

## Short Notes

### Mark V—A Sound Investment

DETAILS and engineering drawings for the Mark V "Jodrell Bank" radio telescope have now been sent out for tender. Tenders will be in early in January, 1974, said Professor Sir Bernard Lovell last week, and a decision on whether to go ahead with building the telescope will be made by the SRC next spring. Sir Bernard also said that the staff at Jodrell Bank are "very happy" with the final design, and he is confident that the high accuracy required for its construction can be achieved. Although the final decision on building the instrument cannot be made until tenders have been considered, there is an air of optimism at Jodrell Bank, engendered partly by the recent granting of formal planning permission to build the telescope in the Meifod valley.

Outside Manchester, there have been reports that this optimism might yet prove unfounded, since the SRC is at present considering two expensive astronomy projects, the Mark V and the Northern Hemisphere Optical Observatory (NHO). Opponents of the Mark V argue that if the SRC is forced to choose between these projects then the radio telescope is more likely to be axed, because of the rising cost of steel, many thousands of tons of which are needed in the construction of such an instrument. But that argument is a two-edged weapon; the Mark I telescope at Jodrell Bank is today worth more as scrap than it cost to build, and from that point of view, the Mark V is a more sound investment than the NHO. According to a spokesman for the SRC last week, however, both optical and radio astronomers can rest assured in the knowledge that "planning is proceeding on both these projects and there is no reason to suppose that a choice will have to be made".

### BA Launches BASS

THE inaugural conference of the British Association Students' Section (BASS) next January is to be entitled 'The Social Responsibility of the Scientist within the Community' which is a fair summary of BASS's preoccupations, as it now sees them. Speakers will include not only Dr Magnus Pyke, secretary of the British Association, and Sir Peter Medawar but also Mr James Moorhouse, of Rio Tinto Zinc, who will put the industrialist's point of view.

The new section will be distinct from the British Association of Young Scientists (BAYS) and membership is not restricted to scientists or to members of universities. It will be chiefly concerned with the consequences of science rather than with acquainting the public with developments in science, which has

been one of the main objectives of the British Association itself.

The BASS plans to hold a yearly conference and to carry on year-round activities in local branches based on places of higher education. These will not attempt to compete with already established scientific societies in providing general lectures except in certain cases, such as the University of Exeter, where the scientific societies are felt to be inadequate; but they will be involved in projects decided at the previous conference. The projects may be on similar lines to those organised by the British Association proper—for example the study groups on the role of research in higher education, the ethics of biological research and so on. Certainly they will involve the collection and discovery of already available data rather than original scientific research, as there are no central funds available for branch activities. The BASS will provide for the first time a forum for student discussion of science-related topics at the national level; and its creation may mean a new lease of life for the British Association.

### Drapes Off at the DoE

FOLLOWING the recommendations of the Select Committee on Science and Technology that government departments should give regular accounts of their research activities, the Department of the Environment has produced its first report on research and development (HMSO, £0.42). The report reveals that in 1973-74, a greater proportion of the department's research resources are to be devoted to planning and transportation, and to environmental pollution and resources, all at the expense of building and construction.

Research and Development in the Department of the Environment

	1972-73	1973-74*
	(£ million)	
Planning and transportation	4.9	10.3
Building and construction	7.2	8.4
Environmental pollution and resources	2.5	5.8
Other expenditure †	2.6	2.7
Total	17.2	27.2

\* Planned programme.

† Includes grants-in-aid to research associations, the Centre for Environmental Studies and so on.

The expenditure involved is shown in the table, which reflects the transfer of funds from the Natural Environment Research Council according to the Rothschild recipe and from the Department of Trade and Industry. Much of the department's research effort is centred on its four research establishments—the Building Research Establishment, the Transport and Road Research Laboratory, the Hydraulics Re-

search Station and the Water Pollution Research Laboratory, which between them employ more than 1,400 scientists and engineers.

### Soyuz-Apollo Project

THE second round of preparatory talks for the joint Soyuz-Apollo project (scheduled for 1975) was held in Moscow from October 1 to 18, 1973, and dealt with problems of flight ballistics, coordination of the Soviet and American control centres and problems of crew transfer between the craft. In connection with the latter topic, the Soviet team revealed full details of the cause of the Soyuz 11 disaster of June 30, 1971.

Although as early as July 4, 1971 a *Pravda* article by Academician Boris N. Petrov (a leading figure in the Soviet space programme) hinted at mechanical failure, and although it was later announced that the death of the three cosmonauts was caused by loss of cabin pressure on re-entry, the details remained a secret. Now, apparently on the insistence of the United States team, it has been revealed that the firing of twelve explosive bolts to disconnect the re-entry capsule from the orbiting craft was more violent than anticipated, and accidentally loosened a safety valve cap, thus triggering an exhaust valve, resulting in total loss of cabin pressure within 45 seconds.

Ground tests after the accident revealed that it would take 27 seconds to close the valve by hand—17 seconds longer than the crew could have remained conscious. Earlier Russian reports that two of the cosmonauts were found "with hand raised" would suggest that such an attempt was made. Like the fire in which three Apollo astronauts died, the Soyuz tragedy seems to have been caused by a 'safety' mechanism that could not be operated with sufficient speed. Also, like the American disaster, it has led to modifications of the craft, which were tested out by a space-suited two-man crew in the 2-day Soyuz 12 mission of September 1973.

### What is a Quark?

IN *Physics Reports* (8, 173; 1973) Lipkin quotes the following definition of a quark, from a standard German-English dictionary: Quark, m. curd, curds; slime, slush, filth; (fig.) trifle, rubbish, trash; (sl.) du verstehst einen—davan, you understand damn-all about it; den alten—auführen (fig.), stir up mud. -ig, adj. containing curds; dirty. -kase, m. soft or cream cheese.

This reminds one of the Prime Axiom of physics: everything is made up of smaller pieces. This, together with the Corollary (some of the pieces attract each other; some are repulsive), seems to sum up the subject adequately, although glossing over some details.