

science policy for the Conservative Party. Indeed, in the nature of things, the Conservatives are not very interested in giving away their plans in advance. Given the difficulties of policy making in opposition, when front bench spokesmen can easily become out of touch, the seminar fulfilled a useful purpose. At least it indicated that the difficulties of producing a policy for science and technology will not be spirited away by a change of government. That much, perhaps, is common ground between the parties.

## POLITICS

### Science All-Pervading

To coincide with its 1 day seminar on science policy, the Conservative Political Centre published this week a pamphlet which sets out its ideas on the organization of science. The pamphlet, *Science and Public Policy*, is written by Mr David Price, Shadow Minister of Science and Technology. Its message is that a Conservative Government should attempt to bring science into the formulation and execution of all policy—summed up in the phrase “Science in all policy rather than a policy for all science”. But Mr Price admits that to achieve this admirable state of affairs “the whole ethos of Whitehall must change”. “Neither the present machinery of Government nor those who operate it, whether politicians or civil servants, are wholly adequate to respond with understanding to the opportunities and to the problems thrown up by the advances of science and technology”.

Mr Price says that Government cannot be changed by reorganizing departmental responsibilities; it means persuading or compelling every Government department to use the techniques of scientific management.

The real problem of technology in Britain, as Mr Price identifies it, is that there is an “exploitation gap”. The responsibility for filling this gap he places firmly with British industry, which he says should try to copy the success of the great international corporations. All that the Government needs to do is to provide a climate in which risk capital is readily available. In effect, this rests on the assumption that a Conservative Government would be better at managing the economy than the present one.

There are, it is true, some further tasks which Mr Price assigns to central government, but a solution to the problem of changing personal attitudes towards science and technology, he believes, cannot be imposed from above. At the same time, he does not exempt members of parliament from the charge that they have ignored science. Mr Price says, “This alienation of working politicians from science and technology . . . has been unfortunate. It must end soon if our parliamentary democracy is not to end first”.

## SPACE POLITICS

### ELDO on the Block

from a Special Correspondent

Bonn, November 12

THE ELDO ministers' meeting on November 11, which acted as a curtain raiser to the main European Space Conference on the following three days in Bonn, was as

inconclusive as ever. The main issues were transferred to the European Space Conference itself. What is clear, however, is that the Europa rocket still has some life in it.

Two set pieces opened the meeting. One was the tabling of the Spacy Committee's proposals after its month's work since appointment on October 2 (see *Nature*, 220, 315; 1968). The document was not published but is concerned with an overall European space programme conducted within a single European space body. It is understood to call for very ambitious communications satellite projects, continuing well beyond the completion of the Europa I and II programme, and with a proportionately large price tag. The implications of this are far-reaching and complex and are likely to be overtaken by events at the main space conference. Even among the ELDO meeting's members—Britain apart—there were differences of view on how the launchers were to be produced and on the mode of management and control.

There was more progress on the other set piece—proposals put forward by the ELDO Secretariat on how to prune the current Europa I and II programme so as to avoid the threatened over-expenditure of \$100 million. The extra cost has been caused by the failure of the French second stage of the Europa launcher on both occasions it has so far flown. The *F7* flight from Woomera, scheduled for November 17, will be the third attempt and the first to aim for an orbit (employing a test satellite). The new plan cuts out two full test flights (*F10* from Woomera and a geostationary injection attempt from Guiana) and the last two development flights (*F11* and *12*) will fly without apogee motor. The Italians would lose substantial amounts of work by the revised arrangement, so the French and German Governments have offered Italy a share in the apogee motor development for their bilateral Symphonic communications satellite project. Another achievement was that the British delegation has at last persuaded ELDO's continental members that it is in good faith when it offers to supply Blue Streaks even when Britain has ceased to take an active part in ELDO, after 1971. “The terms are sufficient,” the meeting's chairman, Belgian Research Minister M. Lefevre laconically remarked to the members when the meeting finally broke up late on Monday evening.

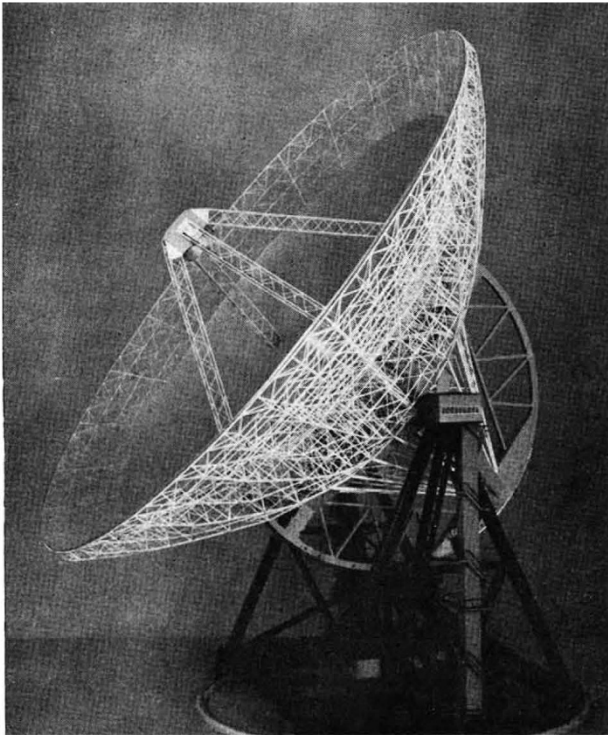
A final communiqué in the form of a resolution was issued later. The British abstained from this, and the Italians agreed only if they could refer it back to their government. The main British objection, it appears, is to sweeping plans for further studies including work on a future programme, beyond 1971, which may involve a fair sum of money out of the current budget. It is expected that Britain will put forward a counter-proposal at the European Space Conference for the use of the substantial budget now going to ELDO for point to point communications satellite projects under ESRO auspices.

## RADIO TELESCOPES

### Bigger Still to Come

FOR some years after 1970, West Germany may be expected to have the largest fully steerable radio telescope in the world. A 100 metre (333 feet) instrument

is now under construction in the sparsely populated Eifel mountains 40 km south-west of Bonn, and is due to be commissioned in April 1970. The initiative for the project lies with Professor Hachenberg of the Astronomical Institute of Bonn University and goes back to 1964. It has now been adopted by the Max Planck Society which has appointed a supervisory board. The project hung fire for some time because of the difficulty of finding the necessary finance—30 million Deutsch marks (about £3 million) was the original estimate. After the Volkswagen Fund had promised a substantial contribution (DM 26 million) smaller sums have been forthcoming from other sources. Work on site clearance and access began about a year ago and if the erection phase goes as



smoothly, the Effelsberg telescope will take over leadership as the most powerful precision instrument at short centimetre wavelengths from Jodrell Bank Mark I (now being reworked to be effective down to 3 cm over the central portion) until Jodrell Mark V (with a 400 foot diameter dish) is ready at some unspecified time in the 1970s.

The Effelsberg telescope is designed to be fully efficient down to 5 cm across the whole collecting area, and the central 60-m diameter has a high-precision solid surface to make this section good for 3 cm observation. Together, these specifications define a major programme of observation of the "new hydrogen line". Most of the work will be on interstellar gas in the galaxy and on extragalactic radio sources (including quasars and pulsars). The Federal Ministry for Research is providing DM 1.6 million on the understanding that the telescope will help track the German solar probe spacecraft scheduled for 1973. The telescope is not being equipped to work as a radar.

In overall design the Effelsberg instrument is similar

to Jodrell Bank Mark I. There are some differences, however. The focus is mounted on a "quadripod" and supported quite independently of the dish structure (reducing the latter's weight). There are to be manned cabins (hanging in gimbals) at both the focus and apex of the dish, the latter facilitating rapid changes in receiver equipment which can be lowered into position through a trap in the cabin floor. The whole structure turns in azimuth on a single circular track of possibly unique dimensions; it is 30 cm wide. The mesh periphery will mediate structural judder in windy conditions.

To attain the designed pointing accuracy of 8 arc/s at 3 cm, not only must the aluminium surface of the central section be true to 1 mm but the foundations must be guaranteed not to move more than 1 mm in 5 years.

At present, the approach road and site clearance have been completed, the foundations and power supplies are in, the giant site crane assembled and on-site assembly shops are ready. All components are being prefabricated and brought in in small units. The location is delightful but awkward—tucked into a steep and wooded valley facing south (where the centre of the galaxy lies at 11° above the horizon as seen from Effelsberg). Krupps is handling the metal fabrication: MAN, a contractor for the Australian 210 feet Parkes telescope, is responsible for erection. Work was nearly halted recently when it became clear that costs would exceed the guaranteed DM 30 million by at least DM 4 million. It is hoped that the Volkswagen Fund and the research ministry will come to the rescue in December when allocations are made for the next financial year. Meantime, Professor Hachenberg is reviewing Professor Lovell's recent book on the tribulations of building the Jodrell Bank Mark I.

## NATURE

### Progress in Conservation

THE European Conservation Year is to be 1970, when there will be an international conference in Strasbourg where a European conservation declaration will be adopted. In the member countries, there will be programmes to educate the public and formulate conservation policies; the focus of the British contribution will be the third, and presumably the last, countryside in the 1970 conference. This is some of the information in *The Nature Conservancy Progress 1964-1968 (7s 6d)*—the first report of the Nature Conservancy since it became a committee of the Natural Environment Research Council in 1965.

During the past four years, the conservation branch, which has more direct contact with country visitors than the research branch, has increasingly experienced a conflict between its duty to conserve the land and the holidaymakers' desire to use it for recreation. Sand dunes are particularly attractive, and also particularly vulnerable to the pressure of visitors' feet. At Ainsdale in Lancashire notice boards, marked pathways, an explanatory leaflet and vigilant wardens have channelled some of the public enthusiasm that was causing serious erosion in 1965 when the dunes became a nature reserve.

On some reserves in coastal or mountain areas facilities have been successfully provided for sportsmen.