

environmental problems has been billed by Mr Russell Train, chairman of the Council on Environmental Quality, as the "first comprehensive environmental agreement between major world powers", and although Mr Train pointed out that the discussions that led to the agreement were conducted independent of talks on the UN Conference, they augur well for the prospects in Stockholm. Eleven areas have been specified for long-term collaboration between the two countries, including air and water pollution, pollution from agricultural activities, climate modification and earthquake prediction. Mr Train emphasized last week that the treaty does not reaffirm any existing programme, but that it is "a whole new ball game with the Soviet Union".

The agreement will probably include joint economic studies of new technologies and pollution control measures, which should be an interesting exercise since the two economies are so different, but it is likely first to provide joint cooperation in areas likely to be of short-term benefit to the two countries. One such candidate is cooperation on studies of climate modification associated with environmental changes. US scientists have already built up a substantial body of data relating to the effects of cities on climate, while the thrust of studies in the USSR has been concerned with the climatic effects of water resource projects. The two are clearly complementary. US scientists and engineers are also anxious to discuss with their counterparts in the USSR the problems of building pipelines in Arctic regions. Russian engineers should have much experience in this area which would come in useful for construction of the trans-Alaska pipeline.

The space agreement provides for a joint mission rather different from that being talked about up to a month ago. The intention then was to dock an Apollo spacecraft with the Salyut space station, but in April officials of the USSR changed the plans because of technical difficulties involved in the project. The chief problem was to provide docking facilities on Salyut for both the Apollo and Soyuz spacecraft without interfering with the stability and guidance of the space station, and it was agreed to prove the docking system first with the two spacecraft. The change of plan will, however, greatly decrease the extent of the work that can be carried out on the mission, since both spacecraft are relatively small, and it will probably require that they each be flown by a two rather than a three man crew.

For the flagging US space programme, the agreement is a shot in the arm which should help to maintain

public interest between the last Apollo flight next year and the first flight of the space shuttle in the late 1970s. But it will also help NASA keep the Apollo team intact until the shuttle is developed and will provide a few more jobs for the ailing aerospace industry. Although the projected employment on the project of 4,400 will hardly make a dent in the unemployment problem, however, it is a useful figure to be thrown around in election year. The project is estimated to cost about \$250 million.

ADVISORY COMMITTEES

Senility and Relevance

by our Washington Correspondent

WINSTON CHURCHILL once said of advisory committees: "We are overrun by them, like the Australians were by the rabbits", and he was also heard to remark about Niels Bohr, who had then just been attempting to convince him of the dangers of pressing ahead with the construction of the atomic bomb, "What's he talking about, science or politics?". If he were alive and in Washington now, Churchill would be even more confused about the position of science in the political process, and more irritated by the proliferation of advisory committees, for there are an estimated 2,400 committees advising the federal government, some 1,500 of them concerned with scientific and technological matters.

How well is the scientific advisory system working? In particular, is the best use being made of the available scientific talent? According to a committee of the National Academy of Sciences (NAS), under the chairmanship of Dr Detlev W. Bronk, an elder statesman of the scientific establishment, although the advisory committee system has functioned well so far, the committees have become top heavy with old men while younger scientists, women and ethnic minorities scarcely get a look in. The NAS committee also suggests that many advisory committees have outgrown their usefulness and should be scrapped, and that the mechanisms by which committees are set up and members appointed is in need of overhaul. (*The Science Committee*, available from the Printing and Publishing Office, NAS, 2101 Constitution Avenue, Washington DC 20418.)

A study of the committees of the National Research Council shows that the median age of the members is 50 years, compared with the median age of all US scientists with a PhD of 40 years, and, while women constitute 7 per cent of all doctorate scientists, they make up only about 1 per cent of NRC committee members. (The median age of the committee that produced the re-

port was 59 years, and it contained no women.) Moreover, only about 2 per cent of all NRC committee members come from ethnic minority groups. To help redress the balance, the NAS committee suggests that not only should agencies such as the NRC cast the net more widely in choosing committee members, but agencies which sponsor the studies should include consideration of social and economic questions in the tasks assigned to committees. The NAS committee believes that younger scientists are more willing to consider such questions—a suggestion which would indeed confirm Churchill in his belief that scientists should stick to hard science.

Another aspect of the advisory system that bothers the NAS committee is that problems may be referred to a committee simply to delay making a decision, and that "sometimes an existing committee is formed out of habit or inertia simply because the advisory framework exists and is convenient, without a clear decision that reference to a committee is the best course in the circumstances". Moreover, committees often get stale and their approach to problems becomes a conditioned response rather than a fresh appraisal, and sometimes committees will continue to meet even when their job has been completed.

To combat these ills, the NAS committee suggests that advisory committees should be appointed only when there is a clearly defined objective for them to aim at, and that the rationale underlying their operation should be carefully examined before members are appointed. Both the agency which sponsors a study and the agency which appoints the committee should have an annual spring-clean, reviewing the status of each committee and scrapping those which are no longer needed. Those that pass the senility test should have their members rotated to ensure a constant influx of new ideas.

Changes in the structure and operation of the National Research Council now being implemented (see *Nature*, 237, 6; 1972), may help to meet some of the criticisms outlined in the report. The suggestion to set up registers of scientists willing to serve on NRC committees, and to service some of the more important committees with high-powered staff members on an *ad hoc* basis, for example, may help to keep the committees from getting set in their ways and ideas. But the reverence for experience and the "buddy system" by which committee appointments are made will undoubtedly ensure that the advisory system will be slow to change. The best to hope for is that the appearance of the NAS report will put many to death.