in critical supply, so much so that the government has imposed a near-total ban on nonessential imports. Paying for the reactors and other services to be provided by West Germany will clearly prove difficult even if, as was originally contemplated, Brazil is able to discover enough uranium in excess of its own needs to offset part of the price.

The reactor effort also seems to be mismatched with Brazil's real needs, a fact pointed out by many of the country's leading academic energy specialists (*Science*, 11 February, p. 566). Brazil has a huge undeveloped hydroelectric potential, and the projected supply of electricity is sufficiently greater than the demand that schemes abound for fertilizer plants based on electrolytic hydrogen or other ways to use the excess. José Goldemberg, a nuclear physicist who currently heads the Brazilian Physical Society and who believes that nuclear power will eventually be necessary for Brazil, nonetheless characterizes the scale and urgency of the West German deal as "clearly out of context with the present [energy] crisis." He also says, however, that under the present circumstances he would not like to see the government back down.

One of the underlying but often unstated reasons for the nuclear program is the special significance that nuclear power has for Brazil, struggling as it is to become a modern nation. As one Brazilian observer describes this symbolic role, there is "a widespread belief that nuclear energy is a panacea and that if you have it you are a big, developed country—a belief of almost mythological proportions in Brazil."

The Brazilian nuclear program contingent on the West German agreement, however, still exists almost entirely on paper. Construction of reactors has not yet begun and neither have the massive training programs. Originally training was to begin in 1976 and government officials now say it will get under way later this year, but the universities that would presumably be involved in at least part of the effort know nothing of it. In fact, tangible evidence of progress since the agreement was signed in mid-1975 is hard to find. Joint German-Brazilian companies that are to carry out the work have been established, but according to Brazilian observers these are still far from functioning entities. The enrichment company, which is the most controversial aspect of the nuclear deal, is said to consist of an empty office and a president, who promptly went off to Germany for the next 2 years to learn about the process from the ground up. One skeptical Brazilian scientist, who did not want his name used, describes the entire program as "a trade of uranium Brazil does not have for technology Germany does not have," a reference to the uncertain size of the country's uranium resources and the unproved German nozzle technique for enriching uranium.

Brazil has always claimed that it would use the enriching technology strictly to guarantee itself an independent source of energy and not to produce nuclear weapons. Indeed, the lack of an ensured supply of enriched uranium is the reason Brazilian officials give for switching from the United States, which has tight controls on the uranium supplied to U.S.–built reactors, to West Germany as their supplier of nuclear technology. The first Brazilian power reactor, a U.S.–supplied Westinghouse unit capable of delivering 630,000 kilowatts, is nearing completion. The switch also represents a change from buying "turnkey" plants like the Westinghouse unit to attempting to master the technology itself and to build up an indigenous nuclear industry, for which the Germans agreed to provide extensive help. Nonetheless, Brazil has refused to sign the nonproliferation treaty, and the Brazilian military are known to be uneasy about the nuclear plans of neighboring Argentina.

One Brazilian official close to the nuclear program told *Science* that Carter's statements about nuclear proliferation last fall caused real worry within the government at just the time when the difficulties of bringing off the nuclear program were becoming apparent. It is not at all obvious that a less strident or at least less public effort to undo the German-Brazilian agreement would have had any greater success, but the opportunity now seems clearly past. Thus the Carter Administration's first foreign policy venture, as far as Brazil is concerned, seems only to have succeeded in uniting the country in its determination to resist that policy.—ALLEN L. HAMMOND

Science in Europe/A Brookings-Style Think Tank Is Proposed

Britain could have its own version of the Brookings Institution within the next year, if plans now circulating in London are put into effect. Brookings has long been admired by liberal British policy-makers, who feel that if Britain had a similar center for the scholarly analysis of policy options, some of the more glaring blunders made by successive British governments might have been avoided.

Most of the enthusiasm for a "British Brookings" has been generated by a German politician and academic, Ralf Dahrendorf, a former European Economic Community commissioner for research, science, and education who is now settled in Britain as director of the London School of Economics. Dahrendorf, being an intelligent man and—perhaps even more important—a German, is listened to with great respect in London. He is frequently called on to rally the fainthearted in newspaper articles declaring that Britain is not really in so awful a mess as might appear. He does this very well.

Four years at the EEC commission in Brussels and two as director of the London School have taught him caution. When asked to discuss with *Science* the nature of the institution he was trying to set up, he declined on the grounds that it would not be helpful to discuss the plan in public at the moment.

Some clues nonetheless are in a discussion document written by Dahrendorf and circulated through academic and government circles last year. It said that what was needed was "a meeting place which is also a place of scholarship, and one which attracts the best brains in the country as well as those in positions of major responsibility." It would be established within easy reach of Parliament and the Civil Service, cost £1 million a year to run, and at any one time would have up to 80 fellows and visiting fellows in residence. It would be run by a permanent director (Dahrendorf has made it clear that he does not seek the job) and a governing board of ten.

The areas of policy which it might investigate include the use of North Sea oil revenue to reconstruct the British economy, industrial democracy (which would include such questions as worker representation on the boards of com-

panies), the future of the welfare state, taxation policy, and the possible contents of a British Bill of Rights. The fundamental purpose of the institution would be to bridge the gap between academics and policy-makers. Dahrendorf, who is a trustee of the Ford Foundation, is said to be quite confident that the money needed to set up the institution can be raised.

The proposal is now being considered by a subcommittee of the Social Science Research Council (SSRC), the body that funds research at universities in social sciences and economics. The subcommittee includes representatives from government departments, universities, and the SSRC, and is said to be discussing a variety of possibilities.

One, in deference to the government policy of devolution (giving more power, and their own parliaments, to Scotland and Wales), envisages three separate institutions, in London, Edinburgh, and Cardiff. Another option simply consists of giving more money to existing multidisciplinary teams in universities, and a third envisages an institute attached to London University. None of these, it is fair to say, would be much like the real Brookings.

So far there has been little public criticism of the plan, although Patrick Hutber, a columnist on the right-wing *Sunday Telegraph*, has urged industrialists not to support it. "Such good as Brookings has done," he wrote, "which is less than sometimes supposed, depends on conditions unique to the United States. Its close connections with government depend essentially on the American spoils system which releases large numbers of able people from the administrative ranks of government each time, say, a Carter comes to power. There are no such people here."

The point is a fair one: there is much less movement in Britain between industry, the universities, and government, and attempts to stimulate it have not succeeded. Without such movement, half the benefit of an institution like Brookings is lost. There are, in fact, plenty of centers for policy studies in Britain already, including the well-established and respected Political and Economic Planning (PEP), although none has achieved a really dominant position. Whether a British Brookings could break this tradition is doubtful.

Innovative New Chemical Journal

Three European chemical societies—the German, the French, and the British—have launched a new journal which they sponsor jointly. The first issue of the *Journal of Chemical Research* was published in January to join the tens of thousands of scientific journals on the market. The new journal is different, however, and not simply because it is a collaborative venture between the three societies.

It is, the societies say, the first journal of pure chemistry to be published in the synopsis/microform style. What this means is that the journal comes in two separate sections. The first, the *Journal of Chemical Research (S)*, contains synopses of the papers accepted for publication, and members of the societies can subscribe for only £10 a year. For many purposes the synopses will prove sufficient, but where they are not the full texts of the papers will be available as the *Journal of Chemical Research (M)*, in the form of microfiche or miniprint output. (Microfiche is a form of microfilm in which the frames are laid out in columns and rows on a clear plastic card measuring 4 by 6 inches. It requires a special reader. Miniprint, already used experimentally by the American Chemical Society, is simply the use of very small type sizes to pack a lot of information into a small space. Given a good light and sharp eyes, it can be read without artificial aids.) Part *S* will be typeset, part *M* reproduced directly from contributors' typescripts. The synopses will be printed exclusively in English, and the full texts in French, German, or English, according to the language of the author. The British Chemical Society in London is the base for the new journal.

The subscription for both parts of the journal will be £65 a year for nonmembers of the sponsoring societies, and less for members. The advantage of the new journal is economy of production—a saving of around 25 percent in subscription rates compared with conventional formats—and separation of the "current awareness" and "archival" elements in scientific publishing. Reaction from chemists to the new ideas was violent to begin with, says Ivor Williams, managing editor of the journal, but now he thinks they have come round to "resigned acceptance rather than ecstasy." Many are convinced of the virtues of the journal at an intellectual level, but "the real crunch will come when they as authors have to decide whether to submit their work to a synopsis/microform publication rather than to a conventional established journal."

North Sea Oil's Critical Role

In 1977 almost half of Britain's oil demand will be met by wells under the North Sea, bringing closer the day when Britain will be more self-sufficient in oil than the United States. Oil imports now meet more than 40 percent of the U.S. needs, a point that is likely to be achieved by Britain some time in 1978, on the way to complete self-sufficiency in 1979 or 1980. So far, exploitation of the North Sea has gone remarkably smoothly. There were some small delays in 1976 which reduced the total production from an estimated 15 million tons to 13 million, but by the end of the year the biggest field on stream, the Forties Field, was producing at 25 percent over target. Production in 1977 is now expected to be 45 million tons.

Just how important this may turn out to be is emphasized by a new report published by the Organisation for Economic Cooperation and Development in Paris at the end of January. *World Energy Outlook* is the OECD's latest attempt to estimate where the developed world will find its energy over the next decade, and it paints a fairly gloomy picture. If OECD countries maintain present policies and practices, the report concludes, the demand for imported oil will rise by 1985 to 35 million barrels a day, compared to 23.4 million barrels a day in 1975. "This level of demand, when added to the oil required by other countries, might exceed the quantity of oil that exporting countries, especially members of OPEC, would be willing to [supply]," the report says.

If anything is to be done to moderate the OECD countries' demand for energy, new policies must be adopted within the next year or so if they are to influence events in the mid-1980's, OECD says. That sounds like a hint to President Carter to produce a more coherent energy policy than either of his two immediate predecessors managed. The United States accounts for half the total energy requirements of OECD, and thus the policies it adopts have a correspondingly large impact on the problem. In Europe, by contrast, the OECD sees net oil imports actually declining between 1974 and 1985, thanks to the increasing production from the North Sea.—NIGEL HAWKES