

the **OCEANOGRAPHY** **OBSERVER**

PROBLEMS OF THE BIRTH OF A NATION
SHIPPING SERVICES, FREIGHT MARKET
AND PORT EFFICIENCY. HOW INDUSTRIAL
RESEARCH SHOULD BE CARRIED OUT. THE
MOVE AWAY FROM THE LAND IN FUTURE
STEPS TO GUARD AGAINST INFLATION



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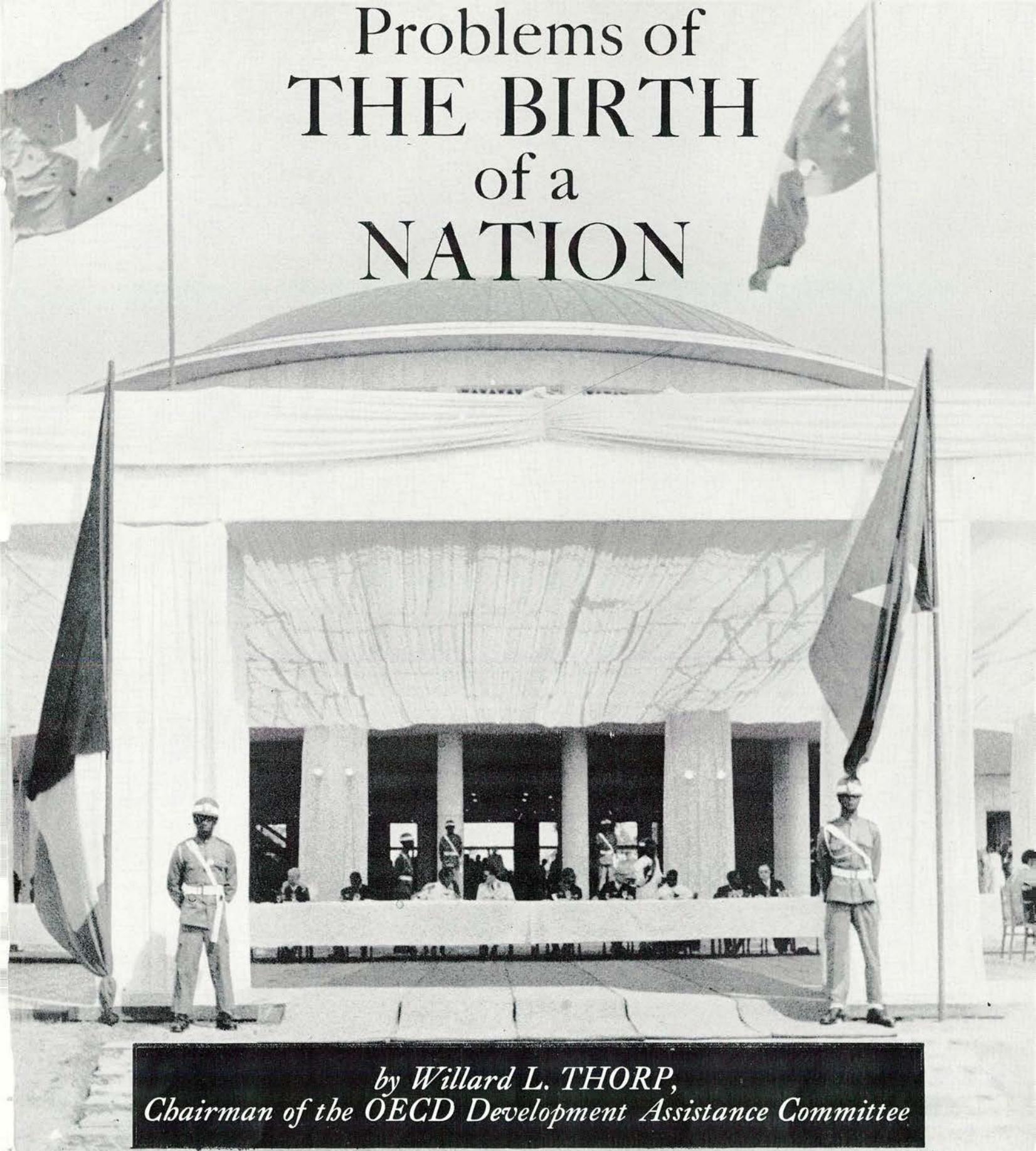
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Problems of THE BIRTH of a NATION



*by Willard L. THORP,
Chairman of the OECD Development Assistance Committee*

THE speeches end. The drums roll. One flag is lowered and another is raised, and a new independent political unit has been born. The political change to independence has taken place in a moment of time. The immediate objective of self-rule has been achieved.

One may question whether or not these ceremonies and celebrations have in fact created a new nation. The dictionary defines a nation as a distinct race or people having common descent, language, history, or

political institutions. The significant word is "common" and the essential requirement is some binding or unifying force. Of course, the situation varies greatly from case to case. Some of the countries newly born do not have a common descent, do not have a common language, and do not have anything which might be called a common history. They may previously have had certain common political institutions, but that was only because their various component parts were contained in administrative units within a much larger

empire. In fact, the common political institution may have been the very institution from which they are now separated.

A new common and independent government must now begin the process of creating a nation. This is not a process which can be carried out quickly. To the extent that there had been a prolonged struggle for independence involving more than just a few members of an elite group, the common effort may have provided a unifying force and an element of common political experience, as in the case of India. Some unity may also have been created in cases where the achievement of independence was agreed upon far in advance so that substantial institutional arrangements could be established, as was the case with the Philippines. But many of the recent births have taken place so easily and quickly that no new loyalty had time to be established to support the new state against the newly released internal forces of local division and political competition.

Just as past struggle and effort might have created some sense of national unity and loyalty, it also would have provided an opportunity for particular leadership to emerge with consolidated support behind it. However, in cases where there has not been any such prolonged effort, the new state may start with various individuals actively competing for leadership or with a head whose authority is only partially accepted. Even where there is some unity, the leader who has been effective in achieving independence may not be the type of leader who can create a stable, functioning governmental operation. The spirit of revolution does not necessarily coincide with the spirit of administration. One is likely to forget that governmental leaders in older countries have usually had substantial periods of government service and have been in the public eye for many years. A new nation may not have had the opportunity to develop such a group of potential leaders. Those who do emerge are likely to have little experience in visualising and enforcing "the public interest". And obviously there is no body of tradition to provide elements of stability to the new government.

THE problem of establishing a common loyalty to the new state is made much more difficult if there are clear-cut divisions among the inhabitants such as diversity in race, religion, or language. There may be important cultural and institutional differences (often springing from race and religion) in such matters as law, family practice, inheritance, work habits, holidays, personal habits, and the like.

These conflicts were largely though not entirely submerged so long as there was a foreign power with a strong police force which kept order. But independence involved the withdrawal of the external factor

which often had succeeded in keeping any antagonism among these separate groups from breaking out into violence. So long as they were all under the jurisdiction of an outside party, each could accept the situation. For them to work together on some co-operative basis was in all probability the initial pattern set up by the departing power, but it has often collapsed in the face of the basic group differences and conflicts of political ambitions. In such cases, for any one group to take over the position of supreme authority is not easily tolerated by the others. Whatever the cause, the old struggles between metropolitan country and colony seem often to have been much less violent and persistent than the internal confusion and conflicts of to-day.

In some instances, this difficult problem may be solved by migration, both voluntary and involuntary, and there is some compensation for the process, cruel though it may be, which has taken place in many countries for thus removing groups in the population which could not easily be integrated. One needs only to think of the movements of the French and Italians from Africa, the Moslems from India, the Christians and Hindus from Pakistan, the Indians from Burma, the Watutsi from Rwanda, and the Dutch and Chinese from Indonesia. In a very few cases the solution, alas, has been genocide. But many of the new countries still have major groupings which must somehow be brought together in a common effort to build the nation.

Even older countries do not necessarily avoid these internal dissensions. In history, civil wars are a familiar phenomenon (the British Isles, United States, Italy, Mexico, Spain), but most of them seem far back in the past. And it is important to distinguish changes in personal government (revolutions, coups, counter-revolutions, and counter-coups) or partisan politics from the disintegrating forces noted above, although they may not be unrelated. Some difficulties are long-lived. Fifteen years after the division of British India into Pakistan and India, one reads of continuing migrations reflecting primarily religious difficulties. The recent separation of Rwanda and Burundi is largely a matter of tribal differences which have come to a tragic climax. And on the island of Cyprus, Greek and Turkish flags rather than the Cypriot continued to fly after independence. Thus, the first problem of the new country is to achieve some sort of working unity, some binding quality, so that it can get on with the job of social and economic development. This is far from easy, and one must recognise that internal dissension may dominate the lives of some of them for many years to come.

EVEN if internal stability may have been achieved, another complication facing any new nation is that of achieving a satisfactory and peace-

ful working arrangement with neighbouring states, especially when they belong to the same generation. There are bound to be various political and economic problems of jurisdiction involving people, property, and goods. In older states, these problems still arise but principles have usually been agreed upon for their settlement, and there is often a considerable body of precedent. New countries are likely to be particularly sensitive about what they believe to be their rights. Any potential source of friction is aggravated if the boundaries are either not clear or were obviously drawn with pen and ink on maps, rather than based on natural dividing points. Thus, the problem of Kashmir has been a source of major irritation to both India and Pakistan; the question of the boundary between Ethiopia and Somalia has been brought before the African states; and the disposition of water adds to the tension between Israel and its neighbours. Boundary disputes are not necessarily limited to new states — note the Bolivia-Chile argument — and, unfortunately, states are not very flexible about giving up claims to territory. At worst, this can lead to a state of war. As a minimum, the result is likely to be elements of uncertainty which disturb the normal processes of living and the maintenance of a larger military force than otherwise, which diverts resources from development purposes.

The problems of achieving political unity and international comity are only the beginning of the new state's difficulties. Unless there is a period of anarchy and destruction, it may not appear on the surface that the new political status has involved any immediate revolution in the economic and social life of the country. The same biscuits and toothpaste appear in the store windows. The branches of foreign banks continue to operate. The Governor's Palace becomes the Presidential Palace. And the elite, such as it is, continues to reflect the result of having been educated in the former metropolitan power. If it had been a British colony, the lawyers would all have had the common experience of dining in the Inns of Court. If it had been a French colony, it would have a school system patterned closely after that of France itself. No matter how strong the effort to escape from foreign domination, these inherited tastes, habits, and institutions relating to the actual process of living are not easily changed.

Nevertheless, the new political status may carry with it certain changes in the rights and privileges of the citizens. To the extent that the newly-born country had been part of a larger political unit, certain privileges and preferences may be reduced. Its citizens may formerly have been able to travel to and from, or even migrate to, the metropolitan power without legal formalities. Its currency was often given respectability by being tied to that of the mother country. And in all probability the exchange of goods was unrestricted or was on some preferential basis between the two areas. These advan-

tages usually applied also to trade with other areas associated in the same empire.

NOW, the old relationship is broken and two countries have emerged, foreign to each other. To be sure, there may be some carry-over from earlier arrangements. A former British colony may become part of the Commonwealth. A former French colony may become associated with the European Economic Community. And the US and the Philippines agreed to make a gradual adjustment to foreign-country tariff status over a twenty-year period. Nevertheless, the old preferences do tend to be reduced or disappear. Part of the process of creating independence involves reducing the special relationships which formerly existed and establishing closer relations than before with a number of other countries.

In addition to the new position of the new country in migration and trade, there are certain immediate consequences which are likely to spring from independence. Limited though its resources may be, a further drain upon the availability of both personnel and capital takes place. Various fears, springing from the uncertainty of performance of the new country or the probable attitude of those in political power, may result in an emigration of individuals who, for reasons such as race or religion, feel that their status, property, or even their lives may be threatened. Similarly, there may be a flight of capital related to the flight of individuals or merely to the greater risks and uncertainties in the new environment. These may not be matters directly of government policy, but the natural result of the human desire to preserve life and possessions. Nevertheless, they constitute an immediate loss of valuable resources to the new nation.

This situation usually is further aggravated by a deliberate effort to eliminate foreign elements from the country. The new nationalism is likely to carry the campaign against foreign political domination into other fields than merely the political. All foreigners become suspect as threats to full-scale independence, and the foreign element most easily removed is that of foreign personnel. Such a policy has immediate appeal, for the presence of foreigners in posts of responsibility raises questions about the actual fact of the new independence. The continued employment of foreigners may be made procedurally difficult, as in the case of Cyprus, where the constitution allocates the positions in the civil service 70 per cent to Greek Cypriots and 30 per cent to Turkish Cypriots, with no percentage left for other nationalities. In some countries there are special personnel boards to see that no positions are given to foreigners if natives are available. To such a policy of removal (or expulsion) by the new government is added an encourage-

ment for former personnel to withdraw as an unplanned result of generous payments made on the part of the former colonial power to such civil servants as lose their positions.

This loss of a substantial part of the former technical and administrative personnel, as well as persons at the policy level, may be augmented by the distrust and even dismissal of native citizens who served in the government under colonial authority before liberation. The sort of prestige which has attached in Communist China to those who were on the long march and in India to those whose passive resistance put them in jail has its reverse aspects in many countries for those who did not demonstrate their rebellion. Since in some cases the option to retire on exceedingly generous terms also applied to the upper strata of native civil servants, the new government often starts with less native skill than appeared to be available.

Even this is not the whole story of the new operating difficulties, for much depends upon the extent to which independence had been approximated in the colonial days. Whereas countries such as the Philippines, India, and Tanganyika began their independent existence with substantial experience in legislative and executive processes, the Congo became independent when it had very few university graduates and less than two hundred graduates at the high school level per year. Cyprus had not even its own legislature or judiciary in its later years as a colony. Even if the country had a substantial and experienced civil service, there were likely to be four fields on which the colonial power had kept a strong hand — the military, the judiciary, fiscal policy and operation, and international affairs — and each of these is full of trouble even for those with considerable experience to help them.

AS if the absence plus the losses described above of capital and skilled personnel were not enough, the new country suddenly finds that there are new demands upon its resources. It must establish itself in the area of foreign affairs, and this means ambassadors and all the paraphernalia of embassy operation. How many embassies should it have, how much will they cost, and who can be spared from the establishment or perhaps banished from political competition at home? These are immediate problems to which must be added the bewildering world of international organisations, each with its annual assessments, its meetings to be attended, its desire for personnel, and its secretariat's insatiable demand for information. To be sure, all these may be helpful in the long run. On a balance-of-payments basis the in-payments by foreign embassies in the country may exceed the cost of out-payments for its new embassies abroad. But the foreign

embassy staffs in the country in a way are an added burden. And they cannot make up for lost domestic services of the group of native personnel which must spend time abroad, drawn from the much too small number of competent persons available. More time must be spent on foreign affairs within the country. Its representatives must be instructed as to how to vote in international bodies on matters which are quite unrelated to its life and experience. It must be responsible for its own citizens who travel abroad. In fact, there must be a new Ministry of Foreign Affairs to handle the vast amount of varied matters which never were the subjects of concern before.

Similarly, there are new manpower and budgetary requirements in the area of the police and the army. Undoubtedly the cost of such activity was borne in part by the metropolitan power, plus what is even more difficult to replace, the ultimate responsibility for direction and policy guidance. Under these general headings of police and army are a variety of specialised matters involving selection, training, equipping, and maintenance. This is a particularly sensitive area, since the military leaders may be the only persons in the country who head an organised and effective power group. But, returning to the problem of new burdens to be carried, there are other matters related to the keeping of order. For example, the operation of prisons was usually carried out under foreign direction, often with no native personnel instructed at the policy level. And the judiciary must now be organised to operate without reference to a final review elsewhere.

Similarly, new requirements are likely to appear in the fields of fiscal policy, budget-making, tax-collecting, and the processes of government expenditure. Again, the shock of such new expenditures on the resources of the new government is related to the degree of foreign control which existed before, the degree of experience in these fields, and the degree to which expenses were shared in the past. In some particular instances, metropolitan powers have made efforts to ease the transition by operating with a "shadow government" or by trying to make a gradual transfer of authority in advance of the date of birth. In other cases, the tensions were such as to make such an effort impossible. All these new or newly assumed functions are not merely burdens on the budget, but require skill and experience in areas where often the new nation has no reserve of manpower upon which to call.

At this point of new national pride, assistance from the industrial countries is likely to be suspect, although there are recent exceptions to the rule. India has gradually relaxed her initial restrictions on foreign technicians and foreign capital. After an initial outburst against the Belgians, the Congo has asked for help from the Government of Belgium in many fields. Certain recently independent East African countries asked for

British help in keeping their own military forces in order. And nearly all the African ex-French colonies depend upon French assistance for government operations. Nevertheless, stemming out of the concept of independence there is a basic reluctance to accept foreign technical assistance or foreign capital at the same time that it is obvious that such assistance is essential to their progress and development. To some extent, technical assistance provided by the United Nations has been more acceptable, although it has been limited in amount. The difference is more one of label than fact, since UN technical assistance consists largely of personnel obtained from advanced countries for temporary service, differing little from that which would be provided under bilateral arrangement.

THE above discussion describes some of the special difficulties which may be traced directly to the birth of a nation and which vary of course from case to case. At the moment, these problems are very conspicuous, in view of the fact that the birth-rate of nations has been very high since the end of World War II. Except for possible further subdivision, this population increase cannot be expected to continue much longer. But the difficulties which have been outlined above are only the beginning. The new post-war countries, almost without exception, are underdeveloped countries. Many of them have per capita incomes of less than \$ 100 per year. Thus to the problems of establishment described above must be added the difficult ones facing all such countries, problems associated with economic development and growth — the upgrading, mobilisation, and appropriate organisation of resources, manpower, capital, and enterprise; the acceptance of new technology; the development of markets; and the encouragement of the process of savings and investment.

In looking at the future of the new country in development terms, another special problem may appear. The shape and size of the new country in all probability is the result of historical accident having little relationship to its economic resources and prospects. Therefore, it may have few natural resources, it may have such a small population and constitute such a small market that its productive possibilities are strictly limited, and it may have difficulty of access to the rest of the world. Thus, if it happens to suffer from one of these handicaps and unless it is fortunate in producing some much-desired export product, its prospects for economic viability on the basis of a much higher level of living are not bright. At this stage in its history, it may be difficult for it to develop those intimate, special relations with other countries which can mitigate such accidents of size and shape.

But in spite of all this, an improvement in economic and social conditions is expected. In most new countries, if he thought about it at all, the man in the street believed that political independence would result in a change of life for the better. He had been told so over and over. His leaders in the struggle for independence attacked the previous regime as one of exploitation and painted the future prospects in glowing colours. The emphasis was on the real and fancied evils in the situation rather than any careful blue-print of how the glowing future was actually to be achieved. The inevitable difficulties described above were seldom given any recognition. It should also be noted that the advanced countries did not come up with any effective suggestions as to how to achieve a better transition or to improve the prospects of some of the less fortunate new states. The conservatives did a great deal of grumbling but it was mostly in terms of the loss of empire. It was difficult for liberal groups in the advanced countries to resist the appeal of "Freedom now". They were swept along by a philosophical idealism and paid much too little attention to the extraordinary problems which would be created for the new countries.

The emphasis then was on political independence and few recognised that political independence was primarily a shift of responsibility — that by itself it provided no new capacity or ability to improve the level of living and, in fact, probably reduced the resources and skills available. But once the initial objective of political independence has been achieved, the focus shifts to better social and economic conditions. And so the new government, with all its weaknesses and other difficulties of early childhood, is forced to struggle with many new and most difficult problems in the economic development area.

While some of the various difficulties which are described above were probably unavoidable, others might have been avoided by greater foresight. Because of their intimate part in the earlier political and economic history of these areas, the older nations have a special responsibility to help them in every way possible. They are already providing increasing amounts of technical assistance and capital.

In the face of the record which shows so many difficulties, it would not be hard for the more advanced countries to feel that there is little hope for progress in these new countries. But one must put the present in perspective. These are very new nations. It is important to recognise and have full sympathy for the special difficulties of the initial period of independence. Perhaps methods of co-operation and co-ordination can be developed which will establish more viable units. One can hope that one way or another elements of political stability will be achieved without violence and that rapid social and economic improvement will then be possible.

Proposals for strengthening

As Chairman of the OECD Development Assistance Committee () (DAC), Willard L. Thorp is responsible for preparing an Annual Review of Development Assistance Efforts and Policies. The following paragraphs contain the proposals included in the 1964 review for strengthening the assistance effort.*

There is a clear need to accelerate the process of development in the less-developed countries. The Members of the Development Assistance Committee have every wish to contribute as effectively as possible to this objective. The continuing consideration of assistance problems by the Committee and in particular the results of the discussions during the third Annual Aid Review suggest the following recommendations for action on the part of the Committee and its individual Members.

New initiatives to expand the assistance flow

Fresh initiatives and new impulses are needed to secure a further substantial expansion of assistance to the less-developed countries. Governments should keep these considerations in mind when they make their decisions about budgetary requests for 1965. Budget appropriations for economic assistance to less-developed countries will clearly have to be increased in most DAC countries if a satisfactory upward trend in assistance flows is to be sustained.

Special efforts should be made to maintain a high rate of increase in the volume of technical assistance, particularly since it can help increase potential commitments through feasibility studies, to reduce the financial "pipeline" through more efficient project operation and improve the absorptive capacities of recipient countries for capital assistance.

It is important politically and economically that all developed countries contribute their fair share to the common assistance effort. While there were certain improvements in this respect in 1963, these improvements have to be vigorously continued and strengthened.

Member countries and the private capital market will continue to be called upon to supply additional funds to multilateral agencies. Recognising the extremely useful work done by these agencies, they should be actively supported. However, multilateral contributions should not be regarded as a justification for failing to support increasing bilateral programmes at the same time.

In the interest of obtaining wide public and parliamentary support gov-

ernments demonstrate that their assistance programmes are efficiently administered taking into account the manifold operational problems which exist, and that they contribute as effectively as possible to the development of the less-developed countries. It is hoped that it will become increasingly possible to establish that the less-developed countries themselves are making a determined effort to mobilise their own resources and use them effectively.

Further increases in the volume of assistance and the acceleration of development depend on vigorous efforts to expand the capacity of less-developed countries to use external resources effectively. Donor countries should, therefore, take a more dynamic attitude in helping less-developed countries to identify opportunities for the development of their natural and human resources, to formulate development projects and to implement them efficiently. Procedures by Members for examining assistance requests, their activities during the pre-commitments stage, their eligibility criteria, and their methods of programme implementation must also be constantly reviewed and adapted to the needs and circumstances of the less-developed countries.

Improving the terms and conditions of aid

There has been further progress in adapting financial terms to the economic circumstances and the debt-servicing capacity of less-developed countries. However, there are still wide differences in the terms charged by the various donor countries. Increasing harmonisation of loan terms among different suppliers of capital appears highly desirable. Such harmonisation would clearly be facilitated if there were a common basis for evaluating the

prospective debt-servicing capacity of the debtor countries concerned.

More attention must be paid to the role of short- and medium-term suppliers' credits and other capital flows in increasing the debt-service charges of less-developed countries. A rational lending policy including appropriate terms is only possible on the basis of adequate information on total outstanding debt including private debt and commercial arrears. Efforts to obtain more adequate information promptly are required on the part of the appropriate agencies as a first step.

So far as possible, debtors and creditors should give thought to ways and means of so planning the future course of interest and amortisation payments as to avoid default or periods of credit stringency. In general, this problem will be less urgent if terms and conditions of new assistance are eased in appropriate cases by those lending countries which are still using relatively hard terms.

A fresh move to reverse the present tendency towards increasing aid-tying is desirable. Such a move would be facilitated if donor countries were to act jointly, even if comprehensive action had to be confined to those countries which do not have major balance-of-payments problems.

Steps to increase the effectiveness of assistance

The past emphasis upon projects and infrastructure needs to be reviewed. Work in the fields of agriculture and rural development is clearly of major importance. Small- and medium-scale industry need much more encouragement, especially through technical co-operation. In addition to direct forms of assistance in these areas, there is a strong case for increased financial and technical support of properly staffed agricultural and industrial development banks.

Member governments should have the appropriate authority to provide non-project assistance in those cases where it is justified by the needs of the recipient country and its ability to assure the effective utilisation of such resources.

Wherever possible, the need for technical assistance should be considered in relation to the overall educational and manpower requirements of recipient countries. In this connection Members should consider ways in which training facilities and institutions located in those countries can be further strengthened.

(*) The Development Assistance Committee comprises the Governments of Belgium, Canada, Denmark, France, Germany (F.R.), Italy, Japan, the Netherlands, Norway, Portu-

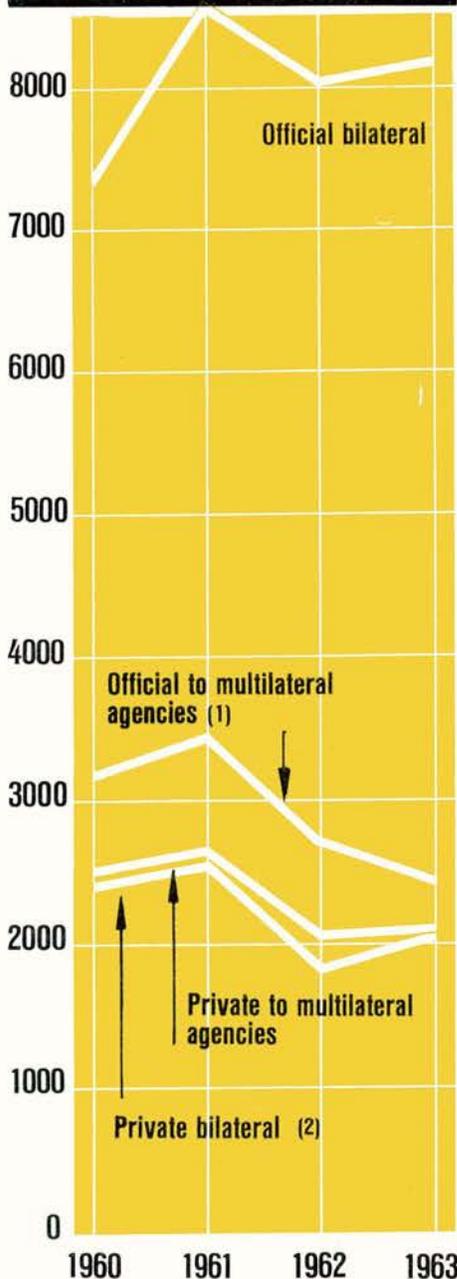
gal, the United Kingdom, the United States and the Commission of the European Economic Community. Some 90 % of the world total of development aid derives from DAC Members.

ing the assistance effort

More account should be taken of continuing costs of projects and programmes after the initial investment — maintenance, spare parts, and operations costs. In general, initial plans should include assurances of support into the future to the point of ultimate takeover by the recipient.

FLOWS OF ASSISTANCE FROM DAC MEMBERS TO LESS-DEVELOPED COUNTRIES

\$ million



(1) Not including IMF

(2) Not including guaranteed credits of less than 5 years, and flows from private non-profit organisations

A major effort should be made to simplify and standardise administrative arrangements for financial and technical assistance as well as for student and trainee programmes.

More effective international co-ordination

An increasing proportion of assistance is given within the framework of consortia, consultative groups, and other arrangements for the international co-ordination of assistance, but the scope and nature of these arrangements vary greatly. The DAC should examine in detail the adequacy of these arrangements and make proposals for strengthening them or for initiating new ones where this appears to be desirable.

The use and allocation of the scarce technical assistance resources need to be carefully considered. This requires a substantial improvement in planning and co-ordination by both donor and recipient countries.

More stress on performance of developing countries

More stress should be placed by donors on actual and prospective performance by the less-developed countries in the form of reciprocal commitments or in terms of joint ventures. Efforts should be made to develop performance standards which could reasonably be expected of countries at various levels of development.

In view of the limited size and resources of many of the less-developed countries, efforts by them to promote economic integration, regional planning, and common service organisations should be encouraged. This whole subject should be examined much more closely by the DAC.

Improving technical co-operation

Since the limitations to an increase in technical assistance are largely physical ones, a more active policy to overcome these limitations is desirable. This may require, for example, the setting up of additional special courses (including language courses) for training advisers and a planned increase in facilities for trainees and students from developing countries.

Members should give special attention to ways of increasing rapidly the supply of middle-level personnel in developing countries. In this respect, there is particular value in projects of the Peace Corps type, which generally make use of younger volunteers.

The time has come for Member countries generally to recognise that at least a nucleus of experts should be placed on a permanent basis and that experts on temporary assignments should have the right to reinstatement on their return. In addition, limitations on the supply side might be eased if countries would more often obtain experts and equipment from third country sources when appropriate.

Consideration should be given to ways of further improving the effectiveness of educational and training activities — for example, in respect of the selection of students and trainees, the better adaptation of the content and organisation of training to the needs of the developing countries, and the evaluation of the results.

Encouraging the efforts of the private sector

Although the flow of private capital is primarily determined by the economic and political conditions which private foreign investors can expect in the capital-importing countries, the DAC Members should give prompt attention to OECD proposals relating to the use of tax incentives and a possible multilateral guarantee scheme.

There is increasing recognition of the large and growing activities of private non-profit organisations in providing technical assistance and other help in less-developed countries. While it is essential that these activities maintain their private character, governments should examine the possibility of giving some official encouragement to such projects and the desirability of establishing some degree of co-ordination with the official assistance programmes.

Relating trade and development

Member governments are aware that the results of the development efforts of less-developed countries as well as of the foreign assistance programmes are decisively affected by the ability of less-developed countries to increase their foreign exchange earnings.

The proposals which emerged from the recent United Nations Conference on Trade and Development are related to the work of several agencies in OECD, including the Trade and Executive Committees. To the extent that the Conference Resolutions have a bearing on assistance policies and objectives, they should be carefully studied by the Development Assistance Committee.



Shipping Services, Freight Rates And **PORT EFFICIENCY**

The Annual Report of the OECD Maritime Transport Committee, published in July, devotes an entire section to a survey of the economic importance of ports, and in particular to possibilities of improving turn-round in the ports as a means of ensuring increased carrying capacity of world shipping and the more efficient use of ships.

The diagrams accompanying this article are based on tables contained in the Maritime Transport Committee's Report.

In 1951, the Council of the OEEC, on the proposal of the Maritime Transport Committee, made certain recommendations to governments with the object of improving the slow turn-round of shipping in ports. A detailed study on the subject, carried out by the Committee, was summarised in their 1958 report. This established that the trouble in ports arose mainly from two causes : lack of financial means which resulted in shortage of modern equipment, inadequate inland transport and cargo-handling facilities, and lack of stor-

age space and deep-water berths ; and manpower problems, including shortage of skilled labour and labour troubles. Excessive documentation formed a third stumbling-block.

In post-war years rapid progress has been made in ship-building and propulsion techniques. Ships are bigger, faster and more economical to run. Efforts to adapt port facilities to new conditions in the expanding world trade have failed, however, to keep pace with these advances, so that time gained during the voyage may be lost in waiting for turns at loading and discharging ports. In

DEVELOPMENT OF WORLD FLEET

Ships 100 gross register tons and over
(In million g.r.t.)

MID-YEAR	NON-TANKER ¹		TANKER	
	Million G.R.T.	% of increase over previous year	Million G.R.T.	% of increase over previous year
1952	67.0	1	20.0	10
1953	68.1	1	22.0	10
1954	69.1	2	24.6	12
1955	70.6	1	26.5	8
1956	73.6	4	28.2	6
1957	77.0	5	29.8	6
1958	81.2	5	33.4	12
1959	83.7	3	37.7	13
1960	84.9	1	41.3	10
1961	88.7	4	43.7	6
1962	91.4	3	45.1	3
1963	95.5	4	46.9	4
% of increase over 1952		43		135

1. Including Passenger Vessels.

SOURCE: Lloyd's Register of Shipping (but excluding United States and Canadian Great Lakes fleets).

addition, in many ports — there are some notable exceptions — the cost of handling cargo is rising and absorbing an increasing portion of the overall freight rate.

A modern cargo liner of 10,000 tons needs to earn something like £ 690 (\$ 1,920) per day to cover operating costs, depreciation and normal interest on capital. Six days of loading saved through port efficiency would thus represent more than \$ 11,000, or a possible reduction in freight costs of \$ 1.25 per ton of cargo. A similar saving in the discharging port would double this reduction. In the bulk trades, a 12-15,000 tonner engaged in the carriage of ore can save about 15 cents per ton deadweight for every day saved in loading or discharging, no small consideration in the case of a low-rate commodity.

The greater the port efficiency, the greater the savings in overall transport costs; but the importance of the economies that can be achieved by port efficiency is not always realised.

In some cases this is due to the fact that control of the ports is vested in local authorities whose main interest is in the return on the actual capital involved; whereas in fact great advantages may accrue to a country's whole economy through cheaper costs of transport, so that governments have a basic interest in ensuring that adequate funds should be made available within the national resources for port development.

It is only on the basis of cargo movement that port capacity can be measured, for it covers a number of factors: length of quay, depth alongside quay, number and capacity of shore cranes, general handling facilities, storage space in the port area, provision for the inland transport of goods by rail, road or inland waterways. In the case of each individual port there should be an optimum balance between these factors. The investment required for improving facilities is relatively not high: a small port handling 500,000 tons annually can be modernised at a cost of some \$ 700,000, which may be assessed at a cost of about 15 cents per ton of cargo handled over a ten-

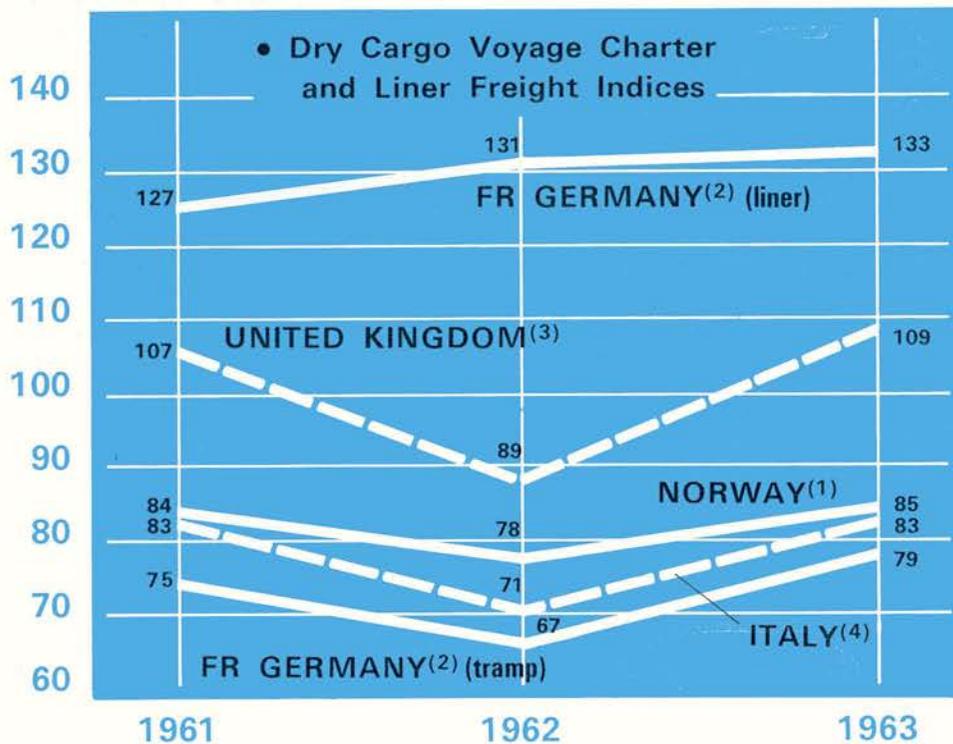
TOTAL WORLD SEABORNE TRADE

(In million tons)

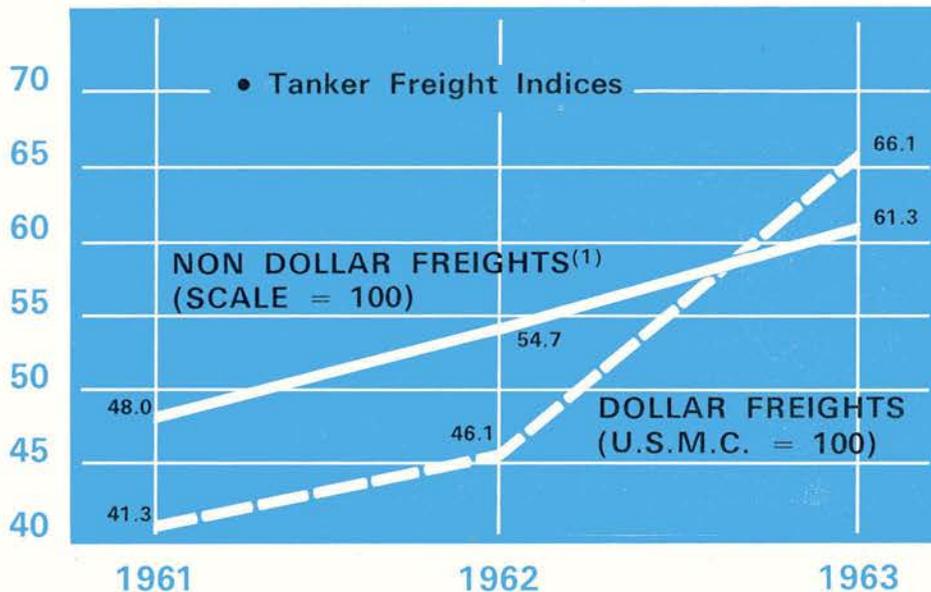
YEAR	DRY CARGO		OIL	
	Million tons	% of increase over previous year	Million tons	% of increase over previous year
1951	385		255	
1952	375	-3	285	12
1953	385	3	295	4
1954	410	6	320	8
1955	480	17	350	13
1956	520	8	390	11
1957	540	4	420	8
1958	490	-9	440	5
1959	520	3	470	7
1960	570	10	520	11
1961	590	4	570	10
1962	580	-2	650	14

SOURCE: 1951-1962 UN Statistical Yearbook.

FREIGHT INDICES (yearly average)



- (1) Based on tramp voyage rates on 23 routes, arranged in five bulk commodity groups with approximate weight aimed to give world-wide coverage, July-December 1947 = 100.
- (2) Based on voyage charter and liner rates on cargoes via north continental ports on German account but not restricted to German flag — 100 = average for second half-year 1954.
- (3) Based on fixtures for seven bulk commodities 1960 = 100.
- (4) Based on monthly average voyage charter freight rates relating to selected routes and bulk cargoes. 1954 = 100 : annual average has been 1959 = 77; 1960 = 79; 1961 = 83.



1. Since 1st January 1957, non-dollar freights have been based on London Tanker Nominal Freight Scale No. 3 (Scale), which is a slightly adjusted version of the M.O.T. schedule (see below). Since May 1962 the "Scale" basis has been improved, and is known as "Intascale".

NOTE : Tanker voyage charter rates are quoted in percentage above or below ceiling rates which were in force during World War II when U.S.M.C. (United States Maritime Commission) dollar rates were equal to M.O.T. (Ministry of Transport) sterling rates (adjusted to "Scale" and now "Intascale"). The devaluation of sterling in September 1949 had the effect of increasing the sterling rate by the amount of the depreciation and now U.S.M.C. flat = Scale (now Intascale) + 43.93 per cent.

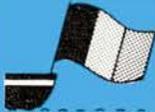
SOURCE : Norwegian Shipping News who use U.S.M.C. (now A.T.R.S.) for Dollar Freights and London Tanker Nominal Freight Scale (Now Intascale) for Non-Dollar Freights.

year period. This may be compared with the savings referred to above.

Co-operation between employers and employees and the improvement of labour relations are essential if ports are to be operated with maximum economy, and these problems should be tackled and solved along with the automation and modernisation of port facilities. On the question of the shortage of skilled labour, employers and employees should be encouraged to develop schemes for wider and more intensive training of dockers and other port workers.

The Maritime Transport Committee's earlier survey of this question gave rise to an International Trade Union Conference on Productivity in Ports, held in Copenhagen some years ago. Port Development questions are also under study in many parts of the world where it is realised that the economic advantages to be gained from modernisation are high compared with the small amount of capital investment required.

WORLD TONNAGE

Type	 BELGIUM	 CANADA ²
Dry Cargo ¹	517.7	443.8
Tankers	200.6	81.5
Comparison with total in 1962	— 27.0	— 3.8

Type	 NORWAY	 PORTUGAL
Dry Cargo ¹	6,605.0	541.5
Tankers	7,063.8	132.3
Comparison with total in 1962	+ 1,157.7	+ 6.8

TANKERS

Size distribution (vessels over 10,000 tons deadweight and over) as at 31st December 1963 (in deadweight tons)

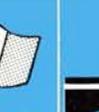
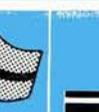
SOURCE : John I. Jacobs and Co. Ltd.

	EXISTING FLEET		NEW BUILDINGS ON ORDER	
	Oil Company	Private Owners	Oil Company	Private Owners
 10,000/12,999	1,918,658	349,102	75,000	
 13,000/169,99	3,367,823	5,070,868	15,000	
 17,000/19,999	3,424,323	7,380,129	286,800	
 20,000/24,999	871,394	3,964,864	319,200	84,900
 25,000/29,999	3,000,112	3,159,569	78,600	25,000
 30,000/34,999	3,876,259	5,842,281	65,500	100,600
 35,000/39,999	3,115,854	2,492,296	315,000	36,000
 40,000/44,999	1,289,906	3,344,876	—	127,500
 45,000/49,999	3,499,560	3,808,339	723,200	710,700
 50,000/59,999	1,698,980	2,661,199	649,800	3,840,800
 60,000/74,999	1,121,910	1,194,500	1,392,300	4,074,800
 75,000/99,999	1,368,500	1,050,441	981,900	3,271,400
 100,000/and over	130,250	338,240	325,500	487,400
Total	28,683,529	40,656,704	5,227,800	12,759,100

MID-1963

(Ships 100 tons and over) (In thousand)

1. Including passenger vessels.
2. Excluding United States and Canadian Great Lakes fleets, but including United States reserve fleet estimated at mid-63 at 12.0 million g.r.t.

								
DMARK	FRANCE	GERMANY (F. R.)	GREECE	ICELAND	IRELAND	ITALY	JAPAN	NETHERLANDS
1,543.3	8,089.5	4,273.8	5,449.4	97.1	147.3	3,683.1	7,143.0	3,580.7
874.9	2,126.6	776.5	1,644.6	19.9	29.5	1,921.5	2,833.7	1,646.1
19.0	+ 54.0	+ 126.5	+ 556.6	+ 5.3	+ 9.8	+ 192.9	+ 1,106.5	+ 60.6
						Total O E C D		
SPAIN	SWEDEN	SWITZERLAND	TURKEY	U. KINGDOM	UNITED STATES ²	106,023.3		Dry Cargo
1,441.8	2,734.6	176.2	604.2	13,773.1	16,344.0			73,189.1
565.5	1,441.7	—	119.4	7,792.1	4,564.0			Tankers
12.2	+ 9.6	— 10.9	— 5.3	— 92.9	— 107.2	Rest of the World		33,884.1
						36,344.2		Dry Cargo
						World Total		22,346.1
								Tankers
								13,048.2
								Dry Cargo
								95,435.2
								Tankers
								46,932.3

SOURCE : Lloyd's Register of Shipping.

After two years of successful experiment in south-eastern Sicily under joint OECD-Italian Government auspices, the Italian educational authorities have now taken over a Mobile Unit provided by OECD with the object of demonstrating how this novel method could help to raise the standard of science teaching in areas with poorly-equipped schools. The Unit will be used for an extension of the project in Calabria. Similar projects are in progress in Greece and Turkey.

The problem of finding sufficient scientists and technicians to cope with the requirements of economic growth is one which particularly affects Mediterranean countries which have not yet reached highly-developed econo-

classrooms have to act as substitutes for the modern school laboratory. While the interest of most school-children can easily be aroused in the experimental side of school physics and other sciences, under these disheartening conditions both teachers and pupils are inclined to lose interest.

Various solutions have been put forward, each being greeted with a mixture of enthusiasm, doubt and scepticism. It was the realisation that the right answers can only be provided by experience that led OECD to set up this pilot project, as part of the programme of its Committee for Scientific and Technical Personnel, in collaboration with the Italian educational authorities. A Joint Committee composed of Italian educational experts and representatives of the OECD

apparatus of this type could also be constructed by the staff of the Mobile Unit during the instruction and operation period. A specially fitted station wagon and trailer were supplied for their use.

When the Mobile Unit started work, it quickly found that the area chosen was largely deprived of modern teaching amenities. Of the eighteen schools and institutes included in the experiments, most had quite inadequate premises where lessons had to be given in very cramped conditions; almost every school lacked a special classroom for science

MOBILE FACILITIES TO RAISE STANDARDS OF SCIENCE TEACHING

mic levels or which have areas where progress is limited by regional poverty. It is evident that the problems must initially be tackled at the secondary school level. The question is: by what means can the existing shortage of teachers, equipment and apparatus required for the early training of these scientists and technicians be remedied over the next 10 - 20 years?

It is these shortages which have resulted in school science being pushed into the background in these less-advanced areas. Teachers of scientific subjects tend to be primarily mathematics specialists — if they have any specialisation at all; up-to-date apparatus for experiments is lacking; over-crowded and badly designed

Scientific Affairs Directorate followed the progress of the experiment and have reported on its results.

To ensure that the team manning the Mobile Unit, which consisted of two science teachers assisted by two laboratory technicians, were conversant with the most up-to-date methods of teaching school physics, a preliminary course was arranged for them at the Milan Science Museum and, later, at the Institute of Physics of the University of Rome. A list of essential up-to-date equipment was jointly drawn up and ordered by OECD, together with two sets of instruments for physics teaching based on American Physical Science Study Committee lines; it was agreed that simple

teaching or a laboratory. Only about half the schools possessed a laboratory assistant, and the apparatus, where it was available at all, was deficient in quantity, old and out of date. Most teachers were responsible for the teaching of mathematics and other subjects in addition to physics, and the majority were unestablished teachers, including students still at university.

In these circumstances, the Mobile Unit found its fortnightly visits to schools greeted with enthusiasm by both teachers and pupils. The Unit's lessons, which were integrated with the existing curricula of the schools visited, comprised basic hypotheses and principles verified and explained by demonstration and experi-



ment; they were accompanied by practical work by the pupils themselves, using the low-cost apparatus provided by the Unit, and the Mobile Unit teachers made suggestions for subsequent graphic and numerical exercises to be carried out by each class.

One particularly rewarding aspect of the Mobile Unit's work was the incentive it provided to teachers in the schools visited to add to and bring up-to-date their knowledge by familiarising them with modern experimental methods of physics teaching. Each week central meetings were held in the provinces visited at which the experiment was discussed and views and experience pooled; this amounted in fact to genuine in-service training with a specific

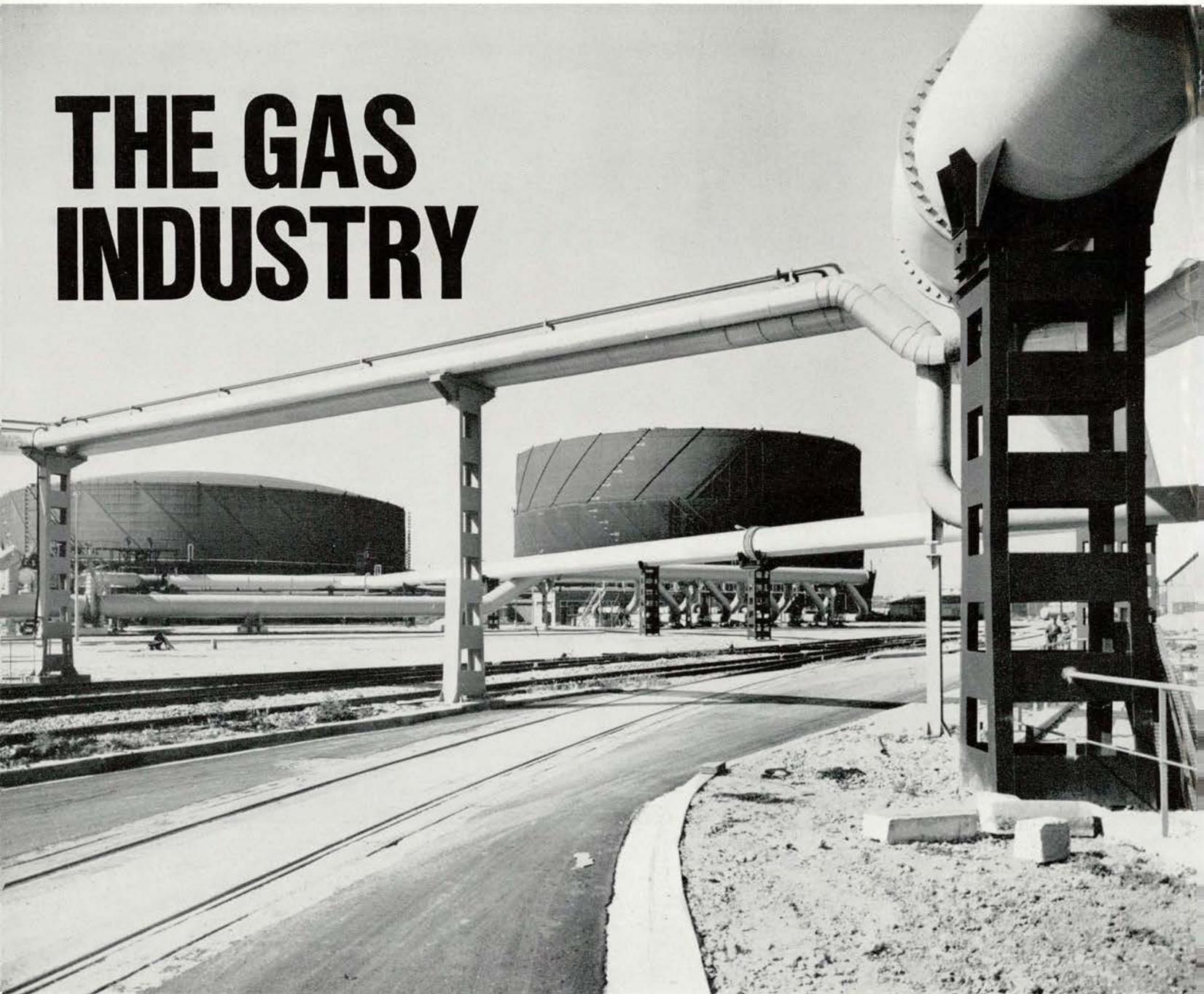
and practical purpose. The Joint Committee reporting on the project emphasises the vital importance of this in-service teacher training to improve the standard of science instruction.

Summing up its impressions of the success of this pilot project, the Joint Committee states that "this novel method of endeavouring to remedy the existing deficiencies of schools in an area where the problem is particularly acute has produced positive results not only in stimulating the interest of both teachers

and pupils in the subject of physics but also in leading to more concrete and effective teaching and learning, thus paving the way for action on a larger scale leading to ever more encouraging results".

To this the National Committee set up by the Italian Authorities to supervise the experiment adds that "the positively encouraging results reported at the end of the first year are confirmed, and the standard of physics teaching in classes which have thus participated in the experiment for two consecutive years has been raised to a very marked degree... the experiment has amply demonstrated its positive utility as a novel approach to modern physics teaching...".

THE GAS INDUSTRY



its contribution to economic growth

One of the most outstanding events in the energy field in Europe during the last few years has been the appearance of natural gas and the rapid growth of output. After rather modest beginnings, the rate of expansion will now increase with the discovery of large reserves in the Netherlands and with the prospect of imports from overseas. Without actually revolutionising the fuel and power structure in the OECD Member countries, it is bound to lead to important changes. In a report on the gas industry just published, the OECD Special Committee for Gas has given a broad outline of the present situation of this industry in the context of economic growth, stressing the recent structural changes which have occurred, the place of gas in end-use fuel and power consumption, production and availability, the various uses of gas, the part played by this form of energy in the general pattern of energy resources in the OECD European area, and the various aspects of intercontinental gas transport.

The general speed-up in the economies of the OECD European Member countries particularly affects the gas industry and its recent history. It started when any sizeable town began to produce gas by the distillation of coal which was intended for lighting or certain household uses. After this initial period, a second phase opened after the First World War, which witnessed a greater use of gas for cooking and heating, and the use of coke-oven gas; at the same time, the gas industry was modernising its production methods, consolidating its plant, using larger capacity production units, linking up the various existing supply networks and making an ever-increasing use of liquid or gaseous hydrocarbons as raw materials.

The discovery of natural gas has now introduced a third phase, beginning at first with Austria, France and Italy. The recent discovery of a deposit in the Netherlands and the immense reserves in the Sahara are such as to give a new impetus to the gas industry and to speed up its transformation.

Natural gas : a well-placed newcomer

The aptness of this title can be seen from the prodigious expansion in the use of natural gas in the United States. In the United States in 1950, natural gas provided 18 per cent of the total energy requirements of the country; in 1960, this proportion had risen to 28.3 per cent and to 29.5 per cent by 1962. In absolute figures, the production of natural gas in 1960 rose to some 360,000 million cu. m. and in 1962 to 390,000 million.

Since 1945, the phenomenal growth of the gas industry has made it necessary to lay 160,000 km of pipeline, bringing the total length up to almost 315,000 km by the end of 1962. Over the last ten years, construction expenses have reached an average of more than \$ 1,500 million (per annum), most of which has been used for transport equipment. These figures clearly reflect those aspects of the extremely rapid development which are characteristic of the natural gas industry in the United States.

The production of natural gas in Europe has already progressed extremely fast : 338,000 million cu. m. in 1962 as against 290,000 million cu. m. in 1950 of gas conforming to the standards required for manufactured gas, i.e., 4,200 kcal/cu.m. Natural gas's share in the European energy balance sheet has been estimated for 1965 at 30 million tons coal-equivalent, i.e., at some 3 per cent of the total fuel and power requirements for that year. Initial estimates for 1975 vary between 5 and 10 per cent of total requirements. The discovery

of the Netherlands reserves at Groningen, and the possibility of importing gas from the Sahara, suggest that over 10 per cent will be reached and even exceeded by 1975.

This is opening up a new era for the gas industry. To reach this consumption of natural gas, steps will have to be taken to encourage the supply of gas to wherever there may be a demand, although many places may sometimes be very far from the point of production, all of which points to the need for laying vast networks of pipeline extending over several countries.

The specific role of gas

The question of the substitution of gas for other forms of energy arises immediately in any investigation into the specific role of gas. The predominant trend of the last few years already shows that coal is ripe for replacement by other fuels for certain uses; among the possible alternatives open to users are oil products and gaseous fuels. Certain oil products might well also feel the effect of a greatly increased demand for natural gas, and others would have to find important markets as raw materials for producing manufactured gas. The part which natural gas will play in this phenomenon of substitution will depend on the overall balance between the economic and technical advantages and disadvantages of this form of energy.

Incidentally, the use of gas in the main consumer sectors must be viewed from different angles : first, the technical standpoint, taking account of the advantages peculiar to gas (convenience of use, absence of stock yards, less atmospheric pollution, simplification of town distribution, etc.) and of existing equipment; then the way in which gas can be used for different purposes and the efficiency obtained; lastly, the competitive aspect, taking into account the respective qualities and prices of the fuels normally used. By considering these various factors, the " permeability " of the market can be determined, i.e., the likelihood of gas being adopted in any given sector.

The structure of the gas industry, at least as far as manufactured gas is concerned, has several disadvantages of an economic nature. For instance, the production of gas, which is intimately connected with that of coke, a primary product of carbonisation, very quickly feels the effect of any cyclical fluctuations on the coke market. This inevitable connection between coke and gas contributes to the lack of flexibility in the production of manufactured gas.

To remedy this, the tendency, now on the increase, is to use raw materials other than coal for manufactured

DISTRIBUTION IN EUROPEAN OECD MEMBER COUNTRIES OF END-USE CONSUMPTION OF GAS FROM THE VARIOUS SOURCES (1) (In percentage)

YEAR	 NATURAL GAS	MANUFACTURED GAS FROM		
		 GASWORKS	 COKING PLANT	 OIL REFINERIES
1950	5	40	55	—
1951	6	37	57	—
1952	8	35	57	—
1953	10	34	56	—
1954	11	34	54	1
1955	13	31	55	1
1956	14	29	56	1
1957	16	27	56	1
1958	17	26	55	2
1959	21	24	52	3
1960	23	23	50	4
1961	27	22	48	3
1962	29	22	45	4

(1) Gas produced by the various producers before inter-producer exchange

gas so as to free the gas industry from this constraint. In contrast, natural gas enjoys, in this respect, complete independence, the drawback being that it calls for heavy capital outlay for setting up an adequate transport network.

Future prospects

Although conventional methods of producing gas from various raw materials in coking plant and in large gasworks will continue to be important for some years to come, the use of natural gas will continue to grow. The change will be gradual, in the sense that natural gas will not oust other forms of energy from their established positions, but will complement them by

supplying the consumer with a fuel which is particularly advantageous when used for the right purposes.

This increase in the consumption of natural gas can, however, be achieved only at the cost of laying a vast pipeline network and arranging for suitable storage facilities designed to provide a reliable and continuous supply. The principal difficulties to be overcome will probably be of a political nature, deriving from the structural differences in the gas industries of various countries as well as from the legal complications in defining the status of international gas feeders. OECD offers a possibility for discussing and helping to solve some of these points.

If suitable conditions can be found for transport and storage, gas will be able, in the next few years, to play an important part in the economic expansion of Member countries.



The governments of all OECD countries have constantly to be wary lest the economic growth processes they are concerned to foster deteriorate into inflation. The economic indicators have to be watched unremittingly, and courageous steps taken to moderate excessive developments in demand and incomes, if inflationary pressures are to be contained before the spiral gains

Guarding against INFLATION

momentum. A number of OECD's more recent yearly Surveys of individual countries, on which this article is mainly based, have examined the ways in which this problem has been making itself felt and the measures that various governments have taken

to try to solve it. The problem is a particularly appropriate one for an inter-governmental organisation like OECD. All governments are aware, in varying degrees, of the imperfect nature of the indicators they try to watch and of the political difficulties which confront them when they decide that the time to tighten the reins has come. This is a sphere in which the less successful countries can learn from the more successful.

Moreover, the degree of trade liberalisation and convertibility is now such that it is of the utmost importance to each country that excessive strains should not develop in its neighbours. The bugbear of the 1930's was the extent to which countries exported unemployment to each other. An important lesson of the fifties and early sixties is that in the sort of open world economy that OECD countries are determined to preserve, inflation can be equally contagious. Hence the enthusiasm, among OECD countries, to nip inflationary pressures in the bud. If timely action is not taken, more radical measures have to be resorted to later on. And these could, effectively, put a stop to the smooth growth process on which OECD's 50 per cent growth target in the 1960-1970 decade is based.



AUSTRIA

Price stability has a high priority among the economic objectives of the Austrian authorities. The two major inflations suffered by Austria during the last few decades have probably made both the authorities and the public particularly conscious of the undesirable consequences of an immoderate price rise.

To attain stability, the Austrian authorities have relied to a major extent on budgetary instruments supported by direct action in the wage/price field. Measures taken to do away with restrictions on foreign trade and capital movements have also been prompted in part by business cycle considerations.

In 1962 the Government took various anti-inflationary measures — reduction of tariffs, lowering of credit ceilings, and an increase in minimum reserve requirements. In the summer of that year an agreement was made which froze prices and wages for a period of three months, later extended to six months. Despite a reduction in personal income taxes which ran counter to short-term government policy objectives, wage and price movements moderated during the second half of 1962. The growth rate in real terms for the year, however, was only 2.2 per cent.

The OECD study of Austria for 1963 concludes: "The high priority attached to price stabilisation during the last couple of years has meant that policies could not be directed primarily with an eye to the long-term objective of fostering economic growth."

At the end of 1963, economic activity picked up again, with the result that the real growth rate for the year was 4.4 per cent. The cost-of-living index has been relatively stable: in April it was 2.7 per cent above the level of a year earlier.

FRANCE

In September 1963, with money incomes and retail prices rising sharply (the latter had increased by an average of 0.6 per cent per month since April), and with an inflationary psychology in evidence, the French Government adopted a Stabilisation Plan.

On 12th September 1963 producers' prices were frozen any increases requiring prior approval from the Direction Générale des Prix et des Enquêtes Economiques. Increases in charges for certain services which require government action — public utilities, postage, rent — were postponed and prices of cigarettes and petrol reduced. A campaign was launched, enlisting the support of 100,000 retail outlets to reduce prices of other widely consumed products. Ceiling were fixed on retail profit-margins for certain kinds of meat for eggs and some fruits and vegetables. Prices for jobbing work were controlled.

Restrictive monetary action began several months before the September Stabilisation Plan. In March there was an increase in the banks' required liquidity ratio from 32 to 35 per cent (later raised to 36 per cent). The increase in authorised bank credit was reduced from 12 per cent for the year to 10 per cent as of September, and consumer credit was tightened — the minimum down-payment increased and the repayment period shortened — for hire-purchase of cars, radios and television sets. Banks were urged to be more selective in granting credit. In November the discount rate was increased from 3.5 to 4 per cent and the penal rate, or "taux d'enfer", for borrowings above a certain set sum was raised from 4.5 to 5 per cent. Measures were also taken to prevent the money supply from increasing excessively as a result of foreign exchange inflows. Interest payments on deposits of foreigners in France were discontinued and the borrowing of French banks abroad limited. The Government also made advance repayments of foreign debt.

BELGIUM

The Belgian economy emerged from a period of slow growth and fairly considerable unemployment in 1962. During 1963, real gross national product rose by 4 % as a result of a high level of foreign demand for Belgian goods, both agricultural and industrial, an upsurge of private investment (mainly for plant modernisation rather than extension of capacity), and a high level of domestic consumption demand, especially for consumer durables.

This combined demand caused some pressure on available resources, especially labour. According to a survey made by the National Bank of Belgium, 28 % of Belgian firms had idle capacity at the end of 1963 because of a lack of skilled labour. There were also shortages in other labour grades. Construction and textiles were particularly hard hit, and even the coal industry, which only a few years ago was the source of heavy unemployment, felt the pinch. Other developments added to the inflationary tensions: bad weather and an outbreak of cattle disease reduced the available supply of agricultural produce.

As a result of the pressures, prices rose after a long period of stability: they were 4.3 % higher in December 1963 than a year earlier. Wages, which are tied to the cost-of-living index, rose, both because of the increase in that index and because of new collective agreements; the overall increase of 6.9 % pushed up labour costs by some 4 %.

The developments led the Belgian Government to take several measures designed to improve supply while moderating demand. The monetary authorities twice raised the discount rate during the year. A series of laws passed in 1959 granting tax exemptions, guaranteed loans and subsidies to industry were modified; requirements for obtaining credit were stiffened and the granting of subsidies suspended altogether for the first half of 1964. Credit granted under these laws for the building of houses has been completely abolished and for other types of building has been reduced. Consumer credit has been curtailed by raising the initial deposit and shortening the repayment period.

Prices of basic commodities — flour, butter and wheat — which had been mounting were stabilised by price fixing. In agreement with the EEC, the Belgian Government decided to prohibit pork exports during the months when home demand was rising strongly and to abolish the import tax on beef.

Measures to increase supply mainly affected labour: work permits for foreign workers were issued more freely than in the past; the authorities encouraged firms to take on more female employees on a part-time basis and to increase their willingness to work by raising their pay to equal that of men employees. (Women's wages rose by 12 % in 1963 as against 7 % for men.)

Another aspect of the Stabilisation Plan was an anti-cyclical reduction of customs duties applying first to mass consumption goods and later to some raw materials (lead and zinc), some semi-manufactured products (wool and flax) and some food products. The reductions were over and above those required by Common Market commitments and applied to countries outside the European Economic Community as well. For some goods customs duties were suspended altogether for a period during 1964. These measures were accompanied by a freezing of importers' profit margins.

The budget was also made more restrictive. In 1963 the deficit was fixed at almost 7 billion francs. (It was reduced during the course of the year by 10 per cent as extra revenue was realised and not spent.) In the 1964 budget, the deficit was fixed at only 4.74 billion francs, the lowest level since 1952 (a change in terminology prevents comparison with earlier years). The savings are due to large economies in transactions of a final character, to maintenance of a 5 per cent tax liability from which taxpayers have been exempted in recent years; to a 6 per cent increase in the tax on parimutuel winnings; and to measures designed to limit the use of public funds in construction.

The Stabilisation Plan also proposed measures to rationalise distribution channels and to abolish undue speculation in real estate, the latter by extending the personal income tax to include gains realised from the sale of building land. The setting up of a National Employment Fund and a cut in the period of military service were intended in part to ensure a better matching of supply and demand for labour. Finally, steps were taken to implement an incomes policy: in October, 1963, the Government called an incomes conference which was attended by representatives of management and professional organisations, trade unions and civil servants.

In evaluating the Government's success in combatting inflation, the OECD Economic and Development Review

Committee thought it relevant to analyse the nature of the 1963 inflationary push in France. The Committee in its 1964 country survey of France attributes it primarily to a conjunction of accidental or exceptional factors: the return of repatriates from Algeria which, in view of the difficulty of providing jobs for the newcomers, immediately increased demand without having as quick an impact on supply; a bad winter at the beginning of 1963; inadequate supplies of certain products (meat and vegetables) and services (housing). Certain structural factors — lengthy distribution channels, fixing of agricultural prices — have also exerted inflationary pressures in recent years.

The report concludes that "After nine months' operation, the results of the Stabilisation Plan seem to be favourable. The rise in prices has been quite appreciably slowed down (up 1.2 per cent from October to April for consumer prices and a slight drop in wholesale prices). The trend of wages is not so obvious since the rate of increase slowed down somewhat in the fourth quarter and then speeded up again in the first quarter of 1964, though there seem to be specific reasons for this. These results have been achieved without holding back production, since the industrial index rose steadily up to April 1964. Finally, allowing for seasonal factors, the trade balance seems to have stopped deteriorating since the fourth quarter of 1963.

"These results have doubtless been helped by independent or spontaneous factors. Favourable influences were the non-recurrence of the accidental factors which contributed to the price rise in 1963, the gradual absorption of extra consumer demand due to the return of French citizens from Algeria, and the rapid growth in the labour force. The fact nevertheless remains that the Plan clearly began to show results from the autumn of 1963. It brought about a reversal of opinion... The inflationary mentality was clearly on the retreat after October 1963."

DENMARK

Strong inflationary pressures developed in Denmark in 1961 and 1962. Consumer prices rose by 10 per cent between January 1961 and mid-1962, and by another 4 per cent in the autumn. The deficit on current account in the balance of payments rose to an annual rate of \$ 240 million in the first half of 1962, about 3.5 per cent of the gross national product. Despite an inflow of foreign capital, net foreign exchange reserves fell to \$ 125 million in November 1962, a sum which was equal to less than one month's merchandise imports at the then current rate.

These developments have been attributed by OECD's Economic and Development Review Committee to several factors: a sharp increase in money incomes, far in excess of the improvement in productivity (industrial hourly earnings rose by 23 per cent during the two years ending April 1962). Increasing wage costs and the farmers' claims for an equitable rise in their incomes led the authorities to introduce a system whereby domestic prices are fixed at a higher level than export prices; and the Government also granted considerable cash payments to farmers. As a result of this and other factors, the budget turned from surplus to deficit in 1961-1962.

In March of 1962 the Government took measures to tighten its fiscal policy. A ceiling was put on government expenditures. A general purchase tax of 9 per cent (on all commodities except food, fuel and services) was proposed; but because

of the need to obtain agreement between the four main political parties, was not put into effect until August. At the same time the Government proposed to reduce the volume of new private and public building.

These measures had a stabilising influence, but it became clear that other measures were necessary as further increases in wages and other incomes were imminent.

In March 1963, therefore, the earlier anti-inflationary measures were supplemented by direct action on wages, profits, prices and savings; the distinguishing feature of these was an exceptional degree of official intervention. A wide range of measures was combined into a legislative programme of which the most important provisions were:

- Collective bargaining agreements, which were extended for two years, provided an increase during the first year for lower paid workers only; during the second year there was to be a general increase of 2.5 per cent. Salaries of civil servants and certain other groups and old-age and disablement pensions were to be increased correspondingly.
- Government support payments to farmers were to continue for two years with only small increases over the 1962-63 rate.
- No increase in dividends was to be permitted during the years 1964-1965.
- Price increases would be permitted only if they could be justified by increases in costs resulting from the new legislation or higher raw material or transport costs.

● A compulsory savings scheme was adopted, the proceeds of which were designed to offset most of the loss in budget receipts which would result from a cut in direct taxes.

In addition to maintaining a relatively tight fiscal policy, the Government attempted to moderate building activity by postponing new public building starts until after September to avoid extra pressures on the labour market in summer.

As to monetary policy, the discount rate had been raised as early as 1959, and there were further increases in 1960 and in the spring of 1961 — to 6.5 per cent.

Following these measures, the rise in prices levelled off for most of 1963. The discount rate was reduced from 6.5 to 6 per cent in August and to 5.5 per cent in November.

The 1964 country survey of Denmark calls the measures taken “a very comprehensive stabilisation programme”. “Policy performance in 1962 and 1963 was impressive. A broad range of policy measures was used. But this reflected political realisation that the country was already in the grip of an economic crisis. A fair criticism of economic policy in Denmark is that government action, particularly action to restrain demand, has had a tendency to be taken too late. Instead of relatively moderate adjustments of policies at an early stage, Government action has typically been delayed until the situation has become critical; delay usually means that much stronger intervention is required, and this tends to be followed by stagnation or decline in economic activity. This criticism is perhaps truer of fiscal policy than of monetary policy which has been changed more frequently and at earlier stages of the business cycle.”

In 1964 the cost-of-living index began to rise again with the result that new measures to avoid an excessive expansion of demand have been taken: certain indirect taxes were increased in February; the discount rate has again been raised to 6.5 per cent and public building starts postponed.

The German authorities give price stability a high priority, in part because of past experience with inflation. Recent measures taken by the German Government to equilibrate the balance of payments have been partly motivated by a concern for avoiding “imported inflation”.

The balance of payments exerted inflationary pressures in two ways. First, the surplus of exports over imports, which was running at an annual rate of about \$ 3 billion for the first two months of the year, added to the pressure of demand on domestic resources. Measures proposed in March were aimed at reducing the export surplus by increasing imports (rather than by decreasing exports) so as to augment the domestic supply of goods. The Government requested that tariffs on industrial products from EEC countries be reduced by 50 per cent, and on goods from other areas to the average EEC level.

The capital account of the balance of payments also presented a potential inflationary threat, for there was a large capital inflow in late 1963 and early 1964 which threatened to broaden the liquidity base of the German economy. Four measures to reduce this influx were announced by the Government in March.

First, a 25 per cent withholding tax on interest payments made to non-resident holders of German bonds has been proposed.

Second, interest payments on time deposits held by non-residents in German banks have been prohibited.

Third, minimum reserve requirements for non-resident deposits not offset by specified types of bank investment abroad have been increased to the legally permissible maximum.

Fourth, forward cover for funds invested in US Treasury Bills has been offered at more favourable rates than would be obtainable on the free market.

ITALY

During the 1950s and the first years of the present decade, Italy was able to combine very rapid growth with price stability and a strong balance-of-payments position. The main stimulus to growth during these years was provided by increased investment and growing exports. Unemployment, which had been massive in the early 1950s, had not disappeared; wage increases were relatively moderate and the rise in industrial productivity substantial, with the result that unit labour costs fell by some 22 per cent from 1953 to 1960.

After 1961, however, the emphasis in growth shifted to private consumption. Unemployment fell markedly, emigration declined and shortages of skilled labour appeared. Hourly wages increased by about 16 per cent both in 1962 and in 1963. Distribution of more of the national income to labour meant an increase in the average propensity to consume, and there was a switch to consumption patterns prevalent in more opulent societies: new car registrations rose by 30 per cent in 1962 and another 44 per cent in 1963. Purchases of household durables rose in terms of volume by 25 per cent in 1963. In 1962 the real growth in consumer expenditure exceeded the rise in production for the first time in ten years; in 1963 it rose twice as fast as GNP.

In 1963 the strong upward movement in costs and prices continued, and the pressure on the balance of payments intensified. A surplus of \$ 200 million for goods and services in 1961 had become a deficit of about \$ 1 billion by 1963 (2 per cent of GNP); in addition, the flight of capital had accelerated. In the second half of 1963, as a result, the authorities started taking restrictive measures, of which the

most important were a progressively stricter credit policy and a prohibition of further borrowing abroad by commercial banks.

At the same time indications of a progressive weakening of industrial investment and of reduced margins for self-financing led the Government to grant tax relief for re-invested earnings and to accelerate depreciation allowances.

The necessity for further measures became apparent: certain were announced by the Government in February 1964 and were approved (in modified form in some cases) by the Parliament in succeeding months.

- A purchase tax was imposed on new automobiles and yachts.
- Taxes on petrol were increased, raising its price for Italian nationals (not for tourists) by about 14 per cent.
- The control of hire-purchase agreements was instituted.
- To keep food prices low, massive imports of meat, butter and other basic commodities were continued.
- Credit terms for the import of cars and household durables were restricted. Decisions were taken to promote Italian exports, including the provision of improved facilities for export credit, insurance, etc.

At the same time, to encourage the flow of funds to the capital market, the tax on dividends was drastically amended and taxes on stock-exchange transactions were reduced.

The Government's intention to reduce the budget deficit was announced, as was a review of public investment projects

ICELAND

The post-war period has been marked by recurrent strong inflationary thrusts. Following a period of relative stability resulting from stabilisation measures taken in 1960, a new inflationary movement began in 1961. Wage rates rose by about 15 per cent and, farmers' incomes by the same amount. (In accordance with existing legislation they are entitled to the same increase as wage earners, the adjustment being brought about by raising the price of agricultural products.) After these increases the krona was devalued.

In 1962 wage rates and farm incomes rose by an average of 12 per cent while the average income of fishermen, owing to large catches, and of workers, as a result of wage drift, increased by as much as 21 per cent. In January 1963 an important part of the labour force received a 5 per cent increase, and agricultural prices were adjusted correspondingly in March. In June another increase of 7.5 per cent was granted and in December another 15 per cent. Following a decision of the Icelandic Court of Arbitration in July, civil service salaries were increased by 40 per cent on the average in order to restore parity with salaries in the private sector. Agricultural prices and thus farmers' incomes were increased by 21 per cent in September. The cost-of-living index has been rising steeply — by 24 per cent during the year that ended in April of 1964.

In June the Government, the Federation of Labour and the Employers' Association reached an agreement, the major feature of which was that settlements between employers and labour unions should last for at least a year without any increase in basic wages, though certain fringe benefits were permitted, and the Government agreed to propose improvements in social legislation. If there is an increase in the cost of living, wages will increase correspondingly.

The OECD Economic and Development Review Commit-

tee points out that instability resulting from fluctuating fish catches and other factors calls for more active demand management policies. It recommends first of all that more use be made of fiscal policy. Traditionally the budget has not been much used as an economic policy instrument. The prevailing attitude has been that the budget should be in balance. Emergence of a surplus at the end of a year has normally been taken as an indication that Government expenditure should be increased or receipts reduced and *vice versa* in the case of a deficit. In 1962, when the budget showed a surplus, the Minister of Finance decided that, in view of the economic conditions then prevailing, the surplus should not be used to increase Government expenditure but should be deposited in the State Equalisation Fund established more than 30 years earlier but never before used.

Under the present circumstances, the study suggests, the budget needs to be stricter. With the excess demand conditions that prevailed in 1962 and 1963, a surplus representing less than 1.5 per cent of gross national product is considered to be inadequate.

Credit expansion also needs to be restricted, suggests the study. But this can hardly be done without the modification, if not the elimination, of an obstacle to flexibility — credit arrangements under which the banks grant credit automatically to agriculture (up to a certain limit), and to fishing according to certain established rules related to stock accumulation and production.

“The problem of stabilising prices”, the study concludes, “is seriously complicated by the fact that attitudes and conditions created by long-standing inflation are not easily removed. Inflation generates its own momentum. In particular, the problems arising from the efforts of individual sectors to restore or improve their relative position are not easily amenable to economic policy treatment.”

JAPAN

Three times in the course of Japan's growth of the last ten years there has been a build-up of demand pressures which led the Government to take forceful restrictive action. Each occasion was characterised by the same kind of pattern: an acceleration of fixed investment and of stockpiling leading to an upsurge of raw material and machinery imports while the rate of growth in exports failed to increase or even fell because of domestic demand pressures.

The backbone of official action has been monetary policy. Since most firms were heavily indebted to the banks, credit restrictions have had a very swift effect on the level of stocks and investment plans. Thus, in each case, the high tide of imports has ebbed within a few months, and balance of payments equilibrium has been restored.

The ability of the authorities to rely almost exclusively on monetary policy to restrain excessive expansion of demand has resulted from the fact that the commercial banks depend heavily on the Bank of Japan for the facilities it provides through the rediscounting of commercial bills and particularly through advances against non-discountable assets (ordinary commercial bills, local authority and private bonds, etc.). The indebtedness of the banks to the Central Bank is relatively modest compared to total deposits (at the end of 1962, it was only 10 per cent). But it represents a very important part of the banks' *liquid* assets — some three-quarters at the same date. Thus any slowing down of the flow of funds from the Central Bank to the commercial banks has an immediate effect on bank liquidity — and even in normal times this is very tight.

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The Government also announced its intention of using any statutory powers it possessed to reduce the budgetary deficits of local administrations; these have tended to grow substantially in the past two years.

Moderation in wage and salary increases has been urged in discussions about current economic problems with trade union and employers' representatives. With regard to the public sector, where substantial wage claims have been advanced, the Government representatives have proposed gradual increases, spread out over time.

In March 1964, considerable international support was obtained for the Italian balance of payments. But very shortly afterwards certain important changes in economic trends became apparent, which were caused, at least partly, by the measures taken. Price increases became much less pronounced, imports fell, exports rose rapidly, and a surplus appeared in the overall balance of payments. Industrial production showed signs of stagnating and even declining in several sectors with business investment becoming increasingly depressed, and unfavourable trends predicted for the construction industry. The authorities are faced at present with the problem of maintaining production and employment, without sacrificing the progress achieved so far towards price stability and a healthier balance of payments situation. The new measures announced at the end of August included increases in various indirect and direct taxes, reductions of industry's contributions to social insurance funds (the charge being taken over by the Government), and certain measures to encourage production and investment.

JAPAN (continued)

Among the more important techniques of credit restriction that have been used are the following :

- The principal instrument has been the classical policy of changing the rediscount rate. Until 1962 this was supplemented by a system of more punitive rates: when advances to a particular bank exceeded a limit calculated on the basis of the size and structure of that bank's balance sheet, progressively higher interest rates were charged by the Central Bank.
- On several occasions the Central Bank has forced commercial banks to borrow from the market before coming to the Central Bank for funds. This has resulted in pushing the market rates above the official rate.
- Credit ceilings are set by the Bank of Japan for the large "city banks".
- A special kind of moral suasion has been exerted by the Bank of Japan. Generally known as "window guidance", essentially it consists in advising the banks as to how much additional credit they may extend in a given quarter.
- A system of compulsory reserves, introduced in 1957, was first applied in September 1959. With the Finance Ministry's approval, the Bank of Japan can require the banks to maintain up to 10 per cent of their deposits in reserves with that institution. Since December 1963, 0.5 per cent of time deposits and 3 per cent of sight deposits have been thus frozen.

(In October 1962 some changes were made in the way this system operates in order to reduce the fragility of the credit structure. The Bank of Japan plans henceforth to utilise open-market security operations; borrowing by big "city banks" from the Central Bank has been strictly limited; and the Bank of Japan can reduce the unutilised part of the banks' credit ceilings when there is danger of overheating.)

On this matter, the Economic and Development Review Committee's first study of Japan, just published, concludes that "The authorities, up to now, have been able to deal with booms by tightening monetary policy, because the booms have been characterised by an exuberance of fixed investment or stock-building. But if — as may well happen in the future — the main dynamic factor becomes consumption, the effectiveness of tighter money may be less certain; and insofar as it is effective, it may be so with greater delay and at greater cost. This may require greater use of budgetary policy than has generally been the case up to now."

SWEDEN

Mid-1961 to mid-1963 was a period of weak demand in Sweden, and Government economic policy was mainly directed at stimulating it. In 1963, however, the business outlook improved, though the recovery was less pronounced than in earlier upswings (partly because production had been well maintained during the period of weaker demand conditions, and partly because certain types of demand — particularly domestic industrial investment — remained weak). Bottlenecks became apparent in construction during 1963. Consequently, the emphasis in economic policy was changed to one of mild restraint.

Bank rate was raised from 3.5 to 4 per cent in June 1963 and to 4.5 per cent in January 1964. In February the Riksbank began charging a penalty rate of 9 percent on its loans to any commercial bank in excess of half the value of the latter's own capital and reserves. At the same time, in order to mop up liquid funds, the Government floated a three-year bond issue at 6 per cent, the highest rate on any Government flotation since 1921; this led to a sharp increase in market interest rates. Public building projects scheduled to begin in the autumn of 1963 were postponed, and in spring of this year a planned reduction in public relief works was stepped up. Re-introduction of direct control over building activity is now under consideration, with the object of enabling the authorities to exert a selective influence on investment in building and construction.

As to the budget, an overall surplus in 1962 turned in 1963 to a deficit which is expected to rise in the current fiscal year.

The Economic and Development Review Committee's 1964 survey of Sweden suggests that in the present circumstances (with the prospect of strong increases in consumption and exports at the same time that a revival of industrial demand is desired) a somewhat more restrictive budget would have been desirable for 1964-1965. Such a course would have permitted the authorities to maintain an easier monetary policy; and lower interest rates and easier credit would have been more conducive to the revival of industrial investment, particularly since the scope for self-financing by business has narrowed.

NETHERLANDS

When second-quarter economic indicators for the Netherlands became available in the autumn of 1963, they showed that demand had begun to grow faster than before. Then at the end of October, the representatives of management and labour reached an agreement for a 1964 wage increase which was considerably larger than had been expected or than had been usual in the postwar years.

Two increases of five per cent were agreed upon, and provision was made for some firms to grant larger increases in order to regularise so-called "black" earnings — wages paid over and above the rates specified in collective agreements. Taking into account the effect of these provisions and other forces, it is estimated that wages will rise by an average of 16 per cent during 1964, as against 8 per cent in 1962 and 1963.

This wage "explosion" has been analysed by the OECD's Economic and Development Review Committee which attributes it in part to the generally tight labour situation in the Netherlands for the past three years (the number of jobs vacant being four times as great as the number of the unemployed) particularly in the building industry; to the fact that prices and wages in the Netherlands have been lower than in other countries at a time when there has been

a move toward closer economic integration; and to institutional changes made in 1962, which resulted in relaxed statutory control over wages.

In the autumn, the Government began to take counter measures. The 1964 budget, presented to Parliament in September of 1963 before the wage settlement, was intended to play a neutral role in the economy in contrast with earlier, more expansionary budgets. After the wage settlement, it was recast and given a more restraining character. Government expenditure during 1964 was to be less than projected in the first draft of the budget, and taxes, direct and indirect, were to be increased.

Higher taxes on tobacco, petrol and diesel-motor fuels were approved by Parliament in March of this year. Accelerated depreciation schemes for industrial equipment have been suspended as has tax relief for new industrial building.

Basing its action on legislation enacted earlier, the Government has taken steps to curb the capital expenditures of local authorities, obliging the latter to postpone some 5 per cent of their scheduled investments. (Under Netherlands law the Finance Ministry can centralise all borrowing by local autho-

NORWAY

The consumer price index was relatively stable during most of 1963, influenced by some slowing down in the rise in wages, an increase in subsidies and a good harvest. A temporary rise in subsidies was a condition for the relatively moderate income settlements which provided for an average increase in wage rates of 2.5 per cent and similar increases in farmers' and fishermen's incomes. But the consumer price index turned up again towards the end of the year, and by May of 1964 was 5.2 per cent over the level of October. This increase was due to some reduction in subsidies, and considerable increases in prices of some imported goods (notably coffee and sugar). Wholesale prices have risen more moderately.

Most income agreements expire during the course of this year. With a view to co-ordinating settlements of the various types of incomes concerned (wages and salaries, farmers' and fishermen's incomes), the authorities had a number of meetings with the parties involved, continuing the informal contact established prior to last year's income negotiations. The

negotiations between the trade unions and the employers' associations were conducted at both the central level (for a general wage increase) and the industry level (to take care of problems in individual industries). The wage negotiations between the trade unions and the employers' associations broke down in April. To prevent strikes, the Government referred the dispute to the official arbitration court whose decision is legally binding. The court's decision of 12th May has been calculated to increase wages in the industries concerned by 3.3 per cent in 1964 and 1.6 per cent in 1965. All recent settlements contain a clause according to which re-negotiation can be claimed should the consumer price index rise more than 5 points above the March level.

A new agreement has also been reached for fishermen, providing for income increases much in line with the recent increase in wages. In agriculture the matter was referred to a special arbitration council, which made a decision along the lines of the other income settlements.

SPAIN

At the beginning of 1963 there was a build-up of inflationary pressures for the first time since 1959. Rapid expansion of consumption and investment, particularly in construction, coincided with a shortage of certain key agricultural products — olive oil, potatoes and meat — with the result that the cost-of-living index in May 1963 was 13 per cent (and the wholesale index 7 per cent) higher than a year earlier. The change reflected higher prices not only for food but for coal, cement and construction materials.

The Government had at its disposal a wider range of economic policy instruments with which to counteract the inflation than had been available in earlier periods of tension. The monetary authorities had for the first time been given the power to set minimum cash and liquidity ratios for the commercial banks. These minimums, first fixed at 12 per cent, were raised to 13 per cent in May 1963. In addition, the substantial deposits that official credit institutions had held with commercial banks were reduced. Imports were

also used as a stabilising force. Customs duties were lowered and purchases abroad of essential foodstuffs greatly stepped up: the State Procurement Agency increased its imports during the first four months of 1963 to \$ 39 million as compared with \$ 7 million during the same period of 1962.

Finally, the Government took measures to curb the volume of construction; the granting of permits for the building of expensive dwellings was suspended; and state financial support, which is generally given to home builders in Spain, was also temporarily cut off for high-priced houses.

The effect of these measures was strengthened by seasonal factors, by good harvests and by a rapid growth in imports. The deficit that developed in the balance of payments trade account was offset by a net inflow of capital, giving the authorities more leeway than in the past in their efforts to maintain internal financial equilibrium.

OECD annual surveys of Spain note other differences. "Expectations and attitudes of entrepreneurs are now influ-

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rities if there seems to be too much pressure on the capital market; and, if economic trends indicate the need for such a measure, a ceiling can be put on the volume of loans contracted by local authorities for more than a year.)

Management of the public debt in 1963 was made deflationary: the Treasury borrowed 400 million florin (\$ 111 million) more than was needed to cover the 1963 cash budgetary deficit.

In mid-October, the Central Bank put a ceiling on the short-term credit that could be granted by commercial and agricultural banks. Should the banks loan more than the prescribed amount, they must pay a sum equivalent to the excess into a non-interest-bearing account with the Central Bank. Medium and long-term credit have not yet been restricted, but the authorities are keeping a close watch on the situation. In addition, the rediscount rate was raised in January from 3.5 to 4 per cent.

To increase the availability of labour, particularly in the hard-pressed construction industry, a number of measures have been adopted by, or proposed in, Parliament, including reduction and deferment of military service and giving priority to construction workers wishing to own their own homes.

The authorities have decided that only the first 1964 wage increase (5 per cent) should be passed on by firms in the form of a price increase. To ensure that this decision is observed, they are tightening control over prices. A bill has been proposed which would enable official action to be taken. The prices of some items — household coal, dairy produce, bricks, bread and others — have been fixed. Moreover, the authorities propose to take action shortly against certain cases of vertical price fixing in transactions between firms. Finally, the Netherlands has abolished certain restrictions on meat imports to exert a downward pressure on domestic prices.

With these measures in force, and taking into account certain other price rises that are likely to occur (e.g. in agricultural products as a result of the move toward a common agricultural market; in certain indirect taxes and in rents), the Government feels that with a 5 per cent growth in real gross national product, prices are likely to rise about 7 per cent on the average in 1964 as against 3.8 per cent in 1962. For the moment, the Netherlands authorities judge that no further action is necessary; but if by the end of the year the disequilibria should intensify, they will probably be led to reinforce the stabilisation measures already taken.

SPAIN (continued)

enced by the experience that inflationary pressures can be brought to an end through Government action and that competition from imports in the home market is already present and might become more important in the future...

Short term economic policy, with more instruments at its disposal, has proved to be more adaptable than in previous years." In fact, the rise in consumer prices has slowed down very considerably since the end of 1963.

SWITZERLAND

The rapid growth of the Swiss economy during the 1960's has been accompanied by a large inflow of foreign labour (which now comprises some 30 per cent of the total work force) and of foreign capital. As a consequence of the country's strong overall balance-of-payments position, the Swiss authorities have been chiefly concerned with the inflationary repercussions of the boom rather than with its effects on the trade balance and have allowed excess demand to spill over into imports even though this meant an increasingly adverse balance on current account.

The principal tool of governmental policy has been a series of gentlemen's agreements between the National Bank and the other banks. Such agreements have been in use for many years. Until this year adherence to them was voluntary, but in 1964 the Swiss Parliament made their provisions legally binding. They have been used to prevent inflation in two ways: first, to curb the inflow of foreign capital and to offset the effects of such inflows on internal liquidity; second, to limit the expansion of credit. Under the gentlemen's agreement currently in force regarding inflows of capital, the banks undertake:

- Not to pay interest on deposits of non-residents made since 1st January 1964 with the exception of savings deposits and deposit accounts of F 20,000 (\$ 4,560) or less.
- To deposit in a special account with the National Bank a sum equivalent to the value of non-resident deposits credited since 1st January 1964, with the exception of savings

deposits, deposit accounts of F 20,000 or less, or deposits which are offset by investments abroad in a foreign currency.

- To refrain from accommodating investment by non-residents in Swiss securities and real estate.

The gentlemen's agreement on bank credit expansion sets a ceiling on the extent to which the growth of advances may exceed that of 1960 or 1961 (whichever was larger). In the case of mortgage loans the expansion permitted is 108 per cent of the 1960 or 1961 growth; for other loans the figure is 78 per cent. The banks are also committed to giving priority to credit for the financing of residential building, of agricultural investment and of imports.

Apart from gentlemen's agreements, several other anti-inflationary measures have been taken. In March 1964, the Cantons committed themselves to keep construction within a fixed limit and temporarily to refrain from starting certain specified types of non-essential building. Consumer credit was restricted in June, the minimum downpayment being increased and the period of repayment shortened. Sustained campaigns to exercise restraint in price, wage and employment policies have also been conducted.

The possibilities for action by the Federal Government in the budgetary field are limited. The policy has been to run a surplus in the Federal budget and to freeze part of this surplus in an account with the National Bank.

In May 1964 the cost-of-living index was 3.5 per cent higher than a year before.

UNITED KINGDOM

A new orientation has been given to short-term demand-management policy by the adoption of a medium-term growth target. Set by the newly-formed multipartite planning body, NEDC (National Economic Development Council), the growth target of 4 per cent has been accepted as one that can be achieved without undue strain on resources; and an attempt is being made to avoid stop-and-go courses of action in order to grow steadily at the agreed rate.

In late 1962 and early 1963, when unemployment had reached 3.5 per cent, the Government took measures to restore the impetus. So effective were they that by early 1964 the economy was expanding at an annual rate of 6 per cent a year, 2 per cent more than had been judged feasible by NEDC.

Moderately restrictive measures were taken during the first months of this year. In February the discount rate was increased from 4 to 5 per cent, partly to prevent an outflow of short-term capital which, had it taken place, would have hampered the Government in its pursuit of the growth target. On Budget Day in April, increases of 10 per cent in indirect taxes on tobacco and alcoholic beverages were announced. Early in 1964 efforts were made to give publicity to certain price increases which were taking place and to enlist the support of public opinion to combat them. In March, NEDC made it known that it had been informed by five industries — coal, electricity, steel, chemicals and cement — that they

did not expect to increase prices during 1964. This step was expected to have a stabilising effect upon industrial costs.

The search for an incomes policy has continued and has passed through several phases since July 1961 when, as part of an emergency programme, the Chancellor of the Exchequer called for a "pause" in wages, salaries and dividends. In 1962 a National Incomes Commission was set up as an independent tribunal for giving advice on actual or proposed wage and salary increases. The Government has referred several cases to the Commission and the discussions have been given fairly wide publicity.

In connection with an enquiry into engineering wage settlements, NIC also investigated price changes in that industry. When the 4 per cent medium-term growth target was established in April 1963, a report was published with the approval of NEDC members (including trade union representatives) calling for "policies to ensure that money incomes... as a whole rise less rapidly than in the past". And the Government set a rate of 3 to 3 1/2 per cent as the maximum average annual increase in wages and salaries compatible with the 4 per cent growth target. Since then NEDC has been the focal point for tri-partite discussions on incomes between the Government, the employers and representatives of the trade unions.

FOR ECASING THE MOVE AWAY FROM THE LAND



*If gross national product in the OECD area is to grow by 50% during the 1960's, and if the agricultural population is to see its per capita income rise at the same pace as in the other sectors of the economy, then farmers will have to move off the land. But how fast? To answer this question, OECD called on Folke Doving, Professor of Agricultural Economics at the University of Illinois, to make a study, the results of which will appear shortly under the title *Problems of Manpower in Agriculture*. Professor Doving was born and studied in Sweden and was on the staff of the United Nations Food and Agriculture Organisation (FAO) from 1954 to 1960.*



IF all of today's farmers and their sons were to remain in agriculture during the decade of the Sixties, their incomes from farming would rise only half as fast as that of the average inhabitant of an OECD country, unless the terms of trade for agricultural products improved correspondingly or subsidies to agriculture increased. Such is the conclusion of Professor F. Doving in his study *Problems of Manpower in Agriculture*.

This rough calculation, based on the assumption that OECD countries will be successful in achieving their collective 50 % growth target, underlines the importance of policy measures designed to promote mobility of farmers out of agriculture and to ease the transition.

The number of farmers has been on the decline in industrialised countries ever since the 1920's, but it gained momentum during the decade of the 1950's. For the OECD countries as a whole, some 25 to 30 % of the agricultural work force left the land during that decade.

Taking into account the changes which have occurred in recent years in the age structure of the agricultural population, a considerable reduction in the agricultural labour force in the OECD area is likely to take place, for demographic reasons alone, over the decade 1960-1970.

THE economic forces at work are complex. Most OECD countries have reached a stage of development in which an increase in incomes entails only a small rise in food consumption. Assuming that population will rise by 13 to 14 % during the present decade (slightly more than during the 1950's), Professor Doving concludes that the demand for agricultural products is not likely to increase by more than 15 to 20 %.

If this 15 to 20 % growth were to be divided among the entire farm population, it would fall far short of the 32 % per capita growth target projected for the economy as a whole (1).

Increasing per capita income, then, means focusing the demand on fewer farmers. But for each farmer to produce more, he will have to spend more on farm machinery and other items; so-called external costs will absorb a greater portion of the receipts from agricultural output, leaving a smaller share for the farmer himself (see chart). In Southern Europe, for example, where output per farm worker was between 500 and 1,000 international wheat units per man in the period studied by Professor Doving, external costs claimed only 10 to 20 % of the value of total

(1) A 50% growth target works out to 32 % per capita if the population increases by 13%.

agricultural output; in the United States, where output was of the order of 5,000 wheat units per man, external costs claimed 50 to 60 % of the value. Professor Dovring calculates that, with the growth in demand as limited as he expects it to be, there will have to be a decline in the number of farmers of roughly 15 to 20 % as a result of these factors alone, if agricultural incomes are to keep pace with other incomes.

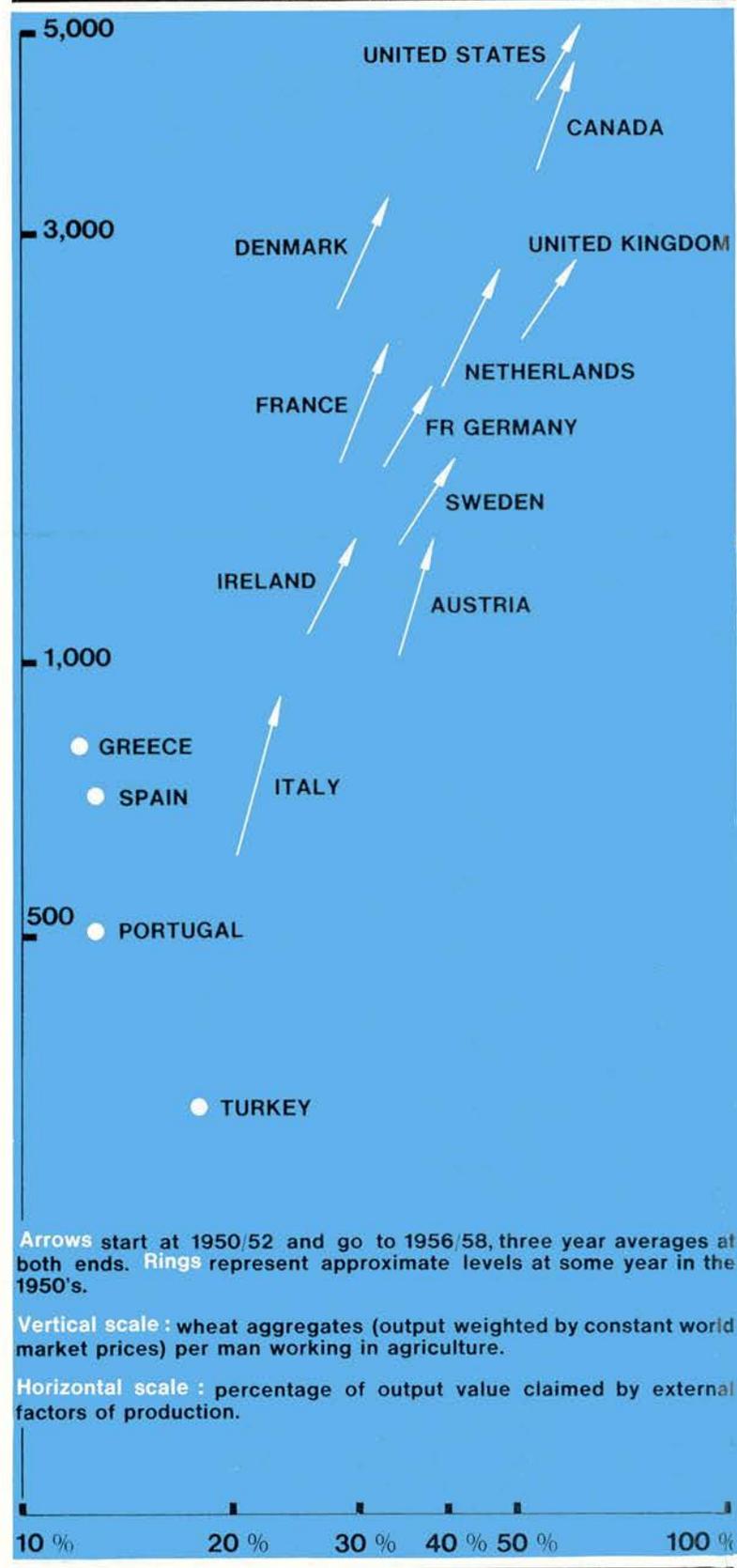
Another force that is expected to operate over the decade with a negative influence on farm incomes, which would emphasise the need for further reductions in the agricultural labour force, is a decline in agricultural prices relative to other prices. A trend in this direction has been visible for some time in the United States and other highly developed countries, and it is expected to become more general in Western Europe during the 1960's. Moreover, Professor Dovring considers that as a programme of farm enlargement gets under way farmers will need more extensive credit financing, and this too will result in a lesser share of farm income going to the farmer himself. Having calculated roughly how many farmers must leave the land in order to keep the income gap from widening, Professor Dovring proceeds to ask the question: can this migration actually take place? From a technical point of view, the answer is yes.

THERE is a vast difference between countries as regards productivity per man-hour, particularly in field crops. It requires 260 man-hours to cultivate a hectare of wheat under primitive conditions, only 10 hours in the United States as a whole and 7.5 hours in the most productive states. (Professor Dovring makes a number of qualifications about the comparability of the figures). Recent investigation has shown that similar reductions are possible in Germany and England. English work studies, for example, show that 17.5 man-hours were required per acre of wheat in 1960. By 1970, it is expected that only 6.5 hours will be needed. In Southern Europe, reduction of labour requirements by a third should be possible through mechanisation of field-crop farming.

Widespread use of combine harvesters owned by co-operatives or machine-hire firms is forecast. Animal husbandry and horticulture are less amenable to improvement, but efforts are being made in both areas. The most advanced techniques in milking, for example, will enable one worker to care for 60 to 65 cows as against 31 in well-run establishments at the present time and the 15 or 16 that were regarded as satisfactory in Western Europe around 1950.

But if the state of the art presents no problem,

OUTPUT PER MAN AND CAPITAL INTENSITY (share of output claimed by external costs) IN SELECTED OECD COUNTRIES



there are other obstacles to the outward migration, some of which Professor Dovring thinks could be measured if the information were available — the seasonal nature of agricultural work; the existence of small farms incapable of fully utilising the labour of the farming family; lack of ability to finance the necessary investment. He also considers the social and human problems and concludes that, from the point of view of the economy as a whole, the substitution of capital for labour is desirable, providing the manpower released from agriculture finds gainful employment elsewhere. Any attempt at maintaining the present number of farmers or an excess of farmers will be costly in economic terms. The trend towards fewer workers in agriculture should be recognised as a normal facet of modern economic development. Policy should not aim at halting this trend but rather at channelling it, making it as smooth and beneficial as possible.

AMONG measures to promote adjustment of labour in agriculture, high priority should be given to the problem of adjusting the farm size, including facilities for closing down uneconomic holdings and transferring the land to more adequately sized farms, mobilising the land market where it is not sufficiently active, and providing the farmers with special financing in order to build up the larger farms of the future. Local co-operation in such activities as machine ownership and investment in certain types of buildings should be encouraged as one of the possible avenues for future farm size adjustment which would facilitate labour mobility. Professor Dovring concludes that programmes of rural education, training and re-training of the agricultural population, and regional economic planning, by creating new opportunities for non-agricultural work, are absolutely necessary complements to the transfer of agricultural manpower.

MAN-HOURS REQUIRED PER HECTARE OR PER HEAD OF LIVESTOCK IN SELECTED COUNTRIES AND SELECTED ENTERPRISES

FIELD CROPS	Mediterranean areas (a)	Yugoslavia 1960	Italy 1960	Netherlands 1960	Denmark 1960	England (b, c) small farms	United States (c)	
							1910-14	1955-58
WHEAT	260	91	60	130	34	70	38	10
MAIZE	500	432					88	26
RICE	1,130		120				138	33
POTATOES	1,320			500	223	400	190	132
SUGAR BEETS		850		400	239	340		133
TOBACCO	3,280			(2,000)			890	945
COTTON	1,180						208	168
ROTATION HAY	300			100-160	49	40	30	15
PERMANENT CROPS			Mediterranean areas (a)		Italy 1960		United States 1954	
WINEGRAPES				750				265
OLIVES				430				393
CITRUS FRUITS				1,600				250
APPLES				1,320		1,320		305
FIGS				1,210				280
ALMONDS				380				178
LIVESTOCK	Mediterranean areas (a)	Italy 1960	Netherlands 1960	Denmark 1960	England small farms (b)	United States		
						1910-14	1955-58	
MILK COWS	300	250	165	207	120	146	116	
OTHER CATTLE	144		40-80	9-71	24-56			
SHEEP	43		7		4-8			
POULTRY:								
LAYERS	12		1 3/4		2	.33	.24	
BROILERS			.052		.08		.016	

(a) Data in days multiplied by 10 - (b) Data in days multiplied by 8 - (c) Data referring to acres multiplied by 2 1/2.

THE MANAGEMENT OF THE

Mr J.C.R. Dow, formerly of the United Kingdom Treasury and now Assistant Secretary-General in charge of the Economics and Statistics Department of OECD, is the author of "The Management of the British Economy, 1945-60", written as one of a series of studies by the National Institute of Economic and Social Research (1). Mr Dow's survey covers the historical background of the post-war years, an analysis of

THE success or failure of policy needs to be seen from various points of view. Economic policy affects the well-being of the people, and its success or failure in meeting social objectives is, in the last analysis, the only thing that matters. Many criticisms of post-war policy raise more restricted, and more difficult, economic issues. It is as well to try to see post-war policy in broad perspective.

This study has traced the conduct of policy since the early days after the war when the government had newly accepted the maintenance of full employment as one of its primary responsibilities. In assessing the success of this experiment it is well to remember how new it is in the eyes of history, and how theoretical and untested the whole conception initially seemed. "Not long ago", said the 1944 official statement "the ideas embodied in the present proposals were unfamiliar to the general public and the subject of controversy among economists. To-day, the conception of an expansionist economy and the broad principles governing its growth are widely accepted... But the whole of the measures here proposed have never yet been systematically applied as part of the official economic policy of any Government..."

In terms of its fundamental aim — the desire so to manage the economy as to prevent the heavy unemployment that accompanied the pre-war trade cycle — modern economic policy has clearly been a success. For some years after the war, high employment required no specific intervention: wartime arrears of demand were more than enough to ensure full employment. In the decade of the fifties, however, there probably would have been more unemployment if the government had not intervened to increase demand when unemployment showed signs of increasing; and, perhaps equally important, if the world of business had not acquired some confidence that governments could and would so intervene when necessary.

There was some tendency, in the wartime formulation of employment policy, to consider it as a separate and, as it were occasional, aspect of policy. The case has in fact been far otherwise. By taking on responsibility for full employment, the government took on responsibility for much more; and it is on failure, or partial failure, in these related matters, that criticism fastens: we now expect much more of economic policy than the mere avoidance of mass unemployment. The criticisms of policy to be considered are chiefly these five:

● First, something like the old trade cycle remains, in much

attenuated form. There have been oscillations in the pressure of demand; and though output and employment have hardly ever registered a decline, yet there has been a sort of cycle in the rate of growth of output.

● Second, there have been frequent adjustments of policy which have led both the trades chiefly affected, and the public at large, to feel — justly or unjustly — that they were being subjected to unnecessarily frequent reversals of policy.

● Third, in spite of the measures taken by the government, prices have risen continuously.

● Fourth, there has been frequent trouble with the balance of payments. It has tended to be weak: the current surplus has often been less than our long-term lending. It has also fluctuated; and there have been even larger and more erratic fluctuations in the reserves.

● Fifth, though output has grown almost continuously, it has not during the last decade grown as rapidly as some other countries — chiefly France, Germany, Italy, Russia and Japan.

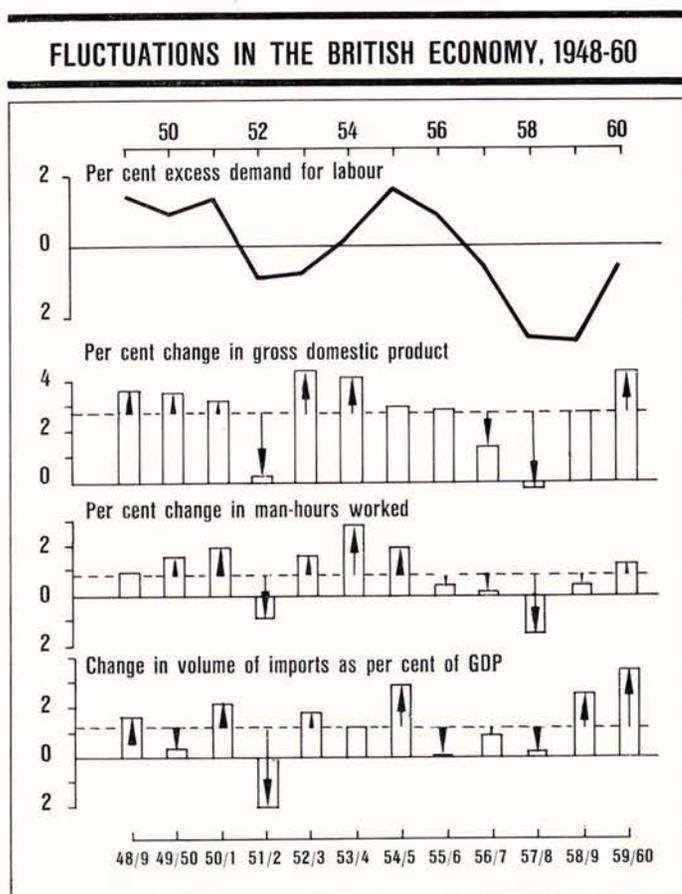
Failure in these respects has been relative failure only. By pre-war standards, economic fluctuations have been very minor; what recessions there have been have been few, and either very minor, or very brief. Though growth has not been as rapid as the recent record of a handful of some other major countries, it has been as rapid as this country or most other countries have achieved over the last century. The increase in production has been enough to make people far better off than before the war. Most industries have been able to count on every year being a record for sales. For industries specially hit by temporary government restrictions, there have been interruptions. But on the whole it is in these industries that the *trend* of production has shown the most rapid rise: even though every year was not a record year, every second or third beat previous records by a wide margin. Prices have gone up steadily. But the same is true of every country in the world; and the rise, if faster than in other countries, has been only marginally so. It is only to a minority that this seems a serious disadvantage. The constant rise in prices is a nuisance, and may in the end be dangerous. But if their incomes rise too, most people hardly complain. The balance of payments has been a constant anxiety to the authorities. But it has not been so unfavourable as to force the government to relinquish high employment, nor to do more than at times slow down the rate of growth. These points are too obvious to require argument: but they are also too important not to be said.

It is nevertheless clear that there is room for improvement in the management of the economy. One of the main ques-

(1) Published by the University Press, Cambridge, 443 pages, 60/-.

BRITISH ECONOMY, 1945-1960

economic policy and the general behaviour of the economy during this period. In the section containing his conclusions, he examines in detail post-war fluctuations and the impact of policy, economic growth and economic stability. The following paragraphs appear in the introduction to his conclusions, which he entitles The Broad Issues.



The measure of excess demand for labour is based on the figure of percentage unemployment and percentage unfilled vacancies. Changes in gross domestic product and imports of goods and services are at 1954 prices from National Income and Expenditure [1959] and [1961]. Change in man-hours worked is the percentage change in employment plus the percentage change in hours worked in the Ministry of Labour's 'principal' industries.

tions is how far policy was responsible for the fluctuations in internal demand, and in the balance of payments. An important issue underlying this question is how much can be expected of economic policy, and how quickly the economy can be expected to respond to treatment. It is suggested that policy has, in effect, expected too quick a response; that long views have to be taken; and that the failure to take them has resulted in unnecessary fluctuations. It is also argued that fiscal and monetary policy, however well devised, are

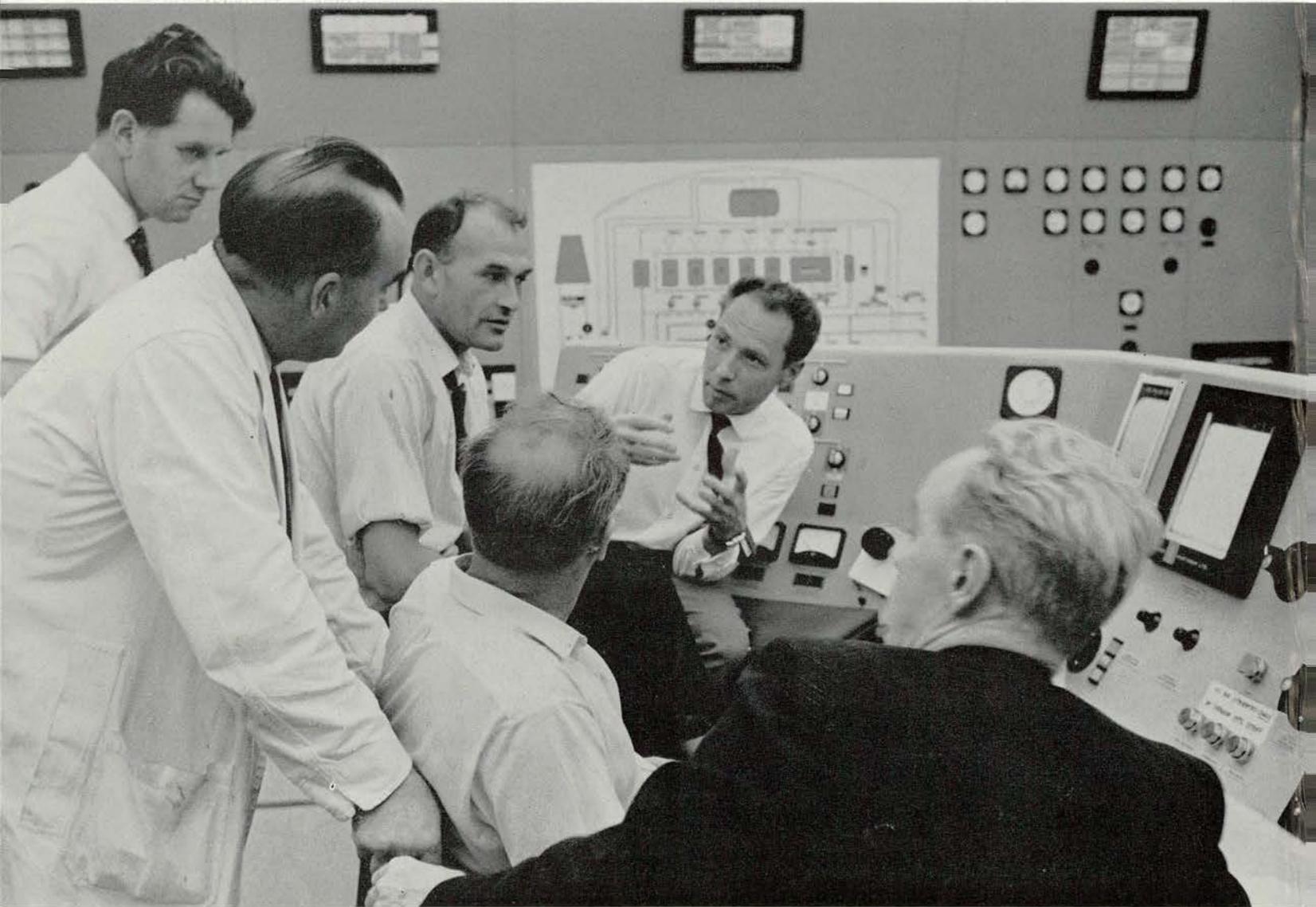
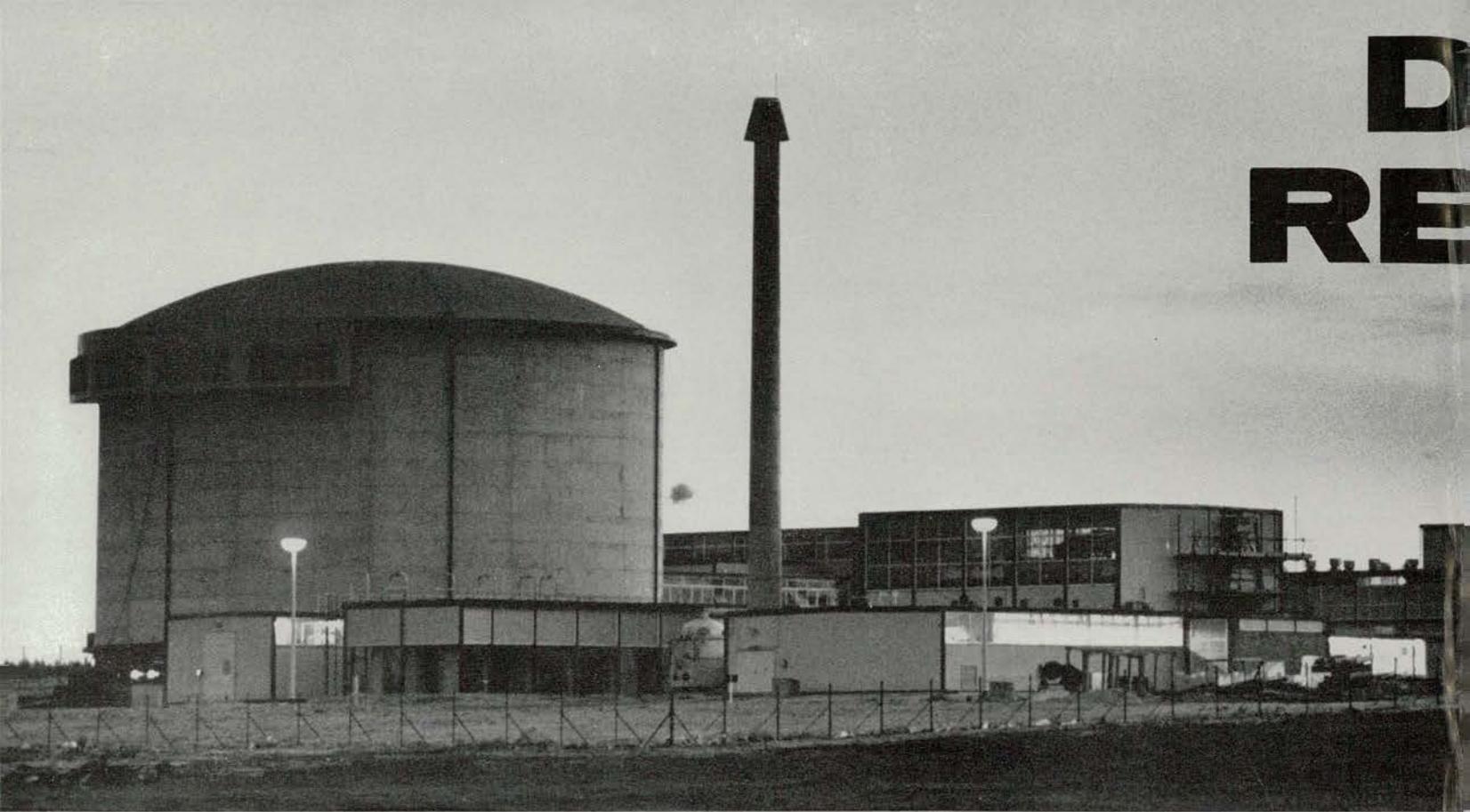
not by themselves able to ensure rapid economic growth, nor, probably, reasonable price stability; and that these objectives need to be sought directly by greater government initiative in economic planning and in wages policy.

THIS review suggests that, within a policy for promoting steady growth, fiscal policy will, if anything, have a more important role relative to monetary policy than in the past. There seems little question that fiscal policy will continue to be the chief means of exerting a stabilising influence on consumers' expenditure. If there proves to be a need to stabilise investment, tax incentives seem the best method to use here also. Monetary policy appears likely to be useful only for subsidiary purposes — before other measures are taken to affect investment; to help to mitigate cycles in the demand for durables; or, possibly, to influence the level of stocks.

One of the major conclusions of this study is that the attempt to manage the economy by means of fiscal and credit policy alone has shown them to be not enough. They need to subserve a policy for directly promoting economic growth, and to be flanked by a wages policy. The institution of the National Economic Development Council is likely to affect the conduct of fiscal and monetary policy in future. The plan for investment which emerges from it will have to extend over a term of years; and this will inevitably have implications not only for business, but also for government policy. It would be neither possible nor necessary for the Chancellor to give pledges for the government to give a general idea of the rates of expansion in both consumer and investment demand which — subject to capacity growing as planned — budgetary and monetary policy aimed to produce.

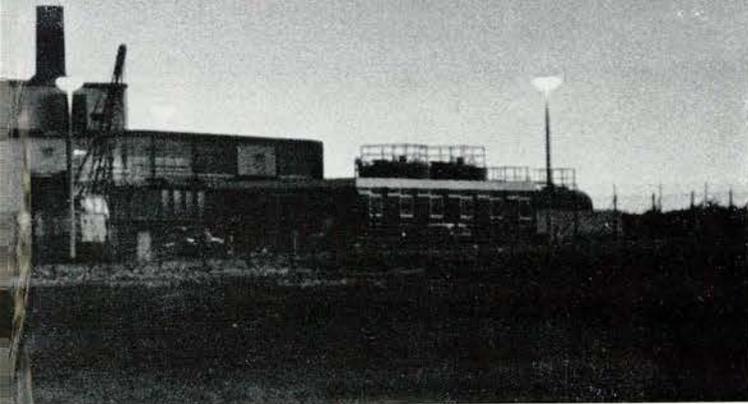
There will inevitably be occasions when the long-term policy has to be modified in the light of unexpected developments. But there is now better reason to hope that, in the formulation of policy, long-run as well as short-run considerations will be taken into account; and the fact that it will now be formulated in the perspective of a long-term plan might be enough to work a quiet revolution in the practical conduct of fiscal and credit policy. Economic policy has already, as compared with pre-war, revolutionised social conditions and the climate in which business has to operate. The improvements in the management of the economy that may be made in the next decade could bring benefits as important again.

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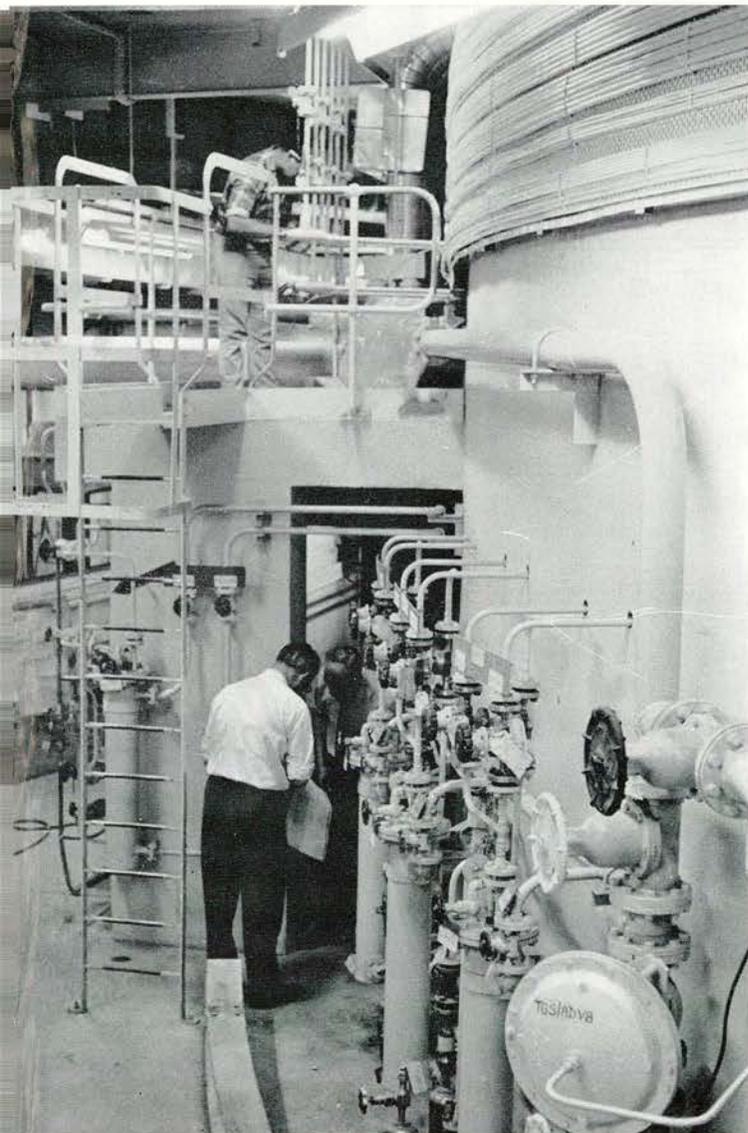
A team assigned to testing the instruments in the reactor control room

DRAGON REACTOR



"Dragon" site, with main reactor building on left.

SYSTEM HOLDS PROMISE OF CHEAPER, MORE EFFICIENT ENERGY FOR EUROPE



One of the most promising attempts being made by nuclear science today to use the atom for cheaper and more efficient production of electric power is entering a new phase this autumn.

This is the "Dragon" Reactor Experiment at Winfrith, England, whose name symbolises the intense heat which it is capable of generating in its core — a source both of its promise as a highly efficient energy producer and of the especially difficult development problems it has presented.

Dragon — a 12-nation co-operative venture carried out as a Joint Undertaking of the OECD European Nuclear Energy Agency (1) — reached its first sustained chain reaction early on 23rd August this year after more than five years of research and development work in laboratories and plants throughout the participating countries.

The Reactor will be officially inaugurated on 22nd October at a ceremony to be attended by Sir John Cockcroft, Nobel prize physicist and Member of the United Kingdom Atomic Energy Authority, and Professor Francis Perrin, French High Commissioner for Atomic Energy, and is expected to reach full-power operation early next year.

Studies have already shown that, provided remaining problems are solved, a large Dragon-type power reactor could be built producing electricity at considerably lower cost than nuclear plants of comparable size now in existence or being constructed.

Dragon — which itself produces only thermal energy, not electricity — is a high-temperature reactor in which graphite is used to "moderate", or slow down, the neutrons liberated by fission (in order to bring about the optimum speed for sustaining a chain reaction), and in which the heat generated at the core is carried off — eventually to be used in producing the steam that could drive an electric turbine — by a coolant agent consisting of helium gas.

(1) Dragon participants are Austria, Denmark, Euratom representing its six member countries, Norway, Sweden, Switzerland and the United Kingdom.

Water sampling plant of the heat disposal system.

While many existing power reactors are moderated by graphite and cooled by gas (usually carbon dioxide), they operate at only about 350°C, compared with the 750°C (and in parts of the core over 1 000°C) which Dragon is expected to attain. Such high temperatures, generated by a power reactor built on the Dragon concept, would make it possible to exploit under optimal conditions a steam turbine plant of the most modern design. Alternatively, it may even prove possible to use the hot helium itself to drive a gas turbine, thus making for additional economy and greater compactness of plant.

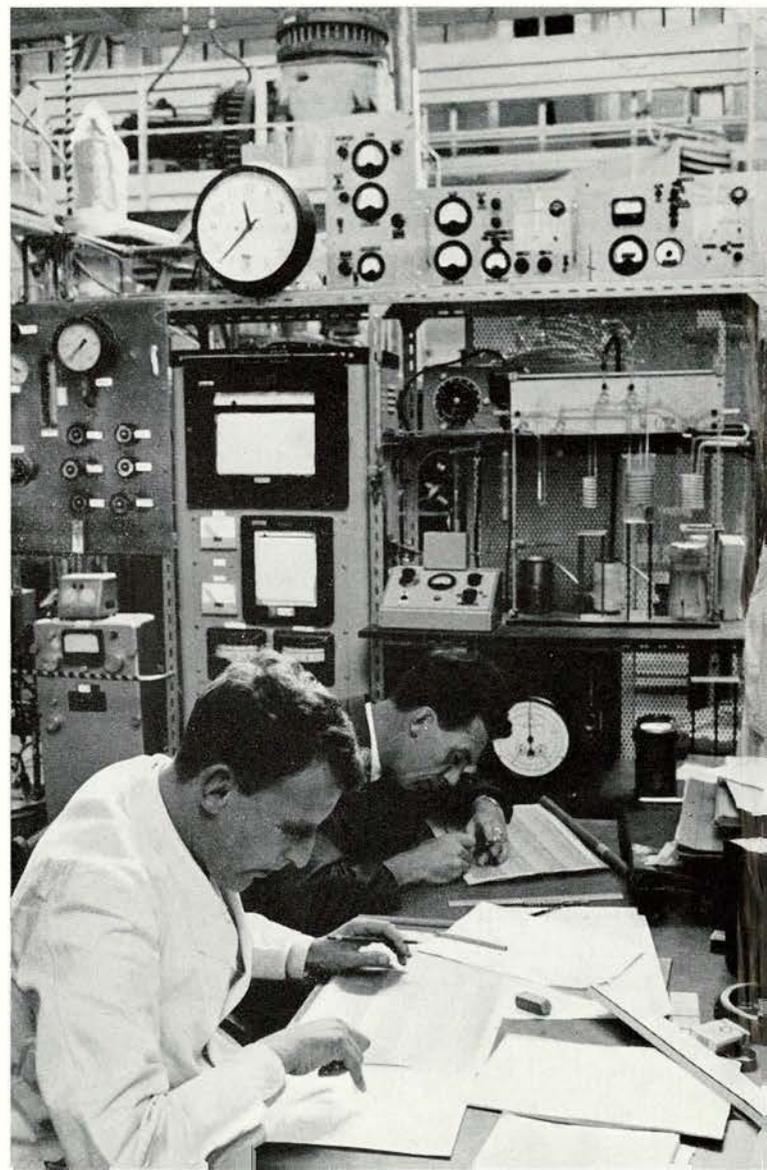
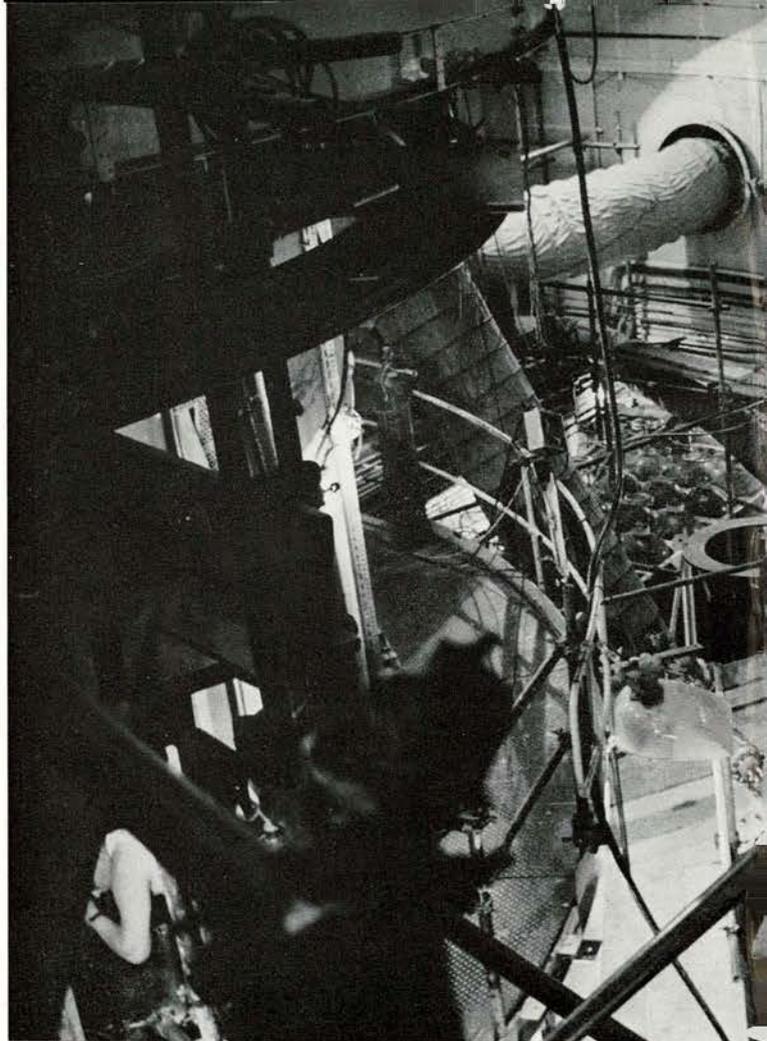
The advantages presented by Dragon have their counterpart in the many unique problems that have arisen in fields ranging from pure nuclear physics to mechanical and civil engineering and whose solution has called for the mobilisation of the skills and resources existing in the 12 countries taking part. The spread of contracts among the maximum number of firms and research centres also reflects a policy designed to give experience in the novel tasks involved to as many establishments in as many countries as possible.

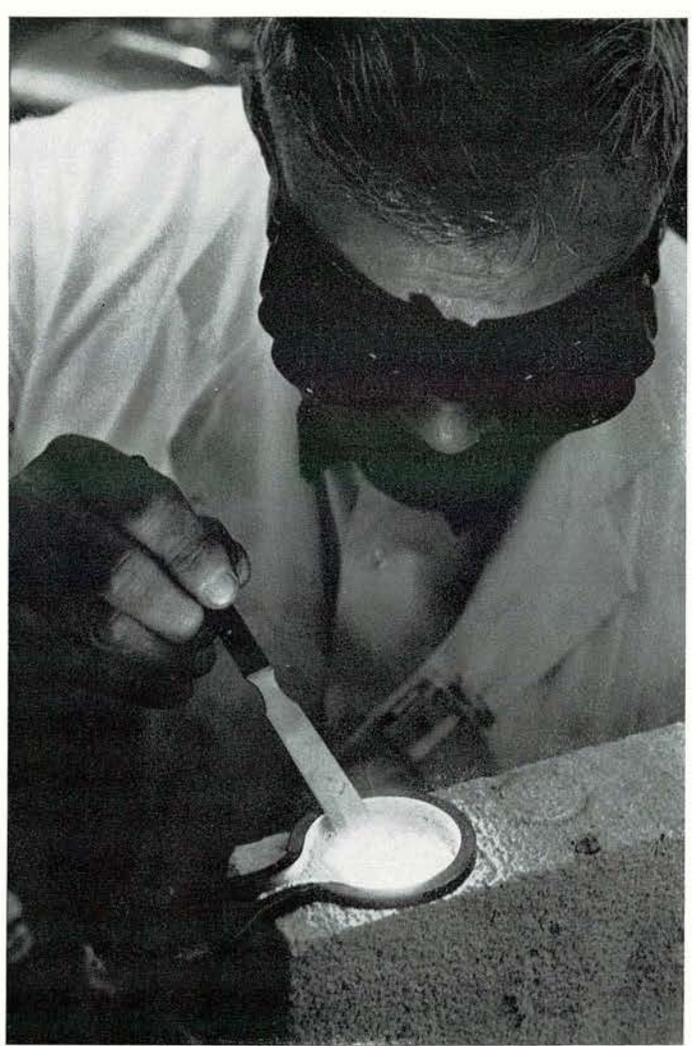
One of the major problems has been to develop a graphite of the proper degree of impermeability and able to stand up under intense radiation at temperatures above 1 000°C. Years of development work placed by contract in the United Kingdom, France and Germany have gone into the preparation of the graphite components, and studies are currently under way at the Petten research centre in the Netherlands to determine to what extent the tendency of graphite to shrink under radiation can be tolerated. Again, as graphite will react with impurities in the helium coolant gas under high temperatures, it is important that the helium flowing through the reactor be maintained at an extremely high degree of purity — hence the need for a special helium purification plant, the one major plant item still to be completed.

Development of Dragon materials and equipment — whether performed at the Reactor Site (with an internationally recruited staff of over 200) or under some 100 major contracts placed in a dozen European countries — has called for pioneering work of countless varieties. One example of a major piece of equipment requiring particular engineering ingenuity was the construction by Swiss engineers of special helium-circulating pumps whose revolving parts are separated by gas cushions since no normal lubricants could be used under the very high temperatures and demands on gas purity.

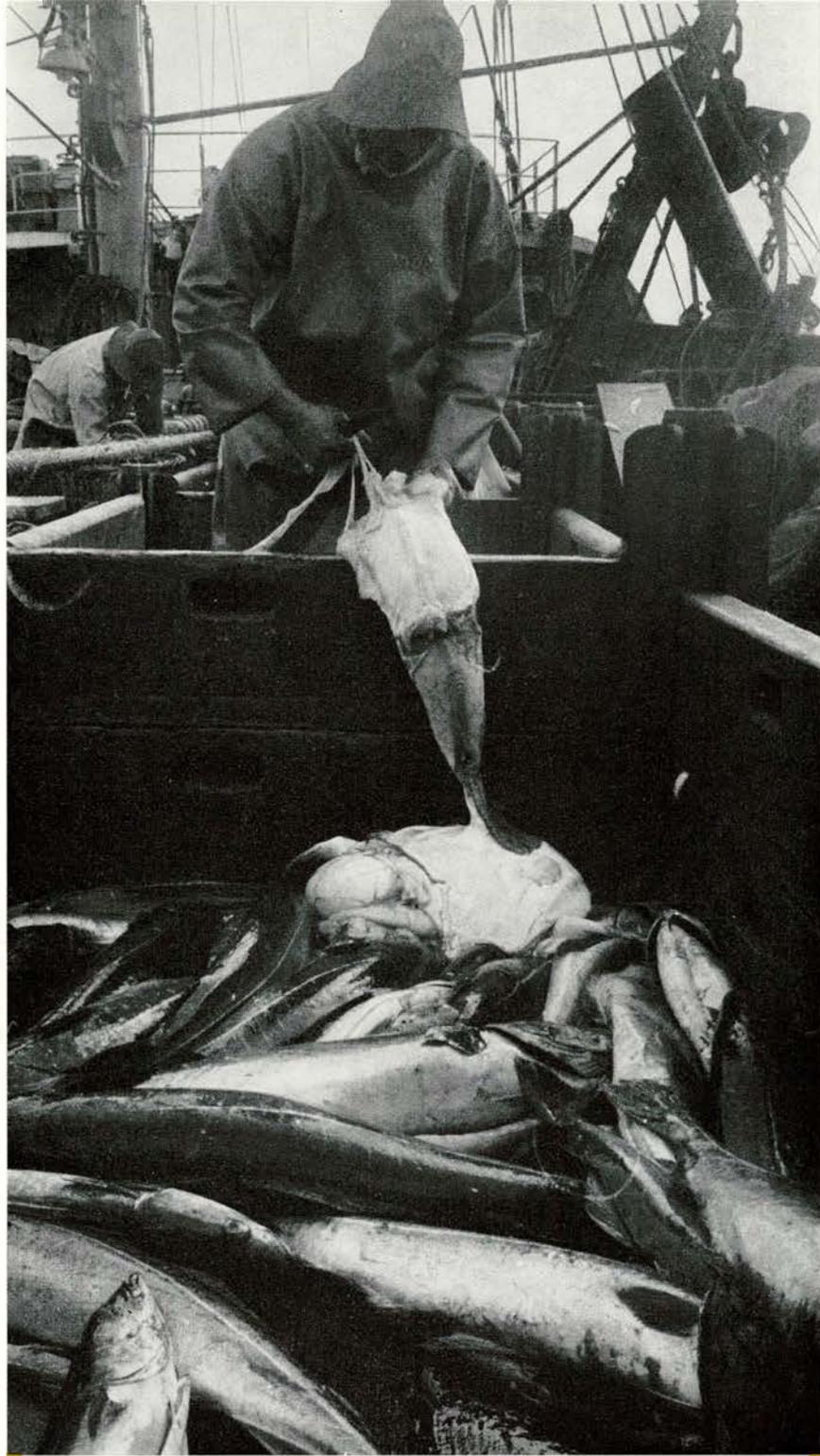
Of central importance, and perhaps crucial to the future of the whole Dragon reactor concept, has been the painstaking international effort to develop the most suitable fuel. The fuel for the first charge — particles of uranium and thorium carbide and of uranium and zirconium carbide, coated with a form of carbon (in order to imprison fission products that could otherwise contaminate the reactor circuit) and embedded in a graphite matrix — is the result of four years of work in many countries. Early studies in Austria, Belgium, France, Italy and the United Kingdom were supplemented by testing of the fuel elements in British, Danish, Swedish and Swiss reactors. The use of thorium, relatively cheap and freely available, may prove to be commercially attractive in eventual power reactor systems of the Dragon type. Development of still better — and more economical — fuels is continuing, and one of the purposes Dragon will serve when in operation will be to act as a test-bed for improved fuels.

The Dragon Experiment, which came into being on 1st April 1959 for an initial planned period of five years, has been extended until 31st March 1967 in order to enable the participating countries to exploit fully the completely new line of technological development which it represents. Contact is also maintained with American developments through a regular exchange of information between Dragon and a similar high-temperature, gas-cooled reactor project at Peach Bottom, in Pennsylvania. Although much work remains to be done in testing and improving Dragon design and operation, the progress already achieved points to highly interesting prospects of practical application to help meet Europe's electricity needs — which double every decade.





Interior of steel containment of Reactor Building (*top left*). Mr. T. A. Jaques of the High Temperature Techniques Group examining a specimen of material heated by high frequency induction at $2\,000^{\circ}\text{C}$ (*top right*). Technicians of the Engineering Research Group at work bench. In background (right), helium purification pilot plant (*lower left*). A staff member weighing raw materials used in making up "Dragon" fuel elements : thorium, uranium and carbon (*above*).



FINANCIAL SUPPORT TO THE FISHING INDUSTRIES

In connection with the regular confrontation of fishery policies the OECD Fisheries Committee recently turned its attention to a survey of subsidies and other financial aids to fishing industries in Member countries. The reason for this was that developments since the adoption of the General Report on Fishery Policies in Western Europe and North America (1) by the OEEC in 1960 had shown that, despite the recommendations made, financial aid showed a definite tendency to increase instead of diminishing.

The Committee accordingly carried out a thorough survey of the various aid systems practised by Member countries. It considered whether they were acceptable, having regard not only to increased trade in sea products but also the need to maintain healthy competition between Member country industries, and it concluded by specifically recommending that any financial support considered to have harmful effects should be gradually reduced and eventually discontinued.

(1) Published by OEEC in July 1960.

Financial support granted to the fishing industries varies widely from one country to another not only in its extent but also in its purpose and the terms on which it is granted. This is easily explained by the very wide range of existing situations, as modern industrialised fisheries which call for considerable investment operate side by side in the same country with traditional small scale operations which, despite limited productivity due to obsolete methods, are still very much alive.

A few examples may give an idea of the diversity of these support systems which have to be constantly adapted to changes in the situation.

There are two main classes of aid : that which is intended to afford direct functional aid and that which is designed to encourage investment.

The first type is based on the size of the catch or the number of days spent at sea. For example during the financial year 1960-61, *the United Kingdom* made allocations amounting to \$ 7.1 million to all types of undertaking except deep-sea fisheries which have been eligible for this support only since 1962. The corresponding figures for 1961-62 and 1962-63 were respectively \$ 10.4 million and \$ 13.1 million. These subsidies are granted on different scales to coastal fisheries and deep-sea fisheries with an eye to the profit-earning capacity of the vessels engaged and may amount to as much as 14 per cent (for herrings) of the value of the catch.

In *Germany* subsidies were granted in 1962 and

1963 on all catches intended for human consumption : the amount allocated in 1962 was \$ 3.8 million. Percentages varied according to the type of fishery and the type of vessel (from 3 to 10 per cent in 1962 and from 2.5 to 8.5 per cent in 1963), and the grants had to be warranted by efforts to improve quality.

Subsidies in *Norway* are granted to increase the income of fishermen by raising the prices obtained from landings of herring, cod and other varieties. In 1962 \$ 9.4 million were distributed on a system of controlled prices for catches landed, and allowing for the profits which could be earned in the various sectors.

In some countries, direct support is also granted in the form of subsidies to reduce the cost of equipment and bait. Other countries also have systems to guarantee the fishermen a minimum wage.

The second main group of subsidies includes all systems aimed at favouring investment. They may take the form of payments on the scrapping of obsolete vessels, direct grants towards the building of new vessels and credit facilities (loans on a variable scale at less than bank rates, loan guarantees, interest rebates). It should be mentioned that the Committee has not considered the aid granted by several countries to shipbuilding yards, which is studied in a special survey by another OECD Committee.

A few examples of the systems included in this group may be given, it being noted that they are even more numerous and diversified than those of the previous group.

Loans in *Belgium* are granted at 6.5 per cent up to a maximum of 70 per cent of the investment; loans of this kind amounted to \$.4 and 1.2 million respectively in 1961 and 1962. To these should be added interest rebates not exceeding 3 per cent (total government expenditure was \$ 52,000 and \$ 62,500 respectively in 1961 and 1962). Demolition subsidies are granted on condition that new vessels are built in replacement (\$ 154,000 from 1st January to 6th September, 1963).

Spain, in addition to subsidies for ship-building (from 4 to 6 per cent of the cost of construction), has issued loans of up to 80 per cent of the investment at 4 per cent interest (loans in 1963 : \$ 14.6 million), but the rate of interest is to be raised to 5.5 per cent.

In the *United Kingdom*, provision is made for subsidies of up to 25 to 30 per cent of building costs (total of \$ 4.5 million in 1961-62 and \$.9 million in 1962-63) to which should be added loans at 5.25-5.75 per cent (loans granted : \$ 12.5 million in 1961-62, \$ 5.3 million in 1962-63).

Germany, *Norway* and other countries also have systems which vary in structure and scope.

It should be added that special schemes are often used to promote the modernisation of small-scale fishing operations which cannot themselves afford to keep pace with technical change. It has been agreed in many of these cases that support was justified provided it really helped to enhance productivity in the sector concerned.

In all its assessments, the Fisheries Committee has allowed for social no less than economic factors. For example, it has envisaged special reserves to aid fishermen " who are living in areas where fishing provides nearly the only activity possible and where the economic conditions of the fishing industry are unfavourable ".

In cases, however, where aid has not been considered justified, recommendations have been made that it should be gradually reduced and eventually discontinued after periods varying from three to ten years.

The harmful effect of financial support is twofold. In the first place, though almost always introduced provisionally, it tends by a kind of chain reaction to be renewed and even increased or extended. This is true not only at national level. Support schemes employed in one country have often been used as an argument for introducing fresh schemes in another. In the second place, large-scale financial support reduces operating costs and distorts the conditions of international competition.

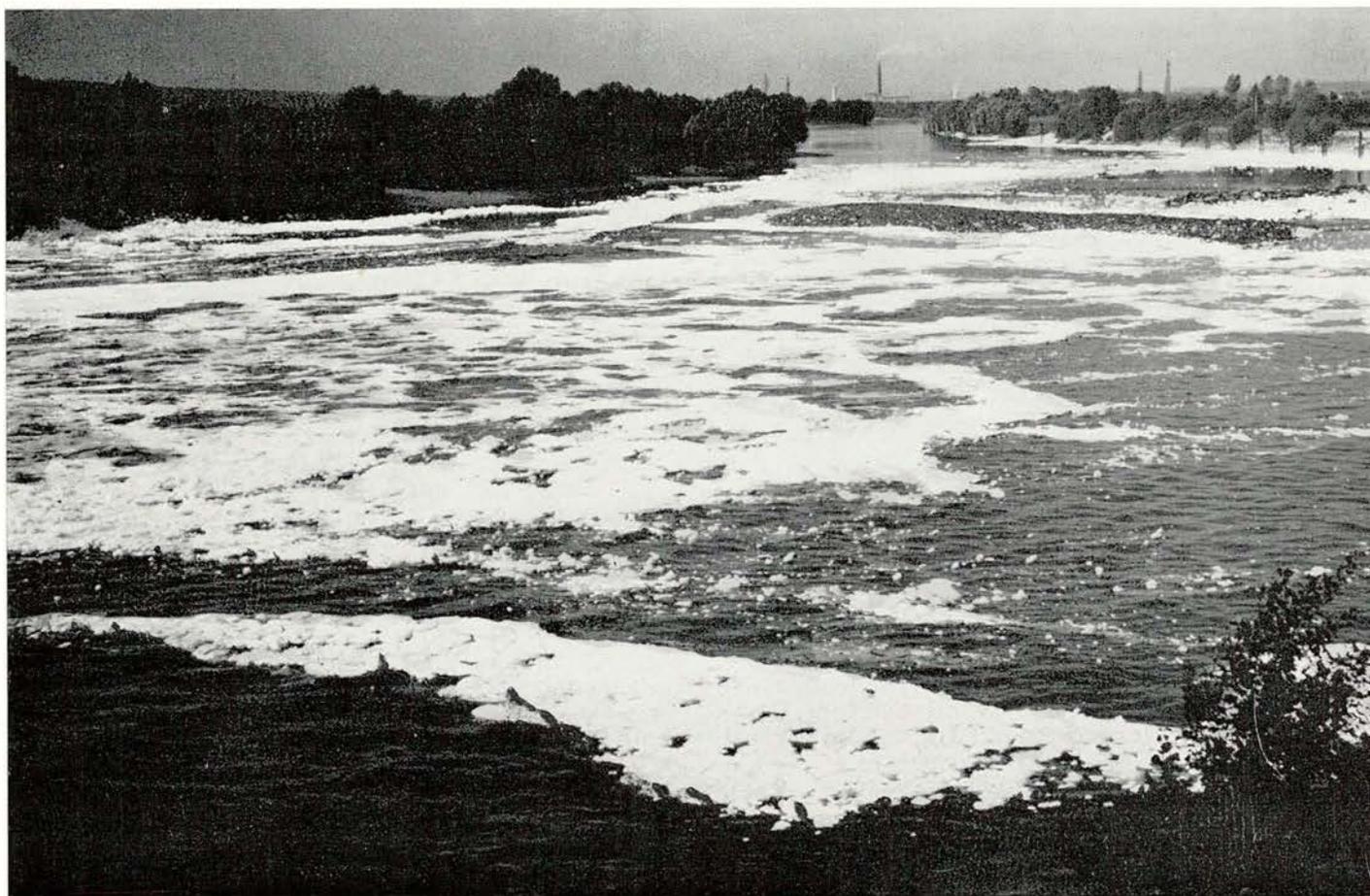
It is difficult, however, to assess accurately the distortion which subsidies may cause. Other factors are at least equal in importance although just as difficult to specify, i.e., customs, duties, import restrictions, price regulations, the ban on the landing of catches from foreign vessels, the extension of territorial waters and the effect of the general level of national prices not only on operating costs but also on the market price of fish. That is why the Report of the Fisheries Committee clearly states that subsidies are only one aspect of the fisheries policy as a whole. Certain countries which have few or no subsidies have other ways of helping their fisheries.

The agreement reached by Member countries on the question of financial support cannot therefore be regarded as an end in itself. Any success it may have will partly depend on the progress made in other aspects of fishery policy. This explains why the Fisheries Committee has supplemented its work with a number of other surveys now in hand (the effects of changes in customs tariffs on trade in sea products, price systems, the development of capital equipment...).

It is here that the special nature of fishery problems should be emphasised. In the sense that most fishing is done outside territorial waters it may be said that the source of wealth exploited is common property. Two dangers exist : the biological hazard of over-fishing in certain waters and the economic risk of competitive investment culminating in over-concentration on the fishery sector and inefficient high-cost operating.

Difficulties of this kind cannot be solved by purely national action. Far-reaching international co-operation is needed even more than in other branches of the economy. In most cases the fishing industries contribute only a small proportion to their countries' income but, from the international point of view, their general prosperity is one of the economic touchstones.

INTERNATIONAL CO-OPERATION TO STUDY



THE POLLUTION OF WATER BY DETERGENTS

On 1st October 1964 a law will come into force in the Federal Republic of Germany prohibiting the manufacture of synthetic detergents which cannot be broken down by at least 80 % under bacterial action (biological degradation). The decision to impose this ban, which entails serious economic repercussions for manufacturers, had to be taken in view of the pollution of streams by detergents, which is common to all industrialised countries.

The pollution of streams by synthetic detergents can be prevented from the economic point of view. Most of the detergents now being manufactured are attacked only very slowly by the bacteria present in rivers and in sewage plants, but there are other categories more vulnerable to bacterial flora, with the result that the harmful effect

can be arrested comparatively quickly. By switching production to these types of detergent, manufacturers will put an end to the nuisance caused by the presence of detergents in water. Several manufacturers are studying a change-over of this kind, in which the public authorities of certain countries are also taking an interest.

*The nuisance
caused*

The most obvious sign of the presence of detergents in waters is the accumulation of foam on rivers which pass through densely populated areas : below weirs and at

certain locks where dense barge traffic and the repeated opening and closing of lock gates churns up the water, it is now quite common to see a layer of foam two metres thick extending over a wide area. Although this foam presents certain dangers in itself by making the decks of barges and the lock paths extremely slippery, and although it is suspected of being capable of concentrating certain bacteria or viruses and thus becoming a potential carrier of epidemics, it acts chiefly as an indicator of pollution by synthetic detergents.

In rivers detergents have a harmful effect on fish and, generally speaking, on all the natural processes which enable polluted waters to purify themselves gradually.

They also interfere with the functioning of sewage treatment plants. For instance, after certain bacteria have broken down the nitrogenous matter in sewage into simpler molecules, purification can only be effected by the action of certain nitrous and nitric ferments which clarify the water and allow organic life to develop afresh; these ferments are thus the "final agents" in purification. It has been established that certain detergents have a pronounced action on this nitrifying flora amounting, when the proportion of detergent approaches 60 mg to the litre, to the complete inhibition of these ferments. The most serious drawback of pollution by detergents lies, however, in the fact that these products, or at least those now being produced, are highly resistant to the destruction treatments which occur naturally in rivers or are applied artificially in sewage plants. This means that they can get back into the water mains and thus complete a cycle which must lead to still greater concentrations.

Laboratories in 14 Member countries of the OECD are working on the problem. As early as 1961, their directors met, on the initiative of the Organisation's Committee for Scientific Research, to com-

pare their views on the scientific research effort required. They agreed that no single laboratory was capable of dealing with the matter as a whole, for lack of personnel and equipment, and that on the other hand similar studies were being undertaken simultaneously in several different laboratories. They considered that the pooling of these hitherto dispersed research efforts could not fail to be of general benefit, and that Member countries would profit from the results obtained more quickly and more cheaply from a concerted programme of action. They therefore asked the OECD Committee for Scientific Research and its Central Service for International Co-operation in Scientific Research to set up a Research Group for the joint study of the pollution of waters by synthetic detergents. The first thing to be done was to find out what studies had so far been made. This was successfully accomplished by Jean Prat and André Giraud and the results were published recently under the title "The Pollution of Water by Detergents".

From measurement to conversion

Quite a number of methods are employed for measuring the quantities of detergents present in water, differing generally only in minor details. The introduction of a standard method by research workers would simplify the work done in the various countries and lead to better results.

Another standard to be determined is the measurement of the "biodegradability" of detergents. A detergent which can be broken down biologically presents only temporary difficulties, whereas the action of a highly resistant detergent has no foreseeable limit in time. The ability of bacteria to break down the molecules of detergents depends primarily on the type and molecular structure of the detergent; in most current types,

the carbon atoms are arranged in "fishbone" formation and cannot be attacked by bacteria, whereas in the detergents to which future production is turning, these atoms form a straight chain which can easily be broken down. It is essential to know the precise extent to which each product can be biologically degraded, in accordance with standards which will make the results obtained in all research centres comparable with one another. Research is now adopting this approach.

In addition to these two subjects of study, the Research Group set up by the Central Service for International Co-operation in Scientific Research has already undertaken further work which it believes to be worthwhile: study of the concentration of bacteria and viruses in foam; the influence of detergents on the fermentation process in sewage farms and septic tanks and their influence on the permeability of the soil; and processes applicable to the elimination of detergents from waste waters.

For their part, manufacturers are preparing to convert their production. For them, oil products are a source of cheap and relatively stable raw materials. It is already known that these same raw materials can produce detergents which can be broken down; it is now a question of finding solutions involving the least costly changes and yet to produce a product without drawbacks.

So far, the public authorities have taken action on this matter only in the Federal Republic of Germany; in that country, the law of 5th September, 1961, which is to come into force on 1st October, 1964, imposes a minimum biological degradation rate calculated experimentally and fixed at 80% which satisfies both hygienic and economic requirements. The concerted action of research workers, manufacturers and public authorities might result in the complete elimination of the nuisance caused by synthetic detergents in the relatively near future.

INDUSTRIAL RESEARCH: *how should it be carried out?*

by Dr. F.N. WOODWARD,
OECD Scientific Counsellor

As part of its programme to help small and medium-sized firms on the one hand, and the industries of developing countries on the other, OECD has recently made a survey of Research Associations and Co-operative Research Organisations. This survey was carried out by the Scientific Counsellor to the OECD Committee for Scientific Research, Dr F.N. Woodward, who explains in this article the structural organisation of these bodies, which varies greatly from country to country, and also draws attention to the growing importance of contractual research laboratories.

His full report, «Structure of Industrial Research Associations», is to be published by OECD.

THE meaning of the term research association (RA) differs considerably from country to country, but in the United Kingdom, where the idea was conceived and has been in operation for half a century, it is understood to mean a research organisation working for an industry as a whole and financed partly by the Government and partly by the industry. In certain countries, particularly Denmark, France and Norway, there are co-operative research organisations with similar functions but in which the Government plays no active part. Some idea of the magnitude of this co-operative research movement can be gained from the table, from which it can be seen that there are nearly 400 laboratories of this type in the twelve Western European countries where this method of undertaking research is well established, with a combined annual income, in 1962, of some eleven million dollars.

The main purposes and advantages of the research association method of operation are as follows :

- to encourage co-operation in research and development between individual members of an industry and to make the industry research-conscious.
- to investigate problems of interest to a major sector of an industry which cannot conveniently or economically be undertaken by any single member.
- to transmit new research ideas and technological know-how from a variety of sources to the supporting industry.
- to stimulate and assist small and medium-sized firms and other organisations without research facilities of their own.
- to save money and economise in the use of scientific manpower.

Co-operative research activities in Western European countries have deviated from the British prototype and differ greatly in structure and working philosophy among themselves, from the government-imposed pattern of operation and financing on the one hand to almost complete lack of direction and support by the government on the other. The amount of government aid varies from 60 per cent of the total income to nil.

There is an equally bewildering diversity in the techniques employed for winning financial support from the interested industry. Some national research associations have individual members whilst others do not. Those which have, employ a variety of different methods for calculating or extracting membership fees, including in at least two countries legally enforceable levies. Those which have not, usually require the interested firms to form a trade association or federation to raise the finance required.

OF the 380 co-operative research organisations (CRO) in the twelve OECD countries shown

NUMBER, TYPE, INCOME AND INCOME SOURCES OF CO-OPERATIVE LABORATORIES IN EUROPEAN OECD COUNTRIES

	No. of laboratories of each type		INCOME (1961)			
			Total £ million per year	Sources %		
	RA	CRO		Government	Industry	Research Contract
AUSTRIA	22	—	0.425	10	50	40
BELGIUM	55	—	2.16	31	57	12
DENMARK	—	11	0.432	9	77	14
FRANCE	—	89	16.7(+)	<2	>90	
GERMANY	61	—	4.68	31	62	7
ITALY	4	—	0.082	50	50	—
	—	8	(*)	—	100	—
NETHERLANDS	23	—	2.30	60	7	33
NORWAY	5	15	0.50	—	78	22
SPAIN	9	—	0.112	50	50	—
SWEDEN	15	12	1.11	20	75	5
SWITZERLAND	—	3	(*)			
UNITED KINGDOM	50	—	8.70	23	75	2
	—	20	3.25	—	100	—
	234	158	40.45	23 (RAs only)		

(*) Not available. (+) 1960 estimated : includes CROs in erstwhile colonies.

in the table, 61 per cent are true research associations in that they derive continuing financial support from the State as a matter of national policy; these State contributions vary from 60 per cent of the total income of the research associations in the Netherlands to 10 per cent in Austria, the average for all the European research associations being 24 per cent. Capital grants from public funds are also made for new buildings and their upkeep, special apparatus and so on, although in many countries new research associations are encouraged to use revenue accumulated during the formative period or entrance fees for this purpose.

All the Western European research associations and co-operative research organisations, except in the Netherlands and Sweden, operate a scheme whereby appropriate individual firms can become members of the research organisation by payment of a fee. In the two countries mentioned, industrial financial support for their research associations is provided entirely by research associations specially formed for the purpose and supported by the interested industry. This technique is also used to varying degrees in Germany, Norway and the United Kingdom. In the majority of cases, however, an individual membership scheme operates, members contributing on a basis which takes account of their size and the extent of their interest in the research association. Thus the small firm usually

contributes less than the large firm; nevertheless, it has the same privileges although it will probably not have the same capacity for exploiting the results of research.

In some cases the levy system is statutory, particularly in France and to a limited degree in Italy, Norway and the United Kingdom; but more frequently it is voluntary.

Perhaps the only factor common to all the research associations and co-operative laboratories in Western Europe is the fact that they undertake research for the benefit of all their member organisations, irrespective of size. It is the belief of the research association movement in Western Europe that it is both feasible and desirable for competing firms in an industry to direct and provide the facilities for research to be undertaken for the benefit of the industry as a whole. (This is diametrically opposed to the philosophy generally held in North America, namely that industry is inherently competitive and that opportunities for joint research are small.)

THE research association approach appears to be best suited to such industries as have a large number of component members and whose overall research effort is not highly developed. The four large

science-based industries, producing chemicals, pharmaceuticals, oil and electronic equipment, whose individual firms must have well-developed research facilities of their own if they are to survive, hardly anywhere have felt the need for a research association of their own, although not infrequently individual firms in these industries subscribe to research associations operating in fields of interest to them.

Among the objections sometimes put forward to the value of research associations is that as the proportion of the total industrial expenditure on research and development devoted to their work is in general very low, many of the research associations are too small and too poor to be effective. For instance, during 1959-1960 the combined industrial expenditure in the United Kingdom on research and development totalled £ 250 million (\$ 700 million), of which amount only two per cent was paid to the fifty research associations. In Sweden, the proportion thus paid is a little higher, i.e., 2.8 per cent. In Germany, the 61 research association members of the Arbeitsgemeinschaft Industrieller Forschungsvereinigungen employ between them about 2,300 workers — 800 scientists and technologists, 600 technical personnel, 600 workmen and 300 administrative — an average of 38 staff per research association. In Belgium and Norway the average number employed is 23. In fact, the position is rather worse than these figures indicate, as a significant proportion of the staff of all research associations is administrative, and in many instances a major proportion is concerned solely with information services.

These and other drawbacks — the research associations's director spends too much time keeping members happy; conflict between research association staff's scientific interests and members' commercial requirements; unwillingness of many members to release worthwhile problems for research association study — have led to a growing interest among industrialists in contractual research of various kinds.

But until the early nineteen-fifties there were virtually no laboratories in Europe solely concerned with contract research, and few European research associations or co-operative laboratories undertook confidential investigations on behalf of single firms or even considered doing so. It was felt, and in some countries still is felt, that single-client confidential research and co-operative research for the benefit of many firms are incompatible in the same laboratory. Another objection frequently heard is that if a research association or co-operative research organisation undertakes too much contract work, the scientific output and good name of the laboratory suffer and in consequence it becomes increasingly difficult to attract and retain first-rate staff. Finally, there seems to have been a feeling that sponsored research, being the brain-child of American "big business" requirements, is not suitable for European

conditions. During recent years there has been a definite change in operating philosophy by many of the European research associations and co-operative laboratories in that they are now carrying out confidential research for individual sponsors in addition to joint research for the industry as a whole.

A marked change in the thinking of many European national science policy-makers also resulted from the OEEC-sponsored visits to the United States after World War II, when the success attending the operations of the American non-profit sponsored research institutions became known.

The almost immediate success of the American Battelle Memorial Institute, which launched its European operations with a \$ 1.5 million capital outlay in Frankfurt and Geneva in 1951, has also had a significant influence on national science planning.

THE development of contract research institutes in Europe on any large scale has been slow in coming; it has now been accepted as workable in many European countries and is growing rapidly in some, particularly in France, Germany, Norway and the United Kingdom. But while in the United States all the major contract laboratories are independent bodies not receiving or wishing to receive government subsidies, in Europe three types are emerging :

- research associations or co-operative research organisations undertaking contract research as well as co-operative research.
- contract laboratories controlled or subsidised by the State.
- independent contract laboratories.

Of these the last group is the most rapidly growing.

In Germany a novel idea has been developed for a free advisory Bureau for Contractual Research, which has a card index of 2,000 scientists and 300 institutes willing to accept research assignments on a contractual basis. The Scandinavian Research Guide also lists 390 institutes in Denmark, Finland, Iceland, Norway and Sweden which are willing to accept research contracts.

This growing interest in, and use of, independent sponsored research institutes led me to recommend, in the survey I carried out for OECD, that an examination should be made of the structure and operations of such institutes. In the light of the information thus obtained the industrial research needs of a country in process of development could be surveyed. Furthermore, the more developed OECD countries may wish to make a re-appraisal of their policies with regard to government support for industrial research.

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