

what—instead of the 400-foot dish the Jodrell Bank group had hoped to build, the design study is for a telescope with an aperture of 375 feet. Steel prices have also made it economic to replace much of the steel in the original design by concrete.

Nevertheless, the Mark VA, as it will be called to distinguish it from the original design, will be the largest fully steerable radio telescope. Its diameter will be 47 feet greater than the current holder of the record, the telescope that is at present being brought into operation at Effelsberg, West Germany, by the University of Bonn.

But the design philosophy of the new Jodrell Bank telescope will be radically different from that of the Bonn telescope. The Bonn telescope has a light structure which is designed to distort under the forces of gravity and wind loading in such a way that the surface always remains a paraboloid to a sufficient accuracy for observations down to wavelengths of a few centimetres. In the design for the Mark VA the effects of wind are to be reduced by using a heavier structure, and the position of the reflecting membrane will be adjusted during operation by means of screw jacks attached to the backing structure to allow for gravity distortions at different elevations.

The steel backing structure which will carry the membrane of the Mark VA will pivot in elevation on bearings supported by a beam which in turn will be supported by a concrete turntable. It is hoped that the telescope will be operable down to three centimetres.

Last week's announcement by the Science Research Council should put European radio astronomers at a further advantage compared with radio astronomers in the United States, where the lack of new radio telescope projects is widely lamented. In Europe, on the other hand, significant new telescopes have recently begun operation at Westerbork in Holland and at Effelsberg, and a three-mile interferometer is under construction for Sir Martin Ryle's group at Cambridge. But it will clearly be past the middle of the decade before the Mark VA could be completed—it will be a year before the design study will have progressed far enough for tenders to be invited, and it is expected that the telescope will take three or four years to build, at a cost that is likely to be more than £4 million. Consulting engineers for the Mark VA will once again be Husband and Company, who were responsible for the 250-foot telescope at Jodrell Bank.

Although most radio astronomers will undoubtedly welcome last week's news, some astronomers have argued that the wealth of instruments becoming available to radio astronomers in Europe makes the construction of a radio tele-

scope able to operate down to millimetre wavelengths more urgent than the Mark VA (see *Nature*, **227**, 107; 1970). Such a telescope would primarily be valuable for work on interstellar molecules which have characteristic lines at centimetre and millimetre wavelengths, and would allow European astronomers to participate in a field which up to now has been dominated by the Americans. It is understood, however, that such a telescope may be under consideration by the Science Research Council, although for reasons of atmospheric transparency it could not be situated in Britain.

The site chosen for the Mark VA is at the village of Meifod in Montgomeryshire, fifty miles from Jodrell Bank, and to a considerable extent the telescope will be controlled automatically from Jodrell Bank. Land was bought at Meifod three years ago for the laboratory, with a view to Meifod being the site of the Mark V telescope, although planning permission for the dish has not yet been applied for. Although the people of Meifod are reported as being in favour of the plan, Meifod also happens to be the headquarters of the Council for the Protection of Rural Wales, which has made available the following statement: "The telescope will be completely out of scale with the Meifod valley, a countryside of small and intimate detail and exceptional beauty. The nearest hill to the site rises little more than the diameter of the dish.

"Sir Bernard has said recently that the whole of Britain was searched for a suitable site. We understand that only scientific criteria were taken into consideration in these searches and the appearance of the landscape was ignored. No consultations were held with the Countryside Commission. Local opinion is in favour of the telescope but it is now realized that our countryside is a matter of concern for everyone in Britain. Local opinion believes that Meifod will be 'put on the map'. However, the benefits may be illusory since employment will be minimal once the site is built. Sir Bernard has told us that tourism will not be encouraged because of electrical interference and tourist facilities have already been provided at Jodrell Bank. The danger of electrical interference will also inhibit the natural development of the area within range of the site."

POLLUTION

Canberra Conference

from a Correspondent

SOME of the guidelines for the long awaited United Nations Conference on the Human Environment to be held in June 1972 in Stockholm became clearer

during a thirteen nation meeting of the UNESCO advisory committee held in Canberra on August 23–27. The recommendations of the committee on Natural Resources were couched in general terms but they give some idea of the directions which UNESCO would like the Stockholm conference to take.

The committee proposed that interdisciplinary projects should be emphasized including both social and natural sciences and that priority should also be given to continuing and expanding those projects begun under the aegis of the International Biological Programme which have proved to be successful. The committee also favoured an early start to some projects which are likely to be productive in order to get the forthcoming "Man and the Biosphere" programme, that is being sponsored by UNESCO, firmly established. Also it recommended that projects should "concentrate on the study of dynamic rather than static phenomena".

The committee further recommended that a set of ecological guidelines for development projects should be prepared to encourage planners of major works, such as large dams, to include ecological considerations in their planning. The director of UNESCO's Natural Resources Division, Dr Michel Batisse, said that he hoped that UNESCO would publish some definitive guidelines after the Stockholm conference. The administration of Man and the Biosphere was criticized by the advisory committee, as was the administration of the International Geological Correlation Programme (IGCP). The committee recommended that the IGCP administration should come under a single coordinating body whose members would be appointed jointly by the Director-General of UNESCO and the President of the International Union of Geological Sciences (IUGS). The IGCP is a joint project of UNESCO and IUGS that is planned to begin in 1973. Its aims are to correlate geological knowledge of different areas—partly in the hope of encouraging new mineral finds. These recommendations will be put to an inter-governmental conference to continue preparations for the IGCP which will be held in Paris on October 19–29.

Dr Michel Batisse said that Man and the Biosphere was receiving strong support from developing countries, communist countries and most western nations but that the United States appeared only moderately enthusiastic with Britain also treating the programme very coolly. Professor J. N. Black of the Forestry and Natural Resources Department, Edinburgh University, was elected chairman of the advisory committee, which possibly signifies an increase in Britain's support.