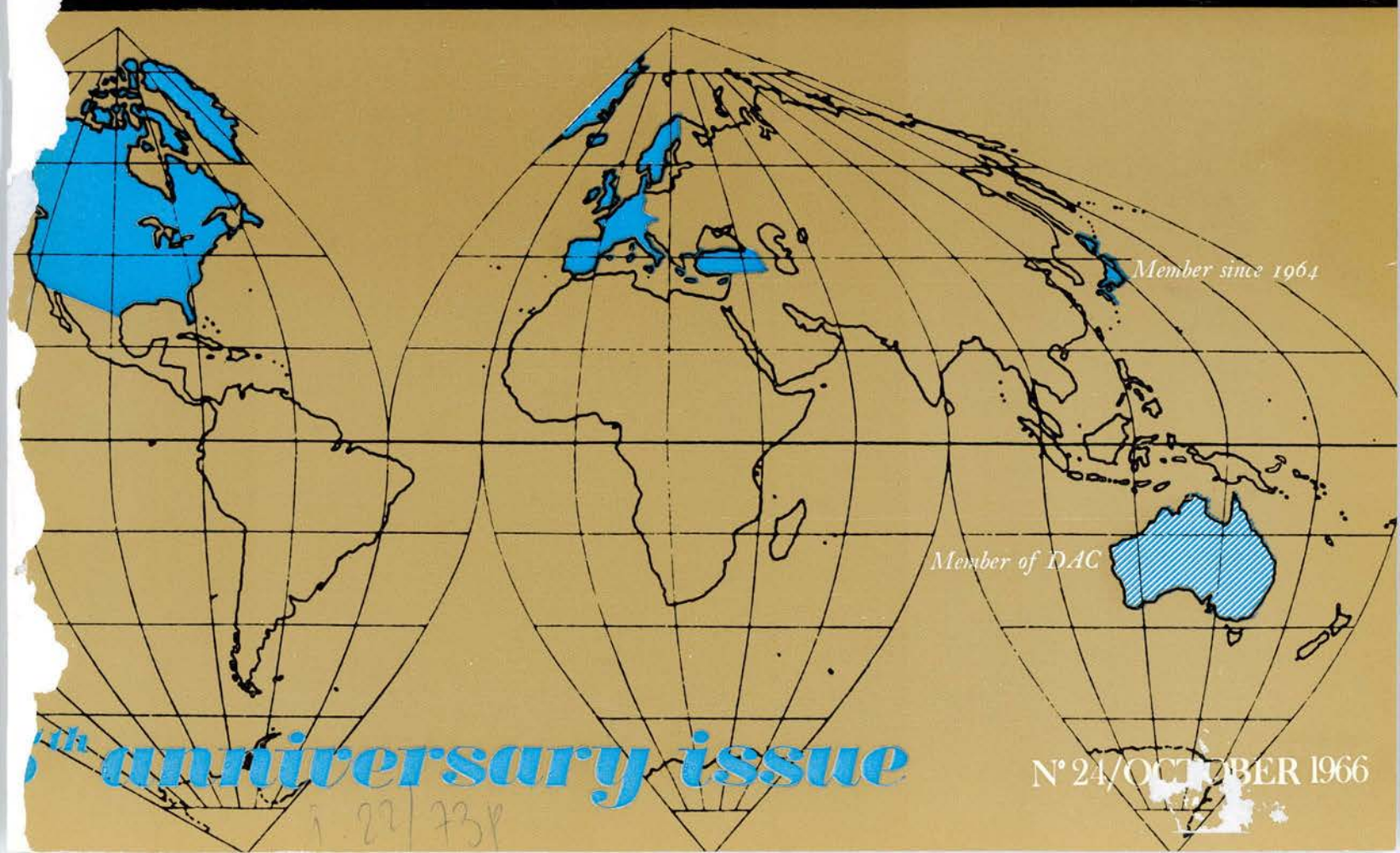

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OECD IN THE YEARS TO COME

by Thorkil KRISTENSEN, Secretary-General of OECD

Can we, on the basis of the first five years' experience, begin to see what the OECD can most usefully do in the foreseeable future?

In order to deal with this question in a meaningful way the best thing to do is probably to forget for a moment about the Organisation and to think instead of the Member countries. The OECD will be useful to the extent — and *only* to the extent — that it helps its Members to find constructive solutions to the problems regarding economic policies and development they will have to face in the years to come. What, then, are these problems?

Obviously, they are manifold and I shall not try to draw up any complete list of them. Suffice it to say at the outset that western industrial countries after a period of remarkable economic growth that seems likely to continue in the years before us nevertheless find themselves confronted with a number of complicated problems. Roughly speaking these questions belong to three categories regarding:

1. the *internal* economic and social evolution in each Member country;
2. the *economic relations between Member countries*; and
3. their *joint responsibility* vis-à-vis the rest of the world and especially the *developing countries.*

Of course, any such classification must be taken with a grain of salt. If there is anything we have learnt from the experience of the first five years of OECD, it is that the way in which a country tries to solve its internal problems is bound to influence its relations with other countries and the very purpose of international co-operation is to make sure that such repercussions are taken into account.

This being so I shall concentrate the following remarks on five major problems that promise to be at the centre of our work in the years about which we can form a reasonably well-founded opinion. They are:

(a) *Inflation*, belonging to the first of the three categories mentioned above;

(b) *Balances of payments*, belonging to the second category;

(c) *Trade*, touching both the second and the third;

(d) *Development*, belonging mainly to the third; and finally

(e) the production and spread of *knowledge*, belonging to all three categories.

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Inflation is not a new problem but it has to be dealt with in a new context. In order to further economic growth and keep unemployment at a minimum, governments want to keep total demand at a level high enough to permit nearly full utilisation of all productive resources. Such high demand of course tends to pull prices and wages upwards. At the same time they are also *pushed* upwards because in modern societies nearly all groups of the population are organised and every organisation wants to get more for its members. No wonder that inflation is difficult to contain under these circumstances.

Obviously, *demand management* is the first requirement. Demand should be high enough but not too high. With this end in view monetary and fiscal policies of all Member countries must be under continuous review and this work is central to the activities of the Organisation. In particular, more flexible fiscal policies often seem to be required. Much importance should therefore be attached to the study of this problem now started in OECD by a group of eminent experts.

The idea of an effective *incomes policy* is gaining ground in OECD countries. Money incomes should not rise more than the increase in productivity permits. However, this has proved to be very difficult to make sure in practice. Experience clearly indicates that it is impossible when there is excess demand. Therefore, effective demand management is a necessary condition for an incomes policy.

Even without too high demand pressure, however, it has often proved difficult to get agreement on such restraints on income increases as are necessary to keep prices stable or nearly stable. There is here a fundamental problem on which both the OECD and the Member governments must do serious work in the years to come. It is to find a reasonable balance between the *relative* income increases in various population groups and sectors of the economy. Over a longer period it is not likely that a parallel increase of all incomes will be the best solution for the society as a whole. But what then should be the guidelines? There is no simple or general answer to this question but we can become wiser through experience and analysis. A difficult task but a stimulating one.

The whole problem of inflation will be easier to handle if we can have a certain *supply management* as well as demand management. To the extent that we can increase the supply of labour and/or capital where there are bottlenecks we can allow total demand to become higher without disturbing price stability.

This is why *manpower mobility* is so important. We have still much to learn concerning manpower policy though some basic ideas have emerged from our work. This is also why agricultural policies should further more than they do now the migration of people from low productivity farms into modern industry and service activities. I am convinced that a similar migration out of low productivity retail shops and a number of less effective industrial undertakings will also be required. The idea of an *industry policy* is rather new in the OECD. This is one of the fields where we can make an important contribution because a number of industries will probably raise problems of adjustment somewhat similar to those of agriculture, and to get productive resources to move when demand and other conditions so require is one of the secrets of getting nearer to the ideal of full employment without inflation.

In the *balances of payments* certain swings are normal and even desirable because they facilitate smooth and flexible adjustments to changes in the national economies. Monetary reserves and credit facilities should therefore be sufficient to finance reasonable surpluses and deficits through a reasonable period to allow for smooth corrections to take place. A new field is now being opened up for international co-operation because we can no longer count on gold production to create the necessary reserves, nor is it desirable that a continued United States payments deficit should go on increasing other countries' dollar reserves. International decision will therefore be required to determine when and how much reserves should be increased. This is natural because reserves are in principle credits that countries extend to one another, but where are the decisions to be taken?

They can be taken bilaterally or in small groups of countries. They can also be taken in a world-wide institution like the International Monetary Fund. In the long run it is likely — and desirable — that this activity becomes concentrated increasingly in the IMF but in the foreseeable future the Fund cannot do what is needed without active support from the leading

western countries because it is always their currencies that other countries want to draw from the IMF. These countries will therefore have a decisive role to play.

In fact, western countries — and therefore also their Organisation, the OECD — will be called upon to find constructive answers to three questions in this area of policy making. They must find out to what extent and under what conditions they should make their currencies available — probably through the IMF — to other countries in order to make sure that normal transactions can go on without being disturbed by a general shortage of international liquidity. At the same time they must further refine the mechanism of multilateral surveillance, so important in OECD, so that it becomes increasingly clear under what circumstances countries should take what kind of measures to ensure a smooth functioning of the international monetary system. Finally, they will probably at a later stage have to find out what kind of transformation process will be needed to make the monetary system more truly international, i.e. less dependent on holdings of one or two key currencies. In principle, this is a world problem but the countries most heavily involved, both as debtors and as creditors, are OECD countries. It, therefore, will be up to them to work out constructive solutions.

Enough but not too much. That is the formula for the swings that should be permitted in the balances of payments. Therefore, two things are required: sufficient means to finance the swings while they take place — and sufficient multilateral control to see that they are corrected in time and in a decent way. In both respects OECD countries have a leading role to play because of the dominant part of international transactions for which they are responsible. But for this very reason their policies are also of decisive importance for other countries. It is natural, therefore, that there should be a close co-operation between the OECD and the IMF in this field.

Concerning *trade*, a piece of work that can become very important was started some months ago when the OECD set up a *Special Group* to study and discuss the question of how to improve the export earnings of the developing countries.

There are in fact two problems to be dealt with in this field. There is the well-known question concerning the markets for the various *primary products*. How can they be made more stable and — perhaps — more remunerative for the exporting countries? There seems now to be a consensus of opinion that this question should be approached with an open mind, case by case, because no two products have the same market conditions.

The other problem is more complicated. Exports of *manufactured articles* will be of increasing importance for an increasing number of developing countries. They can be facilitated by general tariff reductions in the developed countries or by preferential treatment of the exports of less-developed countries. It is well-known that the latter countries are asking for both.

The question of *preferences* has been controversial. Are they of real importance to the exporting countries? And are they dangerous as deviations from the multilateral, non-discriminatory trade system that is generally considered as desirable? The problem is complicated by the fact that certain developing countries do enjoy preferential treatment in some OECD countries while others do not.

As in the monetary field the attitude of the leading western countries will also be decisive in these trade matters. Therefore there will be much to do to bring about more clarification and a better mutual understanding both among OECD countries and between them and the developing nations.

The Special Group has started well. Though it may take quite some time before a body of generally agreed doctrines on practical policy crystallizes there seems to be a real possibility of now finally making this debate more fruitful than in the past. It also seems that this can help to give a new perspective to the discussion on trade policies of western countries in general — if we have the courage needed to do what the experience of recent years indicates.

In the discussion concerning preferences versus so-called non-discriminatory trade it is perhaps useful to recall that all tariffs are by definition discriminatory, namely in favour of the industry of the importing country and against exports of all foreign countries to whom the tariffs apply. If there are preferences, some foreign countries are not (or not fully) discriminated against but this can make the discrimination against the excluded countries more effective. The only trade that really deserves the name of non-discriminatory is *free trade :* i.e. trade without tariffs or other barriers.

Now, experience within the EEC and EFTA has shown that modern industry adjusts itself much more easily than expected to free trade within a rather wide area, provided the general economic climate is good. We have seen that protection is not necessary to maintain full employment and various countries have found it useful to reduce tariffs in order to counteract inflation through increased supply and more competition. OECD countries should therefore now be ripe to take the lead in a far-reaching movement towards free trade in the world. The Kennedy Round would be an excellent start.

The question of preferences should be seen in this perspective. If preferences are given or maintained for a period, it means that exporters of the developing countries are given some years when they can compete with the industry of the importing countries on more or less equal terms (and sheltered by tariffs against other competitors) before they have to adjust themselves to full international competition.

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One thing is essential in this connection. With or without preferences developing countries must progressively be allowed to increase their industrial exports to the developed countries. Otherwise they cannot service their growing debt burden. Escape clauses and the like should therefore not be used to stop the exports of the poor countries when they begin to become successful. In this field much has to be done before thinking and practice are far enough advanced. Maybe the most important task of the OECD concerning *industry policy* will be to pave the way for the repartition of industrial activities in the world that will be the corollary of the diversification of production in the poor countries that we are all talking about.

In the complex field of *development* the OECD's work was from the beginning concentrated in the Development Assistance Committee, the DAC, organised as a group already before the Organisation itself was formally set up. It seems likely that in the future we will be engaged in development problems in an increasing number of bodies and organs of the OECD.

The reasons for this are obvious. The existence and the work of the DAC have contributed to an increase in the number of western countries that have regular aid programmes. The total flow of aid is no doubt larger, on better terms and more well-organised than it would have been without this Committee. Its existence has not, however, prevented the aid flow from stagnating in real terms over the last five years and it is generally recognised that there is today a certain disenchantment with aid efforts in many western countries.

No institutional set-up could probably have prevented this because we have not yet reached a stage where the majority of people will maintain through many years a keen interest in the problems of countries far away from their own. However, the problems of the developing countries are such that they are bound to be a matter of major concern for the world as a whole during many years to come, and in the foreseeable future the western countries are the only ones which can take the lead in a coherent complex of policies to prevent what could be a dangerous evolution in many cases.

The problems of the poor nations cannot be described adequately even in a thick book, still less in a short article. Let me, therefore, only point out two features in the latest development that seem to reflect something very fundamental.

The growing *debt burden* of many developing countries has for some time been an alarming fact. To this is added the threatening *food shortage* which has long been on the way but which has now been brought to the world's attention by a bad harvest in India.

Normally, increasing debts are no matter for concern if the money borrowed has been invested well. There are, however, various reasons why many developing countries do not increase their debt servicing capacity fast enough. The most important is that for lack of knowledge in all its many forms they are not able to utilise nearly to the full their most valuable resource, namely their men and women who will by the turn of the century represent about 80 per cent of the world's population. To transform this enormous number of human beings into a modern labour force, including everything from top managers and prime ministers to common, but well trained, workers is a formidable task. It will require a much longer period than that foreseen for the repayment of even long-term loans. Therefore, even though much is going on that can eventually result in spectacular economic growth it will in many countries require several decades to obtain the large increase in exports that will be needed to service the debt and to pay for the necessary imports. Therefore, western countries must, for many years to come, provide more capital and be patient concerning repayment.

This problem will be accentuated by the rapidly rising need for food imports in important parts of the developing world. The unexpectedly rapid population increase is the main reason for this, and it will have the *lasting* effect that from the beginning of the next century the presently less-developed countries as a group will have only one third or less agricultural land per capita of that which we in the rich countries will have. This points to a future trade pattern where large food imports into, especially, large parts of Asia must be paid for by exports of manufactured articles to OECD countries. In the meantime part of the food imports will for many years have been financed by western countries through loans that will have further increased the debt burden of developing countries.

From this sketchy, but in my opinion fundamentally correct, picture a number of practical conclusions can be drawn. The most important are: (1) a lasting net export of food to the developing countries as a group is likely, with obvious implications for western agricultural policies; (2) we must open our markets for substantial imports of manufactured articles from these countries — with the implications for OECD trade and industry policies mentioned earlier in this article; (3) the building up of large and varied industries in developing countries will mean important room for private investment from western countries — so much more so as official aid is likely to be lower than it could usefully be; (4) the problems will be far more difficult than they need to be if very serious efforts are not made to reduce the population increase in time; (5) most important of all is the enormous task of adapting western *knowledge* and experience to the conditions of tropical countries and helping the developing countries to make this intellectual capital available to the six billion inhabitants or so they are likely to have in the first part of the next century.

It will be seen that there is work to do for the OECD concerning capital aid, technical assistance, private investment, agriculture, trade, industry, science, education and transfer of knowledge and experience. A number of committees and the Development Centre will be involved.

It is exactly because OECD deals with all these aspects of economic and social life that it has a lasting and important role to play in the development field. It is likely that an increasing part of development loans will be channelled through the World Bank and its affiliates, but the money will come mainly from the capital markets of OECD countries and since technical assistance lends itself to more direct co-operation between donor and recipient than the more impersonal lending process, it is probable that bilateralism will remain more important in this field. Still more important is it, however, that relations with the developing countries will increasingly leave their mark on OECD activities in all the fields mentioned above and still others.

In an OECD publication (1) we find a table illustrating economic growth in the United States and the factors leading to that growth. During the period 1929-57 the amount of labour (man-hours) had grown by 1.31 per cent a year and the amount of capital by 1.88 per cent a year. If these were the only factors one would expect total production to grow by a per centage lying between 1.31 and 1.88, but it did grow by 2.93 per cent a year. Why?

(1) The Residual Factor and Economic Growth, page 15.

Because both labour and capital improved in quality and were used in better combinations. This again was due to progress in education, science, technology and practical experience of various kinds. It was, roughly speaking, due to more *knowledge*.

This is why OECD's work on science and education has become so important. Knowledge is the substance of the "residual factor", leading to much faster economic growth than the increase in labour and capital alone could bring about. And its importance has been growing. Knowledge is *produced* in a more and more systematic way by research and practical experimentation and it is *spread* by education, training and related activities.

Knowledge, once produced, is normally a free resource, available to all countries, but its costs of production are often high and it is a waste of resources to produce the same knowledge in various places. Science, therefore, lends itself to co-operative effort and to international consultation.

Much concern has been expressed over the so-called *technological gaps*: some countries have more knowledge than others. Since knowledge is normally a free resource it is in its nature to spread gradually to all countries, and the continuing expansion of the body of knowledge will probably make it increasingly difficult for firms or governments to keep certain technological secrets as their monopoly for long. But the spread of knowledge can be furthered through systematic international effort and this will be one of the tasks of the OECD.

By far the widest technological gap is the one existing between OECD countries as a group on the one side and the developing countries on the other. Therefore, science, technology and education for these countries belong to the subjects where in the years to come the OECD should make a major effort to find out what contribution we and our Member countries can make.

The gaps within the OECD area and especially between the United States and other Member countries are also considerable. It will be for the Science Committees and the Industry Committee to find a constructive approach to these problems.

These are some of the problems that should occupy the OECD in the next few years. However, science and technology are transforming all human societies profoundly in this century. This raises a number of long-term questions because we must adjust economic and social structures to ever changing technical patterns. Already such adjustment occupies the OECD in the field of manpower policy and in some fields of co-operative research. It may well be that in the somewhat longer run an increasing part of the OECD will be devoted to such structural problems. Here again we should be able to do something that will prove useful for the world as a whole because structural changes that come up first in the most advanced countries will appear later on in other areas.

NEW OPPORTUNITIES FOR AID CO-OPERATION

by Ernest PARSONS, *OECD Director of Technical Co-operation*

One of the most hopeful and significant trends in the development aid field over the past few years has been the emergence of new forms of international co-operation. These range from the broader types of consultation in bodies like the Development Assistance Committee (DAC) and the United Nations Conference on Trade and Development (UNCTAD) to the specific arrangements for aid to particular countries through consortia and consultative groups, as well as a variety of regional mechanisms covering groups of developing countries in Africa, Asia and Latin America.

It could hardly be expected that progress in this field would be spectacular since development aid has inevitably had strong overtones of political and commercial interest. Co-operative action thus tends to cut across a network of relationships between the developed and the developing countries and among the members of each group. But the logic of such action is now being increasingly appreciated both by aid donors and by aid beneficiaries, given the large and growing number of aid sources and the need to find common solutions to the urgent problems of development.

The forms which aid co-operation takes may be reviewed under four headings:

- *consultative machinery to enable a broad confrontation of views on development and aid problems and some harmonisation of positions;*
- *joint action or consultation by groups of aid donors in a particular sector of aid or on a particular project;*
- *co-operation between groups of donors and a single beneficiary country in the provision of aid in support of that country's development plan or programme;*
- *regional co-operation among groups of developing countries (frequently in close contact with one or more interested aid donors).*

The arrangements which have been made to implement these approaches generally specialise on one of them (e.g. the aid consortia or the regional development banks) but some (e.g. the institutions set up to assist African countries associated with the Common Market) are multi-purpose in character. An increasingly important question is, in fact, the range of co-operative functions to be assumed by various institutions. Should regional banks sponsor country aid consortia? How far should consultative bodies such as the DAC and the UNCTAD interest themselves in the aid problems of individual developing countries? How far should specialised agencies of the United Nations promote joint projects among the various aid donors in fields of common interest such as education, agriculture, and industrial development?

Consultative Machinery

The need for consultative machinery on general aid and development issues arises largely from the simple fact that there are about 20 main sources of aid (counting the United Nations as a single source) and around 100 countries receiving aid, each with their own criteria, methods and problems. The DAC brings together on a permanent, continuing basis a manageable group of fifteen OECD Members (plus the Commission of the EEC) who among them provide about 80 per cent of all official aid through their bilateral programmes, as well as being the main contributors to the multilateral agencies which account for most of the balance (1).

The Committee is not itself a source of aid nor does it undertake the sponsorship of operations in the field. Its functions are to promote a common approach among its Members to the broad, strategic aspects of development aid — the means of increas-

(1) Non-DAC aid donors also provide about 9 per cent of all official aid.

ing the volume of aid, of improving its financial terms and of enhancing its effectiveness — while normally leaving individual Members free to work out the implications in terms of their own aid programmes.

The DAC's main policy instrument — the Annual Review of aid policies of Members — stops short of making binding recommendations, although probing bilateral aid activities in much more detail than in any other international forum. The extent to which the DAC becomes more specific depends upon the kind of subject being considered. Thus awareness of the serious and growing debt problems of a number of developing countries has led to rather precise recommendations on aid terms (1). This year's high-level meeting of the DAC in Washington adopted a recommendation on Food Problems of Less Developed Countries which should lead on to attempts to improve and co-ordinate aid policies in a given sector, in this case in association with a UN specialised agency, the FAO.

The consultative bridge between the donors as a group and the aid beneficiaries as a group is supplied by the discussions of the various working groups of the UNCTAD. The aid issues considered here have been related mainly to principles concerning its volume, terms and effectiveness. But they will, during the coming year, increasingly focus on specific suggestions for improving the aid effort, such as the proposed scheme for supplementary financing

Perhaps as a result of the stimulus provided by international confrontations, there have been a growing number of organised aid policy discussions among DAC Members outside the Committee itself. Thus the United Kingdom's Ministry of Overseas Development, among others, recently participated in consultations on matters of common interest with its Dutch and German opposite numbers, and similar discussions have been held between the United States AID and the Japanese authorities on aid programmes in South-East Asia; regular contacts of this type may be expected to multiply in the future as the geographical areas covered by bilateral activities tend increasingly to overlap.

Joint Consultation

It may frequently be easier and more directly relevant to secure co-operation under the second heading, on particular sectors or aid projects, than on general principles. This is an aspect which merits much closer attention. There is perhaps no better way for donors and beneficiaries to appreciate one another's difficulties and potentialities than to work together on a specific project. The Great Indus Basin Development Fund, under World Bank leadership and based on a 1960 agreement among India, Pakistan, six bilateral donors and the Bank itself, is perhaps the outstanding example of this approach.

On a much smaller scale, DAC countries have been working together on educational and communications projects in Africa and Latin America. EEC Member countries, with the collaboration of the European Development Fund, have undertaken a number of joint projects in the Associated countries in such fields as health and communications. The Scandinavian countries — particularly in view of the modest scale of their aid resources — have for some years been used to aid co-operation and have developed joint projects in East African countries and India.

A good deal of aid — notably the technical assist-

(1) See Development Assistance Efforts and Policies, 1965 Review, *Report by Chairman of DAC, Annex B*

Major Dates in Aid Co-operation

1958 Indian Aid Consortium set up.
EEC — Convention of Association (Yaoundé) comes into effect.

1959 1st Commonwealth Education Conference (repeated in later years).
Inter-American Development Bank founded

1960 Development Assistance Group (DAG, subsequently to become DAC) started in OEEC.
Pakistan Aid Consortium set up.
Indus Basin Development Fund set up.

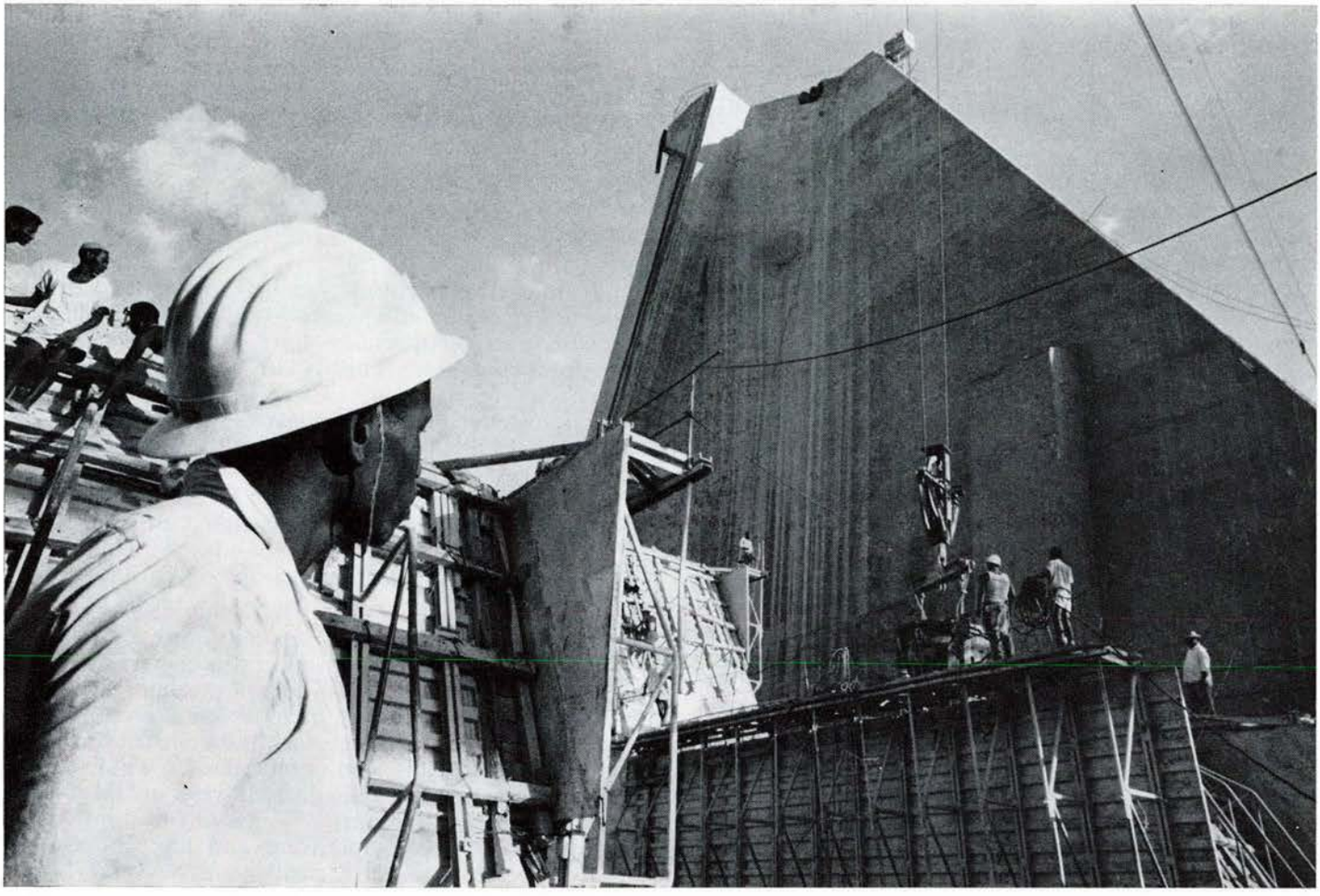
1961 Establishment of CIAP (Inter-American Committee of the Alliance for Progress).
UNESCO Regional Educational Conference, Addis Ababa.

1962 UNESCO Regional Educational Conferences, Tokyo and Santiago.
Turkish and Greek Aid Consortia set up.

1964 United Nations Conference on Trade and Development (UNCTAD), Geneva.
African Development Bank founded.
EEC — renewal of Yaoundé Convention.

1965 IBRD announcement of intention to organise new Consultative Groups.
Asian Development Bank founded.
Commonwealth Medical Conference.
UN Regional Industrial Seminar, Manila.

1966 UN Regional Industrial Seminars, Cairo, Santiago and Kuwait.
Merger of UN Special Fund and UN Expanded Programme of Technical Assistance into UN Development Programme (UNDP).
South East Asia Economic Conference, Tokyo.



The construction of the Rosieres Dam across the Blue Nile in the Sudan is being financed by a World Bank loan and an IDA credit. Sudan is one of the countries for which the World Bank has organised a Consultative Group among aid-giving countries and agencies.

ance provided through UN specialised agencies — is organised on a sectoral basis. Here again there have been important developments in co-operation in the recent past. The World Bank has, since 1964, been co-operating closely with FAO and UNESCO under agreements which provide for the identification and preparation of projects especially in the agricultural and educational fields to the point where they can be financed by the Bank or its affiliate, the International Development Association.

This direct linking of technical and capital aid should point the way to similar arrangements among other agencies. The internal co-ordination of UN technical assistance should itself be promoted by the recent fusion of the Special Fund and the Expanded Programme of Technical Assistance into a single UN Development Programme.

There is probably scope for a good deal more co-operation at a sectoral level, notably to bring together the multilateral and bilateral agencies. In educational aid, for example, which currently absorbs about one half of all technical assistance provided to developing countries, it is of the highest importance to evolve a common strategy so as to avoid distortions in the pattern of educational growth and a waste of very scarce resources. The series of conferences on educational needs in the major developing regions held under UNESCO auspices in 1961-62 pointed the way in this field, and recent work by that Organisation and its International Institute for Educational Planning have helped to clarify the qualitative and quantitative aspects of aid requirements.

The desire of the major bilateral donors to make their aid in this field more effective has been reflected in a limited number of co-operative projects, such as the recently-terminated Teachers for East Africa scheme (UK-US) and a number of joint aid schemes for university development. The UN Centre for Industrial Development has also organised in 1965-66 a series of regional symposia which, *inter alia*, have considered aid needs in this sector. Commonwealth conferences on educational and medical needs have similarly provided a framework for discussions on co-operation in these sectors.

Co-operation between Groups and Single Countries

The third kind of co-operative approach — that designed to mount an effective aid operation in support of an individual developing country — finds expression in the aid consortia and, more recently, consultative groups. The World Bank consortia for India and Pakistan and the later OECD consortia for Turkey and Greece are essentially designed to obtain formal pledges from a number of donors of

financial support, to make up prospective gaps in investment funds or foreign exchange of the countries concerned.

The consultative groups, which are now being developed more rapidly by the World Bank, do not involve formal financial pledging. In practice, however, it has been pointed out that the difference between these forms may be less than might be supposed, since both are very much concerned with, on the one hand, assessing the needs of a given developing country and its ability to make effective use of aid and, on the other, ascertaining what aid support is likely to be forthcoming and in what form.

In the technical assistance field, the main focus for co-operation in specific countries has often been the UN Resident Representative, but the DAC itself has recently taken the initiative to encourage closer contacts among local representatives of bilateral aid donors by adopting a set of " Guidelines for the Co-ordination of Technical Assistance ". The form of these Guidelines has been much influenced by the lessons learned from an experiment in co-ordination in Thailand (1).

Consortia, consultative groups and other forms of local co-operation are important not only in their own right but as *pacemakers* for aid in general. Thus, they can be concerned not only with aid totals but also with the harmonisation and improvement of the financial terms on which aid is provided in a particular country — an approach which has been endorsed in the DAC resolutions on the terms of aid. They can look into the needs of that country for non-project aid — in particular, for aid which can be used to import essential raw materials and spare parts rather than new capital equipment — as well as the related problem of meeting some of the local costs associated with aid projects.

It is certain that discussions in the Indian consortium have had a good deal to do with the greater general attention now being paid both to the terms of aid and external debt problems and to the case for extending aid on a non-project basis.

Regional Co-operation

From the longer-term economic and political viewpoint, it is perhaps the fourth kind of co-operation listed above — that based on regional arrangements among the developing countries — which holds the major interest. The leading position taken by Latin America is evident, extending from the now well-established operations of the Inter-American Development Bank, through the efforts at economic integration in the Central America Common Market and the Latin American Free Trade Area, to the arrangements for systematic examination of the economic situation in the region by the CIAP (Inter-American Committee of the Alliance for Progress). And the past year or so has seen the founding of regional development banks in Africa and Asia and the holding of a conference on the Economic Development of South-East Asia in Tokyo.

In considering aid policies and closer co-operation, the regional approach has a number of distinct advantages. First and foremost, a beginning can be made in setting up what the DAC's Chairman has referred to as " a sort of economic conscience " for the region. This is likely to be a slow and difficult process, especially in those regions where economies are still in a very backward state and governments are fragile.

But, as the CIAP examinations have shown, it is remarkable how much progress can be made in a short time. It is worth taking risks to encourage a spirit of mutual co-operation and, if necessary, criticism among the regional members, so that standards of economic performance are seen, not as something imposed from outside, but as emerging from their own deliberations. This leads on to the further advantage that regional systems can provide a basis for judgments about the allocation of aid: the claims of a particular country or project are not seen in isolation but in relation to the claims of other countries and other projects. Finally, it becomes easier to identify and implement projects which may require the co-operation of a number of countries within the region: examples of such multi-country projects are found in university development, river-valley schemes and transportation.

The movement towards regional co-operation has undoubtedly been much influenced by the earlier sucessful experience of the Marshall Plan and its aftermath in Europe. This co-operation can be powerfully cemented by the injection of a large fund of external aid, as occured both in Europe and Latin America. But it does not necessarily have to start in this way. In Latin America there was, in point of fact, a wide range of co-operative action in such fields as health and communications before a massive aid programme was started under the Alliance for Progress.

The countries of a region may need to get into the habit of working together on relatively modest, less difficult problems before they can co-operate effectively in broader, more sensitive, aid and development fields. It is encouraging, for instance, that under ECA (Economic Commission for Africa) sponsorship, a number of sub-regional institutions are being set up and consultations taking place on various aspects of African regional co-operation (e.g. training, manpower and development planning, statistics).

These approaches to co-operation are interlocking and complementary; they are not mutually exclusive. Thus, in many developing countries the conditions do not exist — through lack of a development plan or of an adequate administrative structure — for creating a consortium or consultative group; but such countries can derive much benefit from close consultation with their neighbours within a sub-regional or regional body and may be encouraged thereby to develop a more conscious and sophisticated approach to their own development needs.

So far as the bilateral donors of aid are concerned, the movement towards co-operation on development issues can reduce the temptation to use aid as an instrument of short-term political or commercial policy. The means of co-operation are now largely in existence: it remains for the aid beneficiaries and donors to use them effectively.

(1) The OECD Observer, N° 23.

FIVE YEARS' DEVELOPMENT

subject for (of Ministers

OECD Ministers for Agriculture will meet in Paris on the 27th and 28th October to review the major developments in agricultural policies which have occurred in the last five years. A report on these developments has been prepared by the OECD Committee for Agriculture and its Working Party on Agricultural Policies. The main problem which will be put to Ministers for consideration is, on the one hand, how to reconcile different domestic objectives, which sometimes may appear to conflict with each other, and on the other hand how to reconcile domestic policies with international commitments arising out of the interests of other countries. Albert Simantov, *OECD Director for Agriculture and Food, reviews in this article the problems which the Ministers are going to discuss.*

A view of the 1965 OECD Mee

Recent trends in agriculture

Rapid economic growth during the last five years in all OECD Member countries has had important repercussions on agriculture. It offers a challenge to the agricultural sector, which has to rationalise its operations and to contribute effectively to the overall growth process. If agriculture fails to undergo the necessary transformations, its situation is aggravated in relation to the other sectors of the economy.

Agriculture in all Member countries has accepted this challenge, and the transformations which have occurred in the last few years are of a magnitude that had seldom been experienced in the past. Important amounts of capital have been invested in agriculture while at the same time the sector has been releasing labour. Moreover, the trend towards fewer but larger farm businesses has been accelerated and the notion of what a family farm should be is going through a serious reappraisal.

Because of the general improvement in standards of living and because of the great efforts they are required to make as a result of economic growth, farmers have been expecting an increase in their incomes both in absolute terms and in relation to incomes received by other professional groups. In recent years farmers' incomes have improved in all countries in absolute terms and in a number of countries they have also improved in relative terms. But in spite of these improvements, the general level of farm incomes remains lower than farmers had been expecting as the income gap between agriculture and other groups remains wide. Although the improvement in farm structures has somewhat alleviated the position of the low income farmer, large disparities continue to exist within the agricultural sector.

In recent years the supply-demand position for agriculture as a whole has gone through important changes; around 1960-61 surplus stocks, mostly in North America, had reached a record level. Since then a gradual reduction of these stocks has occurred and for some of the commodities, in particular wheat, their present levels are considered as a normal carryover. This decline in surplus stocks is due on the one hand to the appearance on the world scene of important new purchasers such as the USSR and China and on the other hand to the expanded shipments of food to less-developed regions in the world. In spite of the increase in outlets outside the OECD area, the problem for most Member countries still appears to be in terms of a probable imbalance between past rates of production increase and potential rates of consumption increase.

The increase of food aid shipments mentioned above is the consequence of the inability of food production in less-developed regions in the world to grow at a rate comparable to that of their food requirements; the increase in the latter results both from population increase and from the improvement in standards of living. Since the early '60's disturbing trends have appeared. Per capita supplies of food in all the less-developed regions of the world combined, which had gradually improved throughout the post-war period up to the end of the '50's have since then begun to decline and are at present below the level of the immediate post-war period and even pre-war. This situation creates a new dimension for policies of OECD Member countries.

The volume of agricultural trade has continued to increase at about

IN AGRICULTURAL POLICIES

ECD meeting f Agriculture

f Ministers of Agriculture.

the same rate as output in the OECD area, but the terms of trade for agriculture have not shown much improvement and in some cases have continued to deteriorate. Difficulties continue to arise on the markets of quite a number of commodities.

Another major development in the last five years has been the entry into force of the common agricultural policy of the European Economic Community. This is the most far-reaching attempt made so far to integrate the economies of different countries and to try to solve their problems in a concerted way. The results of such an attempt are followed with great interest by the Governments and the public opinion of all countries.

Adjustments in agricultural policies

To deal with these changing situations Member governments have gradually modified their agricultural policies, and in some cases the changes constitute a radical deviation from methods applied so far. It is an assessment of these changing policies that Ministers for Agriculture will be called to make when they convene next month at OECD headquarters.

Ministers for Agriculture have been discussing these problems in their previous sessions also, and their discussions have resulted in the formulation of principles which should guide their long-term policies. They have considered in the past how to deal with the low-income problem in agriculture. A study published in 1964 deals with the nature of the low-income problem as well as with the type of policies which would be necessary to solve it. It is now generally accepted that the solution to this problem cannot be arrived at through a policy which is applied in a uniform way to the entire agricultural sector : general price support is of very limited value in this respect. Measures to facilitate the mobility of the low-income farmers either to other sectors or into retirement are likely to give the best results.

On another occasion Ministers considered what are the results on output of the efforts made by farmers to become more efficient and of the efforts made by governments to raise farmers' incomes. At the same time the problem of what happens to farmers' incomes when countries have to apply controls of production was considered. In that case also the Ministers concluded that the improvement in the farm structures resulting in a reduction of the small farm businesses should make the farm income problem less acute and give governments greater freedom to influence supply through price policy and through other means.

Matters of international trade have also been at the centre of discussions which Ministers for Agriculture have had in OECD. Comprehensive reviews of the conditions governing trade (import restrictions, export aids) prepared within the Organisation have been made available to governments. This continuous confrontation of trade policies, practices and problems has been particularly useful at a time when changes in domestic policies have threatened to hamper trade in several commodities; it has fostered a better understanding which is a useful prerequisite to improved trade relations. Longer-term examinations of production and consumption prospects for a few major commodities also give governments a clearer picture of the probable supply situation in a few years and help them in the formulation of their production policies.

The positive role that food aid can play in promoting the economic development of countries experiencing food shortages has been fully recognised by Ministers for Agriculture. The necessity of linking food aid to other forms of aid, and the necessity of avoiding undesirable side effects on the economy of receiving countries as well as on commercial trade have been stressed on several occasions. Food aid is likely to increase in importance if efforts made by less-developed countries to balance the growth of their food production with that of their food requirements should be less successful than those countries would have wished.

The issues which will be at the centre of the following discussions may thus be summarised as the means of ensuring an adequate income to farmers, while reducing disparities within agriculture and without incurring excessive cost to the rest of the community; the need to achieve flexibility in output so as to deal with surpluses or shortages; how to accelerate structural improvements in the agricultural sector and thus make agriculture an important factor in economic development; the means of bringing closer together the agricultural policies of Member countries and of groupings of countries; and the need to improve international trade conditions for agricultural commodities and to reduce barriers to trade.

THE GROWTH TARGET: A MID-DECADE REVIEW OF PROSPECTS

Five years ago, the Member countries of OECD adopted the target of increasing their combined national output by 50 per cent during the decade 1960-1970.
Now, at the half-way mark, a review has been made by a Working Party of the OECD Economic Policy Committee of progress made towards this growth target.
The article which follows is based on the introduction and summary of the Working Party's review which is to be published shortly. It analyses experience in the first half-decade, as compared with the original expectations underlying the growth target; assesses prospects for continued expansion in the OECD area; and discusses the policies that will be needed to support stable growth in the years ahead.

In setting the growth target, the Member countries of OECD recognised that " rapid growth facilitates the harmonious development of the world economy, helps to promote a liberal world trading system, provides a necessary foundation for rising living standards, and ensures a high level of employment ". Further, " it will enable industrialised Member countries to contribute more effectively to the development of less-advanced countries ".

While all governments seek to ensure steady expansion of their economies, within the limits set by the need to maintain price stability and external balance, expansion in each OECD country is dependent on there being continued expansion in the others. The setting of a collective target has served not only to challenge countries individually to adopt more effective policies for the promotion of economic growth; it has also facilitated the adoption of such policies by helping to create an expansive climate on a wider scale and to foster international consultation towards that end.

Many countries find it useful from time to time to assess the prospects for expansion over a period of five years or so ahead. This is essential background to the planning of investment expenditure both in the public and private sectors, and to longer-term decisions relating to government current expenditure. National projections necessarily embody assumptions about developments in other countries; and it is useful that from time to time such assessments should be brought together to ensure that the assumptions are mutually consistent.

It appears from this mid-decade review that the output target will be achieved, even surpassed. However, since inflationary strains and external imbalances have been encountered by almost all Member countries in recent years, an important task for policy during the remainder of the decade will be to place growth on the more balanced and sustainable basis that was contemplated when the target was established. The active and flexible use of a wide range of policy instruments to improve supply and contain cost and price increases will be needed if the rates of expansion projected are to be compatible with both reasonable price stability and balance of payments equilibrium.

While the Working Party's review focuses on the period to 1970, the position at that time will have to be judged not only in terms of the output levels and the quality of life that will by then have been attained, but also in terms of the basis that will have been laid for further advance.

Expansion in the first half of the 1960's

Economic expansion in the first half-decade was rapid. For the OECD as at present constituted (1)

(1) i. e. eighteen European countries with market economies, Canada, Japan and the United States.

total output of goods and services increased at an annual rate of 4.9 per cent a year. This was a marked acceleration over the rate of 3.5 per cent experienced in the previous five years, and was, in fact, close to the rate achieved in the early 1950's when a number of factors especially favourable to rapid growth prevailed. In 1965 the combined gross national product of the OECD countries amounted to well over $1,250 billion, compared with $1,000 billion in 1960 (both measured at 1965 prices). The expansion of production was much faster than the growth of population, so that over the five year period gross national product per capita rose by more than $300 to an average level of $1,900.

In the first half decade expansion was also significantly faster than the average rate of 4.1 per cent needed to reach the 1970 target. Excluding Japan, which was not a Member country when the target was set, combined gross national product for the OECD area rose at an average rate of 4.7 per cent a year. This performance has put to rest the many doubts that were felt when the target was first set. As an achievement it is a measure of the success of the policies directed towards the full and more efficient use of each country's manpower and capital resources.

Expansion was achieved in two ways: first, by an *increase in the underlying capacity to produce* and, second, by *the absorption of unutilised resources* where relatively large margins of spare capacity existed. In both respects the performance was good. Thus the growth of productive capacity, which in the long run is the fundamental basis of growth, was somewhat faster than in the previous decade when capacity was already increasing at a high rate.

A considerable part of this achievement in the OECD area as a whole was the result of *renewed faster expansion in North America*, where great progress was made towards the reduction of unemployment and towards the fuller utilisation of physical capacity. The role of the United States was especially important, both because it accounts for over 50 per cent of the gross national product of the OECD countries taken together and because it absorbs a large part of the exports of the other Member countries. This development can be largely attributed to the *successful use of expansionary fiscal policy*. Expansion of total output in the European OECD Member countries taken together was faster from 1960-1965 than it had been in the preceding five-year period; and in Japan it continued at about the same high rate achieved in the preceding quinquennium. In a number of these countries, where capacity utilisation was already high, there was a need to adopt stabilisation measures to curb the rise in prices; but in only a few countries was the rate of expansion slowed down as compared with 1955-60, and then only slightly.

The factors underlying the economic expansion of the first half of the decade are many and complex. One overriding influence contributing to the faster rate of expansion has been the continued determination of governments to *reach and to maintain high levels of employment*. Increased employment made a contribution, as in the past; but much more important was *the increase in output per man*, which at 3.7 per cent a year alone accounted for most of the faster rate of expansion as compared with the previous five-year period. One factor helping to raise the average level of output per man was the continued movement of workers from low to high productivity sectors, both within and between countries; especially important in most countries was the continued shift of workers out of agriculture. But productivity gains *within* industries appear to have been much more important, and increasingly efficient methods of management and production were applied. Investment in plant and equipment remained large; the share of gross national product devoted to investment was in most countries as high as in the five years from 1955 to 1960, and in a number of countries higher. Expenditure on education and on research and development rose sharply.

Foreign trade of OECD countries increased faster than their total output of goods and services. This expansion, which resulted in part from the liberalisation of trade, contributed to growth of the area by improving the allocation of ressources and increasing specialisation.

The uses to which this increased productivity has been put varied widely between countries. To some extent it was taken in the form of increased leisure, through a shorter working week and longer vacations. In most countries fixed investment grew faster than total output, thus contributing to the rate of growth itself. There was a considerable advance in levels of living throughout the OECD area, even though in some countries consumers' expenditure did not expand as fast as national product.

Prospects for 1970

Provided the right policies are adopted by countries and are adequately harmonised among them, there is every reason to expect that something close to the rate of expansion of the first half decade can be achieved. This would imply reaching and even exceeding the 50 per cent growth target for the decade as a whole. Present projections for the combined gross national product of OECD countries excluding Japan indicate an average annual expansion of 4.4 per cent in the second half-decade. (See Table). Combined with the rate of 4.7 per cent realised in the first half, such a rate would give for the full decade an average significantly above the 4.1 per cent implied in the target.

If Japan is included, the combined gross national product of the OECD area is foreseen as expanding by 4.6 per cent a year between 1965 and 1970. This

EXPANSION OF TOTAL OUTPUT IN OECD COUNTRIES 1960-70

annual average percentage rates of increase

		Share of total output in 1963	Decade 1960-70	1st half decade 1960-65 Actual	2nd half decade 1965-70 Projected
Major countries	CANADA	3.6	5.2	5.5	4.8
	FRANCE	7.3	4.9	5.1	4.8
	GERMANY (F. R.)	8.6	4.2	4.8	3.5
	ITALY	4.1	5.1	5.1	5.0
	JAPAN	5.4	8.5	9.6	7.5
	UNITED KINGDOM	7.7	3.7	3.3	4.1
	UNITED STATES	53.3	4.5	4.5	4.5
	Total above	90.0	4.7	4.8	4.6
Small industrialised countries	AUSTRIA	0.7	4.0	4.3	3.8
	BELGIUM	1.3	4.3	4.5	4.0
	DENMARK	0.7	4.7*a)*	4.9	4,4 *a)*
	ICELAND	0.1	• •	5.6	• •
	IRELAND	0.2	• •	3.8	• •
	LUXEMBOURG	0.1	3.0	2.9	3.2
	NETHERLANDS	1.3	4.7	4.8	4.5
	NORWAY	0.5	5.0	5.2	4.8
	SWEDEN	1.4	4.7	5.1	4.3
	SWITZERLAND	1.0	4.5	5.3	3.7
	Total above	7.3	4.5	4.8	4.2
Developing countries	GREECE	0.4	8.1	8.7	7.5
	PORTUGAL	0.3	6.2	5.8	6.6
	SPAIN	1.4	• •	9.2	• •
	TURKEY	0.6	• •	4.3	• •
	Total above	2.7	• •	7.7	• •
Total OECD		100.0	4.7	4.9	4.6
Total OECD excluding Japan		94.6	4.5	4.7	4.4
The collective objective			4.1	• •	• •

(a) 1960-1969 or 1965-1969.

The individual country projections differ in their origin and their status. For certain countries — France, Italy, Norway and the United Kingdom — the projections are those of the governments' plans, and have been adopted as targets. (However, the UK Government announced on 27th July, 1966, that the Plan targets would have to be revised downwards; no alternative figures were available at the time these projections were made). In some others (Belgium, Denmark, the Netherlands, Sweden) they are government forecasts of likely developments, drawn up as background for the formation of public policies. For other countries still, the projections are accepted by governments as giving a reasonable indication of growth prospects in the second half of the 1960's, though they do not have an official status in the above sense. In all countries the projections are subject to change in the light of actual developments. Indeed, the official plans of Ireland and Japan are now being revised; no projection is therefore available for Ireland, while the projections included here for Japan are provisional.

is close to the 4.9 per cent rate achieved in the first half of the decade and would bring the combined gross product of the OECD area in 1970 to $1,600 billion (in 1965 prices), about 60 per cent or $600 billion higher than in 1960.

As in the first half-decade, *an increase in the rate of resource utilisation* is expected to make a significant contribution to the rate of expansion. The success of the United States, in particular, in further reducing unemployment will play a critical role. The Government's interim target of a 4 per cent unemployment rate was reached early in 1966; while no new target rate has been set, the Government does intend to reduce the rate further while maintaining price stability.

The different demands on this greatly enlarged output pose many fundamental issues for public policy. Many countries foresee the *need for an increased share of output being devoted to productive investment* in order to provide the capital needed for growth. Despite this, the scope for raising living standards will be great: the projections show that per capita consumption can rise by 3.3 per cent a year, a rate which if continued can more than double the average standard of living in a generation. In addition, there will be more hours of leisure in which to take advantage of these goods and services.

Foreign trade is expected to continue to expand faster than the output of goods and services during the second half of the decade. The substantial expansion of output foreseen for the OECD area should reasonably stable price levels for imported food products and raw materials from the rest of the world.

Policies for Growth

The broad aims of policy for the future remain as before: to ensure the adequate utilisation of capacity; to maintain and to improve price stability and external balance; and to increase the growth of capacity and efficiency in the use of manpower and other resources. But the development of new tools of policy, and their active use, will be needed to achieve sustained growth and make good past shortfalls in meeting the other main objectives of policy.

Maintaining full employment

At mid-decade the United States reached its interim goal of reducing the number of unemployed workers to 4 per cent of the civilian labour force. This progress was made through the vigorous use of fiscal policy. It is important that instruments of demand management continue to be used actively, in both directions as needed, in the years ahead. Beyond this, policies to improve the quality and mobility of the labour force will also be required to establish the conditions for lowering further the level of unemployment at which the economy can safely operate. Given the successful application of these policies, it seems reasonable to conclude that an unemployment rate of 3 ½ per cent in 1970, and a lower rate eventually, will be compatible with both reasonable price stability and balance of payments equilibrium. In Italy, expansion in the next five years is expected to be accompanied by some reduction in unemployment.

Balance of payments equilibrium

At one time or another most countries have been faced with imbalance in their external payments. For obvious reasons deficit countries are under more urgent pressure to correct balance of payments imbalances than are surplus countries. But, from the standpoint of a workable international system of trade and payments, it is important that surplus countries also take appropriate measures to bring their external position into balance. A continuing danger is that persisting deficits may force countries to slow down their growth. In recent years this has in fact been the case, among the large industrialised countries, of the United Kingdom. The authorities there have adopted a series of measures to achieve faster growth in productivity and to right the balance of payments. In the meantime the pressure of demand has had to be reduced to improve the trade balance and measures taken to cut down the capital outflow. The United Kingdom authorities announced in late July 1966 that the output target set in the National Plan would have to be revised downwards in the light of developments since the Plan was prepared.

Price Stability

Many countries in Europe, as well as Japan, have been compelled to adopt stabilisation programmes to slow down the rise of prices. Recently the North American countries have also become concerned. These programmes have largely succeded in several of these countries as the pressure of demand has been reduced; and the price rise has been dampened. It should now be possible for them to expand at rates in line with growth of their productive capacity.

The problem of rising prices however has not been solely due to excess demand. At high rates of resource utilisation, prices and costs can be pushed up even when the overall pressure of demand is not excessive. To meet this problem many countries have begun to develop prices and incomes policies to help keep increases in money incomes in line with the trend rate of growth of national productivity, and prevent price increases that are not justified by higher costs. Such

policies are still relatively new in most countries and tools for applying them are often not yet fashioned. It is therefore too soon to rely heavily on them. The experience of all countries has been that the avoidance of excess pressure of demand is a pre-requisite of a successful price stabilisation programme.

Measures to improve supply

Achieving a faster rate of growth depends on improving the productivity of human and capital resources. To this end many countries have adopted a wide range of policies in the fields of education, manpower, regional development and research, and have taken measures to raise the proportion of output devoted to increasing the stock of capital.

Rapid technological change has increased the need for labour mobility — geographical, occupational and industrial. Government measures to expedite 'adaptations and, at the same time, to reduce the human and economic costs of change, include strengthening the traditional employment services, training and retraining programmes, income maintenance for people who are preparing to take on new jobs, and special programmes to help handicapped people. Policies to eliminate job discrimination and to increase equality of economic opportunity, while undertaken primarily for social and humanitarian reasons, also have the effect of improving the allocation of resources.

By reducing structural unemployment and promoting rapid adaptation to changes in labour markets, active manpower policies can lower the minimum level of unemployment compatible with reasonable price stability. They can also reinforce prices and incomes policies by removing some of the burden on the wage mechanism of redeploying labour.

Saving and Investment

Many countries see the need to devote a larger part of their output to investment, both public and private, than in the past, in order to support expansion of output. This is particularly true of the countries of continental Europe. Even countries which do not plan to increase investment faster than growth of output have adopted measures, such as fiscal incentives, to stimulate private investment in machinery and equipment. Furthermore, in a number of countries public consumption expenditures are on a strongly rising trend, largely as a consequence of the needs to meet demands for improved education and other social services.

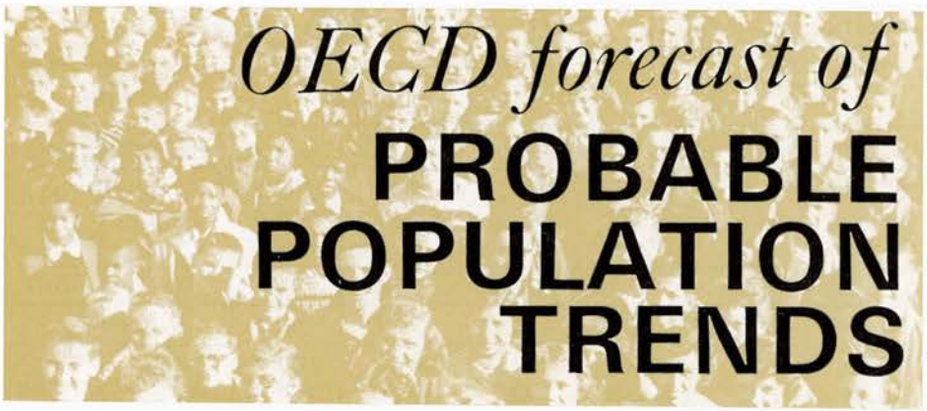
The consequence of this in a number of European countries is that the tax burden will not be very greatly reducible if inflationary conditions are to be avoided. In some it may be necessary for the public sector to maintain a budgetary surplus since saving in the private sector, despite incentives, may not be large enough to finance the growth of investment. More active use of fiscal policy is also desirable to combat inflation and would thus reduce the heavy reliance on monetary policy which has led to interest rates reaching unusually high levels. Undue reliance on tight money may, in certain cases, hamper the achievement of payments equilibrium internationally, and also work against a desired re-allocation of resources in favour of investment.

A satisfactory development of investment also has implications for the capital markets in order that savings be collected and directed towards the investments which are essential to achieve growth. In recent years the programmes of the United States to curtail the outflow of capital to the industrial countries have limited the access of European firms to a major source of funds and encouraged American companies to resort to European markets to finance their overseas operations. International payments equilibrium requires that the capital outflow from the United States be kept within the limits of its surplus on current account, which can be expected to grow only moderately from year to year. And the world-wide demand for capital is certain to be large and growing. Pressures on European capital markets in the years ahead therefore are unlikely to be any smaller than in the past. Despite their recent developments there is room for improvements which will further reduce differences in the level of institutional perfection between countries.

International co-operation

The expected expansion of foreign trade faster than total output of goods and services in the OECD area should contribute, as in the past, to an improvement in the allocation of resources and to faster production growth. However, in spite of the progress that has been made in the past there still remain substantial barriers to trade between countries. A major opportunity for further progress in removing trade barriers exists in the Kennedy Round of negotiations. Further liberalisation of trade and agricultural policies thus secured would stimulate economic growth more generally.

The rapid expansion in foreign trade expected will mean that Member countries will become even more interdependent than they are now and that demand conditions in different countries will be drawn closer to the average of conditions ruling in several countries together. It also means that the course of developments will be less exclusively under the influence of the country's own policy; and that each will have an increased interest in the policies and developments in neighbouring countries. The need for international consultation, both over a short-term and long-term policy, is therefore likely to be of increasing importance in the years ahead. Co-operation of this kind will help to ensure the achievement of the collective growth target to the mutual benefit of all Member countries.



OECD forecast of PROBABLE POPULATION TRENDS

Forecasts of population trends in a number of OECD countries up to 1980 are contained in a new OECD report (1) prepared by M. Louis Henry of the French Institut National d'Etudes Demographiques with the collaboration of a group of demographic experts from OECD Member countries.
The report constitutes a revision and extension of previous demographic surveys published by OECD in 1956 and 1961 and reveals some important changes by comparison with the previous projections. M. Henry's general conclusions are here illustrated by some of the many tables and graphic illustrations contained in the report.

The discrepancy between deviation from previous projections and the actual trend is especially marked in the case of births and migratory movements. In Denmark, Spain and the United States the number of births fell short of the forecasts; elsewhere they exceeded the forecasts by between 3 and 9 per cent in the period 1959-1963.

In Ireland and, it would seem, in Spain and Portugal as well, the volume of emigration was greater than forecast. Denmark, the Netherlands and the United Kingdom, which had forecast net emigration, in fact recorded an immigration surplus. Immigration exceeded the forecasts in France, owing primarily to repatriation, and in Sweden. Heavy immigration was recorded in the Federal Republic of Germany and Switzerland. In other words, the southern part of Europe remains an emigration area while, with the exception of Ireland, the rest of Western Europe is currently an immigration area.

Migration apart, an increase in population during the period 1965-1980 is forecast by all the Member countries. In the case of the European countries this increase is estimated at about 5 per cent in Switzerland, the United Kingdom, Sweden, Spain, France, Denmark, Greece and Italy; the largest increases are forecast by Norway (15 per cent), Portugal (20 per cent) and the Netherlands (25 per cent). In the case of the United States the estimated increase without migration is of the order of 22 per cent. Without migration the population of Ireland would increase by 27 per cent, but with emigration as forecast this increase is reduced to 16 per cent.

The trend of the working age population (males and females taken together) varies considerably from one country to another. The Federal Republic of Germany and Austria forecast a downward movement until the year 1975, while in the United Kingdom and Sweden there is likely to be only a very small increase. On the other hand an increase well above the average is forecast by Canada, the United States, the Netherlands and Portugal.

In the United States the working age population should increase at roughly the same rate as the total population, whereas in the European Member countries taken as a whole it is the total population which will increase more rapidly, although there are some marked differences between these countries. In Spain, France, Greece and Portugal the trend is closer to that in the United States, while in FR Germany, Austria, the United Kingdom and Sweden it is most at variance with the latter.

In the United States the proportion of young adults in the working age population should rise as from 1970. There are no signs of a similar trend in the European Member countries taken as a whole, where this proportion varies little. Between these countries, however, there are substantial differences. In the countries of Southern Europe (Spain, Greece, Italy, Portugal) the proportion of young people in the working population is seen to be in decline, in France it shows little variation up to 1975, while in the other countries the trend is rather similar to that in the United States, at any rate from 1970 to 1975.

By 1980, the final year of the forecasts, the proportion of young adults in the working-age population will be more uniform than in 1966 and lower than in the United States, except in the case of Ireland, the Netherlands and Portugal.

In the European Member countries the population of old people should rise appreciably more rapidly than the working age population up to 1975; in the United States the difference in the rates of increase is much less marked. Consequently, the number of old people per thousand of working age should increase much more in the European countries taken together than in the United States. This number already varies considerably from one Member country to another (162 in Canada as against 270 in Austria, for the year 1965). Subsequently, the variation should become even more marked (187 in Spain compared with 330 in Sweden, for the year 1980).

The comparative trends of the population of young people (less

(1) Enquiry into Demographic Trends, OECD, July 1966.

TOTAL POPULATION IN 1965, 1970, 1975 AND 1980

	ASSUMPTION	1965		1970		1975		1980	
		MILLIONS	INDEX	MILLIONS	INDEX	MILLIONS	INDEX	MILLIONS	INDEX
GERMANY*	1	57.86	100	59.17	102.3	60.22	103.7	60.68	104.8
	2a	58.24	100	60.22	103.4	61.51	105.6	62.39	107.1
	2b	58.22	100	59.90	102.8	60.78	104.4	61.45	105.5
AUSTRIA	1	7.197	100	7.365	102.3	7.518	104.5	7.671	106.6
DENMARK	1	4.732	100	4.919	104	5.117	108.1	5.299	112
SPAIN	1	31.58	100	32.84	104	34.06	107.7	35.25	111.6
	2	31.38	100	32.39	103.2	33.36	106.3	34.30	109.3
FRANCE	1	48.21	100	49.84	103.4	51.72	107.3	53.81	111.6
	2	48.57	100	50.95	104.9				
GREECE	1	8.51	100	8.88	104.3	9.23	108.5	9.55	112.2
	2	8.51	100	8.73	102.6	8.86	104.1	9.06	106.5
IRELAND	1	2.862	100	3.051	106.6	3.296	115.2	3.627	126.7
	2	2.862	100	2.954	103.2	3.117	108.8	3.344	116.8
ITALY	1	52.27	100	54.55	104.4	56.86	108.8	59.16	113.2
	2	52.24	100	54.32	104	56.40	107.9	58.44	111.8
NORWAY	2	3.700	100	3.864	104.5	4.075	110.1	4.270	115.4
NETHERLANDS	1	12.20	100	13.07	107.1	14.10	115.6	15.26	125
PORTUGAL	1	9.36	100	9.97	106.5	10.63	113.6	11.30	120.7
	2	9.18	100	9.59	104.5	10.02	109.2	10.48	114.2
UNITED KINGDOM	1	54.37	100	56.22	103.4	58.08	106.8	59.92	110.2
	2	54.40	100	56.41	103.7	58.45	107.5	60.48	111.2
SWEDEN	1	7.685	100	7.950	103.5	8.231	107.1	8.500	110.6
	2	7.685	100	7.999	104.1	8.330	108.4	8.646	112.5
SWITZERLAND**	1	5.168	100	5.327	103	5.492	106.3	5.650	109.3
	2	5.184	100	5.436	105.2	5.738	111	6.098	118
GROUP 1	1	315.2	100	326.7	103.6	338.3	107.3	350.0	111
TURKEY		32.00	100	36.74	114.8	42.10	131.5		
GROUP 1 bis		347	100	363.5	104.7	380	109.5		
CANADA	1	19.38	100	21.15	109.2				
	2	19.43	100	21.49	110.6				
UNITED STATES	1	192.86	100	205.27	106.6	219.90	114	236.83	122.8
	2	193.32	100	207.48	107.3	224.18	116	243.37	126.8
GROUP 2	1	212.2	100	226.4	106.7	242	114	261	123
TOTAL	1	559	100	590	105.5	622	111.3		

(*) Including West Berlin.
(**) Foreigners possessing a residence permit only not included.

1 : Without migration.

2 : With migration.

than 15 years old) and of the working age population also reveal differences between the United States and the European Member countries as a whole. In the United States the working age population will, up to 1975, increase more than the population of young people, while the reverse is likely to occur in the European Member countries. This means that in the United States the number of young people per person of working age will decrease until 1975, whereas in the European Member countries it will rise. From 1975 to 1980 these trends will be reversed in either case.

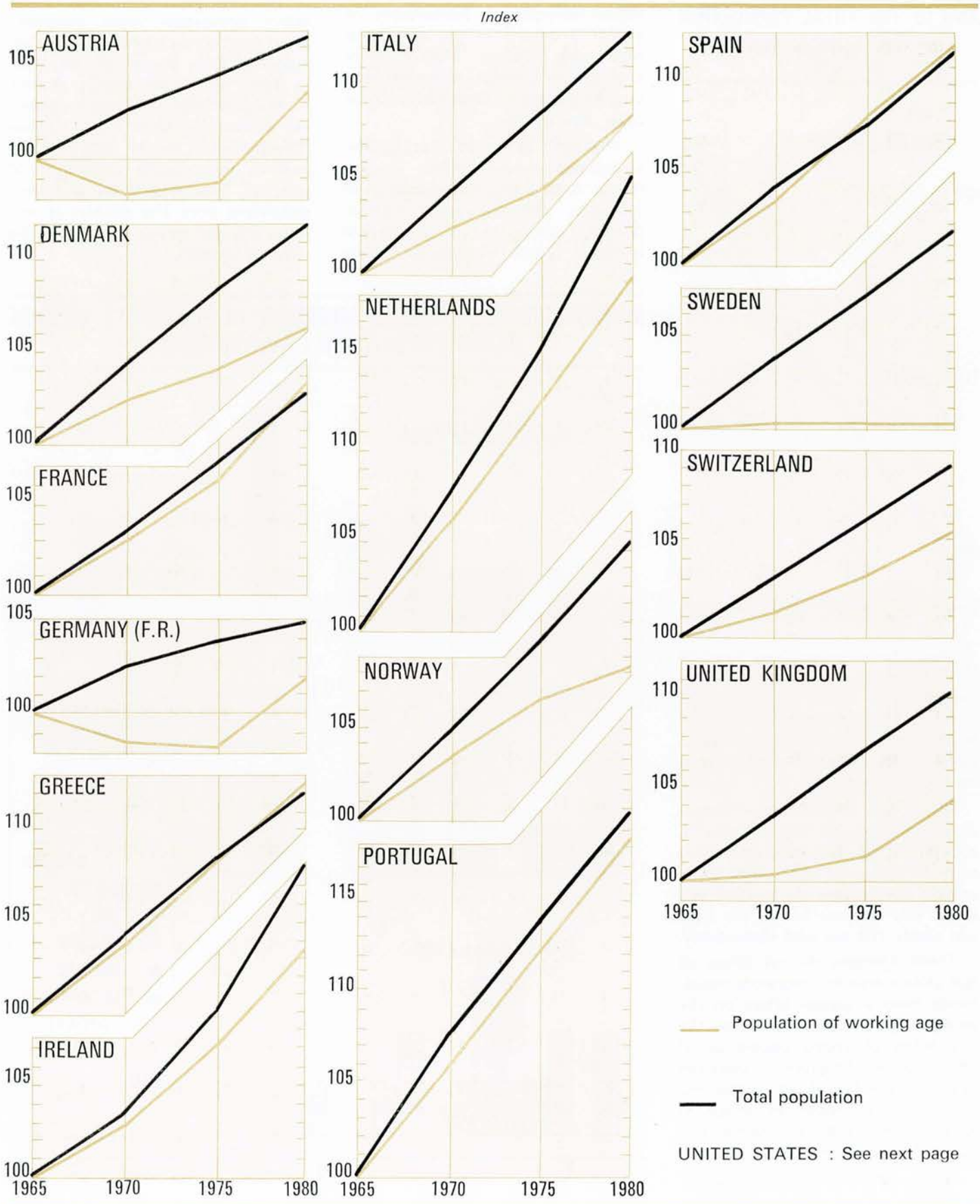
The number of young people per thousand of working age varies a great deal from one country to another (in 1965 it ranges from 329 in Sweden to 588 in Canada). However, this variation becomes rather less marked over the period 1966-1980.

The countries of Southern Europe have forecast net emigration for the fifteen years 1965-1980. The volume of emigration is small in Italy, average in Spain and fairly large in Greece and Portugal.

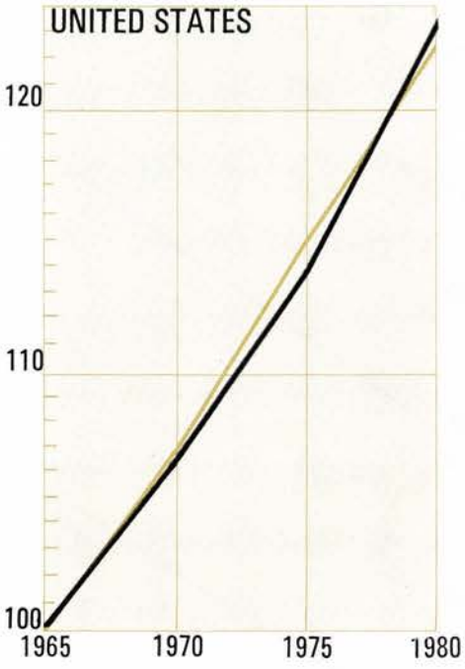
Outside Southern Europe, Ireland and Norway are the only countries which expect net emigration for the period 1965-1980, although Ireland's estimate is appreciably lower than in previous forecasts.

(continued on page 22)

COMPARATIVE TRENDS OF THE POPULATION OF WORKING AGE AND OF THE TOTAL POPULATION



COMPARATIVE TRENDS OF THE POPULATION OF WORKING AGE AND OF THE TOTAL POPULATION IN THE UNITED STATES



The other countries have forecast or envisage net immigration. Within Europe, it is larger in Switzerland and France than in the other countries; and proportionately to the total population, greater than in Canada and the United States.

In Greece, Ireland and Portugal emigration reduces the increase in population by between one third and one half. In France and Switzerland immigration as forecast enlarges this increase by 40 per cent and nearly 100 per cent respectively.

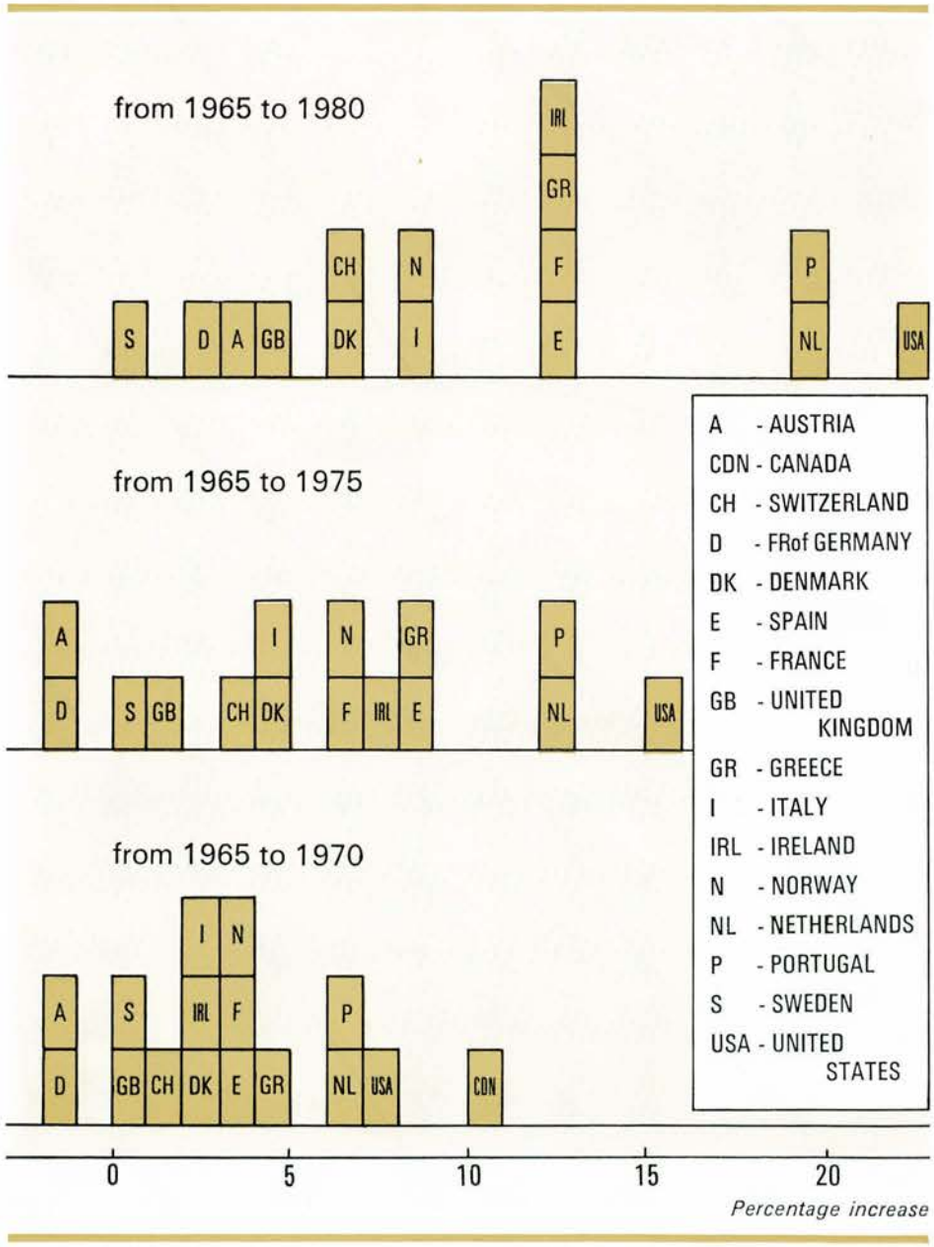
These changes do not affect all age groups equally; migratory movements have a greater effect on the working age population than on the population of young people or of old people. Emigration therefore raises the number of old people and that of young people per person of working age, while immigration produces the reverse effect.

All the Member countries forecast a decline in the activity of young people (15-19 years of age and, though to a lesser degree, 20-24 years of age) owing to either voluntary or statutory prolongation of school attendance. Furthermore, all expect a decline in the activity of older male persons. Most of them envisage an increase in female activity, extending in some cases to the older age groups.

The trend of the active population as forecast is very variable, ranging from a decline or virtual levelling-off (Sweden, FR Germany, Austria, Greece, Italy) to a substantial increase. These movements reflect the natural trend of the population, migratory movements and progressive changes in activity rates.

The proportion of women in the active population varies considerably from one country to another (ranging from about 20 per cent in Spain to 40 per cent in Austria for the year 1965). These variations are attributable both to the actual differences in female activity rates and to the varying definitions of activity. The differences in these definitions from one country to another are particularly marked in the case of women.

MEMBER COUNTRIES RANKED ACCORDING TO PERCENTAGE INCREASE OF THE POPULATION OF WORKING AGE

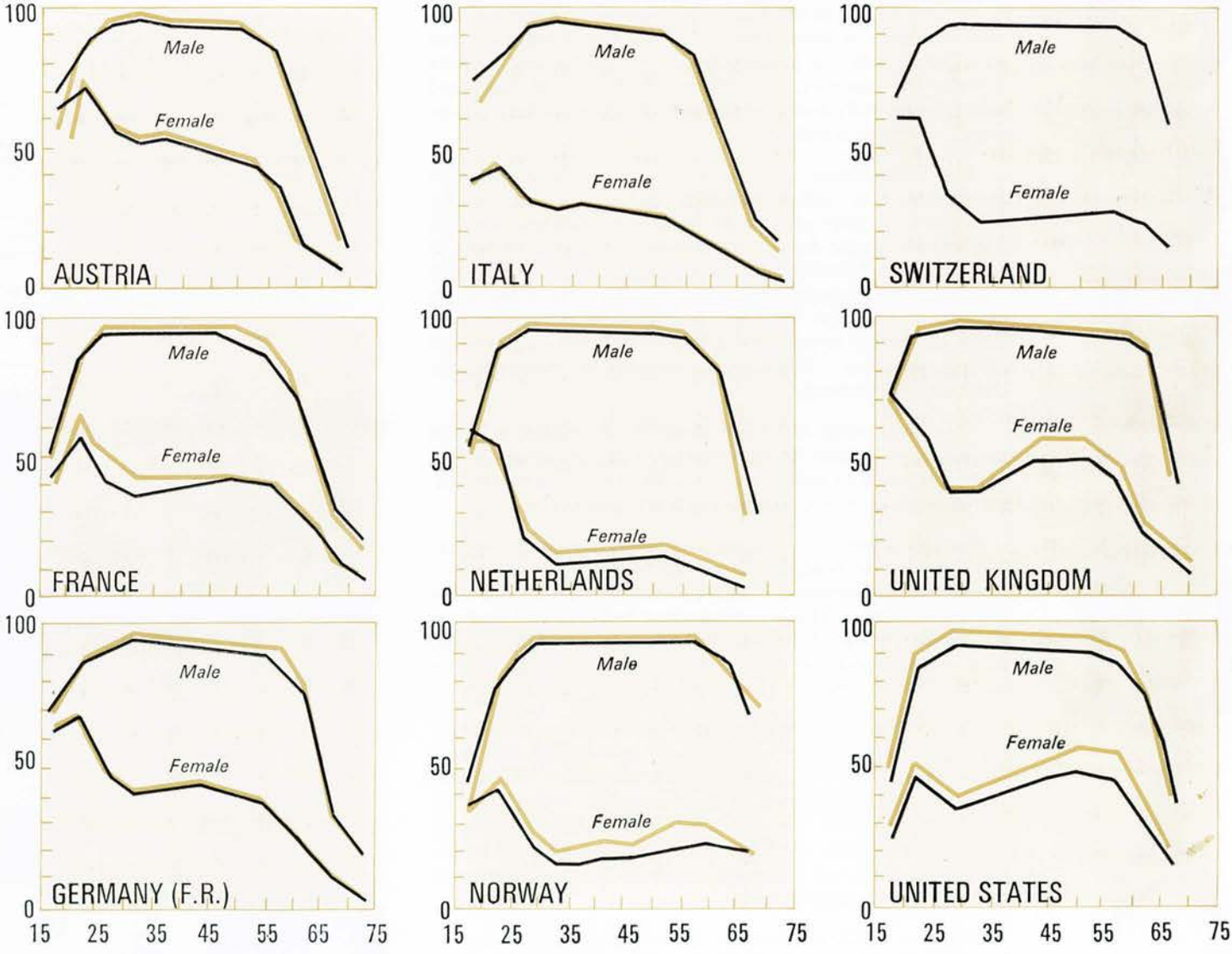


ACTIVITY RATE

IN PERCENTAGE BY AGE

1965

1970



EUROCHEMIC

the World's first internationally-owned nuclear fuel reprocessing plant

On 7th July 1966 His Majesty the King of the Belgians inaugurated the plant built at Mol in Belgium by EUROCHEMIC, the European Company for the Chemical Processing of Irradiated Fuels.

Eurochemic is one of the major international joint undertakings of the OECD European Nuclear Energy Agency. The Company was established in July 1959 with the objective of building and operating a chemical reprocessing plant to treat used fuels from reactors in participating countries and of carrying out industrial experimentation with a variety of such fuels. This reprocessing plant has now been built, on a site adjacent to the Belgian Centre d'Etude Nucléaire at Mol. More than 30 tons of irradiated fuel have already been received and placed in the storage ponds awaiting treatment.

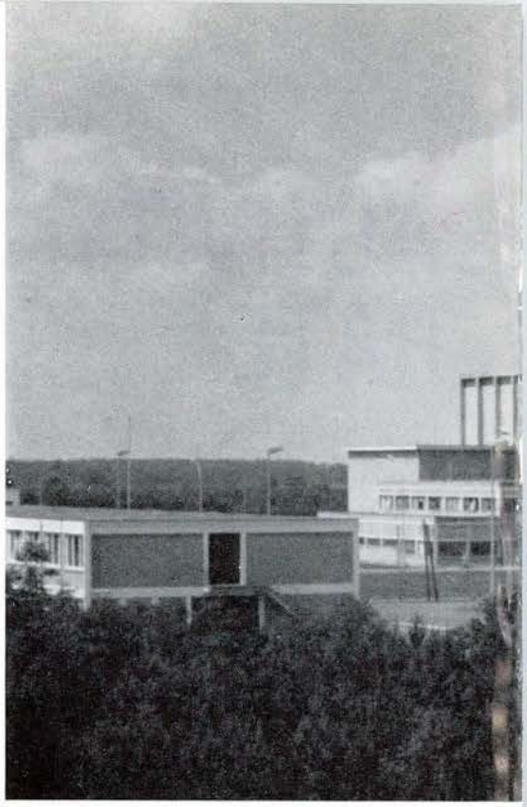
The Eurochemic plant is perhaps the most versatile installation of its kind in the world, being able to accept for reprocessing both natural or enriched uranium fuels, in oxide or metallic form, contained in a large variety of claddings of different shapes and dimensions. Although a multipurpose plant with pilot character, it is built on an industrial scale and has been designed to allow easy and rapid expansion of capacity in step with increasing demand for reprocessing. The plant is intended to operate under commercial conditions.

The plant itself has cost about $ 18 million to build (including additions for processing highly enriched fuels), with a further $ 12 million for " auxiliaries " — laboratories, test station, services, waste treatment plant, etc.

Besides construction of the reprocessing plant proper, the Eurochemic Company has also built at Mol a series of experimental laboratories for research work on reprocessing techniques. These laboratories have been used for the development of the various stages of the Eurochemic flow sheet, initially at purely laboratory scale and later in full-size pilot units.

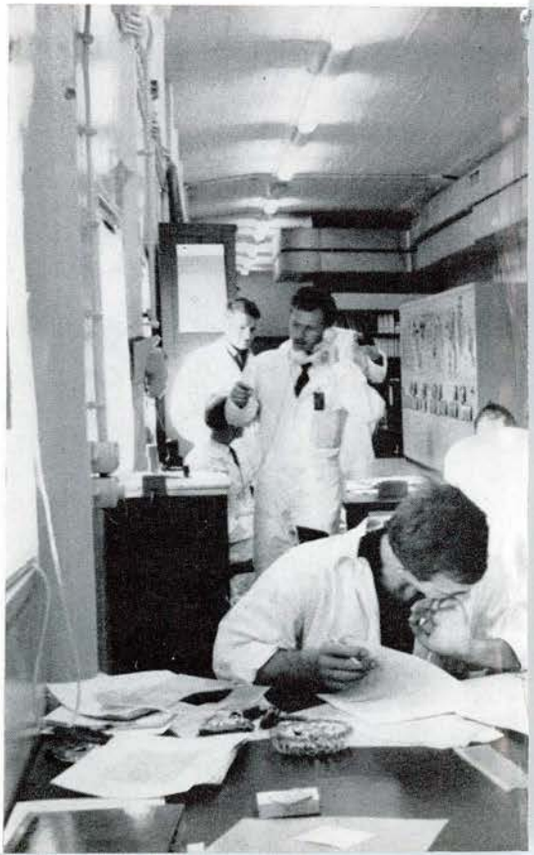
During the last two years the work of the laboratory group has been directly linked with operational problems of the main plant — in particular the adaptation of the flow sheet to particular types of fuel expected to be sent for treatment, as well as the improvement of operational techniques so as to minimise running costs, and the investigation of safe and economic methods for treatment and storage of radioactive waste.

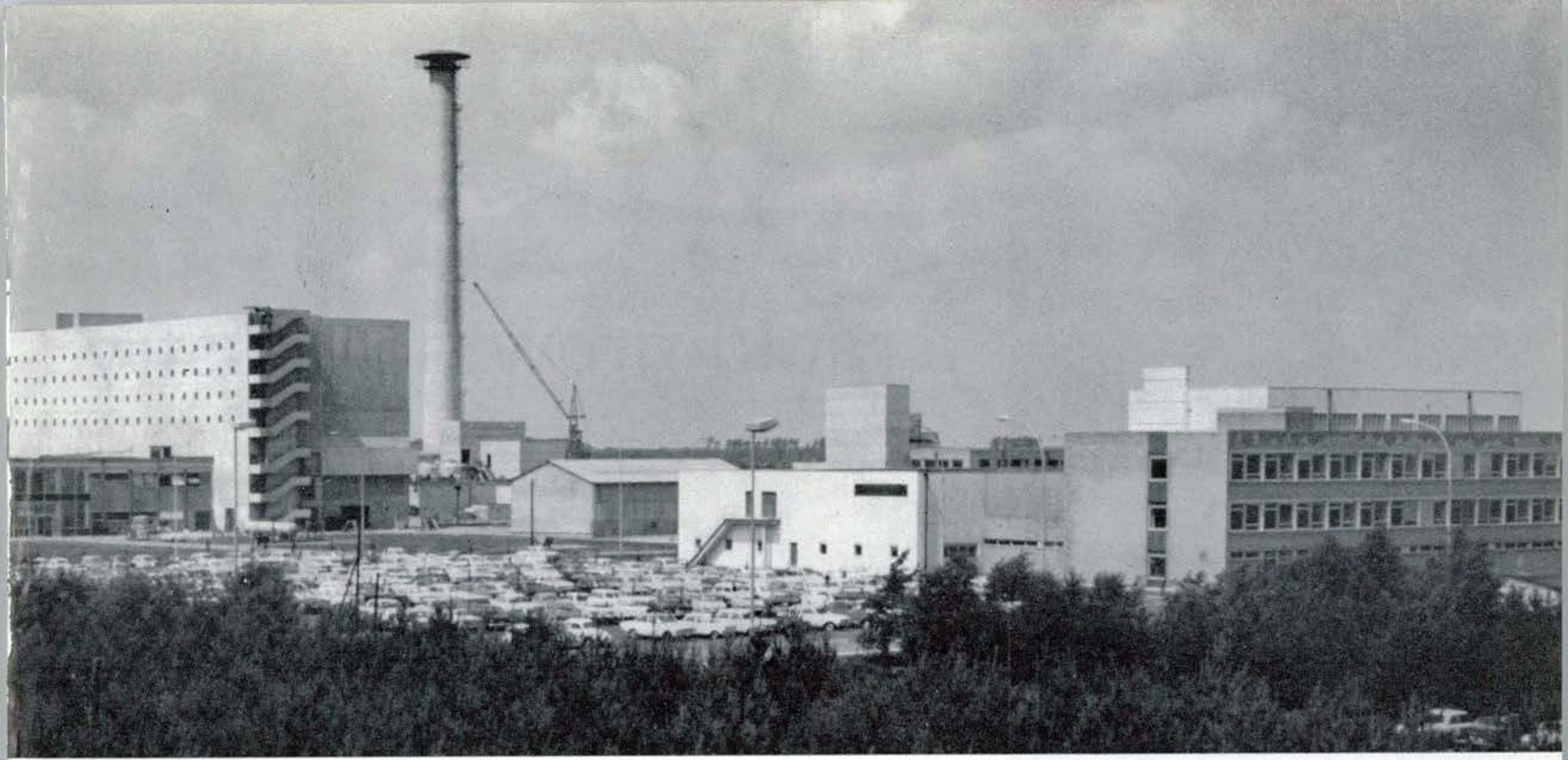
Thirteen OECD countries — Austria, Belgium, Denmark, France, FR Germany, Italy, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and Turkey — are participating in the Eurochemic project.

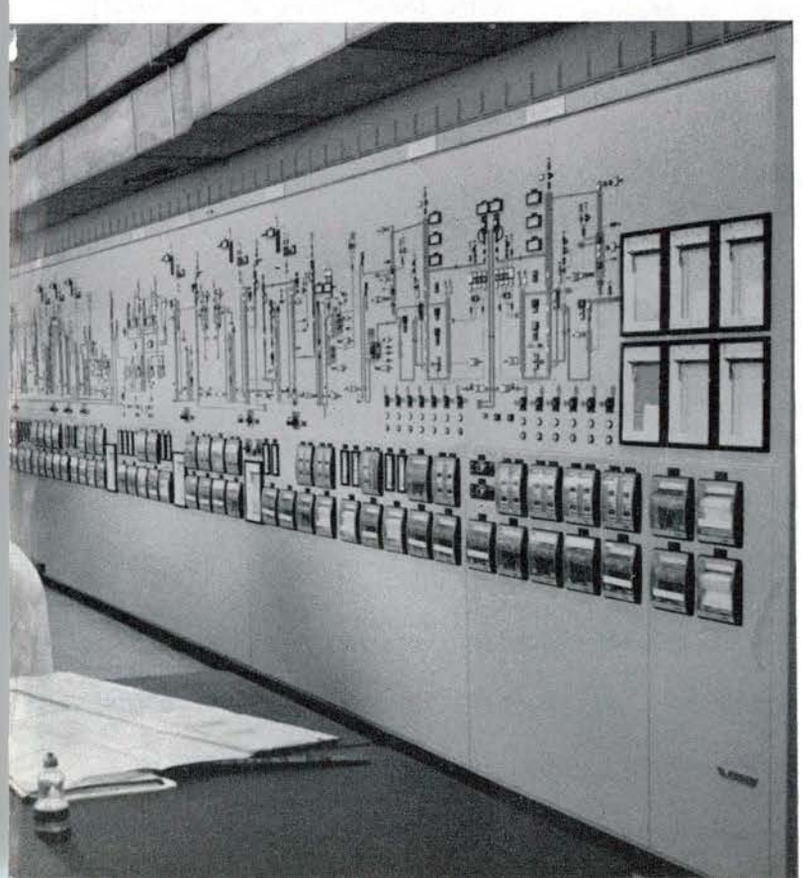


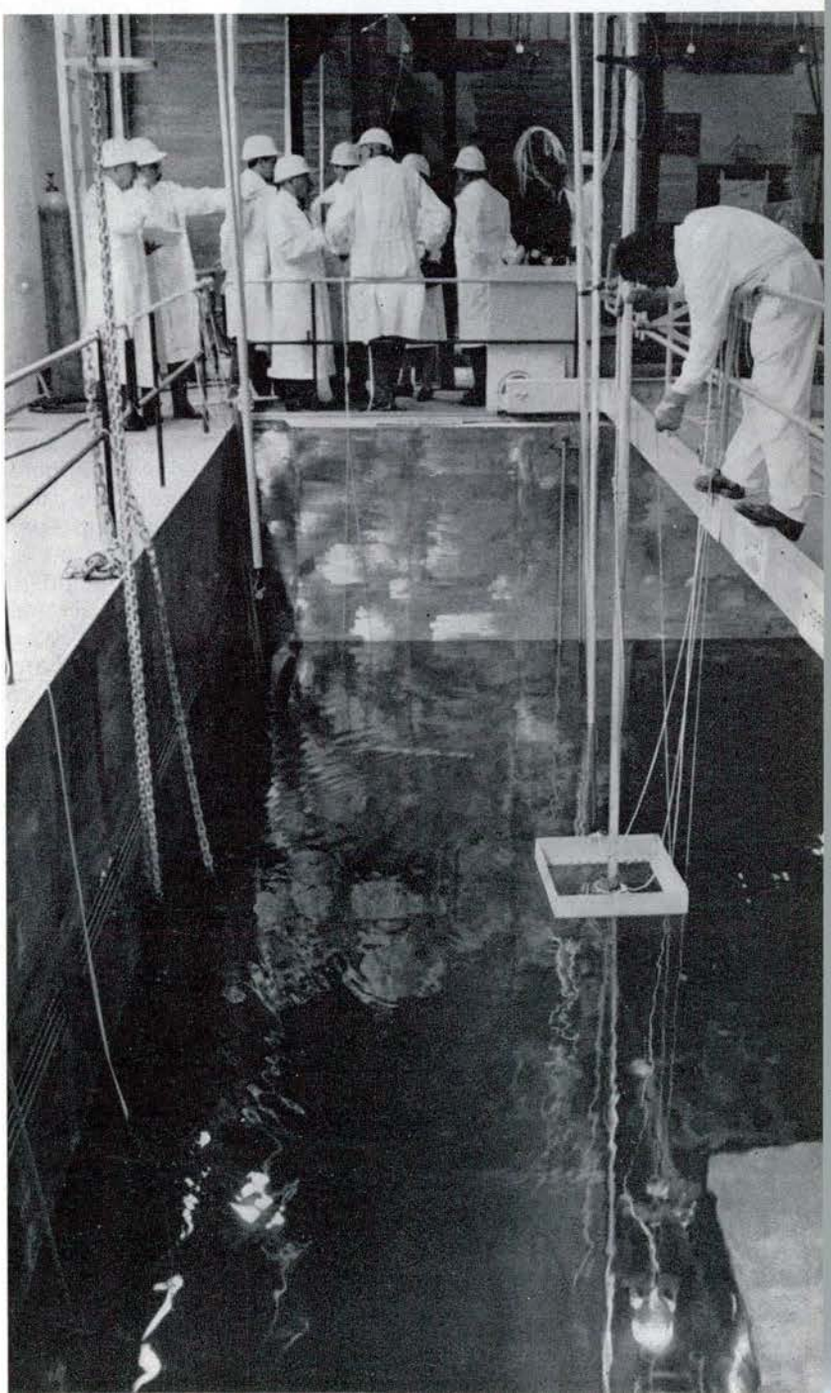
1 | 2 | 3 | 4

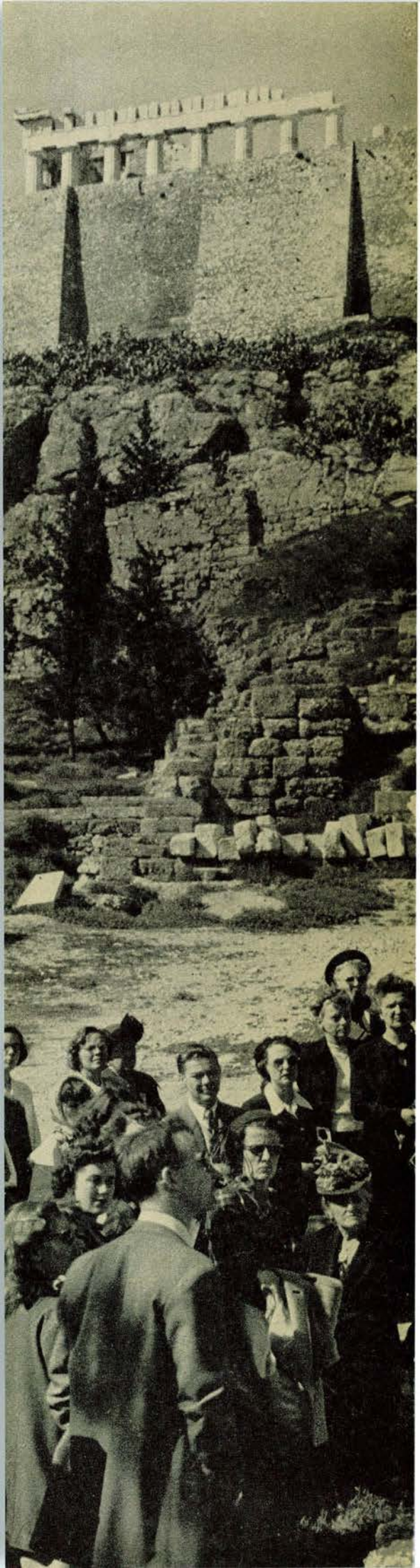
1. *General view of Eurochemic plant. Main processing block to left. Research Laboratory to right.*
2. *Dr Rudolf Rometsch, Managing Director of Eurochemic, addressing H.M. King Baudouin and other distinguished personalities at the inauguration ceremony on 7th July, 1966.*
3. *Eurochemic plant control room. Operation of the entire process can be controlled and followed from the panels on the right which carry mimic diagrams of the various parts of the plant.*
4. *Fuel reception and storage area. Irradiated fuel elements awaiting reprocessing are handled and stored under water — to provide radiation shielding — in specially designed " ponds ".*











TOURISM : a rapid-growth industry

An annual average increase in receipts of 15 per cent per year since 1961 places tourism among the fastest growing economic activities. Arrivals of foreign tourists throughout the world in 1965 rose to 115 million, 82 per cent of whom were registered in the OECD countries. A new OECD Report on the Development of Tourism in OECD Member countries in *1965* and the early months of *1966 indicates that there still remains a potential in these countries for a further increase in international tourism, and that tourism constitutes an important factor in international payments.*

The following article summarises the main findings and conclusions of the OECD Tourism Committee and is illustrated by facts and figures contained in the Report.

International tourist movements have been developing since 1961 at an average rate of increase of about 12 per cent per year. They are likely to become even more important, particularly in Member countries, as a result of the increase in the standard of living and in the leisure of their population, of the need for relaxation and the desire to escape from large cities. The demographic pressure which tends to increase the proportion of young people and of the active population among whom international tourists are drawn, increasing transport facilities, and the virtually complete elimination of administrative barriers to tourist movements between Member countries are further factors contributing to this development.

Yet in most Member countries, less than 55 per cent of the population take a holiday of more than 4 days (about 54 per cent in the United Kingdom and the Netherlands, 42 per cent in France) and the proportion of the population taking a holiday abroad is much lower (16 per cent in the Netherlands, 13 per cent in Sweden, 8 per cent in France and the United Kingdom, 6 per cent in Italy).

In the United States, the substantial expansion of foreign tourism registered in 1964 continued in 1965 but at a lower rate. The arrival of 7,334,327 foreign tourists was recorded at the frontiers, or an increase of 12 per cent compared with 8 per cent in 1964. 5.8 million tourists came from Canada (+ 13 per cent), 506,220 from European Member countries (+ 9 per cent) and 981,151 from non-member countries (+ 12 per cent).

Receipts from Tourism

In 1965, total world tourist receipts in foreign currencies reached about 11.6 billion dollars, which represents 6.2 per cent of total world exports of goods and merchandise as against 5.9 per cent in 1964. This amount does not take account of the receipts from international tourist transport: according to estimates relating to thirteen Member countries, these receipts exceed 1.2 billion dollars. Since 1961, world tourists receipts

have increased on average by 15 per cent per year which, taking account of the increase in prices, corresponds roughly to the increase in the volume of international tourism, and places the latter among the fastest growing economic activities.

For Member countries taken as a whole, tourist receipts in foreign currencies in 1965 reached about 9 billion dollars, which represents almost 6 per cent of their total visible and invisible exports. For some of them, the percentage is much higher and is generally tending to increase: in 1964, the percentages were 42 per cent for Spain, 24 per cent for Austria, 18 per cent for Ireland, 14 per cent for Greece, 13 per cent for Portugal, 12 per cent for Italy and Switzerland. International tourism also constitutes a substantial source of income for third countries (2.5 billion dollars in 1965, including 1.3 for Latin America and the Caribbean area and 0.5 billion for Africa and the Middle East) and more than half of their tourist receipts in foreign currencies is provided by tourists from OECD Member countries.

Tourism therefore constitutes a major export industry and deserves as such to be encouraged by governments, particularly in developing countries where, with investments proportionally lower and more quickly profitable than in other industries, it can earn substantial foreign currency resources, as exemplified for several years by the case of Spain. In this country, as well as in Greece, Portugal and Yugoslavia and more recently in Turkey, international tourism is expanding at a high rate.

The Balance of Receipts and Expenditure

Tourism also constitutes an important expenditure item in the balance of payments of certain countries. The level of this expenditure preoccupies some countries whose general balance of payments is in heavy deficit and who are thus sometimes led to make comparisons between their tourist expenditure and their tourist receipts in foreign currencies. Tourist expenditure and receipts should, however, be considered respectively in the light of total expenditure and total receipts in foreign currencies of a country, or of more general criteria such as the amount of private consumption expenditure of the national income of the country. The higher the economic prosperity of a country, the higher will be its tourist expenditure abroad. In view of the desirability of expanding international trade and payments, measures necessary to correct any imbalance should be directed as far as possible towards increasing receipts rather than reducing expenditure.

With regard to tourist receipts, Italy continues to take the first place ($1,288 million; + 24 per cent) closely followed by Spain ($1,157 million; + 26 per cent) then by France ($910 million; + 11 per cent) and Germany ($731 million; + 6 per cent). Germany remains the European Member country with the highest foreign tourist expenditure ($1,543 million; + 20 per cent) followed by France ($939 million; + 20 per cent) and the United Kingdom ($812 million; + 11 per cent). The biggest surplus on tourist account is in Spain ($1,085 million) which thus takes the lead over Italy (+ $1,061 million), Austria (+ $420 million) and Switzerland (+ $300 million). Germany's deficit on tourist account, which was already the highest in Europe, increased by a further 37 per cent in 1965 (- $812 million). The deficit also deteriorated in the United Kingdom (- $272 million). In 1965, for the first time, France's tourist account showed a slight deficit, falling from a surplus of $33 million in 1964 to a deficit of $29 million in 1965. Turkey, thanks to increased receipts. has also succeeded in reducing its tourist deficit from $13 million in 1964 to $6 million in 1965. Portugal has continued to increase its surplus from $68 million in 1964 to $81 million in 1965, and Greece from $52 million to $66 million.

In the United States, the balance of tourist accounts in 1965 shows a deficit of $1,188 million (+ 7 per cent) compared with $1,106 million in 1964. Allowing for receipts and expenditure in connection with international tourist transport ($165 million receipts and $720 million expenditure) the overall deficit on international tourism amounted in 1965 to $1,743 compared with $1,601 million in 1964.

In Canade, tourist receipts and expenditure were respectively $682 million (+ 11 per cent) and $720 million (+ 9 per cent) showing a deficit in 1965 of $38 million which is somewhat below the 1964 deficit ($ 47million).

With the popularisation of international tourism, tourist expenditure abroad has long ago lost the character of luxury expenditure. International tourism is important not only from the economic but also from the social, educational and cultural points of view; further, it contributes to a better understanding among nations. International tourism, owing to its present and future expansion, can contribute to the economic strength and growth of most Member countries through the diversification of economic activities, the creation of new sources of employment and the provision of substantial fiscal receipts. Governments should therefore, as far as their economic situation permits, encourage the development of international tourism, in particular through the adoption of more and more liberal measures with regard to visas, control of identity papars, customs and exchange control regulations.

Policies for Tourism Development

The sensitiveness of international tourism to general economic and political conditions and to psychological factors calls, however, for special attention on the part of governments and responsible national authorities as well as constant efforts of adaptation and improvements on the part of the various sectors of the tourist industry. As international tourism develops, it assumes increasingly varied forms and gives rise to more and more diversified traffic flows including the trend towards second holidays and travel to special events and conferences. This factor should be taken into account in national policies and plans for tourism development as well as in the projects of the various branches of the industry. Attention should be drawn in this connection to the important changes which have taken place for some years in the use of tourist accommodation and the increasing part played by means of accommodation other than the traditional kind of hotels, as well as to the problems of control and statistical appraisal in respect of so-called supplementary accommodation. Increased attention should also be given to the rapid changes in the taste and habits of foreign tourists. The choice of foreign tourists between countries in which to spend their holidays is increasingly influenced by consideration of price, comfort, quality of tourist services and recreation facilities.

In 1965, substantial development in hotel building was observed in Member countries both by way of new building enlargement and improvements. Hotel accommodation increased by 12 per cent in Japan, 10 per cent in Greece, 9 per cent in Spain, 8 per cent in Austria, 5 per cent in Ireland and Italy. The countries with the highest hotel and similar accommodation capacity are Italy

(1,076,500 beds), United Kingdom (1,077,500 beds), Germany (701,200 beds), France (596,900 beds in classified hotels only), Japan (596,300 beds), Austria (401,200 beds) Spain (328,100 beds).

In most Member countries an appreciable development has been noted in reception capacity in supplementary accommodation, particularly camping sites and holiday camps, and rented houses and flats. The reception capacity in all forms of supplementary accommodation has increased appreciably in France (+ 34 per cent), Ireland (+ 24 per cent), Spain (+ 21 per cent), Turkey (+ 14 per cent) and 11 per cent in Yugoslavia. The very high increase in the reception capacity of camping sites should be noted in Turkey (+ 36 per cent), France (+ 35 per cent), Yugoslavia (+ 17 per cent) and Spain (+ 16 per cent) although there has also been a large drop of 28 per cent in Belgium. The expansion in reception capacity in rooms for rent has been particularly marked in Switzerland and Yugoslavia (+ 15 per cent) but slightly less in Austria (+ 6 per cent). The increase in the supply of holiday houses and flats for letting has been very high in Spain (+ 25 per cent). The accommodation capacity in Youth Hostels has varied little except in Yugoslavia (+ 7 per cent). Finally the high number of camping sites should be noted in France (3,614), the United Kingdom (approximately 3,000), Norway (947), Italy (764) and Germany (721).

Policies for Staggered Holidays

Solution of the urgent problems which the expansion of tourism creates with regard to tourist accommodation, equipment, manpower and transport, may be facilitated in certain cases through appropriate governmental assistance. The crucial problem remains that of staggering holidays. In order to reduce pressure on accommodation and transportation during the peak season; the various sectors of the tourist industry should take appropriate measures to promote the extension of the traditional tourist seasons and the development of off-season tourism. These measures should form part of a policy of staggered holidays to be promoted by the responsible national authorities with the help of trade unions, employer organisations and educational authorities, and through a campaign to persuade the general public. The OECD Tourism Committee intends to consider what common measures could eventually be recommended in this field.

◀ *Italy has first place among OECD countries as to tourist receipts.*

The question of staggered holidays remained just as acute in Member countries in 1965. Belgium has declared its satisfaction with the results of the "Holidays in June" campaign undertaken since 1960, as regards both domestic and foreign tourists. The results of surveys made in France and the United Kingdom show that government action in these countries has not succeeded in relieving the holiday congestion which became worse in 1965 owing to the greater number of holiday-makers and longer holidays. In France, a persuasion campaign addressed to tourists, employers and the hotel industry was launched in 1965 and continued in 1966 with a view to splitting holidays, closing down firms out of season, and extending the tourist season. In the United Kingdom the traditional Bank Holiday of the first Monday in August was moved experimentally to the end of August in 1965 and this experiment will continue until 1968. In Ireland, Whit Monday Bank Holiday will be moved as from 1967 to the first Monday in June. Other Member countries are also making efforts to stagger holidays. In Austria, a longer interval of time between the school holidays of the Eastern and Western regions is being studied. In Spain, special prices are offered off-season in the various tourist areas. In the Netherlands, the campaign for extending the tourist season to June has been continued and school holidays fixed at an earlier date. Action to encourage off-season tourism has been taken by the Japanese Government and by the tourist industry in the United States.

More liberal measures are being adopted with regard to customs and visas.

In order to be effective, programmes of governments and the private sectors in the field of international tourism should be based on the fullest and most accurate data possible. Studies made in 1965 by the Tourism Committee confirm that under present circumstances the methods used by many countries make it impossible to obtain sufficiently precise and comparable statistics of arrivals and nights spent by foreign tourists and of tourist receipts and expenditure in foreign currencies; sample surveys are indispensable to improve and complement available statistics. The Tourism Committee therefore intends to pursue the study of this question in co-operation with representatives of National Statistical Offices and of Central Banks with a view in particular to obtaining a better international comparability of tourist statistics.

Lastly, from the point of view of aiding countries seeking to exploit their potential tourist resources with a view to improving their economic situation through international tourism and to reducing their dependence on direct external financial assistance, it is important that the more advanced countries should continue to grant the necessary technical assistance in this field.

Development in the Early Months of 1966

Available statistical information for the first months of 1966 indicates that international tourism in the Member countries has on the whole developed very favourably although not in a uniform way for all countries.

In Europe, *as compared with the corresponding periods of 1965, arrivals of foreign tourists at frontiers increased by 24 per cent in Spain and 19 in Greece during the first six months of 1966, and by 11 per cent in the United Kingdom during the first five months of 1966. Arrivals of foreign tourists at hotels increased by 13 per cent in Austria, 12 per cent in Italy and 5 per cent in Switzerland during the first five months of 1966, by 10 per cent in Portugal during the first four months of 1966, and 10 per cent in France, 7 per cent in the Netherlands and by 4 per cent in Germany during the first three months of 1966; generally speaking, the number of nights spent by foreign tourists shows an identical development.*

Arrivals of tourists from the United States have continued to increase during the first months of 1966. Arrivals of these tourists at the frontiers during the first six months of 1966 rose by 11 per cent in Greece and during the first five months of 1966 by 13 per cent in the United Kingdom and 5 per cent in Spain; arrivals at hotels increased by 18 per cent in Turkey, 7 per cent in Italy, 5 per cent in Switzerland during the first five months, by 13 per cent in Portugal during the first four months and by 8 per cent in Germany during the first three months of 1966. Compared with the corresponding periods of 1965, the number of nights spent by United States tourists indicate rates of expansion somewhat lower than those of arrivals.

In the United States, *according to information from the US Travel Service, the number of visitors from overseas in the first five months of 1966 was 14 per cent more than in the comparable period of 1965 and was 10 per cent more for arrivals from Europe. Estimates of the US Passport Office show that during the first five months of 1966, the number of United States tourists travelling to Europe increased by 14 per cent over the actual figures of the corresponding period of 1965.* In Canada *arrivals of foreign visitors including excursionists and local border crossings from the United States during the first five months of 1966 increased by 13 per cent. The number of car crossings from the United States to Canada is estimated for the first four months of 1966 at 1.7 million, a 17 per cent increase as compared with a normal increase of 12 per cent.*

In Japan, the number of arrivals of foreign tourists at ports and airports during the first four months of 1966 rose by 10 per cent over the corresponding period of 1965.

SCIENCE POLICY IN GERMANY AND THE UNITED KINGDOM

Germany and the United Kingdom resemble each other not only as to area, size of population and economic structure but also in the amount of resources being devoted to non-military research and development. OECD's Scientific Affairs Committee thought it would be useful, therefore, to study jointly the scientific and technological problems facing these two countries. For this purpose a group of German scientists and educators was chosen to make an examination of the UK and a similarly composed British team to study the German situation. An element of continuity and co-ordination, in addition to the Secretariat, was established through a French scientist and administrator, Rector Capell. Their findings and joint discussions will soon be published in the series "Reviews of National Science Policies".

Increased governmental concern with the direction and adequacy of scientific efforts is evident in both Germany and the United Kingdom. Neither of the two countries has a formal science budget covering the bulk of governmental science expenditure such as exists, for example, in Belgium; nor is there an overall plan for the development of the national science effort. But in both countries attempts are being made to assess resources and needs on a national scale, to bring scientists into the policy-making process in an advisory capacity, to reconcile the long-term nature of scientific needs with the system of annual public budgets and to allocate funds in accordance with some overall scale of priorities.

At the same time both are concerned with balancing the need for a national policy with that of individual scientists for freedom in their scientific pursuits and with increasing the supply of scientifically qualified manpower without depriving students of their general cultural background or freedom of choice.

FUNDS AND STRUCTURES

Expenditure on research and development, both private and public, has been increasing rapidly in both Germany and the United Kingdom in recent years.

In Germany science has been given special priority in the federal budget and accorded a 15.4 per cent increase in funds in 1964 as against the 6 per cent growth rate of GNP which serves as a guide post. A programme of university expansion is under way; it involved an expenditure of more than $1 billion between 1958 and 1964 (75 per cent of the cost was financed by the Länder which are responsible for university education). The annual growth rate of governmental research and development expenditure in the United Kingdom has been of the order of 12 to 15 per cent during the last few yeras.

There have also been important structural changes in the two countries recently. In Germany the first step was formation of a Science Council (Wissenschaftsrat) in 1957, its members representing both the Federal Government and the Länder, the sciences and other sectors of public life. This body was charged with developing, on the basis of plans prepared by the Federal Government and the Länder, an overall plan for the development of science. So far the Council has mainly been concerned with university education, and its recommendations have provided the framework for the great effort made in this field; recently it has turned its attention to public research institutes outside the university and has made a national survey of their resources and needs.

In 1962 a Ministry of Scientific Research was created to administer federal contributions to research and education and to supervise the country's atomic and space programmes. At the present time this Ministry is responsible for roughly 65 per cent of the Federal Government's non-military science expenditures. As for the Länder, they have joined forces with one another and with the Federal Government to increase support for university education (there is a common fund for this purpose) and to support research on a national scale; in 1964 an agreement was reached under which the Länder and the Federal Government contribute equal amounts to certain national research and development programmes.

In the United Kingdom a new Ministry of Technology was created in 1964 and charged with the task of encouraging the application of advanced technology and new processes to industry. This is done through contracts with individual firms or research associations, the research stations of the Ministry and by an expansion of the new National Research and Development Corporation which, in partnership with industry, exploits inventions and encourages research. This Ministry shares the main govern-

mental responsibility for British science with a new Department of Education and Science (reorganised in its present form in 1964) which is responsible for grants to universities (through the University Grants Committee) and to research and development (through a series of Research Councils). It has been estimated that the Education and Science Department accounts for roughly 40 per cent of government funds devoted to science other than defence, the Ministry of Technology for roughly 30 per cent (the Ministry of Aviation accounts for another 20 per cent).

For each of these Ministries an advisory council has been created. The Advisory Council on Technology represents industry, science, economists and the trade unions; the Department of Education and Science has an advisory body called the Council for Scientific Policy which is made up of 14 eminent scientists, and its advisory functions are intended to extend beyond the Ministry to the national scene. identifying overall priorities, defining new points of growth and surveying the general pattern of government expenditure.

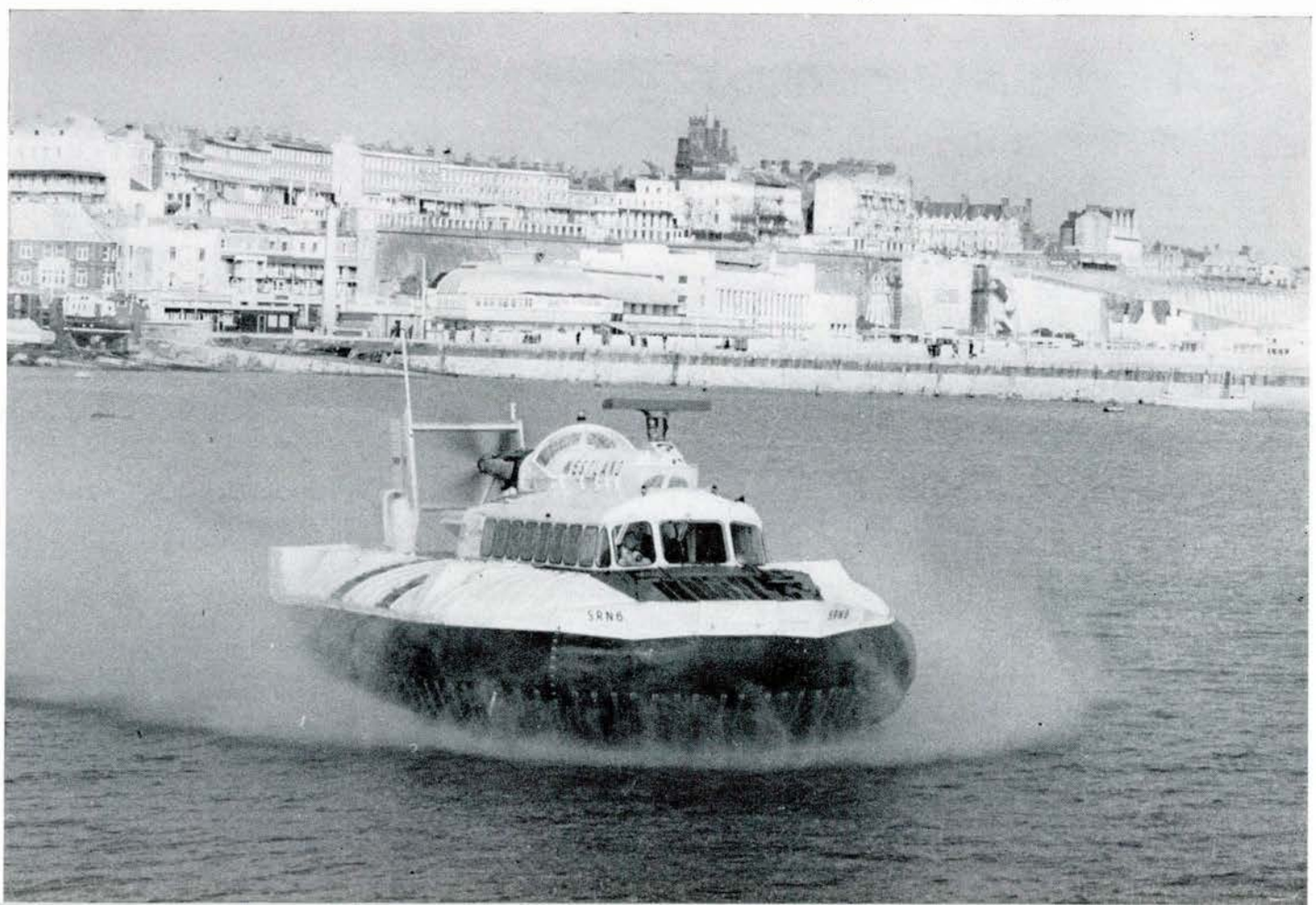
CHARACTERISTIC FEATURES

In the course of OECD's reciprocal review, certain similarities and contrasts in the functioning of research and education were noted with particular interest by the team from each country. For example, the overall expenditure on non-military research and development, including both private and public funds, seems to be about the same in the two countries — $1 billion in 1962. But defence-oriented research and development is much more important in the United Kingdom (almost $690 million in 1962 as against $100 million for Germany). Roughly 65 per cent of these funds are utilised by industry with the result that defence research accounts for about 40 per cent of all industrial research in the UK as against about 1 per cent in Germany. But quite apart from defence-related expenditure, British industry depends more heavily on government financing of its research and development effort than does German industry: approximately 97 per cent of all non-military industrial research carried on in Germany is financed by industry itself; in the UK, the figure is closer to 90 per cent.

This contrast seems to reflect a difference in policy emphasis, the UK authorities being particularly concerned with encouraging new industrial technology. In Germany, on the other hand, there is probably closer contact between industry and university research than in the UK: industry maintains research institutes at the universities; scientists and engineers from industry may teach as part-time or honorary professors, and university scientists carry out a great deal of contract and consultancy work for industry. Moreover German industrial firms are very active in carrying out research programmes of their own. Hence the German authorities tend rather to be concerned with the need for expanding the country's basic research effort, especially since it is felt that the present strength of German science-based industry is to a great extent based on fundamental research carried out in the past.

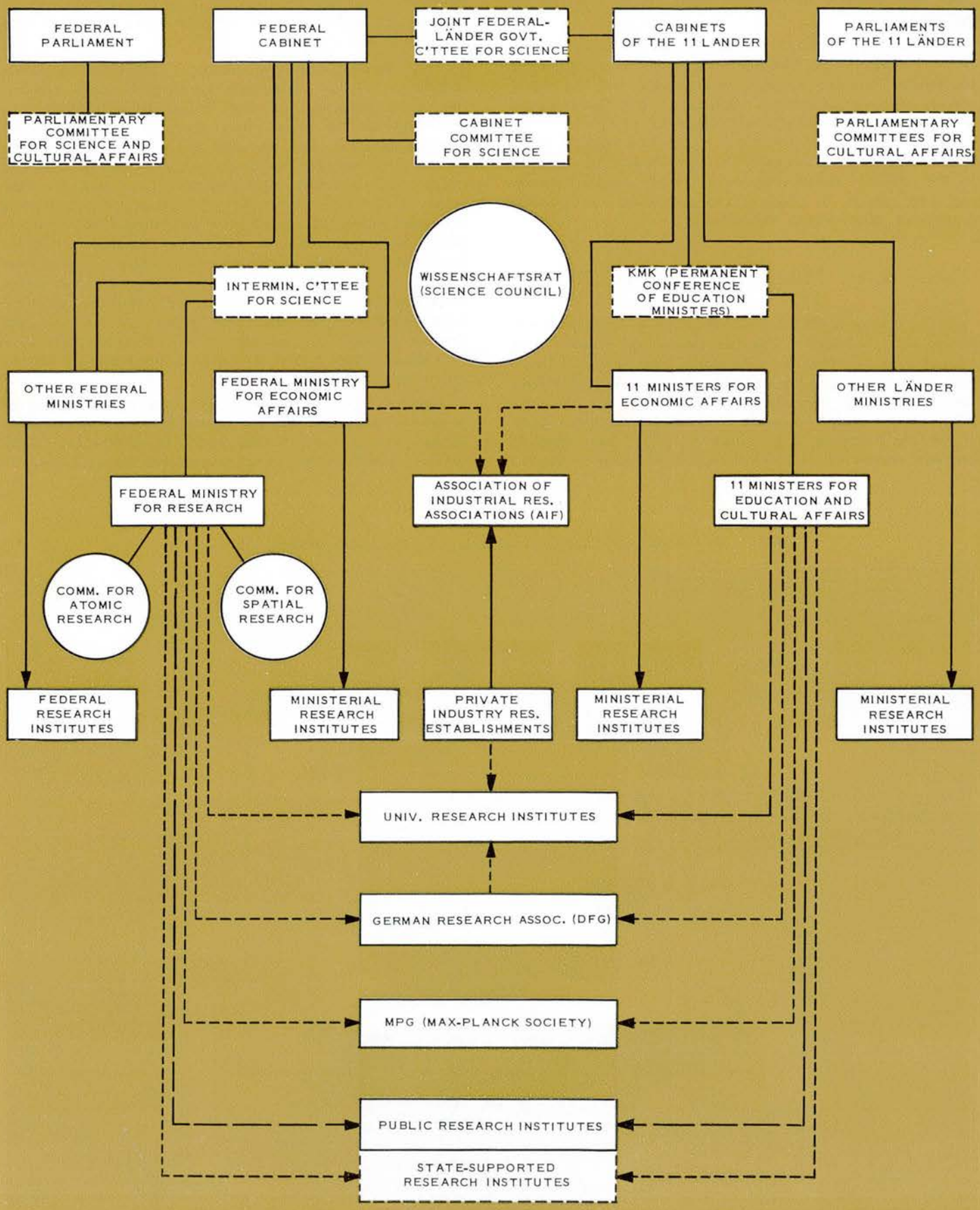
Another point of contrast concerns the financing of university research. In the United Kingdom universities receive a large part of their funds on a five-year basis whereas grants to the German universities are made annual-

" Swift ", the first cross-channel Hovercraft, heads out from Ramsgate harbour for Calais.



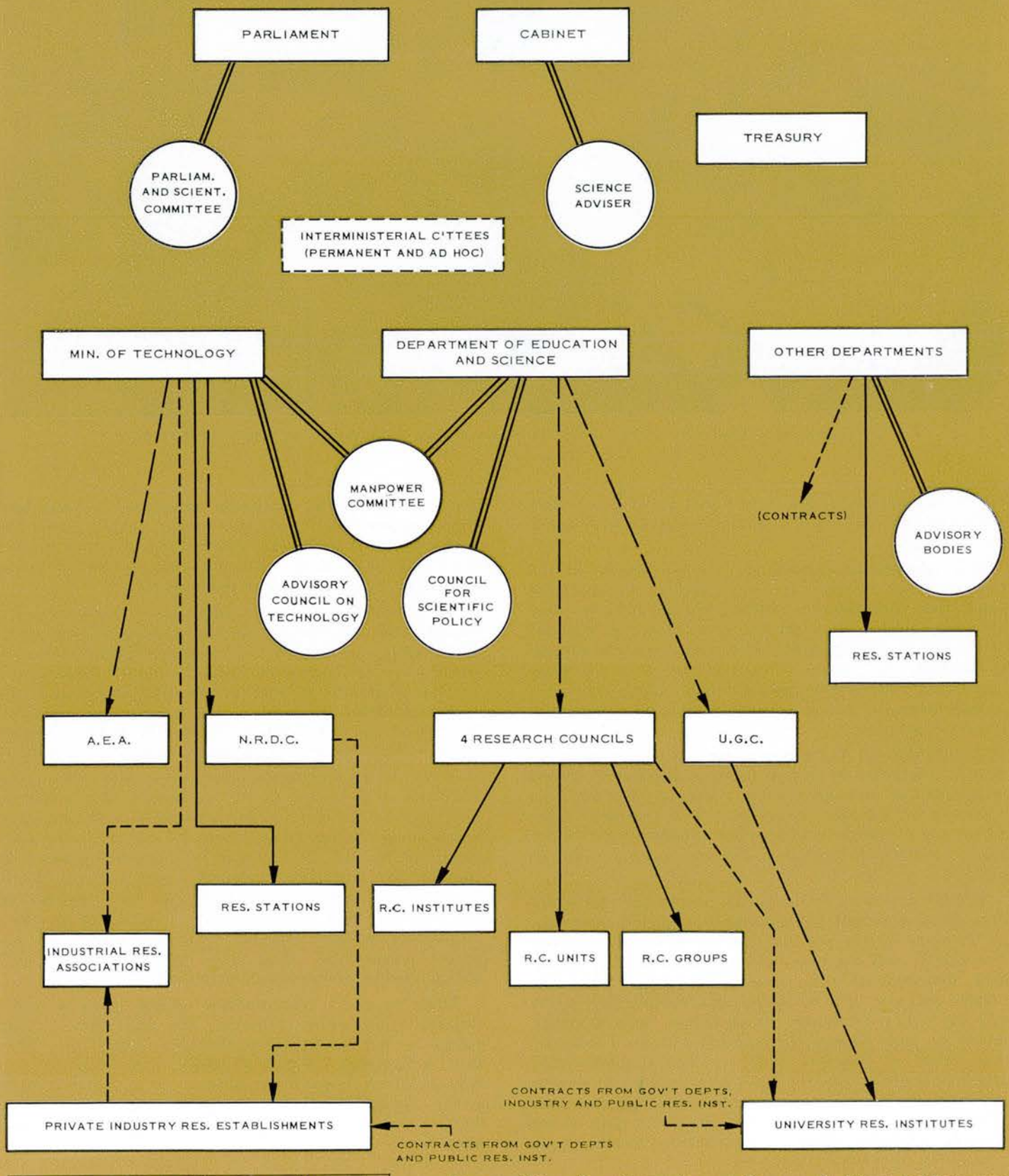
THE ORGANISATION OF SCIENCE AND TECHNOLOGY - FR OF GERMANY

In Germany governmental funds for scientific research and education are provided jointly by the Federal Government and the Länder or provinces. The Education Ministers of the Länder (there is no federal ministry of education) meet together annually in a permanent conference, the KMK, to plan jointly the expansion of universities and the financing of research. The Federal Government contributes to both. It is the Ministry of Research which at the federal level is responsible for these jointly financed projects and for atomic and space research. The autonomous national research organisations, the DFG and the MPG receive funds not only from the Federal Government and the Länder but also from private industry and has considerable latitude in allocating these funds. On the advisory level, the Science Council is a national body which represents both levels of governments, science and areas of public life.

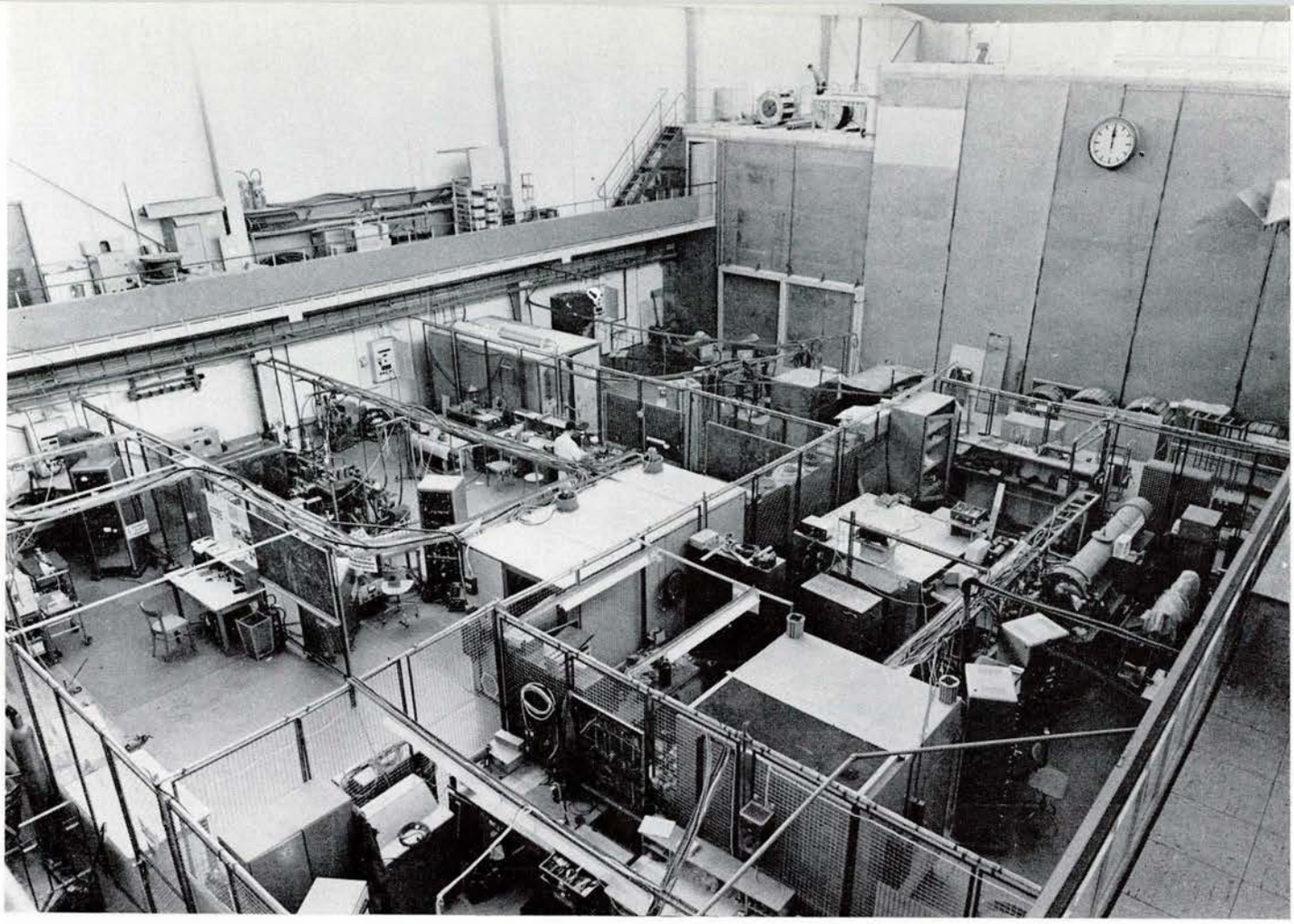


THE ORGANISATION OF SCIENCE AND TECHNOLOGY - UNITED KINGDOM

The main responsibility for scientific matters is shared by the Department of Education and Science and the Ministry of Technology, each of which has its own advisory council. The function of the latter, which was set up in 1964, is to stimulate the application of advanced technology and new processes in industry. Among the areas with which it is concerned are electronic computers, fuel cells, flexible barges and the Hovercraft. The Ministry of Technology is also responsible for atomic research and research stations in other fields of enquiry. The Department of Education and Science provides the funds for universities through its University Grants Committee and for basic and applied research through the Research Councils. The Council for Scientific Policy, composed of eminent scientists, is to make overall surveys of the country's scientific needs and resources.



Manpower C'ttee – Committee on Manpower Resources for Science and Technology
C'ttee – Committee
Res. – Research
Inst. – Institutes
Gov't Depts – Government Departments



Experimental facilities of the Jülich Institute for Plasma Physics of the Aachen Technical High School.

ly. It was felt by the two teams that the British system facilitates the long-term planning necessary for scientific projects.

The educational systems are vastly different in the two countries, British students tending to specialise earlier than their German counterparts and finishing their university studies in a shorter time. Moreover the role of the school-leaving exams in the two countries differs: in Germany the " abitur ", taken at about age 19, gives free access to the universities, while the roughly equivalent A-level exam in Britain constitutes only one element in university admission.

The differences in the two systems gave rise to considerable discussion as to how much specialisation should be required of the student before university level and how advisable is the long period of study at a time when techniques and the elements of scientific knowledge are changing so rapidly that permanent life-time education may be required.

In both countries a crucial role on the national scientific scene is played by national research organisations. In Germany, these are the German Research Association (DFG) and the Max Planck Society (MPG), organisms financed by the Federal Government and the Länder (40 per cent for each) and by private industry (20 per cent). Although these bodies have representatives of both Federal Government and the Länder on their board of directors they are legally autonomous, and their scientific directors have great freedom in allocating funds as between various disciplines and scientists. These organisms are flexible and can fill in gaps in the nation's scientific effort by establishing institutes or granting awards to individual scientists. Increasingly important are the DFG's " priority procedure " grants for which the DFG itself may take the initiative in suggesting fields of enquiry. (Recent projects are in fields as diverse as genetics and shipbuilding.)

In 1964 the DFG made on overall survey of the country's research and development needs and resources, and identified areas, particularly in interdisciplinary fields, in which there seemed to be a national gap. This survey will be taken into account by the DFG in planning its own expenditure programme, and the findings will also be utilised by the Science Council in making overall recommendations on government scientific spending.

In the United Kingdom a similar role to that of the DFG and MPG is performed by the Research Councils which, though under the authority of the Department of Education and Science, also have a great deal of autonomy in the allocation of funds. In addition to providing substantial support for university scientists (post-graduate work in particular), these councils have their own laboratories and institutes and are very active in encouraging interdisciplinary research through scientific " units " set up in the universities. (The team visited one such unit at Cambridge University for molecular biology.)

These research organisations, which have at their disposal considerable resources (the equivalent of $56 million for the German DPG and MPG and $116 million for the Research Councils in 1963-1964), illustrate the way in which, even in the absence of a formal science policy, Germany and the United Kingdom are gearing to meet national needs for scientific research and development.

OECD

a centre of economic co-operation and development

The 21 countries which make up OECD are partners in a permanent co-operation designed to harmonise national policies ; five years of experience have resulted in the structures and programmes described in the following pages.

OECD serves as :

- *an instrument for making available all knowledge relevant to the formulation of rational policy in every major field of economic activity ;*
- *a forum, in which meetings are held the year round, in which such policies may be worked out in the light of shared ideas and experiences.*

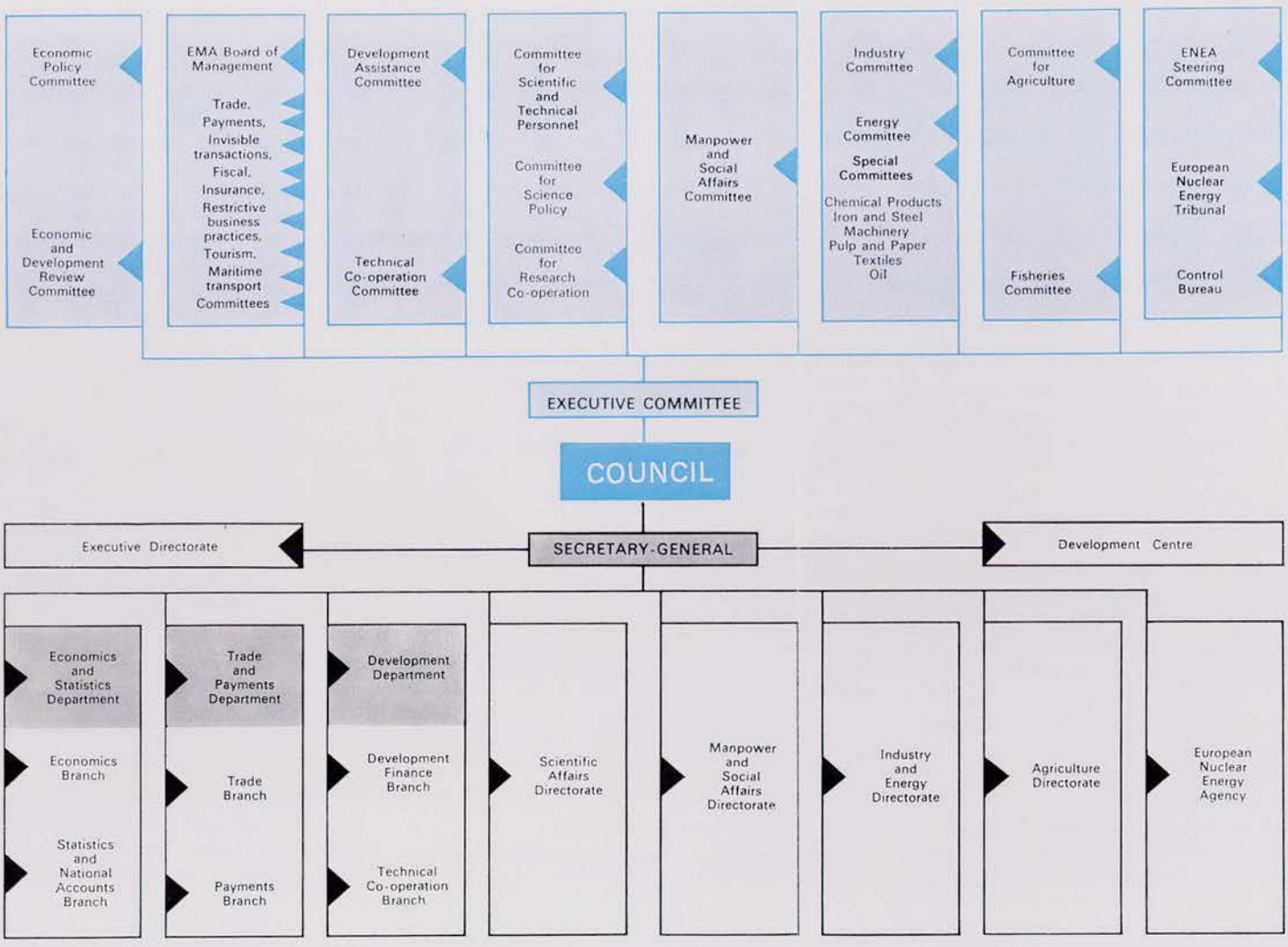
This co-operation, rooted in a sense of the growing interdependence of national economies, came into being in 1948, when a group of European countries founded OECD's parent body, the Organisation for European Economic Co-operation (OEEC), to allocate Marshall Plan Aid and to work together for post-war recovery.

The establishment of OECD on 30th September 1961 to succeed OEEC reflected a decision to broaden the scope of co-operation.

The principal goals to which OECD Members have committed themselves are :
1. to promote the highest sustainable economic growth and employment and a rising standard of living in the Member countries, while maintaining financial stability ;
2. to contribute to the sound economic expansion of both Member and non-member nations which are in the process of development ; and
3. to further the expansion of world trade on a multilateral, non-discriminatory basis in accordance with international obligations.

Membership of the Organisation

In addition to the eighteen European and two North American countries whose representatives signed the Convention of the Organisation for Economic Co-operation and Development on 14th December 1960, Japan became a full Member on 28th April 1964.
Without being full Members, Yugoslavia takes part on an equal footing with Member countries in certain OECD activities, and enjoys observer status in others ; while Finland sends observers to meetings of certain OECD bodies.
Australia, though not a Member of the Organisation, is a member of the OECD Development Assistance Committee.



OECD Publications

To the following descriptions of the activities of the Organisation, by main sectors, a selective list of the principal OECD reports and surveys published has been appended in each case as indications of the ground covered.

ECONOMICS AND STATISTICS

✷

Economic Policy Committee

A major forum for reviewing current economic trends and prospects, exchanging ideas and, when necessary, advising on appropriate courses of action. Meetings of the Committee, which take place several times a year, bring together top-level officials directly concerned with economic and financial policy formulation. More continuous and detailed scrutiny is ensured by the work of three specialised Working Parties, dealing respectively with problems of the balance of payments, economic growth, and cost and price stability.

This permanent review not only helps more enlightened policy-making in general, but has facilitated the solution of a number of temporary crises suffered by individual Member countries, thanks to the knowledge the Members have of each others' economic situation.

Economic Development and Review Committee

Equipped to conduct *ad hoc* surveys of particular problems and to carry out annual studies of the economic situation of each Member country in turn, by the use of the confrontation method — cross-examination of the country's situation and policies by a panel composed of the representatives of other Member countries.

The published Economic Surveys which emerge from these examinations may concentrate on immediate policy issues but also frequently include longer-term appraisals of the achievements and weaknesses of a country's economy and of the policy instruments developed by its authorities.

Statistics

Over 10,000 pages of statistical tables are published every year by OECD for the use of governments, members of parliament, trade associations, trade unions, research institutes and businessmen throughout the world. In carrying out this task, so essential for the Organisation's work, the Economics and Statistics Department takes care to make figures as comparable as possible. To achieve a "common language" it has to adjust national figures, convert values, weights, dimensions, etc., reclassify basic data in accordance with standardised procedures, and draw up certain series itself.

Reports and Surveys Published

- Policies for Economic Growth *and* Policies for Price Stability : *analysing the policy instruments available to governments for sustaining the general level of demand while avoiding the dangers of inflation, with particular emphasis on incomes policies.*
- The Problem of Prices, Profits and Other Non-Wage Incomes : *a study of the problems involved when an incomes policy is applied not only to wages and salaries but to other incomes as well.*
- Wages and Labour Mobility : *the role of wages in allocating labour analysed for the benefit of policy makers engaged in trying to formulate an incomes policy.*
- Techniques of Economic Forecasting : *new methods employed by OECD governments to improve the accuracy of short-term economic forecasts.*
- Country Economic Surveys : *a yearly review of economic developments in every OECD Member country (plus Yugoslavia) and commentary on policy measures taken.*
- Main Economic Indicators *and other regularly recurring statistical publications.*
- The Balance of Payments Adjustment Process : *a complement to the Group of Ten's studies on the international monetary system. Discusses the means whereby imbalances may be kept within limits and eliminated with reasonable speed.*
- Economic Growth, 1960-70 : *a mid-decade review of the achievement so far and of the prospects for fulfilling the aim of raising the combined output of OECD countries by 50 per cent during the decade.*
- The Economic Outlook : *a thrice-yearly series of articles in THE OECD OBSERVER assessing short-term prospects and policy questions.*

INTERNATIONAL TRADE AND PAYME

✷

Trade Committee

The Trade Committee, in pursuance of the objective of extending world trade on a multilateral non-discriminatory basis, conducts confrontation sessions on problems of commercial policy facing Member countries in their relations with each other and with third countries. With a view to increasing trade with the less-developed countries, the Committee serves as a major forum in which the Member countries can consider trade problems of these countries and prepare their actions along the most constructive lines. In this connection, the Committee also keeps the Organisation in touch with the work of the United Nations Conference on Trade and Development.

The Committee is undertaking work regarding problems in the field of non-tariff trade barriers (for example, those which might occur in government purchasing procedures and practices) with a view to keeping to a minimum the effects of such barriers on international trade. Specific trade problems are also discussed as they arise between two or more countries; and work is undertaken under the aegis of the Trade Committee in specialised fields such as export credits and credit guarantees.

Board of Management of the European Monetary Agreement

The Board is a restricted committee of financial experts from Member countries of the European Monetary Agreement (EMA). Representatives of the United States Government, the Managing Director of the International Monetary Fund and the Bank for International Settlements also attend the Board's meetings. The Board, apart from its general task of watching over questions of monetary and financial co-operation, is responsible in particular for supervising the execution of the EMA and advising the Council of OECD on all matters concerning the EMA. It makes recommendations to the Council concerning the granting of credits out of the European Fund, established under the EMA to assist Member countries to overcome temporary balance of payments difficulties; and the Board can itself decide, under delegated power, to grant credits for amounts up to $50 million and for periods of up to one year.

Committee for Invisible Transactions

This is a restricted Committee of ten experts who watch over the implementation of the two Codes of Liberalisation of Current Invisible Operations and of Capital Movements, which are the only Acts of the Organisation through which Member States have accepted specific liberalisation commitments. The Committee also examines to what extent it is opportune and possible to increase existing liberalisation of international exchanges in these two sectors, and is, from time to time, given special mandates on subjects which correspond to the qualifications of its members, such as the preparation of the Draft Convention on the Protection of Foreign Property and of a study on the improvement of capital markets.

Payments Committee

This committee examines all matters arising in the payments field before they are transmitted to the Executive Committee and the Council of OECD. All Member Governments of OECD are represented on it and its role is to reach a common view on the reports and recommendations of expert bodies such as the Committee for Invisible Transactions or the Board of Management of the EMA and, as appropriate, of other committees.

Insurance Committee

This plenary group discusses any problems arising in governmental insurance supervision and in the insurance industry itself. One of its principal tasks is to advise the Invisibles Committee on expansion of international insurance operations by liberalising transactions across frontiers as well as through the establishment in one Member State of insurers from another.

Fiscal Committee

The work of the Fiscal Committee in connection with international fiscal questions has until now been chiefly concerned with double taxation, on which the Fiscal Committee has drawn up two Draft Conventions respectively on income and capital and on estates and inheritances. The Committee has also prepared a report on fiscal incentives for private investment in developing countries and is surveying developments in this field.

Committee of Experts on Restrictive Business Practices

The Committee of Experts on Restrictive Business Practices undertakes a permanent review of Member countries' legislation and policies on restrictive business practices and studies the specific problems arising from the application of such legislation. It is at present studying the adverse effects of certain private restrictive business practices on international trade and is examining the possibility of establishing a procedure for co-operation with OECD with regard to such practices.

Tourism Committee

International tourism is expanding every year and the forms it takes are rapidly changing. The annual reports of the Tourism Committee provide governments with a detailed analysis of developments, in particular of tourist traffic and tourist receipts and expenditure in foreign currency, thus enabling them to make the appropriate adjustments in their tourist development policies and programmes.

Maritime Transport Committee

This Committee is responsible for consultations concerning the relevant policies of Member and non-member countries and for keeping the Organisation informed of significant developments in this field and regarding maritime transport generally. The general structure of maritime transport is undergoing a marked transformation, consequent on the increased sizes of certain vessels and the development of rationalisation and automatic techniques. The Committee studies and reports on all aspects of this evolution.

The Consortia for Turkey and Greece

The Consortium for **Turkey** was set up 1962 under the aegis of OECD to provide assistance for the long-term economic development of Turkey. There are at present fifteen members of the Consortium including almost all the developed countries in OECD. The International Bank for Reconstruction and Development is also a member. The International Monetary Fund and The European Investment Bank attend as observers.

The Consortium exercise is a special activity of OECD in addition to the normal work of the Organisation with regard to Turkey as one of its Member countries. Financial support for Turkey's development efforts through the Consortium during the first three years, from 1963 to 1965, amounted to some $900 million as regards agreements for aid and to some $700 million in disbursements.

The Consortium for **Greece** was also set up in 1962 with the same purpose of providing long-term assistance to that country. Eleven OECD Member countries are at present members of the Consortium, while the International Bank for Reconstruction and Development participates in the Consortium's work without being a full member. The European Investment Bank and the International Mo
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Reports ar Publi

- Code of Liberalisat
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Invisible Operations :
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- The Annual Report b
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- "The European Mo
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published.*)
- Draft Double Taxat
Income and Capital
Inheritances : *model
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between Member coun*
- Fiscal Incentives for
Member Countries : *fiscal
been or might be taken
governments to encourag
in developing countries.*
- Guide to Legislation
ness Practices in Europe
*new legislation, admin
decisions reviewed and
to date.*
- Supervision of Private
*a comparison of rules an
in Member countries with
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ance business.*
- Tourism in OECD
*trends year-by-year and
to encourage internation
general and national tou*
- Maritime Transport Co
port : *Activities of the
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governmental activities in
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DEVELOPMENT AID

✶

Development Assistance Committee

OECD is concerned not only with economic relations between its own Members but also with development of the less-developed countries of the remainder of the world. Members of OECD supply about 90 per cent of the net flow of assistance and private investment to the less-developed countries. The principal providers of assistance among the OECD Members co-operate in the Development Assistance Committee (DAC).

The DAC is concerned with problems of increasing the volume of development assistance; of indebtedness of the less-developed countries and the appropriate terms of assistance; and of increasing the effectiveness of assistance, both capital and technical, through exchange of information on policies and procedures and co-ordination of assistance efforts.

A central working method of the DAC is the Annual Aid Review, in which each country's aid programme is submitted to detailed examination and discussion. The DAC also holds meetings on particular subjects of current concern. Some discussions have led to formal recommendations to Members — e.g. on Assistance and Development Efforts and on Financial Terms and Conditions (July 1965) and on Food Problems of Less-Developed Countries (July 1966).

Technical Co-operation Committee

OECD has put into operation a limited programme designed to assist certain of its European Member countries, together with Yugoslavia, in the development of their economies.

OECD Development Centre

In order to transfer to developing countries the knowledge and experience acquired by the Organisation in the different fields of economic development, and thus to aid their own growth efforts, OECD has set up a scientifically independent body, the Development Centre. The Centre has undertaken to carry out, both through its own efforts and in stimulating the co-operation of development, research and training institutions, a programme consisting in the main of : research on economic problems selected from among the most important of those faced by developing countries; advanced training for senior officials from these countries; special sessions devoted to the transfer of experience on selected subjects; and the provision of documentary information in reply to specific questions raised by economic policy makers in developing countries, and the gradual establishment of an international documents network.

Reports and Surveys Published

- Development Assistance Efforts and Policies : *a yearly survey of the size and nature of the aid flow and the main features of donor countries' policies.*
- The Flow of Financial Resources to Countries in Course of Development, 1956-1963 : *the long-term trends.*
- Government Finance and Economic Development : *fiscal policy applied to the problems of developing nations; the present state of knowledge.*
- Foreign Skills and Technical Assistance in Economic Development : *policy proposals for more effectively organising this form of aid.*
- Foreign Aid Policies Reconsidered : *the historical motives for national aid policies and public opinion on foreign aid.*

Manpower and Social Affairs

✶

Manpower and Social Affairs Committee

An active manpower policy, advocated by OECD as a means for promotion of economic and social progress, includes measures to facilitate the occupational and geographic adaptation of workers to the ever-changing needs of the economy, to draw disadvantaged groups into gainful occupation, and to create employment opportunities in labour surplus areas.

The Manpower and Social Affairs Committee is the OECD body in which ideas and experiences of the different countries in this field are discussed. For this purpose, the Committee gathers annual reports from Member governments, centred on policy innovations. Individual Member countries are examined in a more thorough-going way in order to analyse valuable policy methods which could benefit other countries, and to provide the country studied with constructive criticism. With a view to assisting governments in the development of national policies the Committee also sponsors investigations of particular problems : employment and mobility of manpower, vocational training, employment forecasting, social aspects of change and economic growth, development of levels of living, etc.

Reports and Surveys Published

- Manpower Policy and Problems : *a series of comprehensive and critical studies of Sweden, the United States, Greece and Canada; Italy, Austria, the Netherlands and the United Kingdom to follow.*
- Workers' Attitudes to Technical Change : *a sociologist's analysis for use by the practical policy maker.*
- Employment of Older Workers : *job redesign, placement techniques and other measures to facilitate the employment and increase the productivity of older workers.*
- Office Automation : *administrative and human problems; case studies to minimise conflict and maximise efficiency.*
- Accelerated Vocational Training for Adults : *a comparative study carried out in Belgium, France, the Netherlands and the United Kingdom.*
- Guidelines for Programmes for Area Economic and Social Redevelopment : *policies for distressed areas and those slated for development.*
- Women workers, Working Hours and Services : *policies that encourage female employment without neglect of home and family.*
- National Rural Manpower : *adjustment to industry.*
- The Training of Skilled Workers.
- Retraining and Further Training.
- Demographic Trends (3rd Survey).
- Forecasting of the Active Population by Occupation and Level of Skill.
- Employment Forecasting.
- Reports on Management and Trade Union Seminars on active manpower policy, economic and social programming, manpower mobility, adaptation of rural and foreign workers to industry, automation, older workers, public employment service, non-wage incomes and prices policy.

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Agriculture. Food - Fisheries

✶

The Committee for Agriculture

is concerned :

- with the adjustment of agricultural policies in the context of a rapidly expanding economy — to this end its Working Party on Agricultural Policies carries out confrontations of agricultural policies and studies of special problems;
- with the short-term market outlook, the long-term problem of adjusting production and demand, and the promotion of trade;
- with programmes aimed at stimulating the adaptation of farm structures, education, research, advisory services and marketing;
- with technical assistance to Member countries in process of economic development.

The Committee is also paying increasing attention to the implications for OECD of food problems in the rest of the world and is co-operating closely with the Food and Agriculture Organisation and other interested bodies in OECD.

Reports and Surveys Published

- Low Incomes in Agriculture : *identifies low income groups in agriculture, indicates the causes of their weak economic situation and outlines policies which countries can follow to solve the problem.*
- Interrelationships Between Income and-Supply Problems in Agriculture : *the dual aspect of the farm problem — low incomes and supply-demand imbalances — and policies to deal with it.*
- Food Aid — its Role in Economic Development : *the extent to which food aid programmes can contribute to economic growth in less-developed countries, and implications for policies in OECD countries.*
- Documentation in Agriculture and Food — *a series of publications on various subjects such as manpower problems, rural development, marketing, advisory work, education, etc.*
- Agriculture and Economic Growth : *a report by a panel of independent experts on the adjustments required of agriculture in a growing economy.*

The Committee for Fisheries

Besides catching about half of the world fish landings, OECD Member countries provide a major market for fish and fish products. It follows that the Committee is closely concerned in economic developments affecting national and international fisheries. This is reflected in their work covering confrontation of fishing policies, exploitation of the sea's fishery resources, utilisation, marketing, and international trade in fishery products.

Reports and Surveys Published

- Financial Support to the Fishing Industry : *surveys, subsidies and other aid given in the renewal of fishing fleets and other sectors of the industry.*
- Price Systems in the Fishing Industry : *describes the various methods of price determination and examines their impact on international trade.*

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Industry and Energy

✶

Industry and Special Committees

The Industry Committee and the Special Committees which cover five major industrial sectors (iron and steel, textiles, chemical products, engineering products, pulp and paper) are responsible for studying and discussing industrial problems which require co-operation and confrontation among Member governments.

Problems arising from the industrial policies of Member countries have in particular been dealt with in the Industry Committee's working parties on depressed sectors, ship-building, regional development and industrial investments. In addition to their basic tasks of keeping their sectors under constant observation, reporting on their developments and prospects and detecting any nascent problems calling for inter-governmental action, the Special Committees have directed their attention to certain topical problems in their respective fields, such as : problems created by excess capacity (iron and steel); adaptation to the rapidly growing production in less industrialised countries (textiles); changing structure of organic chemicals industry (chemical products); technical regulations hampering the expansion in trade (engineering products); advance notice of capacity development and observation of stock variations (pulp and paper).

Energy and Special Oil Committees

The energy policies of Member countries are systematically studied at confrontations organised by the Energy Committee. The Committee's analysis of events and acquired experience helps it to harmonise measures to balance the estimated trend of supply and demand in the energy sector in Western Europe, North America and Japan.
The Special Committee for Oil keeps the oil policy of its members under review and contributes to the growth of the economy in general by detecting any factors in its own sector likely to affect growth.

Reports and Surveys Published

- Energy Policy, Problems and Objectives : *governments' influence and responsibilities in meeting future requirements of Western Europe, North America and Japan, and in solving foreseeable problems.*
- The Situation in the Shipbuilding Industry : *problems caused by distortion of competition; a survey of government measures to assist the shipbuilding sector.*
- Oil Today - 1964 : *a greater dependence on oil imports and the policy issues facing OECD Member governments.*
- The Gas Industry - 1964 : *the rapid growth of output, in particular of natural gas to affect fuel and power structure.*
- The Chemical Industry in European Member Countries of OECD : *a long-range view of the fastest growing large manufacturing industry.*
- The Engineering Industries in North America, Western Europe and Japan : *a review of trends in the key sector for Member countries' economies and for the development of the less industrialised world.*
- Modern Cotton Industry : *the change from a labour-intensive to a capital-intensive industry.*
- Iron and Steel Industry : *a comprehensive study of a sector in full structural evolution.*
- Pulp and Paper : *annual survey of a sector with incipient over-capacity problems.*

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Nuclear Energy

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The European Nuclear Energy Agency (ENEA) was set up in December 1957 to develop collaboration among the countries of Western Europe in the use of nuclear energy for peaceful purposes. ENEA groups the 18 European Member countries of OECD. Ca-

(continued on page 42)

OECD Membership

Member countries

Special status

Member of DAC

nada, Japan and the United States are Associate Members of the Agency, and Euratom also takes part in its work.
The objectives of ENEA are :

● Creation of joint undertakings, joint research programmes, and common services. Three major joint undertakings — the Eurochemic fuel reprocessing company at Mol in Belgium, the Halden boiling heavy water reactor project in Norway, and the Dragon high-temperature reactor Project at Winfrith in the United Kingdom — are in operation. A joint research programme on food preservation by gamma radiation is being carried out at Seibersdorf in Austria : a special study is being made of European possibilities for producing and using radio-isotopic power sources. The ENEA Neutron Data Compilation Centre at Saclay (France), and the ENEA Computer Programme Library at Ispra (Italy) have been in operation since 1964. A European information centre on food irradiation, jointly sponsored by ENEA and the French Commissariat à l'Energie Atomique, has been in operation since 1960.

● Establishment of international expert committees in specific fields. Three such committees, the European-American Nuclear Data Committee (EANDC), the European-American Committee on Reactor Physics (EACRP), and the Committee on Reactor Safety Technology (CREST) have been in operation since 1959, 1962 and 1965 respectively; in June of this year (1966) an international group of specialists in MHD power generation was set up under the aegis of ENEA.

● Development in Western Europe of a uniform regulatory and administrative regime for atomic energy — especially for health and safety (basic protection norms against radiation have been established and adopted by ENEA Member countries); nuclear liability (an international Convention has been signed by nearly all Member countries); and the transport of radioactive materials.

● Study of both the immediate and long-term contribution of nuclear power to Europe's expanding energy demands, in particular the type of reactor system likely to be used in meeting these demands, and the corresponding requirements for nuclear fuel.

Reports and Surveys Published

● *Activity Reports of the Agency itself and of the Joint Undertakings (Halden, Dragon, Eurochemic).*

● *Results of specific scientific or technical enquiries* (World uranium and thorium resources, power reactor characteristics).

● *Proceedings of scientific and technical conferences and symposia* (fuel reprocessing, criticality, dosimetry, nuclear electronics, magnetohydrodynamic power generation).

● Radiation protection norms.

● *Annual* Catalogue of courses in nuclear science and technology in European countries of OECD.

● *The Saclay Neutron Data Compilation Centre, the Ispra Computer Programme Library, and the Saclay Food Irradiation Information Centre publish Newsletters and other material.*

Science and Education

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Committee for Science Policy

Following the two Ministerial Meetings on Science organised on OECD initiative in 1963 and 1966, a Committee for Science Policy has recently been established within the Organisation as a means of ensuring continued co-operation among Member countries on various aspects of science policy, both national and international. These include the confrontations of national science policies, the link between science and economic growth, the role of technological innovation, standardised statistics on Research and Development, science in developing countries and governmental policies for fundamental research and the social sciences.

Committee for Research Co-operation

Under the new arrangements for the scientific activities of the Organisation a Committee for Research Co-operation has been set up to continue the work of the former Committee for Scientific Research relating to international co-operation in scientific and technological research. The growing extent and rising cost of research has made it increasingly necessary for international confrontation and pooling of efforts. A practical mechanism evolved in OECD makes it possible for countries interested in a particular large scale project to contribute their own research facilities as part of a joint research programme.

Committee for Scientific and Technical Personnel

The programme of this Committee concentrates on educational planning and development problems. Following the Washington Conference in 1961, where European educational targets were set for a period of ten years, the Committee launched two major programmes in educational planning, the Mediterranean Regional Project and the Educational Investment and Planning Programme to meet the needs of its developing and the more industrialised Member countries respectively. Parallel with this work, which is based on national groups, research is being carried out into various aspects of the link between education and economic growth, as well as statistical and methodological studies for educational investment planning. Other activities include science education, educational building, supply and demand of teachers, the training and utilisation of scientific and technical personnel.

Reports and Surveys Published

● Proposed Standard Practice for Surveys of Research and Development, *a framework to facilitate international comparisons of R and D statistics and to stimulate work in this area in OECD countries.*

● Review of National Science Policy in Belgium, France, Greece, Sweden *and a comparison of* Germany *and* the United Kingdom.

● The Research and Development Effort in Western Europe, North America and the Soviet Union : *an international comparison of research expenditures and manpower.*

● Fundamental Research and the Policies of Governments *and other studies prepared for Ministers' attention including reports on social sciences, governments and technical innovation, allocation of resources to science.*

● The Pollution of Water by Detergents : *description of international co-operation in research ; other publications describe such research in a wide variety of other fields.*

● The Residual Factor and Economic Growth ;

● Economic Aspects of Higher Education ;

● Financing of Education, *and*

● Organisational Problems in Planning Educational Development : *attempts to isolate and quantify the contribution of education to economic growth, and explore policy issues involved in educational development.*

● Forecasting Educational Needs, Planning Education for Economic and Social Development, *and* Econometric Models of Education : *basic methodological approaches to educational planning and some of their applications.*

● Handbook of Statistical Needs for Educational Investment Planning (*to be published early in* 1967), *a study of the statistical implications of recent developments in educational planning, and recommendations for the improvement of educational planning statistics.*

● The Mediterranean Regional Project : *an endeavour by six countries to assess their educational needs up to* 1975 *and arrive at detailed plans to meet these needs ; a summary description of the Project and* Country Reports for Greece, Italy, Portugal, Spain, Turkey *and* Yugoslavia *have been published in this series.*

● School Building Resources and Their Effective Use : *a comprehensive analysis of the issues and underlying concepts involved in the effective use of school building resources with special emphasis on the inter-relationships between financial, educational and architectural considerations.*

● New Thinking in School Mathematics : *helps in bringing school curricula up to date. Fields covered in other publications include biology, chemistry, physics and mathematics for engineers.*

THE BALANCE OF PAYMENTS PROBLEM

This article, by Harry Travers, Head of the International Payments Division of OECD, explains the problems underlying the necessity of better balance of payments equilibrium and the relevance of current developments and proposals concerning "multilateral surveillance", the "adjustment process", reform of the international monetary system, the liquidity problem and the improvement of capital markets. It also gives facts and figures about the balances of payments of OECD countries, drawn from the 7th Annual Report of the Board of Management of the EMA, which has just been published.

Country after country in recent years has had to take drastic stabilisation measures giving priority, over other economic policy aims, to the restoration of balance-of-payments equilibrium. Italy, at the end of 1964, and the United Kingdom, in July 1966, are striking examples. In the leading article of this issue, Mr. Kristensen, Secretary-General of OECD, has placed the balance of payments problem at the centre of OECD's work.

It is a reflection of problems which arise in the three fields of economic policy and development, defined by the Secretary-General, in which it is the OECD's task to find constructive solutions : each Member country's internal economic and social evolution; its economic relations with other Member countries; and the joint responsibility of OECD countries vis-a-vis the rest of the world. In each of these three fields one can distinguish a group of problems connected with the balance of payments.

International Economic and Social Evolution

The first group concerns each government's task of selecting the methods and priorities applied in its domestic economy and the ways and means of steering that economy towards a broad range of objectives shared by all Member countries, such as full employment, satisfactory growth and the avoidance of inflation. In so doing the government has to recognise the necessity of maintaining a reasonable balance in the country's external transactions; and in order to be in a position to manage effectively the economy, it has to know the policies and reactions of other governments and to be able to count on their support.

There is general recognition of the desirability of international confrontation of policies, exchange of information and positive co-operation, but there is not such full awareness of the fact that these are much more than useful ways of acting; they are indispensable. Present economic conditions are characterised by generally high levels of resource utilisation, of employment and of aggregate demand. In these conditions a change in the demand/supply situation in one economy is likely to lead to sensitive inter-reactions with other economies. These effects are communicated easily owing to the wide liberalisation of trade, payments and capital movements. Structurally, also, the national economies have become much more interdependent, because in most industrialised countries international transactions have grown to represent a high proportion of the total output of goods and services and/or have come to have a very powerful influence on the balance and growth of the economy.

This interdependence is still being reinforced by the growth of vast international markets for short and long-term private capital and the international investment boom encouraged by closer economic relations in the Common Market and the European Free Trade Area. With increasing competition throughout the world for a rather inelastic supply of capital, co-operation and harmonisation in the investment field is becoming a necessity.

In such conditions slight differences between countries in the timing of the changes in demand/supply conditions, or in the timing of counter-inflationary or expansionary measures, frequently produce strong " push-pull " effects between the economies concerned. This is illustrated by recent changes in the trade balances of France, Italy and Germany (a substantial part of their overall trade being with each other). In 1965, France and Italy, under the effects of the stabilisation measures begun in 1963 and 1964, increased their total *exports* by, respectively, $ 1.0 billion (13 %) and $ 1.2 billion (21 %), while their imports changed little. At the same time, Germany, where there was a sharp increase in demand pressures, increased its *imports* by $ 2.6 billion (21 %, compared with 12 % in 1964), while its exports rose by only 10 % as in the previous year.

The changes in the trade balances of these three countries had been in the opposite directions in 1963 when demand pressures and prices were higher in France and Italy than in Germany. Similar " push-pull "

effects apply in the case of short and longterm capital movements, influenced by interest rate and profitability differences between countries.

Even for a country to achieve particular aims or effects of domestic economic policy, such as the tightening or easing of credit, or the maintenance of a high average use of capacity in a particular sector without risking excessive pressures on supplies, it has to have good knowledge of policies and trends in other countries and to confront its policies with those of other countries so as to ensure that they are mutually supporting and not contradictory.

Moreover, the continuance of high growth rates and substantial increases in international trade will depend more and more on international specialisation and increased mobility of labour, and on a greater exchange of capital investment and "know-how", all fields in which close co-operation between nations is required. The OECD countries' combined gross national product increased at an average annual rate of nearly 5 % in 1961-65 and their total imports and exports have increased by 10 to 12 % a year in 1964, 1965 and, very probably, in 1966. The faster increase in international trade relative to GNP implies that avoidance of balance-of-payments difficulties will be an increasingly critical factor in achieving a 4 to 5 % growth rate.

A necessary preliminary to a greater exchange of capital is the efficient functioning of the domestic capital markets; and the OECD is carrying out a detailed study of ways of improving the capital markets of the Member countries with a view to increasing the availability of savings for investment and promoting balance in international payments.

International Economic Relations

The second group of problems concerns international adjustment and harmonisation rather than the management of the domestic earning. Just as a country cannot exert really effective control over its internal economic progress except with the knowledge and support of its partners' policies, so also, when its external payments position begins to swing out of balance, it must have that knowledge and support in order to be able to make the adjustments which will ensure that the swing will not be too great or too long-lasting.

The problem is to avoid not only the damage and interruption of economic progress that would be caused by too sudden or harsh adjustments in the country where the external imbalance is growing, but also the inevitable damage to other countries if that imbalance is allowed to become too great or continue for too long. This is the "adjustment process" problem, that of assuring the harmonious economic development of all Member countries, and especially of the major trading nations.

This problem has (at the request of the Finance Ministers and Central Bank Governors of the Group pf Ten (1) and as a complementary study to the one

(1) *The "Group of Ten" are the countries signatory to the "General Arrangements to Borrow" of the I.M.F. : Belgium, Canada, France, Germany, Italy, Japan, the Netherlands, Sweden, the United Kingdom and the United States. Switzerland is associated with the Group.*

COUNTRY	Year	Current balance (1)
		a
AUSTRIA	1962-64	+ 79
	1965	— 53
BLEU	1962-64	+ 124
	1965	+ 200
DENMARK	1962-64	— 414
	1965	— 177
FRANCE (Metropolitan)	1962-64	+ 1,496
	1965	+ 545
GERMANY	1962-64	+ 2,412
	1965	— 650
GREECE	1962-64	— 438
	1965	— 283
ICELAND	1962-64	— 5
	1965	
IRELAND	1962-64	— 188 (6)
	1965	— 123
ITALY	1962-64	+ 319
	1965	+ 2,296
NETHERLANDS	1962-64	+ 87
	1965	+ 39
NORWAY	1962-64	— 401
	1965	— 88
PORTUGAL (Escudo Area)	1962-64	— 40
	1965	— 16
SPAIN	1962-64	— 125
	1965	— 499
SWEDEN	1962-64	+ 39
	1965	— 258
SWITZERLAND	1962-64	— 1,097
	1965	(— 100)
TURKEY	1962-64	— 648
	1965	— 82
UNITED KINGDOM	1962-64	+ 575
	1965	+ 106
CANADA	1962-64	— 1,565
	1965	— 966
UNITED STATES	1962-64	+ 17,014
	1965	+ 5,963
JAPAN	1962-64	— 1,056
	1965	+ 1,025
TOTALS	1962-64	+ 22,100
		— 6,000
	1965	+ 10,200
		— 3,300
	1962-65	+ 30,500
		— 7,500

NOTES : 1. Excludes official grants. 2. Includes official grants and repayment of debts or claims arising out of liquidation of EPU. 3. Includes advance repayment of loans and, for the U.S., certain transactions with foreign monetary authorities, mainly advance payments received for armaments and liquification of the U.K.'s dollar securities portfolio (in 1965). 4. Mainly private, but includes some official transactions. As

BER COUNTRIES' BALANCES OF PAYMENTS IN 1962-64 AND IN 1965

(Millions of US dollars)

Ordinary long-term capital movements		Basic balance	Extraordinary capital movements (3)	Recorded short-term capital movements (4)	Errors and omissions	Balance Settled by official monetary transactions
public (2)	private					
b	c	d = a + b + c	e	f	g	h = d + e + f + g
+ 56	+ 218	+ 353	—	+ 22	+ 97	+ 472
— 17	— 30	— 100	—	+ 67	+ 32	— 1
— 122	+ 214	+ 216	—	+ 182	+ 50	+ 448
— 130	+ 134	+ 204	—	— 30	— 12	+ 162
+ 198	+ 299 (7)	+ 83	—	+ 222	+ 60	+ 363
+ 9	+ 126 (7)	..	—	— 73	+ 55	— 60
— 439	+ 1,445	+ 2,502	— 864	+ 65	+ 654 (5)	+ 2,357
— 96	+ 361	+ 810	— 179	— 344	+ 422	+ 709
— 3,357	+ 1,154	+ 209	—	+ 112	+ 389	+ 710
— 1,163	+ 526	— 1,287	—	+ 454	+ 479	— 354
+ 227	+ 293	+ 82	—	+ 60	— 75	+ 67
+ 51	+ 170	— 62	—	+ 27	+ 2	+ 33
+ 11	+ 15	+ 21	—	+ 8	+ 2	+ 31
+ 38 (7)	+ 248 (7)	..	—	+ 51	—	+ 149
+ 75 (7)		..	—	+ 12	—	— 36
— 106	— 550	— 337	— 178	+ 487	— 223	— 251
+ 6	— 122	+ 2,180	—	— 1,038	— 182	+ 960
— 92	+ 65	+ 60	— 100	+ 295	+ 150	+ 405
— 27	+ 2	+ 14	—	+ 132	— 73	+ 73
+ 13	+ 420	+ 32	—	+ 47	+ 5	+ 84
+ 1	+ 187	+ 100	—	— 40	+ 29	+ 89
+ 156	+ 167	+ 283	—	— 13	+ 9 (5)	+ 279
+ 33	+ 44	+ 61	—	— 3	— 4	+ 54
+ 29	+ 587	+ 491	—	+ 98	+ 145	+ 734
— 12	+ 319	— 192	—	+ 29	+ 49	— 114
— 69	+ 32	+ 2	— 16	+ 3	+ 241	+ 230
— 18	+ 73	— 203	—	— 7	+ 217	+ 7
..	..	..	..	..	+ 1,461	+ 364
..	..	..	..	..	(+ 225)	+ 125
+ 457 (9)	+ 94	— 97	—	+ 46	— 68	— 119
+ 124 (9)	+ 27	+ 69	—	—	— 42	+ 27
— 2,066	— 821	— 2,312	—	+ 692	+ 121	— 1,499
— 714	— 384	— 992	—	+ 339	+ 294	— 360
— 89	+ 1,842	+ 188	+ 85	— 185	+ 515 (8)	+ 603
— 61	+ 538	— 489	—	+ 201	+ 433	+ 145
— 11,284	— 10,222	— 4,492	+ 2,671	— 1,114	— 3,361 (10)	— 6,296 (10)
— 3,596	— 4,118	— 1,751	— 75	+ 1,057	— 533	— 1,302
— 327	+ 803	— 580	—	+ 942	+ 61	+ 423
— 219	— 282	+ 524	—	— 350	— 51	+ 123
+ 1,200	+ 7,900	+ 4,600	+ 2,800	+ 3,300	+ 4,000	+ 7,700
— 17,900	— 11,600	— 8,900	— 1,200	— 1,300	— 3,700	— 8,100
+ 300	+ 2,500	+ 4,000	—	+ 2,300	+ 2,200	+ 2,500
— 6,100	— 4,900	— 5,300	— 200	— 1,900	— 900	— 2,300
+ 1,400	+ 10,100	+ 6,900	+ 2,700	+ 3,400	+ 6,000	+ 9,300
— 23,900	— 16,200	— 12,500	— 1,300	— 900	— 4,500	— 9,500

far as possible, it includes net changes in assets and liabilities of commercial banks vis-à-vis private non-residents and excludes those vis-à-vis foreign central monetary institutions which are included in column h. 5. Includes balance with Overseas Territories. 6. Includes errors and omissions. 7. Includes some short-term capital. 8. Residual : includes some official monetary transactions. 9. Includes capital repayments of foreign debt, except to I.M.F. and European Fund. 10. Figure in colum h is " balance on official reserve transactions basis " (shown in Survey of Current Business). To reconcile this with the sum of the other columns an adjustment is made to " errors and omissions ", column g. N.B. For further details see Seventh Annual Report of Board of Management of E.M.A., tables 38-41.

undertaken by the Group of Ten itself on improvements in the international monetary system) been examined over the past year by Working Party 3 of the Economic Policy Committee of OECD, whose report has just been published (August 1966). This report analyses the more common causes of imbalances, pointing out that several may be present at the same time and that it is often extremely difficult to make a diagnosis. It sets out some agreed principles, or rules of prudence, as to appropriate adjustment policy in differing circumstances. It notes that, while there are automatic mechanisms which tend to restore external balance, these do not generally dispense with the need for deliberate economic policy.

Left to themselves, the automatic mechanisms might seriously interfere with internal policy objectives, their effects might be too small or too large, and, since their impact differs greatly from country to country, there is little reason to suppose that the burden of adjustment would be equitably shared between surplus and deficit countries.

Finally, this Report outlines the directions in which improvements in the " adjustment process " should be sought. At the *national level :* the range, flexibility and selectivity of the fiscal and monetary policy instruments need to be improved; there should be greater assurance of price stability through incomes policies or in other ways; the domestic capital markets should function more efficiently, and there should be greater freedom of access to them; and national statistics can be greatly improved (balance-of-payments data are often available only after a long delay and many countries still lack quarterly national accounts).

At the *international level*, the procedures for international consultation and co-operation through Working Party 3 (" multilateral surveillance ") are to be strengthened in the following ways : countries' aims regarding their balance of payments will be examined for mutual consistency; countries' short-term forecasts of their balance of payments will be regularly reviewed in order to be able to anticipate changes in trade and payments trends; as soon as there is evidence of an actual or potential imbalance there will be a collective evaluation of the situation of the country or countries concerned, so that they are prompted to take earlier and more effective action; the procedures under which national policies are confronted in Working Party 3 and are subject to a critical evaluation of their appropriateness from the point of view of the country concerned and of their impact on other countries are to be improved. In these confrontations, it will be possible in future to draw on the agreed set of general principles concerning the appropriate policy mix and the respective responsibilities of surplus and deficit countries.

Joint Responsibility of OECD Countries

The third group of problems concerns the OECD countries' joint responsibility for ensuring that the development of the world economy is not hindered by balance-of-payments difficulties and, more generally, that the international monetary systems work smoothly and efficiently. As the OECD countries account for 70 % of total world imports and exports and hold 80 % of the free world's gold and foreign-exchange reserves, they have a very large stake in the satisfactory functioning of that system. Their co-operation in achieving a better adjustment process is a necessary condition for the proper functioning of the system, but they also have to exert a positive influence on it so that it is responsive to the liquidity needs of the expanding world economy.

The system has to provide enough liquidity to finance temporary imbalances and to absorb increases or decreases in the desire of central institutions (and private individuals) to hoard liquid assets. It should not provide so much liquidity that the constraints of adjustment are weakened; there must be sufficient " bite " when reserve losses occur so as to strengthen the resolve of the authorities in the country concerned to take the necessary adjustment measures and so that these measures get the support of the public.

This problem is not simply one of the quantity of liquidity. Liquidity has to be provided in appropriate forms and subject to a system of checks and balances. As the provision of liquidity is really the giving and taking of credit, there has to be a climate of confidence — confidence in the strength and stability of the system itself and mutual trust between the countries who give and take credit from each other — particularly trust that the arrangements by which liquidity is provided will not be misused.

The present system has been criticised for not measuring up to these requirements. In the ten years 1955-1964 the gold and foreign exchange reserves of the free world increased by about $ 1.3 billion a year of which about $ 600 million a year represented that part of the supply of gold which was acquired by monetary authorities. The balance of about $ 700 million a year was almost entirely in the form of increased holdings of United States dollars. At the end of 1965 the gold and foreign-exchange reserves of non-Communist countries totalled $ 64 billion, of which $ 41 billion was in gold and $ 23 billion in foreign exchange. In 1965 the national monetary authorities obtained only $ 250 million out of a total gold supply (from Western production and Russian sales) of $ 2 billion.

On the basis of the figures for the first half of 1966 it seems likely that the amount which the monetary authorities will acquire in 1966 will be very small. Additions to monetary reserves have therefore depended to a large extent on increases in dollar holdings arising out of deficits of the United States and on the acquisition of gold by the monetary authorities in the face of high private demand.

There is general agreement that this is not a satisfactory way of supplying reserves. The chief purpose of additions to reserves is to inspire confidence and induce liberal economic policies in the national holders

in a world which is increasingly integrated economically. This is not likely to be achieved in a system in which additions to reserves are erratic, not subject to deliberate control and heavily influenced by political considerations, because they depend for a large part on the deficits of a particular country.

The size of the US dollar element in the present system involves the risk that massive and sudden conversions of dollars into gold could produce a sharp contraction of liquidity. Consequently, there is a prima facie case for strengthening and improving the system itself and, in particular, for providing some arrangement under which the supply of reserves can be influenced by the deliberate collective decisions of the monetary authorities.

This is obviously a very complex matter. The problem is not simply to provide for the growth of reserves at any particular rate, but to combine judiciously the amount of owned reserves in the hands of the monetary authorities with adequate amounts and forms of conditional credit facilities, particularly those provided by the IMF, and to ensure that the use of those reserves and facilities is subject to self-disciplinary control and to constraints built into the system.

Improvements in the International Monetary System

Against this background the Deputies of the Finance Ministers and central-bank Governors of the Group of Ten countries have been examining since September 1965 possible improvements in the international monetary system, including the deliberate creation of reserves by collective decisions. The report by the Deputies (1) was examined by their Governors at a meeting in the Hague in July 1966. The conclusions reached, which will be the basis of further studies, are summarised below :

(1) The smooth functioning of the international monetary system as well as general confidence in its stability depend very much on progress towards the elimination of persistent imbalances. Improvements in the " adjustment process " are needed and Working Party 3 of the Economic Policy Committee of OECD should continue to work for such improvements on the lines of its recent Report.

(2) The other suggestions in the Deputies' Report for improvements in the international monetary system otherwise than through deliberate reserve creation should also be given further study by the appropriate bodies, notably the two following suggestions :
- The " multilateral surveillance " procedure, which came into operation late in 1964 and has been in constant evolution since should be strengthened. It has proved itself useful (in addition to the consultations that take place within the IMF concerning the development of the balance of payments of individual countries) for judging international monetary trends not only on the basis of the positions of individual countries; but also from a more general point of view. Under this procedure, information is provided confidentially each month to the Bank for International Settlements and is regularly reviewed both at the BIS and in Working Party 3 of OECD. It helps the participants to form a collective judgment on the methods used to finance external surpluses and deficits of individual countries and the trend of their overall payments positions, as well as the working of the monetary system as a whole. The Deputies felt that if arrangements for the deliberate creation of reserves are eventually developed, the further experience gained by the evolving multilateral surveillance procedures will facilitate the forming of collective judgments on overall reserve needs and could also provide a framework in which understandings could be reached concerning reserve policies. (This could allay fears concerning the impact on traditional reserve assets of any newly created reserves and the risk of a massive and sudden contraction of reserves due to conversion of dollar holdings into gold.)
- The IMF should further examine the possibility of improving the status of the " reserve positions in the Fund " so as to make them more acceptable to all countries as fully-fledged reserve assets. At present only a limited number of countries include these assets in their official reserves.

(3) As regards international liquidity, the Ministers and Governors agreed that there is at present no general shortage of reserves. On the other hand, it is unlikely that the existing sources of reserves would provide an adequate basis for world trade and payments in the longer run, because large US deficits are not a satisfactory source of future reserve increases and gold alone is not likely to supply sufficient additions to monetary reserves in the future.

Consequently, at some point in the future, existing types of reserves may have to be supplemented by the deliberate creation of additional reserve assets. Such creation should take place on the basis of a collective judgment of the reserve needs of the world as a whole and the reserves should be distributed to all members of the Fund on the basis of IMF quotas or similar objective criteria. Decisions on the creation of such reserves should reflect two principles : (i) the interest of all countries in the smooth working of the international monetary system; and (ii) the particular responsibilities of a limited group of major countries with a key role in the functioning of the international monetary system and which in fact must provide a substantial part of the financial strength behind any new asets.

(4) There was not full agreement among the Group of Ten countries on the nature and timing of further action towards setting up a contingency plan for deliberate reserve creation. Some Deputies seem to hold the view that, first, much more progress

(1) *Published in August* 1966.

should be made in attaining better balance in international payments and there should be much more assurance that in future countries will co-operate more closely and effectively in achieving a better working of the adjustment process, before arrangements for deliberate reserve creation become too concrete and certainly before they are activated.

(5) The Deputies of the Ministers and Governors of the Group of Ten countries have been instructed to continue their work, a Report being expected from them in the middle of 1967. It was also recommended that the Deputies should hold a series of joint meetings together with the Executive Directors of the IMF, so that the questions that affect the world economy as a whole can be considered in a wider framework.

An Increasingly Integrated World Economy

To sum up, the efforts of independent sovereign states to achieve shared economic and social aims in an increasingly integrated world economy give rise to the three series of problems which can be only resolved through mutual confidence and effective international co-operation :

- Each country wishes to be the master in its own economy and to determine the methods and priorities of its economic policy according to its own governmental procedures. But it cannot do this effectively except with the knowledge of, and influence on, general economic trends, which it can only achieve through international forums.
- Similarly, the adjustment process cannot be operated by individual countries. It requires the collective support of all the members of the international economic community.
- All countries have an interest in there being a satisfactory supply of international reserves and adequate conditional credit arrangements, so that reasonable swings in the balance of payments can be financed and time allowed to correct structural imbalances without resort to controls on trade and payments which reduce the efficiency of resource allocation at the national or the international level. Moreover, in the long run, all countries wish to see their reserves increasing; and an increase for one country means a fall for another, unless there is a secular increase in the overall total of reserves.

But more liquidity means more credit and more scope for each country to exert inflationary pressures on the others by running excessively large or persistent deficits. There is a dilemma here which can only be resolved by mutual confidence and co-operation. Without this, the demand for unconditional reserves becomes greater because countries feel a greater need for the margin of economic independence conferred by reserves and because conditional credit facilities become harder to obtain on reasonable terms. With such confidence, a climate is created in which adequate amounts of unconditional liquidity could be created under deliberate collective decisions and conditional credits could be made available in adequate amounts and on terms which are acceptable to borrowers and lenders.

Having emphasised that the effectiveness of, and the will to improve, international co-operation are the essence of the problem, rather than the technical arrangements, the size of the disequilibria and the amounts of international reserves available to settle them, the orders of magnitude of the recent imbalances may be looked at. These can be measured by the balances settled by official monetary transactions, i.e. by gold payments, accumulation of US dollar balances, building up of reserve positions in the IMF, swaps, purchase of special non-marketable US Treasury bonds, etc.

Over the four years 1962-1965 (1), the OECD countries settled (net for each country) about $ 9 billion of deficits and $ 9 billion of surpluses by official monetary transactions. The deficits were almost entirely those of the United States ($ 7.6 billion) and the United Kingdom ($ 1.9 billion). The surpluses were earned mainly by France ($ 3.1 billion), the other Common Market Market countries ($ 2.2 billion), Canada ($ 700 million) and Austria, Japan, Spain and Switzerland (about $ 500 to $ 600 million each).

Taking a single short period is somewhat arbitrary (1), but it can nevertheless give a rough idea of how well the balance-of-payments adjustment process is working. Moreover, the results of the United States' efforts to reduce its heavy deficits, which began as early as 1958, are reflected mainly in these four years. Looking at the last year, 1965, if the adjustment process was working well, distinct signs should be seen of a reduction of the large disequilibria built up in the first three years of the preiod. But, as the Table shows, only in a few cases was there a substantial reduction of a previous disequilibrium : Germany, after earning $ 710 million through official transactions in 1962-1964, had a deficit of $ 350 million on this basis in 1965. Italy, which had a deficit of $ 250 million for the three years 1962-1964 had a surplus of $ 960 million for 1965.

For the OECD countries as a whole the deficits and surpluses on official transactions in 1965 each amounted to about $ 2 billion and these increased the imbalance of about $ 8 billion for the previous 3 years to over $ 9 billion for the four-year period. An encouraging sign, however, is that the deficits of the United States and the United Kingdom in 1965 were far below the average for the previous three years.

(1) *This four-year period has been selected because good comparable data on the main items in each OECD country's balance of payments are available for each of these years in the Seventh Annual Report of the Board of Management of the European Monetary Agreement which was published by OECD in August* 1966. *The other data in the present article are drawn from that Report which gives much more detailed information on balance of payments developments in OECD countries, particularly in* 1965.

RADIOISOTOPES AS POWER SOURCES

In July 1964 the European Nuclear Energy Agency began an equiry into what steps could be taken now to ensure the possibility, in Europe, of manufacturing and subsequently utilising auxiliary radioisotopic power sources. In the course of this Work a number of experts on radioisotopic energy production frcm the Member countries of ENEA, and also from interested international organisations including Euratom, the European Launching Development Organisation (ELDO), the European Space Research Organisation (ESRO), Dragon and Eurochemic, made a survey of existing isotopic generators in the world, of European needs for such generators, and of the possibilities for their production in Europe.

An isotopic power generator is a device for producing electricity using the radiations released by radioisotopes as the energy source. The conversion of radiation into electricity can be performed, via the heat which is created when the radiation is slowed down by matter, either by means of a dynamic machine or by some form of thermoelectric or thermionic device. It is also possible to transform the radiations into electricity by director conversion methods such as the collection of charged particles (alpha or beta), the radiovoltaic effect with semiconductors, or the radiophotoelectric effect.

Isotopic electrical generators are very compact, reliable and long lived. They are ideal power supplies for remote places, where they can produce energy for several years without requiring any maintenance. The first applications of such generators were in the United States in satellites and in remote weather stations.

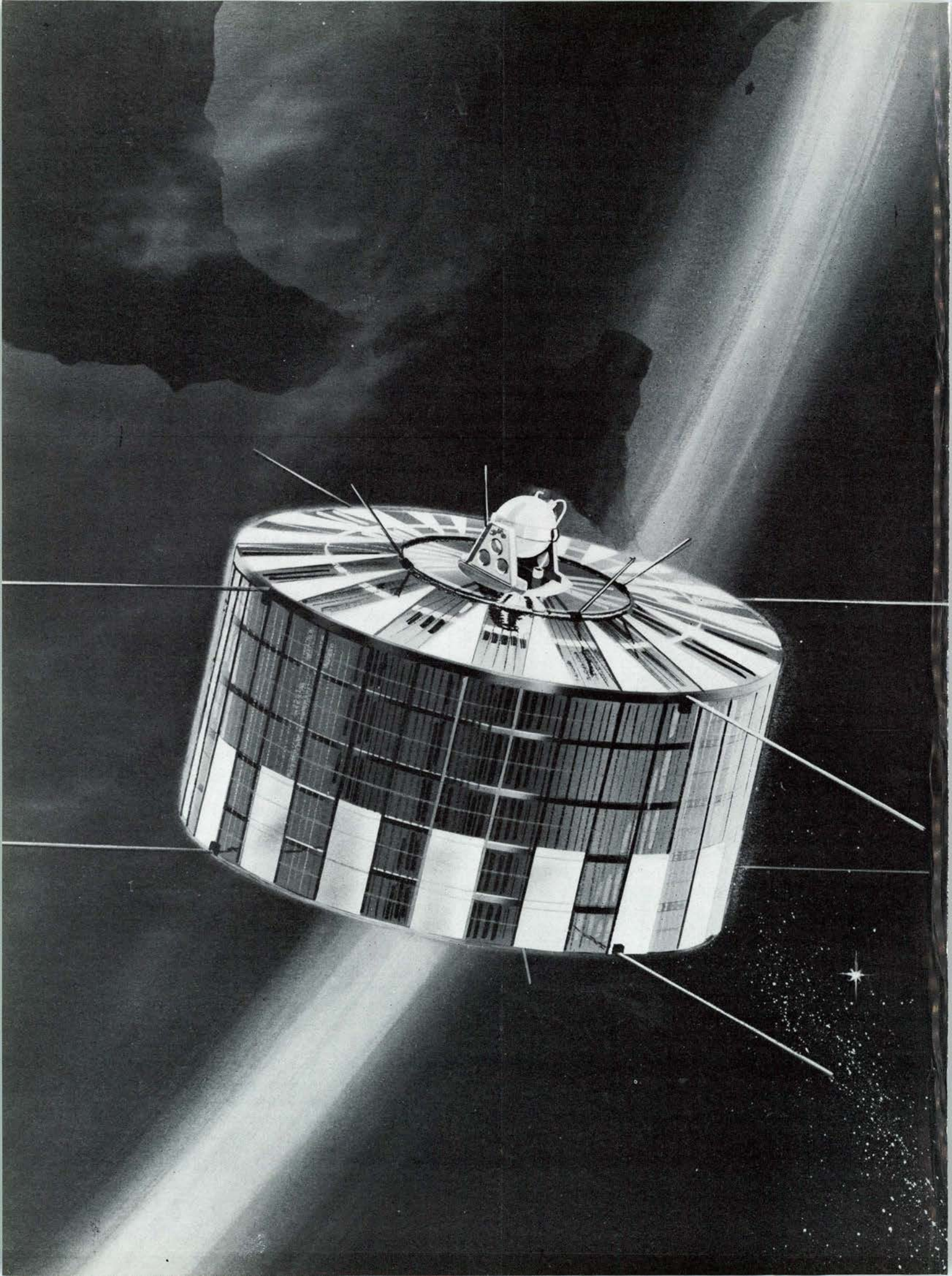
In space, there are numerous missions where isotopic generators have significant advantages over solar cells, which convert light from the sun into electricity. For example, satellites passing frequently through radiation belts around the earth, where solar cells deteriorate, or for operation on the moon with long periods of darkness, or space probe missions into opaque atomospheres such as that of the planet Venus, cannot rely on solar converters. Moreover certain satellites, such as those used for telecommunication, require such high powers that the surface of the solar cell needed would be prohibitively large.

There are many out-of-the-way places on earth where electrical power is needed for weather stations, navigational beacons, telecommunications equipment, and other special installations. In some such isolated places the only reason why men are needed is for the operation and maintenance of electrical generators. It is both difficult and costly to provide men with fuel and the necessities of life in remote locations simply to perform these functions. Even where batteries are used to power unmanned stations, these are relatively short-lived and require frequent replacement.

The development of cheap, reliable, long-lived isotopic generators could have great significance in this context. Generators with no moving parts have an inherent reliability and freedom from maintenance. The slow decay of certain isotopes such as strontium 90 and plutonium 238 can provide years of unattended operating life.

Isotopic generators in operation

The first isotopic generators to be used operationally were the so-called " SNAP " devices (Systems for Nuclear Auxiliary Power) developed in the United States. In 1961 a 5-watt generator was installed in an automatic weather station 700 miles from the North Pole. This operated without attention for four years, and when eventually maintenance was required, in October 1965, this was to the electronics equipment and not to the generator. A second SNAP-powered automatic weather station has been operating satisfactorily since February 1962 in the Antarctic in a severely hostile environment. Since January 1964 a floating weather station powered by a 60-watt SNAP generator has been anchored in the Gulf of Mexico and has proved a reliable and invaluable source of weather information, especially during the hurricane season. Similar SNAP-type devices are now powering navigation



A SNAP generator (the small ball) coupled with a solar generator in flight.

buoys, lighthouses and other navigational aids, including one undersea sonar beacon.

In 1961 two 2.7 watt SNAP generators were launched into orbit, followed in 1963 by two more powerful units. One of the 1961 units is still operating; the second is now out of use due to failure in its associated electronic equipment. The two SNAP units launched in 1963 both gave good and continuous performances for more than two years.

In Europe a series of isotopic generators called RIPPLE (Radio Isotope Power Pulsed Light Equipment), intended to provide power for marine navigation lights, have been built in the United Kingdom. These generators provide some 2 electrical watts, and are now in experimental operation with xenon flash tubes which give light at a range of 2 miles. In France, a low-power demonstration generator is under construction, while Euratom, at its Ispra Centre, is building an experimental prototype 5-watt unit. Isotopic generators have also been constructed in the USSR.

The European Future

An expert report submitted in June this year (1966) to the ENEA Steering Committee drew attention to existing European interest in possibilities for producing energy from radioisotopes and in potential uses of such energy. The report recommended that ENEA countries should collaborate in an effort to determine more accurately the characteristics which isotopic generators should have in respect of their future utilisation, to prepare the way for their practical production and use, and to examine questions which would arise from this production and use, especially in the matter of safety. The collaboration proposed should permit passage from the state of preliminary studies and basic research to that of industrial production.

The expert report recommended that work should be concentrated on three types of isotopic generator. The first type was a terrestrial generator of original design with high power (of the order of several electrical kilowatts) using fission products and dynamic conversion machines. The second category of generator was a form of radioisotopic battery for medical and other industrial applications, for example in electronic equipment or the watch-making industry. The third category comprised compact high-performance generators using either plutonium 238 or actinium 227 as heat source. Several original possibilities exist for developing such generators in Europe, and in the case of generators using actinium, these possibilities are unique in the world, since the necessary quantities of this isotope can only be produced in Europe.

Following submission of the expert report to the ENEA Steering Committee many European countries declared their interest in participating in the proposed collaborative action.

The main interest of the first type of isotopic generator is for the economic generation of electricity for terrestrial applications. The maximum foreseeable power requirement for such applications is of the order of 50 kW, and a large number of possible uses seem to exist for powers up to this maximum. The most important factors for power units in this range are therefore the cost of the generator itself and the cost price of the energy produced. Hence the radioisotopes used must be cheap, and the efficiency of the heat-to-electricity conversion process must be high; furthermore, the generator must be very safe and have a long lifetime (a minimum of several years). On the other hand, weight and volume are relatively unimportant characteristics.

These considerations suggest that for high power terrestrial generators it would be advantageous to use the cheapest radioisotopic sources, that is, fission products removed from spent fuel from conventional nuclear reactors. Such material is, of course becoming more and more plentiful as more reactors come into service.

In this power range of 1 to 50 electrical kW, it seems that dynamic conversion processes working on closed gas cycles are the most suitable. Such systems have efficiencies of the order of 20 to 40 per cent; the equipment is not bulky, and construction techniques are fairly well known in Europe.

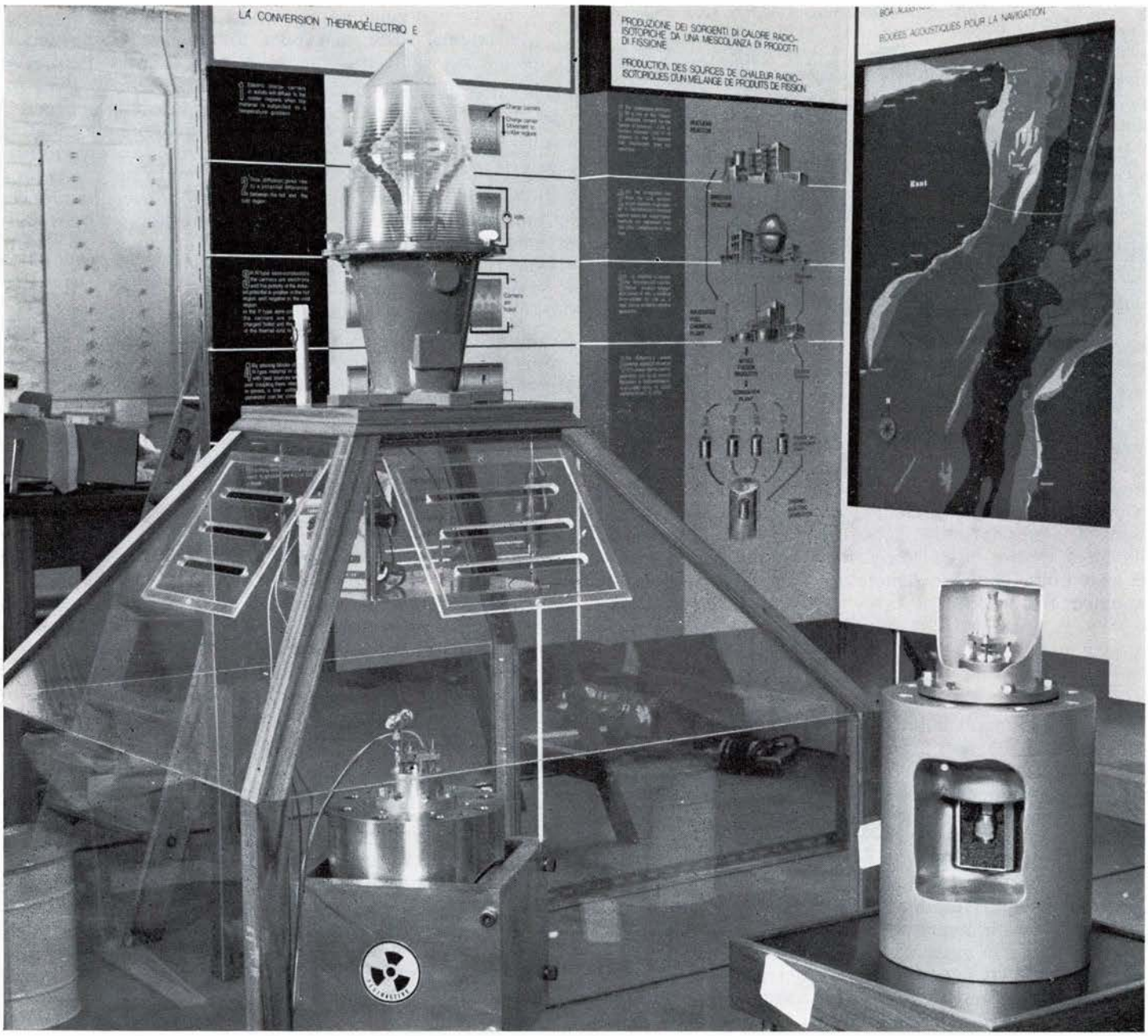
Among the direct conversion systems, the thermoelectric process is the best known. No further major technical or scientific development is needed, though there is still scope for improvement of the conversion efficiency, development of low temperature thermoelements, improvement of the resistance of thermoelements under radiation and thermal shocks, and, more generally, increase in the life and the reliability of the system.

The second category of isotopic generator (radioisotopic battery) is for the generation of powers in the microwatt to milliwatt (electric) range. This power range appears very interesting particularly for applications in medicine, watches, telecommunications, telemetry and automation. For this type of isotopic generator it seems that the conversion efficiency is a secondary factor. Miniaturisation is the most important and certain special characteristics, such as the necessity to avoid high temperatures or the need for total absence of radiation, are also important. The life of such generators should be of several years. The cost of the radioisotope may be secondary, taking into account the very small quantity required. New direct conversion techniques could be used in such small generators and it would be of great interest to study them.

There are in particular many potential applications for isotopic batteries in the medical field : various devices implanted in the human body require energy sources with long lifetimes and high reliability. Among such devices pace-makers and auditory protheses can be mentioned. According to recent studies, the market for these in Europe at present is 10,000 pace-makers and about 150,000 auditory protheses per year.

A large potential market also exists in the watch-making industry, certainly of the order of hundreds of thousands of radioisotopic batteries. The potential applications in electronics, telemetry and short-range telecommunications are also numerous.

The third type of isotopic generator mentioned would be for powers between 10 and 100 electrical watts. An important market for generators in this power range could



Demonstration of a UK radioisotopic generator, RIPPLE, used with a xenon flash tube. The light, created to be used for marine navigation, can be seen from two miles away.

be expected for telecommunication satellites if the generators could compete with other more classical energy production devices, e.g. solar cells. There are also some terrestrial applications in remote areas which should not be neglected. In these cases, the most important characteristics would be volume, weight and capital cost, and the principal aim would be to obtain maximum efficiency for the heat-to-electricity conversion. It would also be necessary for the generator to have a useful life without attention of at least some two years. To obtain maximum efficiency and low specific weight the thermionic process would seem the most promising: although development work on this process is not as far advanced as on the thermoelectric process, some experimental diodes of long life and high efficiency (15 to 20 per cent) have been produced.

Dynamic systems are not well adapted for such low powers, and the thermoelectric process has a lower efficiency. But if the thermionic process were adopted, radioisotopes with a high power density would have to be used. This condition immediately limits the choice of usable radioisotopes, the only ones with sufficiently high power densities and sufficiently slow decay rates being thorium 228, actinium 227, uranium 232 and curium 244. Nevertheless it might also be possible, by means of special techniques, to use certain isotopes with lower power densities for thermionic conversion.

Economics

As for any new technology, it is at present extremely difficult to make estimates concerning the economics of electricity production from radioisotopes. The main reason for this is the uncertain cost of the radioisotopes themselves which, depending on the isotope selected and the generator power required, could account for more than 80 per cent of the total generator cost.

Like atomic reactors, isotopic generators have a high investment cost and a low " fuel " cost compared with classical generators. The initial investment cost includes that of the radiosiotope, but at the end of the life of the generator only a part of this isotope will have been used up (destroyed by disintegration) and the remainder will have an intrinsic value. For isotopes with slow decay rates this residual value could be as high as 70 - 90 per cent of its initial value. However, since it is difficult to know in advance whether it will be possible to re-use the isotope, its residual value has not been taken into account in the following evaluations.

For applications of isotopic generators in space, the most important cost factor is the specific investment cost ($ per electrical watt in orbit) which includes the costs of the isotope, the generator (including shielding) and the launching. The launching cost includes a factor for the possibility of the mission assigned to a particular system failing ; it also reflects the weight of the generator, which is higher for beta-emitting isotopes than for alpha-emitting ones which require almost no shielding. On this basis, and assuming European conditions and estimated future costs for mass-production of radioisotopes in Europe, the specific investment for radioisotopic generators in orbit has been estimated at about $30,000 per electrical watt for generators using curium 244 and thermionic diodes, at about $29,000 per electrical watt for actinium 227 and thermionic diodes, and at about $77,000 for plutonium 238 and thermoelements. These figures may be compared with the costs of solar cells, which are at present about $34,000 per electrical watt in orbit in the same conditions.

For terrestrial applications it has been estimated that the specific investment costs for generators of about 100 electrical watts using separated fission products (e.g. strontium 90 or cesium 137) and thermoelements (efficiency of 5 per cent) would be within the range $750 - 3,000 per electrical watt, about half of this being for the radioisotope. This investment could be smaller if unused isotopes were recuperated at the end of the life of the generator which has been estimated as 10 years. The corresponding cost price of the energy produced would in this case be about $15 - 30 per electrical kilowatt-hour.

For larger generators of the order of 1 kW (electric) associated with a dynamic cycle (efficiency of about 20 per cent) the investment cost would fall to about $200 per electrical watt and the cost price of the electricity to about $3 per electrical kilowatt-hour. If the separated fission products were replaced by mixed fission products, which are far cheaper, the specific investment could fall to $100 per electrical watt or lower and the cost price of energy to $1 or less per electrical kilowatt hour. This cost level may be compared with $22 per kWh quoted in the literature for an alternative power source in a marine navigation application, with $35 per kWh for power from a penlight cell, and with over $1 per kWh for the " bare " cost of diesel oil in very remote areas without taking account of depreciation charges for diesel generating equipment. The replacement of dry cells in a remote telephone could cost $15 - 20. When the economic value of unattended operation with minimum maintenance is taken into account, there are undoubtedly some terrestrial applications for which isotopic generators would be acceptable on both economic and technical grounds. As more efficient generators are developed, and costs of isotopic heat sources fall with increased scale of production, such applications may be expected to increase.

Safety Aspects

The safety aspects of radioisotopic power generators have received most careful consideration. In the case of generators for terrestrial applications, the safety problem does not raise any entirely new questions : since, for example the amount of radioactivity in a 10-watt (electric) generator is of the order of ten thousand curies, the safety requirements are the same as those that would be encountered in the handling, shipping and installation of any large radioisotopic source.

In the first place, the radioisotope would be encapsulated in an appropriately robust material. This would follow US practice where, for example, the fuel pellets for generators using strontium 90 are encased in a strong, rupture-proof alloy which will not corrode even after immersion in sea water. The capsules are designed so sturdily that they can survive a direct hit from a crashing aeroplane or any other of the severest conditions which might be encountered. In addition, the strontium 90 used is in the form of strontium titanate, which is practically insoluble even in sea water, and remains stable beyond its melting point of 1,910°C.

Secondly, the radioisotope would be biologically shielded, using casings of lead, depleted uranium, or cast iron. Alpha-emitters such as plutonium 238 need no shielding at all, but are dangerous from other points of view, so that absolute containment in the capsule must be achieved.

For isotopic generators in space there are certain additional safety requirements. in particular due to the possible failure during the launching phase of the rocket containing the generator.

Return into the earth's atmosphere of isotopic generators after completion of orbiting missions in space also presents certain safety problems, in particular for beta-emitting sources whose capsules, even unruptured, could cause health hazards due to the quite high dose rates at their surfaces. To avoid these hazards the capsules must burn up completely on re-entry into the atmosphere.

The Most Important Immediate Requirement

Their intrinsic advantages of long life, reliability and freedom from maintenance make isotopic generators of great potential interest both from the technical and economic points of view. Although as yet there are very few such generators in Europe, this is undoubtedly because production on an industrial scale of appropriate isotopes has not been undertaken. This, in turn, is probably due to lack of a market, most potential users of isotopic generators not knowing their technical and economic advantages. It is hoped that the current work of ENEA in the field will lead to a break in this vicious circle.

The most important immediate requirement, however, would seem to be to define more clearly the future applications of isotopic generators, and thence to determine the characteristics which such generators will require and the probable volume of the market for them.

PROBLEMS AND OBJECTIVES OF ENERGY POLICY

The next fifteen to twenty years will be a period of great change for the energy industry as traditional sources of energy decline, new ones arise, patterns of consumption shift and interdependence between countries increases. Governments have a responsibility to ensure that energy demands are met in the best possible way in light of cost and convenience to consumers, as well as a host of other considerations including public health, balance of payments problems, the impact of changing energy patterns on employment, regional development and national security. It is vital, therefore, for separate government actions affecting energy to be co-ordinated at the national and harmonised at an international level, and for these measures to be viewed against the background of the economy as a whole and of their international repercussions. Energy problems are no longer confined to individual countries or to individual continents; they are not even confined to one single source of energy.

OECD's Energy Committee has just completed a survey of the problems and policies in Member nations. It is hoped that this survey will help governments to formulate comprehensive, coherent policies which are flexible enough to take account of rapid change and of the need for international co-operation.

The demand for energy in OECD countries can be expected to double by 1980 as compared with 1964. Nevertheless — and this is in contrast to the view which prevailed a few years ago — it appears that adequate supplies should be obtainable at costs which do not differ significantly from what they are today.

World oil reserves (proved) represent some 30 - 40 years of production at current rates, and it is expected that new sources will be found as needed, for over a period of many years the amount of oil located has exceeded actual production. The most striking example of utilising unsuspected oil reserves is to be found in Africa where before 1960 production was almost negligible; today Africa provides almost a fifth of the European OECD countries' requirements. In addition there is a large production potential inherent in tar sands (to be exploited commercially for the first time in Canada beginning in 1967), and oil may also be recovered from shale within the foreseeable future.

Natural gas also represents a great if less-known potential. In addition to the finds in the North Sea and on the surrounding land, OECD countries will have increased access to the huge gas fields of North Africa as the problems involved in transport are resolved. In 1964 the first commercial cargo of liquified natural gas was sent to the United Kingdom from North Africa, and since 1965 there have been regular shipments to France. Research is also being conducted on the possibilities of pipeline transport.

Owing to improved reactor design and the use of large electricity generating units, nuclear energy is expected to become fully competitive with conventional energy sources in the 1970's. It is estimated that in the early part of that decade the cost of electrical energy produced by nuclear power stations will be comparable to that produced by plants using coal or oil priced at $13 a ton of oil equivalent, (roughly the lowest fuel oil price prevailing now in OECD countries), and by the late 1970's this figure should be reduced to $10 per ton. Nuclear energy may thus set a ceiling to prices of other fuels.

THE CHANGE IN PATTERN

As energy consumption increases over the next fifteen years, there will be dramatic changes in the pattern of consumption. Some of the broad trends can be foreseen; for example, it seems likely that energy import requirements, mainly in the European area and Japan, will grow even faster than total consumption, possibly at a rate of between 6 and 7 per cent a year. And certain parts of the indigenous energy resources, again mainly in the European OECD countries and Japan, are unlikely significantly to improve their competitive position vis à vis the world's major low-cost resources and may well find themselves increasingly at a disadvantage.

It seems likely that around the mid-1980's nuclear power generating plants in North America will represent more than 20 per cent of installed capacity and account for about 30 per cent of production; in Western Europe the corresponding figures may be in the neighbourhood

of 25 and over 35 per cent respectively and in Japan between 15-20 and over 25 per cent.

What the precise pattern of consumption will be, however, remains to be seen. To a great extent it will be determined by considerations of relative cost, flexibility and convenience, and by the actions of the industries in the energy sector, but government policies will also exert an important influence on the patterns of use, probably more so than in the past.

The fuel industries operate within the broad policy objectives set by governments who must ensure that the development of the energy sector is in accord with wider national and international considerations. The main focus of the recent OECD energy report is on the role of governments.

THE INSTRUMENTS OF POLICY

Governments have at their disposal a wide variety of policy instruments with which to influence the supply of energy and its costs and prices. They may, for example, use tax concessions or subsidies to encourage exploration or development of indigenous sources. Domestic energy industries may be protected through import restrictions and duties or taxes on competing forms of energy. Aid may be given to diversify sources of energy supply, to promote research into new energy forms, to encourage rationalisation of energy production, or to promote competition between energy producers. Governments may control prices or set maximum or suggested prices, and they may require that energy producers create reserve stocks as a security measure. Finally, governments may influence the mode or costs of transmission of power and shipment of other forms of energy.

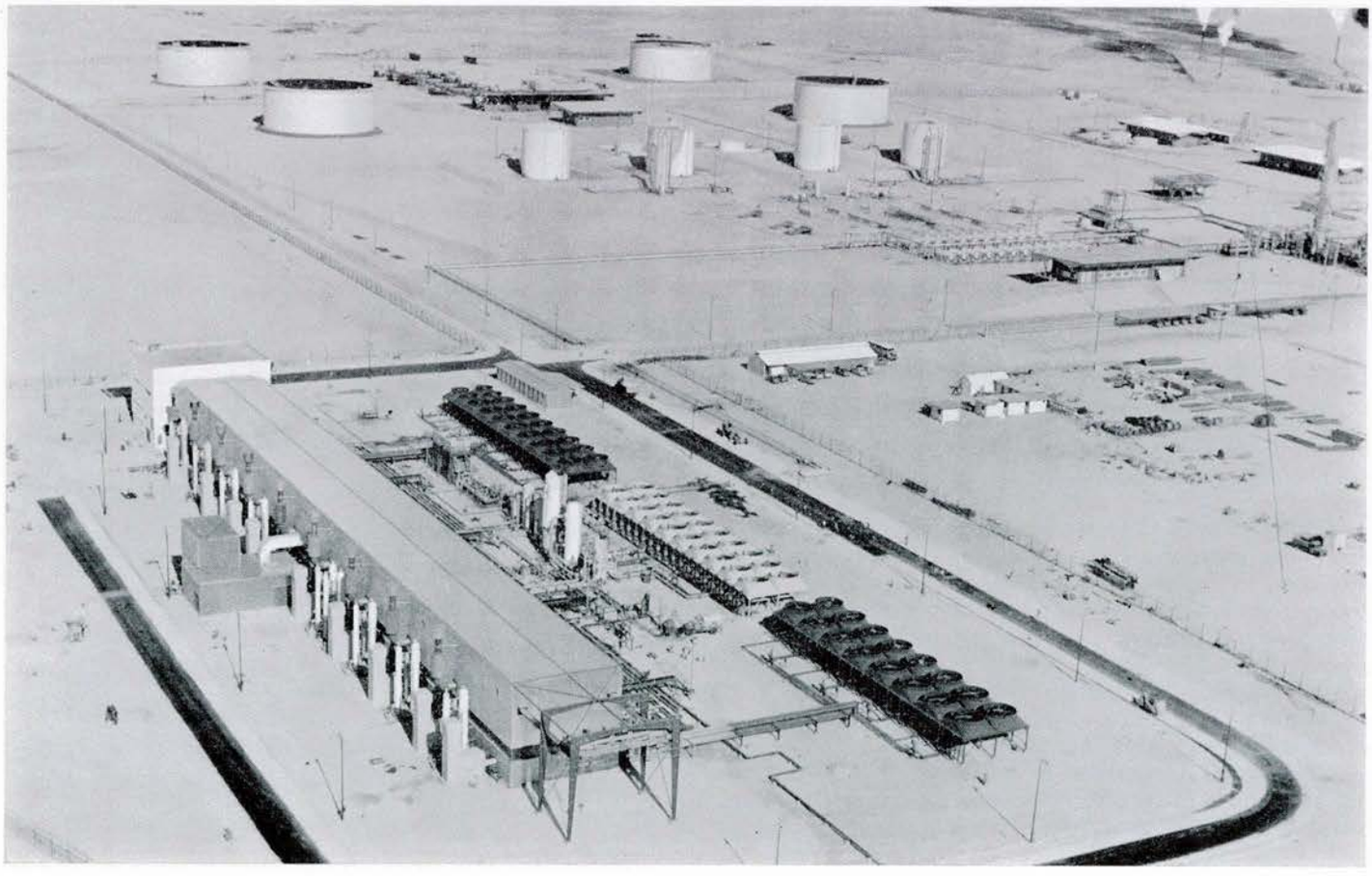
In the US, to take just one example, exploration and development of uranium for nuclear energy has been encouraged by direct government financial aid, and the Government also guarantees producers of a market, while oil exploration is encouraged through fiscal measures, (oil depletion allowance). For purposes of national security federally owned lands, controlled by the Navy and containing some 165 million tons of proved reserves, are held ready for use in case of military or industrial emergency. Research financed in whole or in part by the Government is being conducted into virtually every aspect of the discovery, production, conversion, and transport of solid and liquid fuels as well as nuclear energy. (Some $25 million, for example, is being spent on shale oil research, and investigations are being carried on to determine the feasibility of transporting coal through pipelines).

To further indicate the variety of form that government action may take, one might cite the measures taken by the Japanese Government to diversify supply sources of oil: two companies have been set up with the help of low-interest government loans to look for and produce oil outside Japan.

FUTURE PROBLEMS AND OPPORTUNITIES

Even though the problem of assuring secure and adequate energy supplies is not likely to be as difficult as

Part of the installations of the SN Repal at Hassi Messaoud.



was feared a decade ago, the other problems facing governments in connection with energy policy are complex. New energy sources such as nuclear fuels and — in the more distant future — tar sands and oil shale, with their enormous potential, must be fitted into the market smoothly and without disrupting it. Due attention must be given to all the social consequences of change as the production of traditional energy sources contracts: employment problems are likely to arise in certain areas and a new basis for the development of certain regions may have to be created.

With the prospective increase in demand for imported fuels, it will be more important than ever to avoid interruptions and bottlenecks in international trade. Moreover the increasing dependence on imports has balance of payments implications which may require attention (although increased outflow of reserves for low-cost fuel may be compensated for at least in part by greater competitiveness of manufactured commodities on the international market).

Another growing problem in the energy field arises from the possibilities of damage to human health and the physical environment caused by large-scale production, transport and use of energy. Problems of this nature are the special concern of government, and whatever progress is made in control and abatement of hazards will come largely as the result of government initiative.

Since research, both basic and applied, continues to provide means of doing things that could not be done before (or doing things more cheaply and efficiently), it is a major factor in determining the competitiveness of various sources of energy. OECD governments, as important contributors to research, will face the problem of how best to allocate research support, for their decisions as to emphasis and timing can influence both the competitiveness of particular energy sectors and the overall cost of energy to the community. Astute formulation of research policy may provide a key to the attainment of long-term objectives in the energy field.

Finally, the role of government, both direct and indirect, in fostering exploration for and development of energy resources, in finding alternative sources of supply, in helping to reduce energy costs through rationalisation of production, transport and use, and promoting competition between firms may well become more important than in the past.

THE NEED FOR COHERENCE

In carrying out these functions and helping to solve the problems that arise, governments will be faced with the need to reconcile a number of different and sometimes conflicting objectives, some of them having to do with the energy sector directly, others being part of broader economic and social considerations. These will include providing adequate supplies of energy, reducing the costs to the consumer, assuring the national security, preserving a healthy balance of payments situation, promoting the growth or preventing the decline of particular regions, safeguarding public health and protecting the value of other resources — fisheries, scenery, rivers and lakes. Measures taken to pursue one objective may have favourable or adverse repercussions on the attainment of others. It is important that all should be taken into account and definite priorities established.

(continued on page 58)

HOW OECD COUNTRIES WILL

expressed i

These estimates illustrate possibilities and the field for governmer

		1950 (1)	1960
NORTH AMERICA	Total Requirements	855	1150
	Supplied from Indigenous Resources	813	1065
	Coal	*343*	*281*
	Oil (2)	*288*	*411*
	Natural Gas	*164*	*343*
	Hydro Power (3)	*18*	*30*
	Nuclear Power	—	—
	Net Imports :	42	85
	Oil	*44*	*99*
	Natural Gas	—	*2*
	Coal	*— 2*	*— 16*
		1950 (1)	**1960**
OECD EUROPE	Total Requirements	420	607
	Supplied from Indigenous Resources	359	407
	Coal	*323*	*331*
	Lignite	*18*	*23*
	Oil (3)	*5*	*16*
	Natural Gas	*1*	*11*
	Hydro Power (4)	*12*	*25*
	Nuclear Power	—	*1*
	Net Imports :	61	200
	Oil	*55*	*181*
	Solid Fuels	*6*	*19*
	Natural Gas	—	—
		1950 (2)	**1960**
JAPAN (1)	Total Requirements	34.8	86.3
	Supplied from Indigenous Resources	32.5	49.3
	Coal and Lignite	*27.8*	*41.2*
	Crude Oil	*0.3*	*0.5*
	Natural Gas	—	*0.9*
	Hydro Power	*4.4*	*6.7*
	Nuclear Power	—	—
	Net imports :	2.3	37.0
	Oil	*2.0*	*30.9*
	Solid Fuels	*0.3*	*6.1*

MEET THEIR ENERGY REQUIREMENTS *Energy supply and demand*

terms of primary sources (millions of tons of oil equivalent)

action rather than formal estimates.

1964[1]	1970	1980
1341	1680	2400
1245	1535	2215
321	*370*	*540*
462	*565*	*750*
427	*550*	*725*
34	*40*	*55*
1	*10*	*145*
96	145	185
118	*145*	*185*
1	—	—
– 23	—	—

North America is the only OECD area in which reserves of coal, oil and natural gas are more than sufficient to meet home requirements. Indigenous oil tends to be more expensive, but imports are limited on the grounds of security to 20 per cent of total oil requirements (in 1964). These estimates assume that such restriction will continue. Coal has already been replaced by oil in many of the markets in which the two are substitutable, and the share of coal in North American consumption declined from 68 per cent in 1929 to 22 per cent in 1964. As a result of extensive modernisation and mechanisation and lower transport costs, it has now become more competitive for industry and especially for power generation. Its relative importance in the consumption pattern may, therefore, be expected to grow rather than decline further. Natural gas already accounts for about a third of energy consumption, much more than in any other area. Its price is likely to rise, however, and therefore its future growth may not be as rapid as during the 1950's.

(1) Stock changes with indigenous resources. (2) Including natural gas liquids. (3) Including geothermal generation.

964 [1]	1970	1980
751	(960)	(1440)
409	400-445	510-660
313	*265-280*	*210-270*
27	*25-30*	*30-40*
21	*25-30*	*20-40*
16	*35-55*	*70-110*
28	*35*	*50*
4	*15*	*130-150*
342	(560-515)	(930-780)
313	*(2)*	*(2)*
29	*(2)*	*(2)*
—	*(2)*	*(2)*

Western European consumption of energy can be expected to rise more rapidly than that of North America whose per capita use is already nearly three times as high. Indigenous resources available to meet these requirements are both smaller and less varied than in North America. European countries have on the whole had to look chiefly to one indigenous asset-coal, which covered almost all domestic requirements until World War II. Since the war, however, use of imported oil has risen rapidly so that it now represents roughly 45 per cent of energy consumption. European governments protect their coal industries. The above estimates are based on the assumption that these policies will continue and that coal will not improve its competitive position as agains other fuels or alternative coal sources. Use of water power has been growing rapidly, but by 1980 most of the water resources available will have been harnessed. Use of natural gas has shown rapid growth during the last five years but still represents only about 2 per cent of total requirements in 1964. Its use can be expected to expand rapidly though time will be needed to bring the recently discovered fields into production and to provide for the necessary transport and distribution as well as consumer appliances.

The role of the different fuels in meeting import requirements has not been estimated separately because future development will be so much affected by the diverse policy measures taken. It is, however, expected that most of the energy imported will be oil; natural gas imports could also be substantial by 1980.

(1) Stock changes of coal with indigenous resources, of oil with imports. (2) Partly a function of energy policy. (3) Including natural gas liquids. (4) Including geothermal generation.

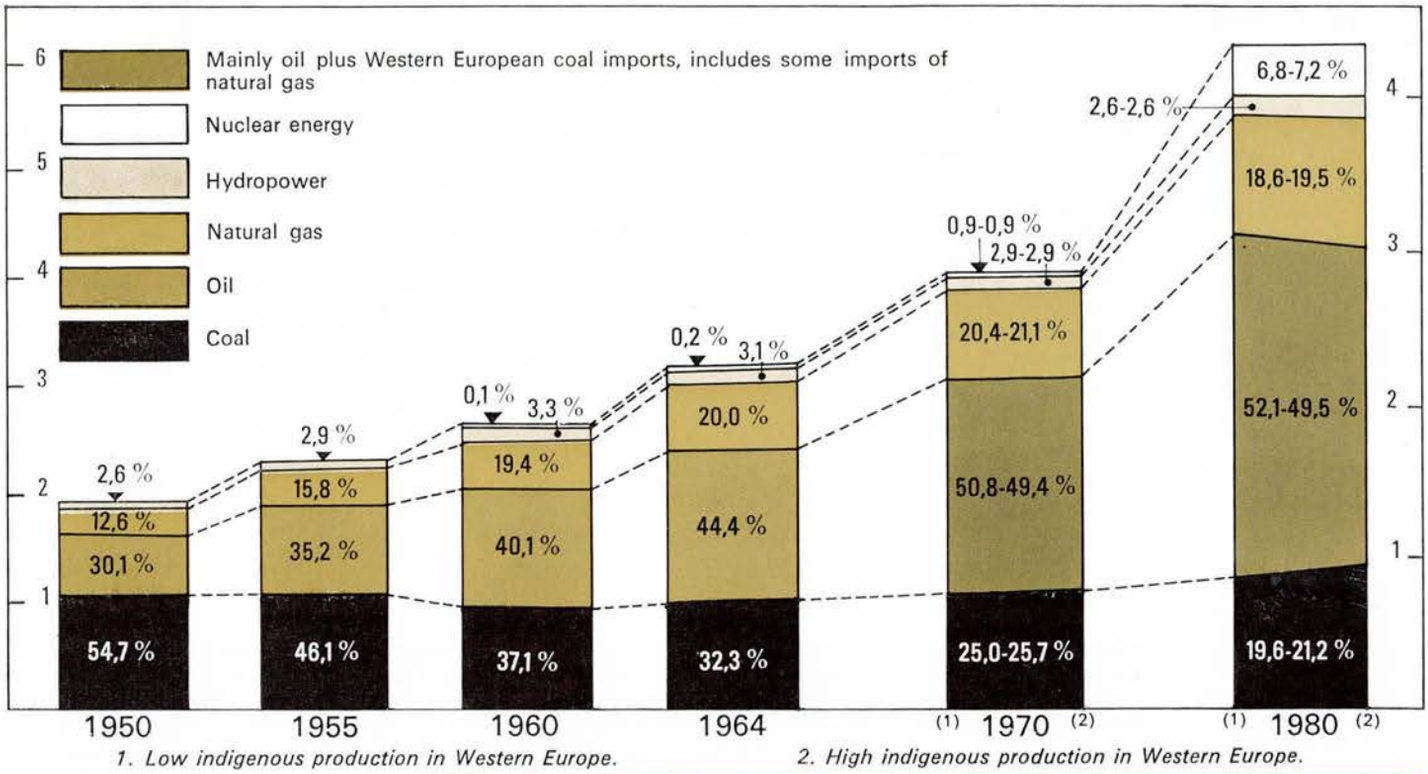
1964[2]	1970	1980
134.3	238	464
50.7	59	78
40.2	*46*	*46*
0.6	*1*	*1*
2.0	*3*	*6*
7.9	*8*	*9*
—	*1*	*16*
83.6	179	386
73.9	*165*	*368*
9.7	*14*	*18*

Energy consumption in Japan nearly quadrupled between 1950 and 1964, but per capita consumption is still low by comparison with Europe and North America (1.4 tons of oil equivalent in 1964 compared with 2.2 for Europe and 6.3 for North America). Thus the rise will continue to be dramatic. The outstanding feature of the expected energy consumption is Japan's very heavy dependence on imports. As recently as 1950 indigenous resources supplied over 90 per cent of total requirements for primary energy. But by 1964 imports accounted for 60 per cent of total energy consumption; in 1975 the figure is expected to be around 75 per cent and in 1980, 85 per cent. Most of this imported energy is oil, which will be used both to provide fuel for the expected fourfold increase in transport requirements (mainly private cars) and power for generation of electricity — it is expected that by 1980 petroleum will be the fuel used in 70 per cent of Japan's electricity plants. Oil imports into Japan may come to over half of those for all European OECD countries and Japan is likely to become the world's leading importer of oil.

The market for indigenous coal has not suffered the same decline that European coal has faced in recent years : new markets have been developed and long-term agreements made with large consumers such as the iron and steel industry; financial assistance has been provided by the government to encourage rationalisation with the result that productivity more than doubled between 1958 and 1963. Assuming a continuation of these policies, coal production might be expected to stabilise at its present level. High grade coking coal will have to be imported to meet the needs of the rapidly growing iron and steel industry.

(1) This supply and demand picture is based on unofficial preliminary estimates available when this report was drafted. Official forecasts are expected to be available in the course of the second half of 1966, due to the fact that the Advisory Committee for Energy, a consultative body to the Minister for International Trade and Industry, is expected to draw up an interim report at that time. This Committee was established in June 1965 to examine the problems concerned with ensuring a secure and adequate supply of energy in the future and also to consider the question of competition between the various sources of energy. (2) Stock changes of coal with indigenous resources, of oil with imports.

PERCENTAGE OF PRIMARY FUELS IN MEETING TOTAL ENERGY REQUIREMENTS OF OECD COUNTRIES



1. Low indigenous production in Western Europe.

2. High indigenous production in Western Europe.

In most Member countries, however, responsibility for government plans and actions affecting the energy industries is split up between a number of departments. As the complexity and size of governments increase, concludes OECD's Energy Committee, it will become increasingly important to ensure that energy policy is developed in a comprehensive and coherent way. On the national level the energy sector should be seen as a whole, and measures affecting it should be examined in light of their repercussions on the rest of the sector, on other sectors of the economy, and on social policy. The choice of priorities must be determined against the background of long-term developments and prospects both within the sector and in the economy as a whole. Short-term measures should be designed so as not to hinder the attainment of the long-term objectives. Finally, it is important that policies should not be too rigid. Changes in the energy situation can be — as they have been in the past — unexpected and can have far-reaching consequences. Long-term policies should be developed in a sufficiently flexible way to allow for the inevitable element of uncertainty in all forward estimates.

Within the framework of broad economic and social objectives, energy policies of OECD Member countries could be tested and balanced against the following principles, suggests the Energy Committee.

1. The realisation in the long term of the lowest energy costs for the community as a whole and of reasonable and stable prices for each consumer.

2. A secure and regular supply.

3. Competition and transparency in energy markets.

4. Consumers' freedom of choice between competing fuels on the basis of prices which reflect costs of supply.

5. Safeguarding public health and preserving other resources.

Even if in some cases subsidies or other protective measures have to be maintained over a relatively long period, they should not be regarded as permanent but should contribute towards efforts to remedy the underlying difficulties.

When temporary protection is necessary, it is preferable to apply measures which

- permit rationalisation and avoid penalising efficient producers;
- allow assessment of cost to the community including the effect on regional and employment problems;
- allow for rapid changes in the light of improvements or deterioration in the competitive position of the protected sector.

Many of the problems in the energy field, particularly those related to international trade, security and the development of facilities for the transport and distribution of both primary and secondary forms of energy, may be tackled effectively by international co-operation; the facilities of OECD can be used and further extended to explore the opportunities in this field and assist governments in making choices which take into account the international implications of national options, thus avoiding " exporting " difficulties from one country to others.

A FURTHER STEP FORWARD IN THE ELIMINATION OF DOUBLE TAXATION

The Fiscal Committee of the OECD

The Fiscal Committee is the OECD body responsible for international fiscal matters. It was set up in March 1956 under the Organisation for European Economic Co-operation (OEEC) to study, inter alia, questions relating to double taxation. It is composed of high-ranking experts belonging to the national administrations of the Member countries and is presided over by Professor Dr. A.J. van den Tempel, of the University of Amsterdam, who has been its Chairman since it was first established. It is at present the only permanent intergovernmental body dealing with double taxation questions. The new Draft Double Taxation Convention on Estates and Inheritances established by the Fiscal Committee and published by OECD in September is the logical and necessary follow-up to the Draft Double Taxation Convention on Income and Capital published in September 1963. Like its predecessor, the new Draft Convention is accompanied by a general report and a detailed Commentary on each of its Articles. In both cases the Council of OECD has recommended Member countries to conform to the Articles established by the Fiscal Committee when concluding or revising bilateral Conventions between themselves.

In addition to its work in regard to double taxation, the Fiscal Committee has established a report on fiscal incentives for private investment in developing countries, which was published by OECD in July 1965; the Fiscal Committee proposes to keep the situation in this field under constant review.

by
James GILMER
Secretary of the Fiscal Committee of the OECD

International double taxation can be generally defined as the imposition of comparable taxes in two or more States on the same taxpayer, in respect of the same subject matter, and in relation to the same period. Such a situation, which is not due to any deliberate intention on the part of the States but is merely the results of each State's exercise of its fiscal sovereignty, can therefore arise not only in the case of taxes which are imposed periodically, such as annual income tax, but also in the case of non-recurring taxes, such as those imposed on taxpayers' estates when they die. Consequently, in the majority of cases, taxpayers engaging in business or owning movable or immovable property in more than one State are arbitrarily treated less favourably from the tax point of view than those who engage in busi-

ness or own property in one State alone. Thus, in the case of taxes on both income and capital, double taxation is a serious obstacle to the development of international economic relations and must be eliminated.

Substantial progress has already been made in this direction through bilateral Conventions or unilateral measures. Thus between 1939 and the end of 1957 the number of bilateral Conventions between the twenty-one countries now Members of the OECD more than trebled, rising from 20 to 62 as regards Conventions applying to taxes on income, and from 8 to 34 as regards those relating to estate taxes. This was largely due to the work of the League of Nations, which resulted, for both classes of tax, in the Model Conventions of Mexico (1943) and London (1946). Neither of these Model Conventions, however, was fully and unanimously accepted. Moreover, the extension of taxation and the development of international economic relations have made certain problems in the field of double taxation more difficult and have created new ones.

With the increasing economic interdependence of the countries of the Western world in the post-war period, and the economic co-operation established among them from 1948 within the Organisation for European Economic Co-operation (OEEC) and now continuing in the wider framework of OECD, the problem of international double taxation took on new importance. It became clear that it was indispensable to complete the work already accomplished in the field of liberalisation of trade, current invisible operations and movements of capital and manpower, by collective action in the field of double taxation.

The need was increasingly recognised to harmonise the bilateral Conventions between Member countries on uniform principles, with uniform definitions, rules and methods, and to agree upon a common interpretation, It was also desirable to extend the network of the Conventions to cover all Member countries. The methods of co-operation already evolved in other fields made it possible to approach these problems from a new standpoint and under particularly favourable conditions.

THE WORK OF THE FISCAL COMMITTEE

The Draft Double Taxation Convention on Income and Capital

In February 1955, following a resolution adopted in 1954 by the Executive Committee of the International Chamber of Commerce, the Council of OEEC recommended Member and Associated countries to persevere in their efforts to avoid double taxation by the conclusion of bilateral agreements among themselves, and to revise any existing agreements which were no longer adequate to deal with the problem of double taxation. In March 1956 the Council established a Fiscal Committee for the study of questions relating to double taxation and other international fiscal questions of a similar technical nature. In July 1958 the Council instructed the Fiscal Committee to submit to it a Draft Convention for the avoidance of double taxation with respect to taxes on income and capital as well as concrete proposals for the implementation of such a Convention. This mandate was confirmed under OECD in September 1961.

Having produced between 1958 and 1961 four preliminary reports, which were published under the title " The Elimination of Double Taxation ", the Fiscal Committee established in 1963 a Draft Double Taxation Convention on Income and Capital, published by OECD in September of that year, to which the Council of OECD recommended Member countries to conform when concluding new or revising existing bilateral Conventions between themselves. This Recommendation was in fact complementary to the Recommendations which had already been addressed to Member countries by the Council of OEEC on the occasion of the four previous reports, each of which was accompanied by a series of Articles designed to form part of the final Draft Convention.

These various Recommendations were very widely acted upon and the period since 1958 has witnessed both an extension and some harmonisation of the network of bilateral Conventions on income and capital between the Member countries of the OECD. In fact, their number rose from 62 at the end of 1957 to 102 at 1st July, 1966, and will reach 136 when negotiations for thirty-four new bilateral Conventions which were proceeding at that date are successfully concluded. Ten of these new Conventions have in fact already been initialled. (See Table 1.)

The Draft Double Taxation Convention on Estates and Inheritances

The network of bilateral Conventions applying to estates and inheritances, which is more recent and less extensive than the network covering taxes on income and capital, has also been growing. The number of Conventions signed rose from 34 at the end of 1957 to 44 at 1st July 1966, and will be brought up to 49 when negotiations in progress at that date for 5 new bilateral Conventions — two of which have already been initialled by their negotiators — have been successfully concluded (see Table 2). Much, however, remains to be done before this network of Conventions becomes as extensive as the network of Conventions applying to income and capital.

When the Council of OEEC instructed the Fiscal Committee in 1948 to submit a draft double taxation Convention on income and capital, it also instructed it to report at the same time on the progress of its studies on double taxation with respect to taxes on estates and inheritances. The preparatory studies in this field which the Fiscal Committee commenced in 1961 were sufficiently advanced in 1963 for the Council of OECD to instruct the Committee to submit a draft double taxation Convention on taxes on estates and inheritances, which would constitute the logical and necessary follow-up to the first Draft Convention.

As in the case of the Draft Double Taxation Convention on income and capital, the Fiscal Committee set itself the twofold aim of establishing a draft Convention for taxes on estates and inheritances which would effectually resolve on a uniform basis the double taxation problems existing between Member countries, and which would be acceptable to as many of them as possible in spite of the differences in national taxation laws and economic interests. The application by all Member countries of common solutions to

1. NETWORK OF BILATERAL CONVENTIONS FOR AVOIDANCE OF DOUBLE TAXATION WITH RESPECT TO TAXES ON INCOME AND CAPITAL BETWEEN MEMBER COUNTRIES OF THE OECD as at 1st July 1966

REPORTING COUNTRIES	SWEDEN	UNITED STATES	FRANCE	GERMANY (F.R.)	UNITED KINGDOM	DENMARK	NORWAY	AUSTRIA	CANADA	ITALY	NETHERLANDS	SWITZERLAND	JAPAN	BELGIUM	IRELAND	GREECE	LUXEMBOURG	SPAIN	ICELAND	PORTUGAL	TURKEY
SWEDEN											N									N	
UNITED STATES															N			N		N	
FRANCE					N						N	N			N					N	
GERMANY (F.R.)					N				N	N		N	S	N				N		N	
UNITED KINGDOM			N	N		N			S	N	N			N			N	N	N	N	
DENMARK					N					S											
NORWAY									S	N	N		N	N				N			
AUSTRIA										N	N				S	N		N			
CANADA				N	S		S							S	N						
ITALY				N	N	S	N	N				N	N	N	N	S		N		N	
NETHERLANDS	N		N		N		N	N					N	N	N		N				
SWITZERLAND			N	N						N			N	N	N	N	N	S		N	
JAPAN				S			N			N	N	N		N							
BELGIUM				N	N		N		S	N	N	N	N			N	N				
IRELAND		N	N					S	N	N	N	N									
GREECE								N		S		N		N							
LUXEMBOURG					N						N	N		N							
SPAIN		N		N	N		N	N		N		S								N	
ICELAND					N																
PORTUGAL	N	N	N	N	N					N		N						N			
TURKEY																					
Number of Conventions concluded	17	16	16	15	15	14	14	12	11	11	11	10	9	8	7	6	5	4	3	—	—
Increase since 1st july 1963	—	—	2	1	—	2	1	1	1	2	—	1	3	—	2	2	—	1	1	—	—
Negotiations for Convention where none exists	1	2	2	3	4	—	1	3	—	5	4	7	4	5	4	3	3	6	1	8	—

Conventions concluded

Convention in force

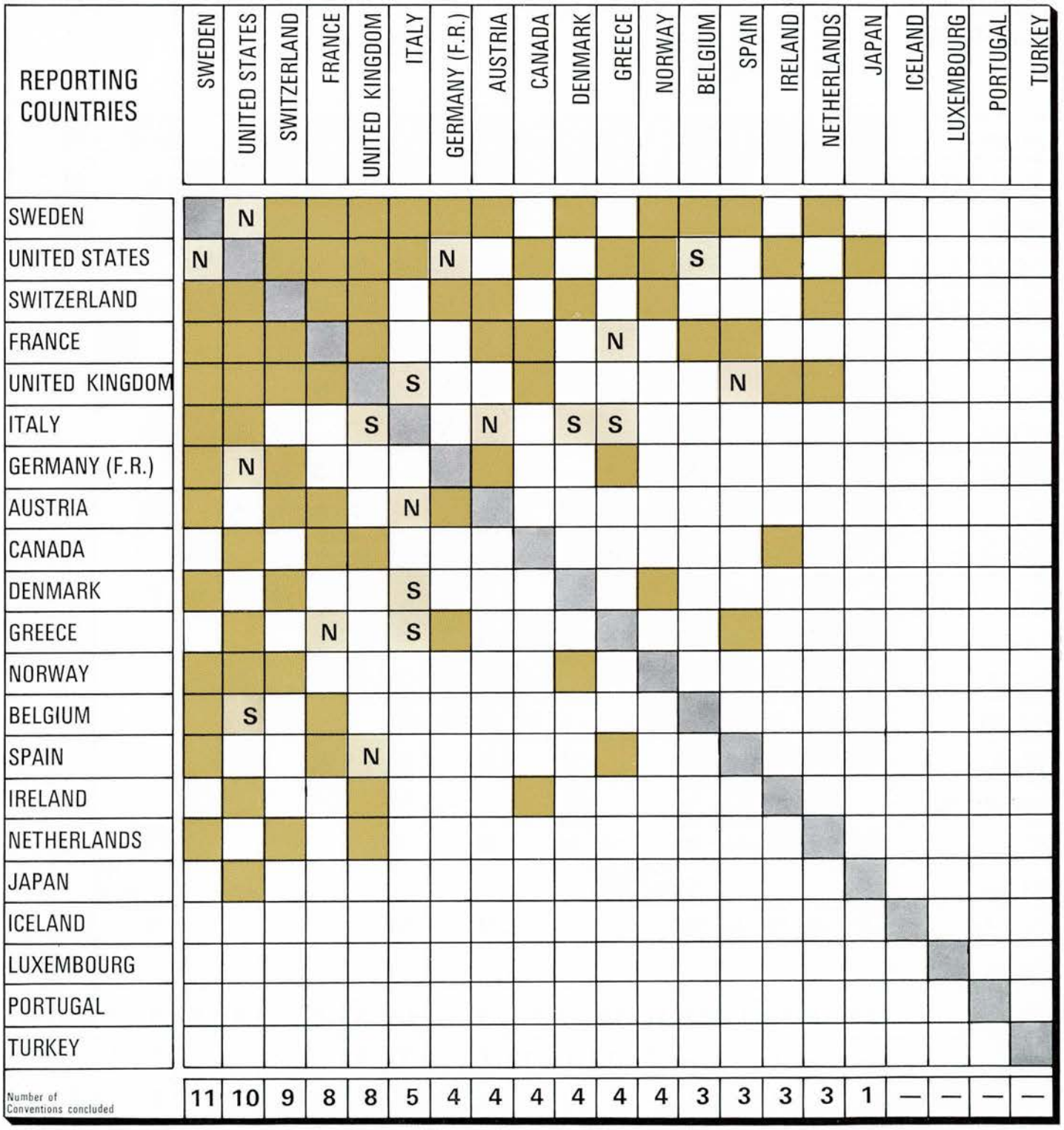
S Convention signed but not yet in force

N Negotiations proceeding for the revision of the Convention in force

N Negotiations proceeding for the establishment of a Convention

2. NETWORK OF BILATERAL CONVENTIONS FOR AVOIDANCE OF DOUBLE TAXATION WITH RESPECT TO TAXES ON ESTATES AND INHERITANCES BETWEEN MEMBER COUNTRIES OF THE OECD

as at 1st July 1966



Conventions concluded :

Convention in force

S — Convention signed but not yet in force

N — Negotiations proceeding for the establishment of a Convention

identical cases of double taxation should in fact make it possible to clarify, standardise and guarantee, to the greatest possible extent, the fiscal situation of taxpayers in each Member country who own movable or immovable property abroad, whether in a private capacity or for business purposes.

The Draft Double Taxation Convention on Estates and Inheritances submitted by the Fiscal Committee to the Council of OECD in June 1966 is therefore designed in the first instance to be the basis of bilateral negotiations between Member countries and, generally speaking, can be directly adopted by them. It consists of seventeen Articles, which, as far as possible, follow the order and presentation adopted in the Draft Convention applying to income and capital, and some of which, moreover, are common to the two drafts.

The purpose of the Draft Convention is to eliminate double taxation resulting from the concurrent operation of two countries' domestic laws on the occasion of the same death and in respect of the same property. Such double taxation can arise from various causes:

- conflict between the deceased's State of domicile and the State which taxes the property situated in its territory;
- conflict between the deceased's State of domicile and the State of which he was a national;
- conflict between the deceased's State of domicile or nationality and the heir's State of domicile or nationality.

The Convention achieves this aim by giving the right to tax either to the State of situs of the property or to the State of the deceased's domicile, according to the nature of the property left by the deceased.

BRIEF OUTLINE OF THE DRAFT DOUBLE TAXATION CONVENTION ON ESTATES AND INHERITANCES

• *Scope and Definitions*

Articles 1 and 2 define respectively the "*persons and the taxes covered by the Convention*". Article 3 deals with the "*definitions*" of certain terms or expressions employed in the Convention. The object of Article 4 is to determine clearly the concept of "*fiscal domicile*", since this concept is used to define the persons to whose estates the Convention applies as well as, in the case of a conflict of domicile, to determine the Contracting State on which the Convention confers the right to tax on the basis of domicile.

• *Taxing Rules*

Articles 5 gives the right to tax "immovable *property*" to the Contracting State in which such property is situated. Article 6 confers the right to tax "*movable property forming part of the business assets of a permanent establishment or movable property pertaining to a fixed base used for the performance of professional services or other independent activities of a similar character*" to the Contracting State in which the permanent establishment or fixed base is situated. Article 7 gives the right to tax "*ships and aircrafts operated in international traffic and boats engaged in inland waterways transport, and movable property pertaining to the operation of such ships, aircraft and boats*" to the Contracting State in which the place of effective management of the enterprise is situated. Article 8 provides that all other "*property not expressly mentioned*", in particular, shares, bonds and debentures, claims in respect of debts, etc., furniture, linen, household goods, collections of pictures or other objects of art, shall be taxable only in the State in which the deceased was domiciled at his death. Article 9 settles the question of the "*deduction of debts*" left owing by the deceased.

• *Methods for Elimination of Double Taxation*

Article 10(A) is intended to appear in Conventions between countries which generally use the "*exemption*" method, and Article 10(B) in Conventions between countries which use the "*tax credit*" method. In Conventions between countries which each use a different method, both Articles must be included. Article 10(A) is based on the method which may be called "exemption with progression", Article 10(B) is based on what may be called the "ordinary credit" method.

• *Special and Final Provisions*

The object of Article 11 is to ensure, in connection with taxes on estates and inheritances, "*non-discrimination*" from the point of view of nationality, in regard to the deceased and the heirs or legatees alike. Article 12 establishes a "*mutual agreement procedure*" between the Contracting States for the purpose, in particular, of remedying taxation which is not in accordance with the Convention, resolving problems which may arise out of the interpretation or application of the Convention, and settling cases of double taxation not provided for by the Convention.

Article 13 defines conditions for the "*exchange of information*" in order to enable each State to determine correctly the tax which it is entitled to levy under the Convention. Article 41 relates to the taxation of "*diplomatic and consular officials*". Article 15 makes provision for the "*territorial extension*" of the Convention in the case of States possessing overseas territories or responsible for the international relations of other States or territories. Finally, Articles 16 and 17 determine the conditions relating to the "*entry into force*" and "*termination*" of the Convention.

THE COMMENTARIES ON THE ARTICLES

For each Article in the Convention there is a detailed Commentary which is designed to illustrate or interpret the provisions. These Commentaries have been drafted and agreed upon unanimously by the experts appointed to the Fiscal Committee by the Governments of the Member countries. They are therefore of special importance in the elaboration of international fiscal law and can be of great assistance in the application of the Conventions and in particular in the settlement of any disputes.

In order to facilitate the application of the Convention between certain Member countries, the Commentaries

provide various possibilities of completing the Convention by special provisions, extending or restricting its scope, or setting aside or varying certain provisions in special cases. The Commentaries also indicate the reservations that have been formulated by some countries on certain of the provisions of the Convention. These few reservations should not obscure the progress and success that the degree of agreement achieved in the Draft Convention as a whole represents in itself.

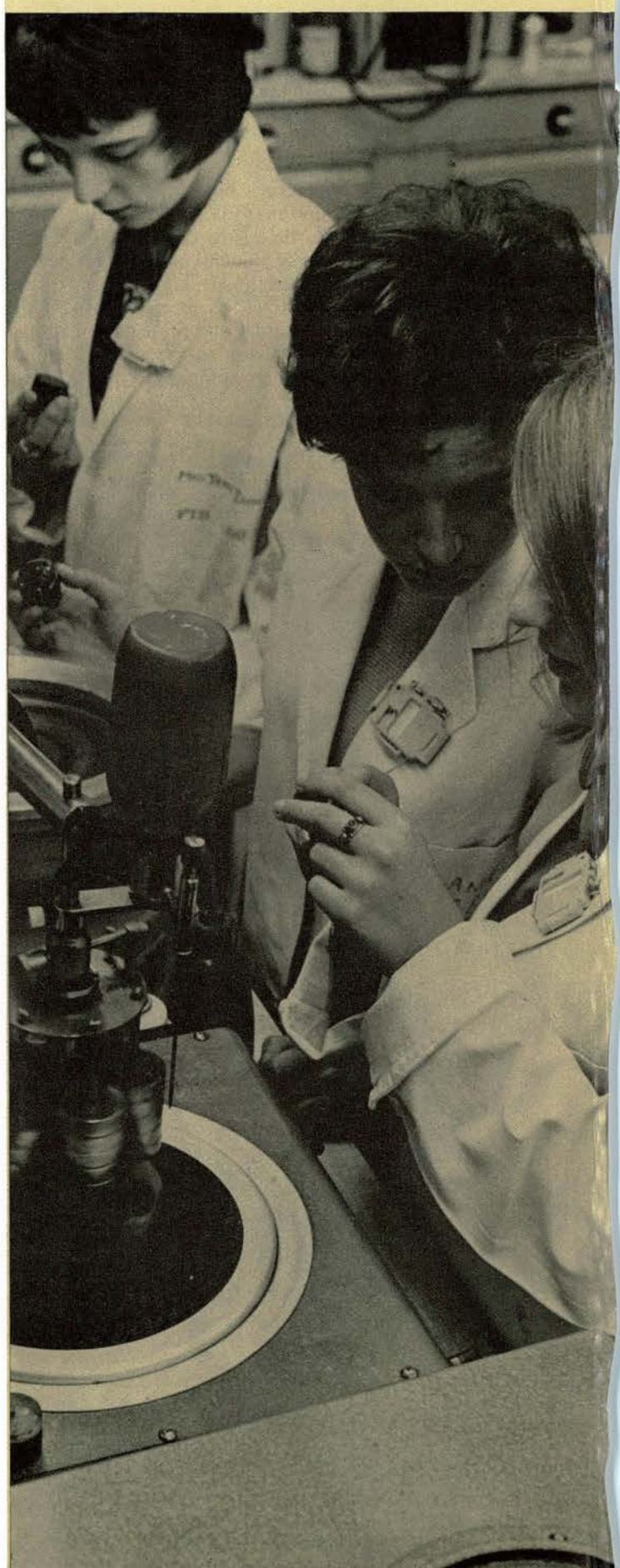
PROSPECTS

As it had done in the case of the Draft Double Taxation Convention on Income and Capital, the Council of OECD on 28th June, 1966, recommended Member countries to conform to the Draft Convention relating to estates and inheritances when concluding or revising bilateral Conventions between themselves. Canada and Japan for technical reasons are unable for the time being to associate themselves with this Recommendation. The Canadian tax system is at present being scrutinised by a Royal Commission of Inquiry on Taxation and by Provincial Taxation Committees, and the Canadian Federal Government feels that it would not be appropriate for it to make commitments before this inquiry is concluded. As regards Japan, the sole criterion of unlimited liability to its inheritance tax is possession by the heir or legatee of domicile in Japan, which makes it extremely difficult to reconcile this tax system with those of other Member countries; consequently any solutions will have to be sought first on a bilateral basis.

The new Draft Convention, like that on income and capital before it, should encourage Member countries to develop on a uniform basis the network of their bilateral Conventions on taxes on estates and inheritances and should spur those Member countries which do not yet have any Conventions to take action in this field. The existence of this new Draft, which has been worked out jointly by experts belonging to the Member countries' tax administrations and responsible for the negotiation and day-to-day administration of bilateral double taxation conventions, should facilitate future bilateral negotiations and thereby expedite their conclusion.

The new Draft Convention might also serve as a basis later for multilateral Conventions between certain groups of countries linked with one another by special regional agreements, until such time as it is possible, after further studies, to consider concluding a multilateral Convention applying to all Member countries of OECD.

It should also be emphasised that the Fiscal Committee's work since 1956 has given Member countries an opportunity to compare the effects of their taxation laws. This could make for the progressive harmonisation of these laws, which would simplify the solution of double taxation problems and lead eventually to their complete disappearance. It is therefore to be hoped that when reforms are undertaken in national fiscal laws, the legislators will pay attention to the solutions agreed in the two OECD Draft Conventions, in order to reduce, if not eliminate, the divergencies which still exist between the provisions of the national law and those of the Draft Conventions with regard to the delimitation of the States' right to tax.



EDUCATION AND UTILISATION OF SCIENTIFIC AND TECHNICAL PERSONNEL

by Léon TER-DAVTIAN
Educational Investment and Development Division of OECD

By embarking upon collaboration in the field of science policy, the Member countries of OECD have added a new dimension to their work of economic co-operation ; the rational exploitation of the most valuable of all their resources, namely the intelligence and creative ability of their peoples.
In practice, a science policy cannot exist without a policy for scientific and technical personnel. The latter cannot, moreover, be confined to research workers but must include everyone engaged in scientific work, whether in research, production, education, or other services.

The reason why a policy is needed embracing all scientific workers is that the proportion of individuals with genuine creative gifts is very small, barely 1 per cent according to the experts: the active life of a reaserch worker is short — about ten years from the time when he becomes fully trained, which includes of course not only his years of study, but also four to five years', experience in a research team. This state of affairs has two consequences: first, the entire active population must be drawn on to produce research workers; second, we should perhaps start thinking in terms of a scientific and technical career rather than a research career (1).

It would indeed be unthinkable in OECD countries, where the chief aim of economic progress is social advancement, for the authorities to take no further interest in that large section of the community which is not or has ceased to be " profitable " to research. These same people can prove very profitable in other fields where the training and experience gained in research can be put to good account. It is those who have this highly educative experience who will provide some of the best executives for the industrial and commercial enterprises that make up the economy of a country and pass on to all the fruits of scientific discovery.

Countries are thus being led to provide greater educational opportunities for their whole population and to offer vocational guidance facilities so that everyone may follow his chosen occupation and thereby render the greatest service to the community. But this calls for a policy of manpower utilisation based on the need to provide complete careers for the personnel who have been trained. These must be planned so that the best use will be made of an employee's skills and qualifications throughout his working life in posts which, at each stage of his career, will call into play the skills he has learned either as a result of conventional training, further training, or in-career experience, itself a highly valuable educative process.

Science policy presents a challenge, therefore, to educational and employment policies and calls for every aspect of them to be re-considered in a new light. This is an immense task and one for which most countries, by and large, seem ill-equipped.

The problems with which countries are faced

To formulate policies which have some chance of being rationally based requires a great deal of reflection. This is the reason why the OECD Member countries decided to review jointly, at an Inter-governmental Conference in Paris on 26th - 28th September, the major policy issues which face their authorities. The following are examples:

- What are the conditions to be fulfilled in order that the products of the educational system can find a first job corresponding to the qualifications they have acquired ?
- The role of employment services, vocational guidance and other governmental agencies in the more efficient operation of the labour market for highly qualified manpower.
- What sort of methods should be used to detect a person's research potential and to train research scientists ?

(1) Cf. the remark by Professor Monod, the Nobel prize winner: " If I were asked why research should be encouraged, I would say, before even starting to talk about results: to train men. "

- How to reduce wastage resulting from the non-employment or mal-utilisation of highly qualified manpower (persons who are vegetating in research establishments because they have lost their creative ability without becoming directors of research teams, older personnel whose qualifications are out-of-date, unemployed female graduates, etc.).
- How can education authorities help employers of highly qualified personnel to re-adapt such personnel to new jobs where they can render useful service ?
- What role could the government play to stimulate continuing education of highly qualified manpower in the course of their careers ?

All these questions come down to one basic issue, that of the relationship between the education authorities and those responsible for employment in all spheres, whether in research, education, or industry. To ensure that highly qualified personnel will be intelligently employed throughout their working lives, there is a need for a coherent policy comprising measures for deploying such people so that the needs of the various sectors of the economy will best be met, and for encouraging the use of their skills, continually furthered by an appropriate form of training. In order to shed some light on this problem a number of surveys have been undertaken; they are primarily intended to serve as case studies which will make it possible to state the problems more clearly and to formulate more accurately the research needed in the future.

Even at this early stage, however, these studies suggest that some approaches to this subject can be more rewarding than others. As examples, the following are some of the provisional conclusions that seem to emerge from the point of view both of the educational authorities and of the employer of highly qualified personnel.

Education policies should be based on objective information

The major concern of the education authorities, who in all countries find themselves provided with steadily bigger budgets, is to use judiciously the public funds entrusted to them. The real touchstone for this lies in assessing the benefit which the country will derive by investing in different kinds of education and training.

To start with, the " products " of the educational system must be able to find employment; unemployment of trained personnel means complete waste and is even more absurd in view of the fact that there is a shortage of them. The fact that industry lacks personnel and that graduates remain unemployed is a very serious sign of imbalance between the kinds of education provided and the needs of the economy. What is required, therefore, is an adaptation of educational policies so that they will not lag behind economic trends. But this presupposes that accurate information is available.

One of the aims of the Conference, therefore, is to identify the nature of this information, together with ways of obtaining it and using it in practice, so that educational policy can be fitted into a country's general economic policy and constitute one of its motive forces. Census statistics provide a first set of data. They show, for instance, that there is a certain parallelism between the standard of living and the " density " of scientific and technical personnel.

Country	GNP per head (in dollars)	Value added per person in employment (in dollars)	Proportion of STP in the total work force
United States	2,586	7,175	24 per thousand
France	1,234	3,031	27 per thousand
United Kingdom	1,214	2,620	27 per thousand
Yugoslavia	255	569	8 per thousand
Ecuador	170	484	3 per thousand

Census figures also give an idea of the extent to which productivity can be influenced by the relationship between certain kinds of education; knowing for example that in Greece 12 per cent of all university graduates are lawyers, while in Japan this proportion is 1 per cent, one is inclined to consider this as one of the factors accounting for the difference in dynamism between the two economies.

However, if one explores the matter in detail and tries to assess the effect produced on the economy by qualified personnel of various types, the conclusions arrived at are ambiguous:

Proportion of technicians in all scientific and technical personnel

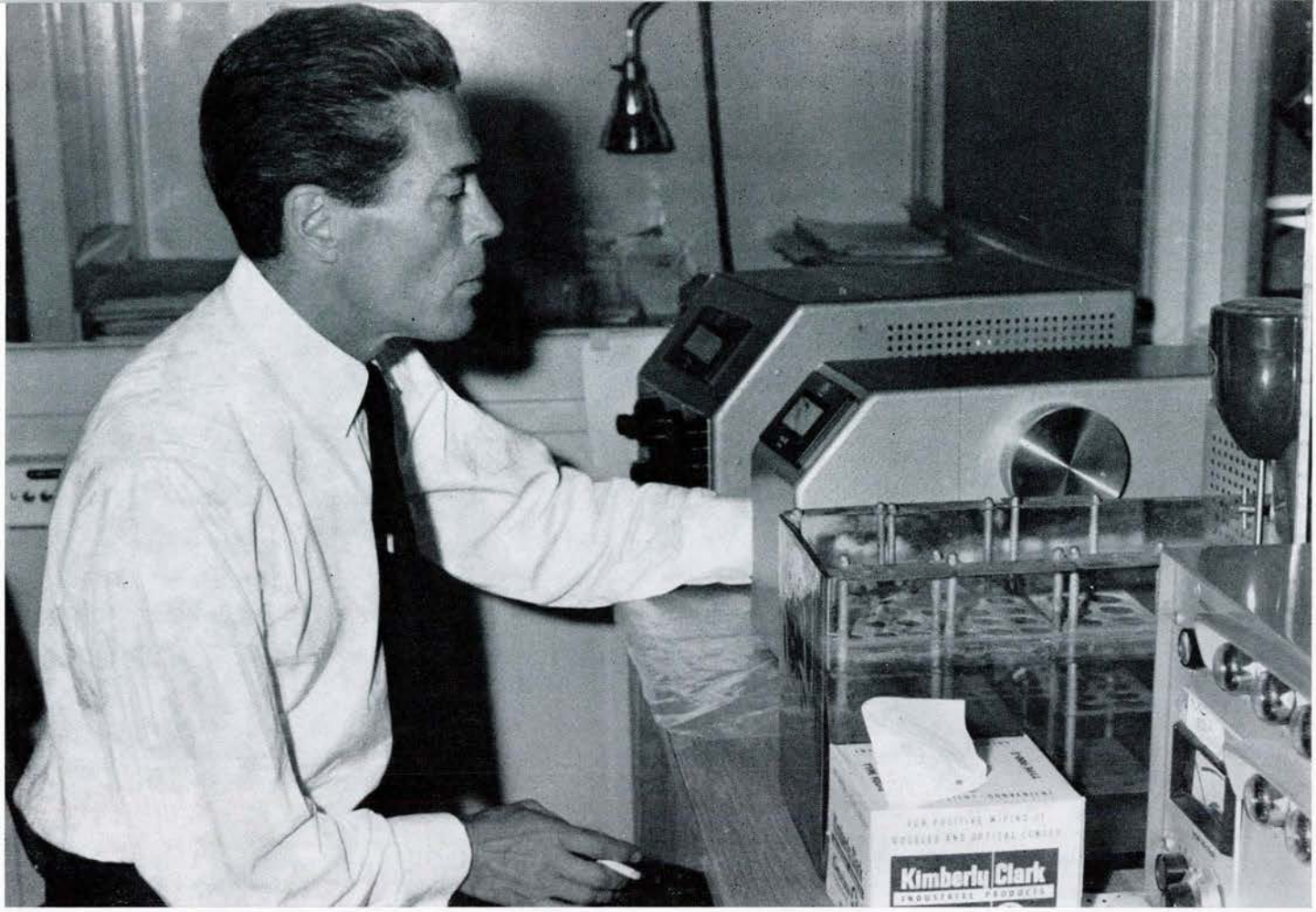
United States	35 per cent
France	66 per cent
United Kingdom.....	51 per cent
Yugoslavia	73 per cent
Greece.....	70 per cent

In any study of manpower utilisation, therefore, macro-economic data soon prove insufficient and have to be completed by detailed surveys. These have, in fact, been carried out in a number of cases.

A sample survey in the United Kingdom of some 3,000 employees in five electrical engineering firms showed that the training which continues to offer the highest social return, when the interest on the invested capital rises, is the training for the Higher National Certificate. Without entering into details, the curves opposite illustrate this clearly. They are taken from one of the reports prepared for the Conference and relate to a comparison between the training corresponding to the end of secondary education (or equivalent level) and each of the three succeeding levels; the HNC, the Ordinary Degree, and the Honours Degree corresponding to an advanced level of higher education.

If such a result were confirmed by a study based on a statistically representative sample, the education authorities might draw some fairly revolutionary conclusions and be led, for example, considerably to curtail most courses of advanced study while generalising the practice of career education.

With regard to the " labour market ", a systematic study of the forms and factors of disequilibrium between supply and demand would help to identify measures for correcting it. Some of these measures would have



" If I were asked why research should be encouraged, I would say, before even starting to talk about results : to train men. " Prof. Jacques Monod, Nobel Prize winner.

nothing to do with education itself; this is the case, for example, with imbalances due to the structure of wages and salaries and geographical mobility. Others, however, would hinge on the educational system, whose considerable inertia explains why it continues to produce personnel for whom the demand does not exist or has ceased. It is here that a system of " indicators " might be very useful to the education authorities; but these indicators can be determined only by study and research of the kind which have been carried out, again in the electrical engineering industry, but this time in the United States and Canada.

The research in question covered a thousand or so cases, some of them concerning employees in a number of establishments, others relating to the careers of graduates from a number of universities over a period of about ten years.

The following points were considered:

- The vocational training received by the individual, either of the traditional university type, or by experience and in-career training.
- The skills and knowledge required for the job.
- The relationship between the sum total of the individual's knowledge and skills and the job's requirements. In other words, the manner and degree of utilisation of these skills.
- The geographical and occupational mobility of the individual.
- The nature and relative importance of the various factors influencing the choice of jobs held successively during the individual's career.

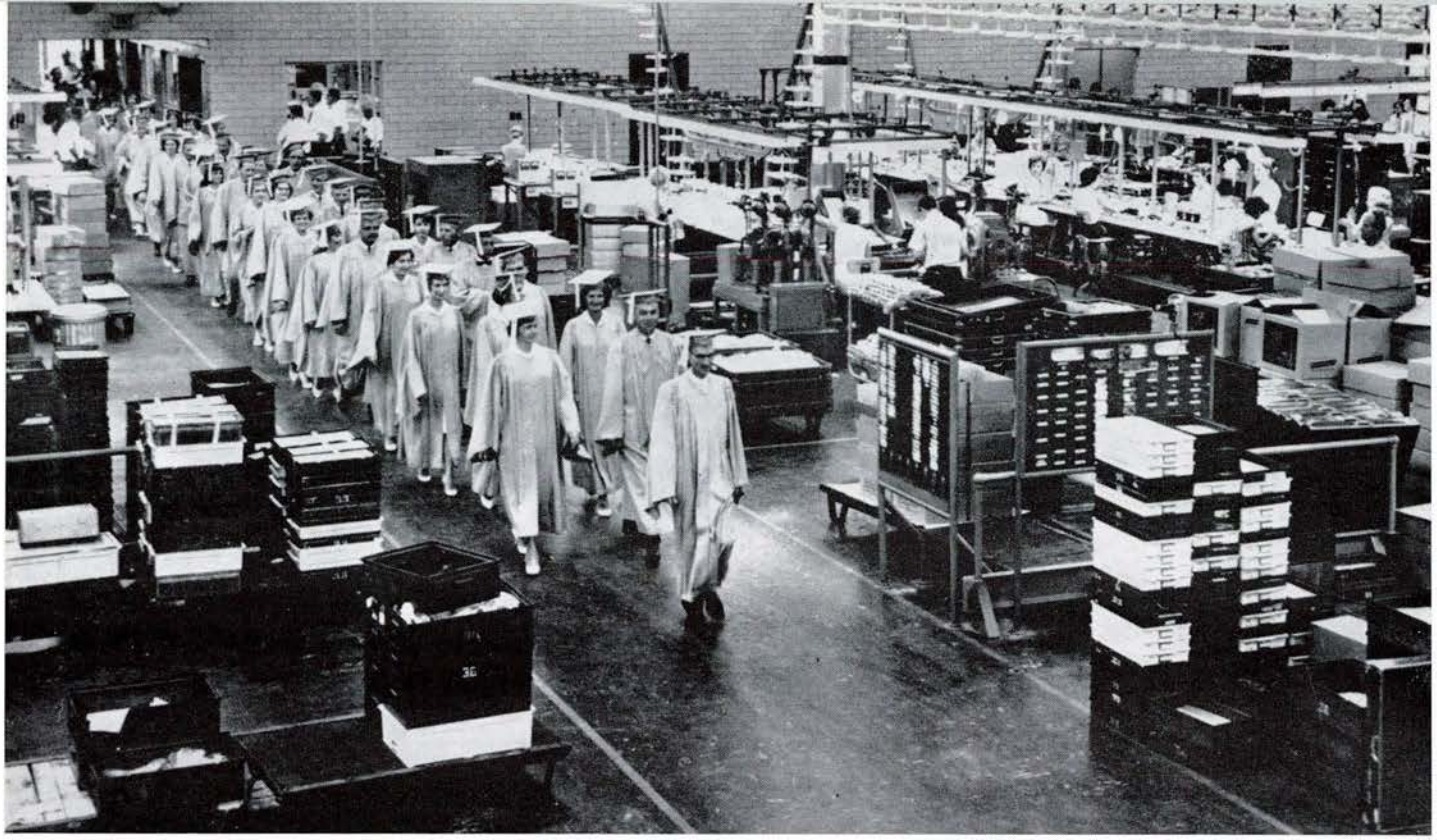
By analysing the relationship between the job performed and the individual's training, these micro-economic studies help to complete and clarify the information provided by the censuses. It should be noted that, in the job studies, each individual was asked to distinguish in this description between his technical, administrative and research responsibilities, as well as to specify what training he had received either in an educational establishment or in the course of his career.

In-career training - a major factor of manpower utilisation policy

Turning now to the employers, one finds a very heterogeneous group. In a firm of international class or in an important public utility, the employer's concern with making the best possible use of qualified personnel leads to a policy of systematic in-career training.

Young engineers are first assigned to research departments where they can use their imaginative and creative talents and at the same time receive training. Those who are attracted by the exploitation of research results are then assigned to development work where the experience and working methods acquired in research are put to use. Those who are fitted for technical or commercial management go to the operational departments, and a number of them are attached to executives at various levels. Finally, some of them will be appointed managers of important departments.

To each of these career stages there corresponds a period of organised training, given either in the firm itself, or at an outside university establishment but at the firm's expense. Thus in a big American firm 12



Employees of the Western Electric works in Indianapolis, Indiana, file through the plant during annual commencement ceremony. Students acquired the credits needed for a diploma while working full-time by attending voluntary classes in the plant after work.

per cent of the engineers are at any given time following outside training courses, the costs of which are reimbursed by the company upon successful completion of the course. A further 25 per cent of the engineers are attending courses within the company. In all, more than one third of the firm's scientific and technical personnel are receiving in-career training. A personnel policy of this kind enables everyone to give of his best and obviates any risk of obsolescence.

The studies carried out for the Conference have provided some examples of careers planned by firms understanding, as Napoleon did, the importance of " realising the potential worth of the men one has chosen ".

But how many of these progressive firms are there ? The answer is very few, owing to the economic limitations which handicap most European firms because of their insufficient size. The result is that in most of them everything conspires to bring about an inefficient use of personnel.

- First, there is the ignorance of employers. The " image " — to use the jargon of advertising — of certain diplomas or degrees is not a clear one in the mind of the employer, who does not know what kind of training they represent. This is one of the reasons why some heads of firms are surrounded by an abnormally large number of staff with the same training as themselves: the employer knows exactly where he stands.
- The tendency to engage a graduate, not because of his competence, but because of the prestige value of his degree.
- The fact that employers systematically use the knowledge and skills of executives, without troubling to keep them up to date, means that the qualifications of their staff become obsolete, with the result that after ten to fifteen years of service they are no longer able to compete with younger men who have recently graduated from university.

This gives rise to the problem of the " older " executives which has been called an " economic paradox and a social scandal " (1). The " paradox " stems from the fact that the proportion of " older " executives is by no means negligible: according to the statistics of APEC in France (2), 38 per cent of the executive-level personnel seeking employment are between 25 and 40 years of age. If this trend continues, only those between 25 and 45 years of age will be productive (and overworked), whereas those between the ages of 45 and 65 will be underemployed and need financial assistance, at a time when they possess an invaluable fund of experience.

Mergers and concentrations will swell the number of executives without employment, which explains the use of the expression " social scandal ". In a moving book entitled " The Job Hunter ", Allan R. Dodd gives an excellent description of this phenomenon.

Thus, only the large organisations offering complete careers can pursue a rational policy of utilisation and invest in the continuous training of their personnel. This makes one wonder whether one should not look beyond the immediate employer and regard the nation as a whole as the user of manpower, since it is the State's money which has been invested in the various degrees and diplomas that scientific and technical personnel hold.

Government responsibilities for the utilisation of qualified personnel

Where firms or organisations are too small to offer complete careers to all their executives, it falls to authorities to provide for the adequate employment of such personnel throughout their working lives. This responsibility is even more imperative in that in most countries

(1) Mr. Clogenson, Secretary-General of the European Federation of National Associations of Engineers (Report to the Confédération des Travailleurs Intellectuels de France).
(2) Association for the employment of executive personnel and technicians.

the vast majority of executive personnel are employed in small undertakings. The authorities can take a variety of steps to prevent inefficient use of qualified personnel. They can do so not only for personnel employed by government services, but for those employed throughout the private sector as well, provided they devise methods which do not constitute inadmissible government interference in the affairs of private enterprise.

The State may have need of personnel with industrial or commercial experience for technical assistance assignments, for example, or for certain posts in government services. Conversely, private firms may require personnel who have served in government research establishments or administrative services. The important thing is to formulate an employment policy that will enable everyone to give of his best at each stage of his working life. Such a policy will comprise measures to encourage continuous training, such as sabbatical leave, compulsory contributions by executives and their employers to a continuous training fund, etc.

Experience has shown that in most countries the measures which the progressive firms have thought profitable to apply to their personnel cannot be extended to the entire category of such persons other than by official action. One has only to recall the precedent of Social Security in France.

Government-sponsored action of this sort is only conceivable within the framework of an overall policy closely combining educational and employment objectives and in which the relationship between educator and employer is quite different from that which exists between supplier and customer. While it is up to the employer to decide the various kinds of skills his personnel needs, it is not for him to specify what subjects are to be taught or training methods used, for this is the domain of the educationalist.

This explains the growing need to establish some form of permanent co-operation between the education authorities and employers. The former must cease to work on the assumption that their task ends on graduation day, for they cannot afford to be indifferent to the careers of their past students. For one thing, these careers can be a source of vital information which will enable the authorities to adjust their education programmes to the medium-term or long-term needs of the economy. For another, it is necessary for the authorities to intervene at different points of the executive's career in order to provide him with the training he needs before taking on new responsibilities. This, moreover, is the surest way of diffusing through the economy the results of research done in the laboratories of the educational system.

For their part, employers who, under the pressure of requirements, have had to substitute for the agencies normally responsible for training, will find it much to their advantage to draw on the competence and experience of educational experts when it comes to carrying out the training schemes arranged on their own initiative. This is true not only of groups of firms which have had to set up their own training centres patterned on establishments run by the education authorities, but also of the larger organisations, including Ministries of Labour, which also have had to take initiatives in this field.

An employee of North American Aviation Corp. (U.S.) takes reading on electronic equipment during his study for a Ph. D. The company pays two-thirds of the tuition, reimburses him for the rest when he gets his degree.

Mechanism to ensure co-operation between the education and employment authorities

Some countries have already set up agencies for co-operation between educational and employment authorities. For example, the participants at the Conference will hear how in February 1965 the United Kingdom set up a "Committee on Manpower Resources for Science and Technology", an interdepartmental committee which reports direct to Parliament and whose members, sharing the same interest in the optimum utilisation of scientific and technical personnel, co-operate on a permanent basis, whether they come from the public or the private sector.

It is to be hoped that, after the Conference, other countries which have yet to do so will set up bodies for the same purposes and with a membership suited, in each case, to national structures and requirements.

The membership of the national delegations taking part in the Conference has been determined with this in mind, each delegation comprising persons responsible at a high level for education and employment policy, accompanied by representatives of bodies normally consulted by the authorities when taking decisions in this sphere, i.e. industrial federations, associations of professional employees, economic research establishments concerned with the employment problems of the active population, etc.

These delegations will have as their main task to determine what information the authorities need in order to formulate and implement a successful policy for education and employment.

OECD PROMOTES A NEW INTERNATIONAL BODY FOR RESEARCH ON SHIP FOULING AND CORROSION

The first of the research programmes begun within the OECD Science Directorate is to be established later this year as an autonomous programme outside the Organisation. Its object is the preservation of materials in the marine environment. More than 60 scientists from 19 countries, including engineers, physicists, biologists and chemists have taken part in the preliminary research work, which is spread over a network of testing stations throughout the world.
Now this research effort is to be taken over by a Permanent International Committee with headquarters at La Rochelle in France.

For several years the OECD Committee for Scientific Research has initiated and supervised a number of research projects considered to be of economic importance to its Member countries but which would be too expensive, too difficult, or not convenient, for one country to carry out on its own. Because of the great number and variety of these problems, OECD decided to provide for holding of regular meetings (called working groups) in which scientists actively engaged in relevant research from the Member countries could discuss their problems freely and, where appropriate, establish research programmes in which each country contributed to the general programme. Whether the contribution was small or great, every country would share fully in the results obtained.

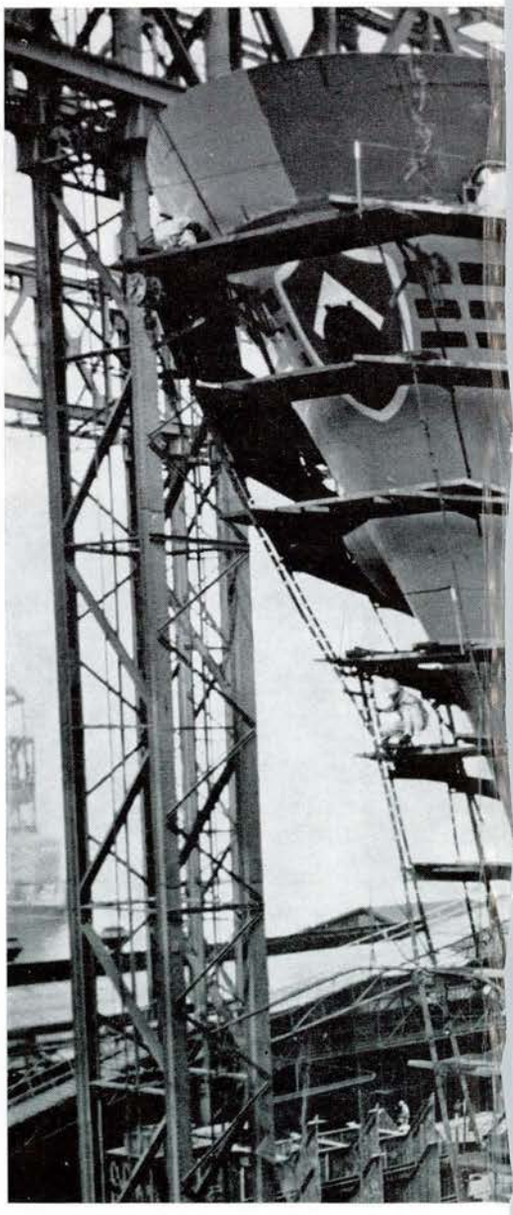
The problems particularly suited to this approach are those requiring a large number of routine tests, those which require expensive equipment, and those for which standard tests with the same material need to be conducted in widely scattered geographical locations. OECD lends its help to such co-operative programmes for an initial phase only; once the programme is well under way, OECD may help in establishing it on an independent basis, and turns its attention to new areas. This enables other projects to be developed and encouraged, OECD merely identifying and catalysing the potential research resources of its Member states by co-ordinating the national efforts on an international basis.

A number of such projects are operating at the present time within the OECD Division for International Co-operation in Science. The first of the co-operative research programmes which is about to become independent is that on the Preservation of Materials in the Marine Environment.

The Economics of Ship Maintenance

The economy of all maritime nations is dependent on an effective seagoing merchant fleet. The sea provides a source of food, a place to spend holidays, a means of communication from one country to another; but it also provided an environment in which materials used in ships' hulls and harbour installations are subjected to severe attack. These materials require considerable main-

Care is ta



tenance, repair and replacement, all of which constitute an economic drain which is estimated at *several hundred million dollars a year.*

Fouling and Corrosion

The attack in the sea may be of a biological nature, which is technically referred to as fouling, or physiochemical, technically referred to as corrosion. When a ship hull is painted in dock, great care is taken to obtain as smooth a finish as possible (Fig. 1) to allow the ship to move through the water with the greatest possible ease. If, however, it is not coated with an anti-fouling paint, or such a paint is near to exhaustion, the vessel on entering coastal waters or ports is subjected to settlement of marine larvae which quickly metamorphose into the adult stage and, if undisturbed, will grow and form a thick uneven growth over the surface (Fig. 2).

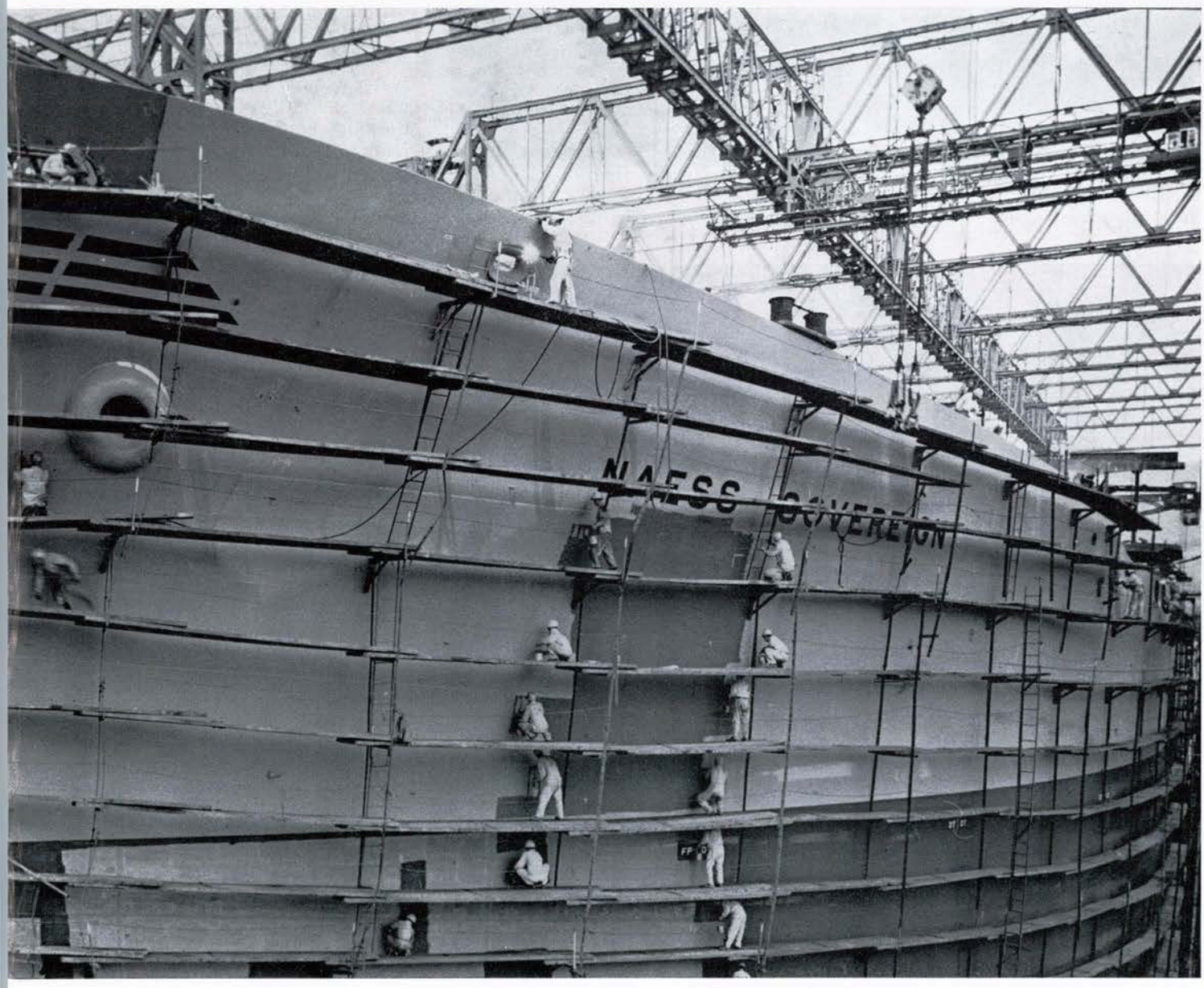
When the ship sails again, the frictional resistance is markedly increased and more fuel must be burnt to maintain normal cruising speed. In severe cases the fuel consumption can rise by as much as 50 per cent This represents an economic loss estimated as around $30,000 per year in increased fuel consumption alone, without taking into account cleaning and docking charges and loss of earnings while the ship is in dock.

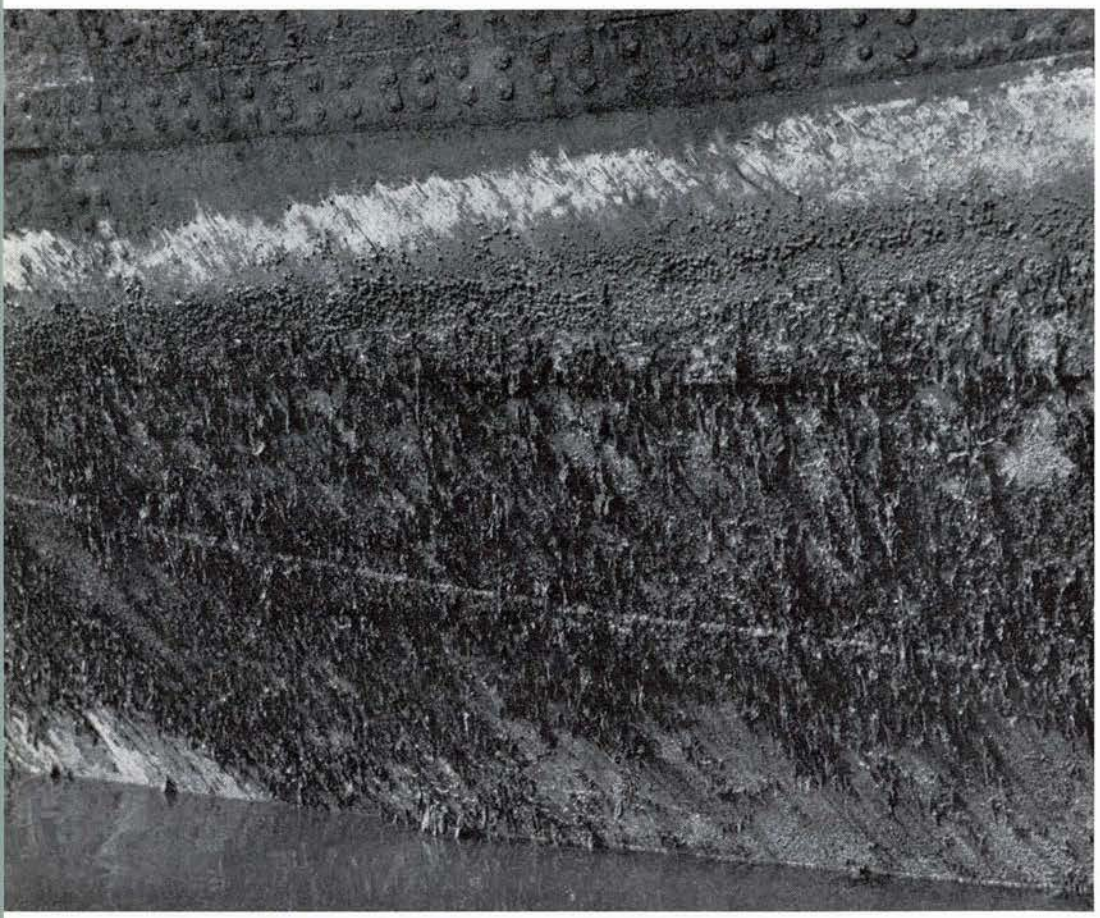
Under present day conditions, ships are docked at 18 month intervals. If better protection against fouling could be devised and the period out of dock increased by 20 per cent, the economic gain would be very considerable.

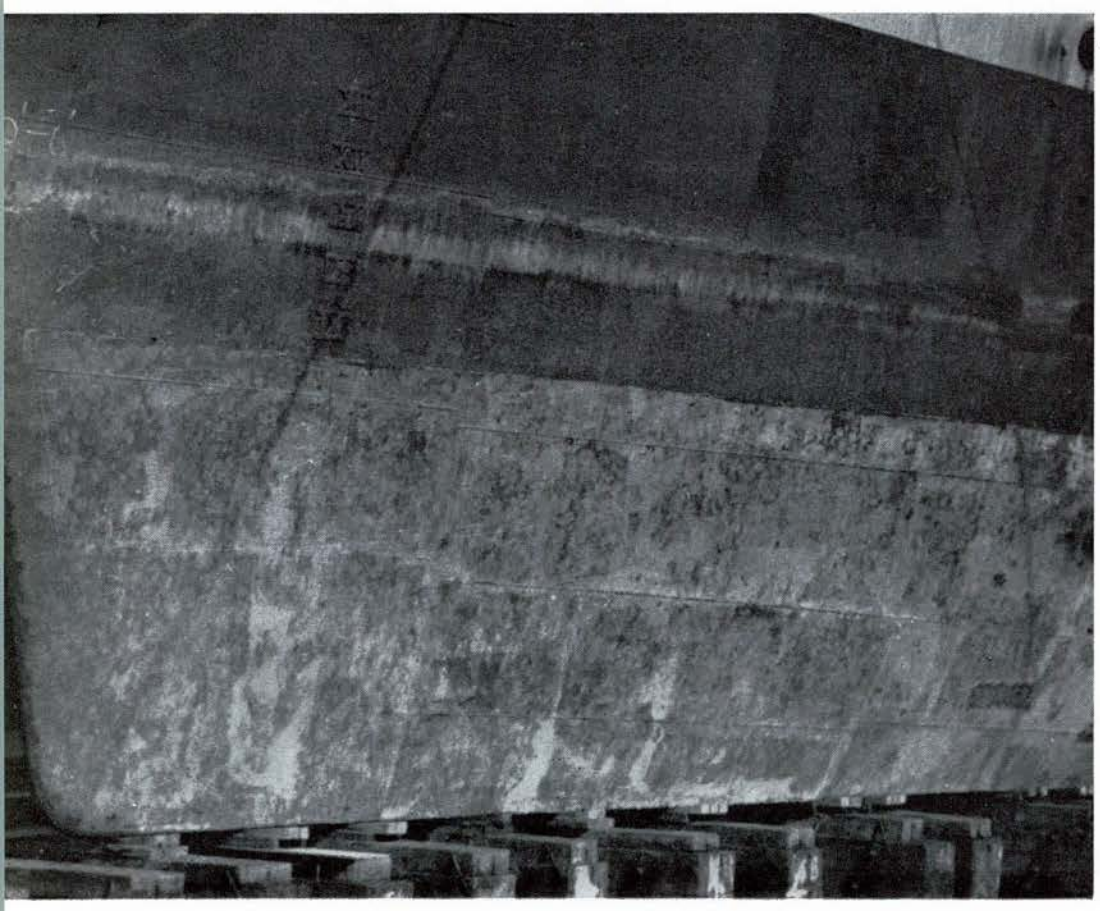
Before more effective measures to protect hulls can be developed, more fundamental knowledge is required about fouling phenomena. How does fouling occur? What prevailing environmental conditions favour the settlement of larvae? What kind of protective measures can be taken to discourage such an attack? How effective are these measures in the different seas of the world? These are the kind of fundamental questions which must be studied to provide the necessary data for developing effective, practical and economic measures for reducing fouling.

(continued on page 72)

n painting a ship's hull to obtain a smooth finish so that it will move easily through the water.







(Above) Fouled hull. (Below) Hull after being treated with anti-fouling agents.

World-Wide Concerted Action

Since ships operate in all the world's seas, studies of the fouling problem must be conducted in as many ports and harbours as possible. It is an important task for any country on its own to tackle such investigations. Furthermore, studies must be carried out by workers in a wide variety of scientific disciplines — i.e. engineers, physicists, biologists, chemists, etc. It is also necessary to obtain collaboration from port authorities. The OECD has been instrumental in bringing together the experts on the preservation of materials in the marine environment and aiding them to form a network of testing stations spread throughout the world. Over 60 scientists from 19 countries have taken part in the co-operative work carried out by the group.

Anti-fouling paints rely on the release of a toxic agent into the water which will either kill or discourage settlement of larvae. To develop better and more effective paints, the hydrological and biological conditions in the various seas need to be known. A big step towards furnishing this information has been made by the group on the Preservation of Materials in the Marine Environment. They have studied different marine environments and the distribution and season of settlement of the main marine fouling organisms. They have compared the aggressiveness of different ports throughout the world and have studied the behaviour of anti-fouling paints in the various ports. The group undertook research on the preparation of ships' hulls on a co-operative basis; and, also on a co-operative basis, research on the compatibility of anti-fouling and anti-corrosive paints, the leaching rate of toxins from anti-fouling paints, and the resistance of copper, zinc, aluminium and steel to corrosion at the testing stations.

An International Committee for Research on the Preservation of Materials in the Marine Environment

The OECD group of experts has completed the first phase of a series of investigations directed towards solving the fouling and corrosion problems, the very nature of which

requires both fundamental and applied studies of a long-term nature both in the laboratory and in the field. OECD considers that its catalytic role has now been fulfilled; but realising the economic importance and scientific interest in pursuing the study has agreed, on the recommendation of the group, to launch this project on an independent basis in the form of a Permanent International Committee for Research on the Preservation of Materials in the Marine Environment. The agreement bringing the Committee into being will be formally signed at OECD on 1st December 1966 by the laboratories concerned.

The headquarters of this new committee will be located at the Centre de Recherches et d'Etudes Océanographiques in La Rochelle, France. OECD thus sees its catalytic action terminating in one research area and can turn its attention to new projects requiring an initial supranational impetus.

PUBLICATIONS OF THE GROUP :

Catalogue of Main Marine Fouling Organisms,
Vol. I : Barnacles, 1963; Vol. II : Polyzoa, 1965;
Vol III : Serpulids, 1966; Volumes on Tunicata, Algae, Molluscs, Songes and Hydroids are in preparation.

Hydrological and Biological Conditions in Testing Stations,
Vol. I : Europe, 1961 ;
Vol. II : Outside Europe, 1963.

Marine Fouling : Co-operative Hydrological and Biological Research, 1966.

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