

OLD WORLD

Science and the Cambridge By-pass

LAST week's announcement by Mr John Peyton, Minister for Transport Industries, that approval has been given for a northern by-pass for Cambridge and for the extension of the M11 to form a western by-pass has raised fewer hackles in Cambridge than might have been expected.

The new roads will affect the 5 kilometre radio telescope at Lord's Bridge, the University Farm, the Medical Research Council's Animal Behaviour Unit, the National Institute for Agricultural Botany and the Agricultural Research Council's Plant Breeding Institute.

But the inspector's 300 page report, which has now been published, following an inquiry that took from February to July last year, seems to have mollified many fears, or at least set them in abeyance.

More than 170 objections to the western by-pass were entertained by the inspector, and the complaints of the research stations were among the weightiest.

Professor Sir Martin Ryle, Astronomer Royal and Director of the Mullard Radio Astronomy Observatory, raised objections to the radio interference that is likely from the new road. The inspector, Major General R. C. A. Edge, states that the objection "merits most serious consideration", but finally concludes that "during the forecast 20 years useful life of the 5 kilometre telescope, there will be no serious threat of interference with the operations of the Lord's Bridge Radio Observatory" providing certain conditions are met.

Sir Martin's fears were that in the short term engine ignitions and the use of v.h.f. and u.h.f. radios by police and service vehicles could interfere with the telescope, and in the longer term, that motorway guidance systems might be introduced during the next twenty-five years. These would be microwave devices which might radiate in the frequencies received by the telescope, or produce undesirable spurious harmonics.

The first of these fears is calmed by the planned provision of a bank and a metal screen some 5 metres high. But the second is not so easily dismissed. The inspector's report quotes evidence from the Department of the Environment that some sort of automated guidance "is likely to find a successful application in this country before 1980". Fog is common in the area through which the motorway will pass, and Sir

Martin pointed out in his evidence that if a system that does successfully prevent accidents is developed, there will be enormous pressure for its introduction. "I must therefore regard it", the inspector concludes, "as a serious possibility that the system will be installed on the western by-pass some years before the end of the 5 kilometre telescope's working life".

Sir Martin has, however, received some assurances from the Ministry of Posts and Telecommunications and the Department of the Environment that the telescope will be protected from interference, and that there are no plans to allocate the bands used for radio astronomy to new radio-location devices.

Sir Martin said this week that his fear is that when a new system is introduced it will have to be mass produced to be usable on all cars. It is therefore likely that the transmitters will produce spurious harmonics which could affect the telescope. The inspector states that he is aware of this problem, which Sir Martin aired at length at the inquiry. The Department of the Environment is also aware of it, and stated in evidence that "(microwave) equipment would not be approved if it seriously interfered or was capable of interfering with other forms of equipment including radio telescopes".

Given this assurance, the inspector concludes that the road can go ahead,

MARINE RESEARCH

Old Boats for New ?

THERE are fears that the work of the Marine Biological Association at Plymouth is likely to suffer in the near future for lack of an ocean-going research vessel.

Plans to provide the association with a new research vessel to replace the twenty-year-old *Sarsia* have been under consideration since 1968, but the present shortage of money and the policy of the Natural Environment Research Council (NERC) of centralising ship facilities has meant that plans to build a new 130 foot ship at a cost of between £400,000 and £600,000 have been repeatedly deferred. Originally the new ship was to enter service in 1973.

Since the beginning of the century, when the Marine Biological Association (now financed through NERC) was already responsible for fisheries research, the association has had a deep-water vessel—first the *Huxley*, then the 90 foot steam drifter *Salpa*, followed in 1953 by the *Sarsia*.

At present the association's fleet consists of the 128 foot *Sarsia*, which has just returned from an expedition to the Sognefjord in Norway, with three smaller boats of 35, 45 and 60 foot.

The *Sarsia*, whose research has taken it to the Bay of Biscay, to the southern North Sea and off the west coast of Ireland, has chiefly been used for studies of physical and chemical oceanography, the plankton and benthos of the western English Channel and approaches, and the physiology of shallow water fishes and cephalopods. Other studies have included subjects such as vision and

buoyancy of deep-sea fishes, the fauna of the continental slope between Ireland and Spain, the geological structure of the edge of the continental platform to the south-west of Britain, and the sediments of the eastern English Channel and southern North Sea. Much of this work could not be carried out with the association's smaller vessels, which cannot stay at sea for more than a day or so.

Work undertaken on the *Sarsia* has produced more than 240 papers during the ship's twenty years of life, and, although now obsolete when compared with other research vessels of her size, she may be used for a few years yet.

A final decision has not been taken on whether a new ship should be provided for the Marine Biological Association, but the indications are that if a new ship is approved it will be for the NERC's research vessel base at Barry Docks in Glamorgan. This possibility is causing concern to some oceanographers in the south-west, who fear that having to share a research ship based in Wales rather than at the western end of the English Channel will hamper work that is now easily carried out from the Plymouth base.

Only about a quarter of the association's research involves the largest of its vessels, but with France rapidly building up new oceanographic laboratories and a new university at Brest, in addition to the reorganised fishery laboratory based at Nantes, it may be that Brittany will have to continue the marine biological research in the western Channel and northern Bay of Biscay, areas which are at present patrolled by the ageing *Sarsia*.