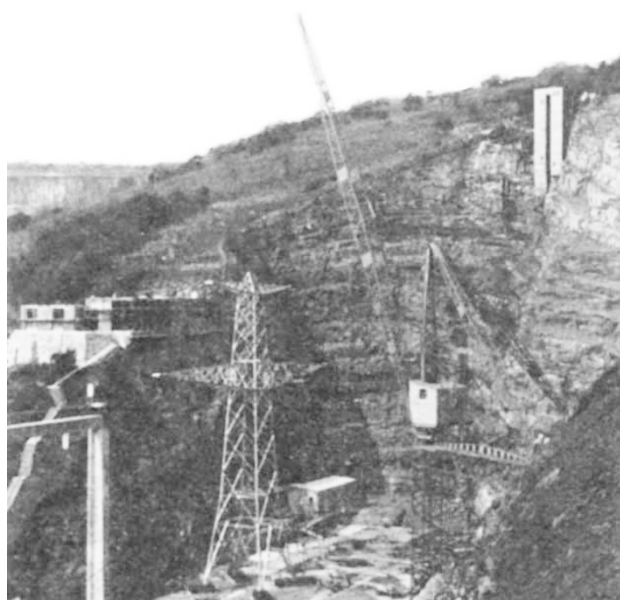


can be at least doubled if crops are harvested when the foliage is at its most lush, not simply when the crop is ready for conventional harvesting. A side benefit is that the land is by this means set free more quickly for resowing. At Rothamsted during 1967–68, an acre produced 1,400 pounds of extracted protein, and in Mysore, where growth continues through the winter, an acre yielded 1.2 tons of the protein.

All Fall Down

THE National Tower Testing Station is one of the most unusual laboratories in Britain. It is sited in a deep quarry in Somerset, just around the corner from the Cheddar Gorge. Although the station was built by the Central Electricity Generating Board, it will undertake tests of structures for anybody prepared to pay the quite modest charges. The station offers the opportunity for full scale testing of structures such as electricity transmission towers, which cannot be tested effectively at model scale. Even a small improvement on a tower of which 5,000 examples are to be built can be important, specially if it makes it possible for the tower to be made lighter, with the saving of a ton or so of steel.

The structures to be tested are assembled on the floor of the quarry and firmly anchored to the rock through anchor points. Stresses are applied to the



towers through steel wires attached to two rams in the side of the quarry—one can be seen in the picture—and hydraulic rams anchored to the floor. A variety of different tests can be carried out, leading ultimately to a test to destruction which reveals whether or not the structure fulfils specification. The picture shows a new type of 400 kV tower being tested for the CEGB which is only 100 feet high, compared with the 165 feet of the usual 400 kV tower.

Last week, the station tested to destruction a 200 foot tower built for the Atomic Energy Commission of Canada. But it is also capable of testing much smaller structures, such as glass-fibre components or yacht masts. The station is about to begin work on wooden

telegraph poles, which have never been systematically tested before. In effect, the station is being used to calibrate the inspectors, who usually decide when a pole shall be condemned on visual appearance alone. The station would also like the chance to test the steel frame structures used for large buildings. A structure up to 13 storeys high could be tested, and, for an expenditure of £10,000 to £12,000, enormously valuable information could be gained. No building structures as large as this have ever been tested in Britain, though they are widely used.

Another Look at CERN

THE House of Commons Select Committee on Science and Technology has decided to investigate the British Government's decision not to support the CERN 300 GeV machine. The committee, which announced this in a special report last week, will also be investigating fusion research at Culham Laboratory and the development of carbon fibre materials.

These will not be full-blooded investigations on the lines of the present investigation into defence research. Instead, they will be carried out by the General Purposes Sub-Committee of the full committee. The sub-committee has six members—Mr Arthur Palmer (chairman of both the select committee and the sub-committee), Mr Tam Dalyell, Dr Edmund Davies, Mr Eric Lubbock, Mr David Price and Mr Airey Neave. The sub-committee has not yet started work, and nothing very serious is likely to happen until after the recess. Mr Palmer says that, because of the importance of the investigation into defence research, the committee thought there was a danger of other matters being overlooked. It had therefore decided to set up machinery to make rapid assessments of important issues without going into the elaboration of a full report. On the CERN decision, he points out that "the minister made no statement to the House, and there is no chance of a full debate". In these circumstances, the committee thought it important that it should make an investigation. The immediate intention is to bring all the available documents together and to consider them. If further information is needed, witnesses can, of course, be called. Mr Edward Short, the minister responsible for the decision, is an obvious candidate.

The investigation into Culham follows the last major investigation into the British nuclear power programme. In that report, the committee said that it would be taking a continuing look at fusion research. As for carbon fibres, it seems that the committee was concerned by reports in the press that British firms are not developing carbon fibre technology sufficiently vigorously. Rolls-Royce, one of the companies involved, has denied this. The suggestion has also been made that the Ministry of Technology, dissatisfied by the rate of development, is considering handing the whole problem over to the Harwell Laboratory of the AEA. If there is any truth in these reports, the committee will do well to investigate them. But Rolls-Royce, which has already won a major contract on the strength of the new technology, must be feeling understandably bitter that its enthusiasm has already been called into question.

The other sub-committee of the Select Committee, which has been investigating coastal pollution, has now

finished its report, which was being considered by the Select Committee this week. It should be published by the end of the session.

Breach of Privilege

MR TAM DALYELL, a member of the Select Committee on Science and Technology, has been severely reprimanded by the House of Commons Committee of Privileges for passing on information about the Porton establishments. In a report published this week, the privileges committee says that Mr Dalyell was guilty of a serious breach of privilege and a serious contempt of the House; Mr Laurence Marks, Assistant News Editor of the *Observer*, who wrote the story about Porton, was also guilty of a contempt of the House, but the committee recommends that no action be taken against him. Mr David Astor, Editor of the *Observer*, was guilty of a more serious contempt, but again the committee recommends that no action should be taken.

The information given by Mr Dalyell to Mr Marks was contained in minutes of evidence taken by the Select Committee on a visit to Porton. Although these minutes had been published for the members of the committee, they were not generally available and the meeting at Porton had been private. Some of the material in the evidence would be "side-lined" (that is, deleted) before the evidence was officially published. Mr Dalyell gave it as his opinion that the proposed side-lining was "fatuous", but admitted that he was gravely at fault and offered profound apologies. Mr Marks said that he was unaware that a question of privilege arose, but he checked the story before publication with the D notice committee, which is responsible for clearing stories which may contain breaches of security. Admiral Denning of the D notice committee cleared the story for publication. As Mr Marks pointed out in evidence to the committee, it was not Admiral Denning's job to tell him the rules of parliamentary privilege.

The report of the committee draws one general moral from all this. The new committees, it says, rely for their success on the existence of mutual trust and confidence between their members and those who appear as witnesses, and breaches of this confidence may imperil their work.

The committee is within its rights, of course, to deal with members of the House of Commons as it chooses—which is not to imply that it is right. But there must be serious doubts whether the committee is wise to try to bring the press to heel as well.

Cheaper Water

THE cost of supplying London with water in the seventies may have been cut by a system for upsetting the stratification of reservoir water which has been developed by the Metropolitan Water Board. Because of the tendency for water to stratify, especially during the summer when the demand for water is at a peak, deoxygenated and unusable water accumulates in the deeper layers with the result that reservoirs have had to be shallow and have had to cover large areas. Research at the Metropolitan Water Board's King George VI reservoir, where axial flow pumps have been used to break the summer epilimnion and hypolimnion

stratification, has now, however, convinced the board that reservoirs 22 metres deep are an economic proposition; its existing reservoirs have a maximum depth of about 13 metres. The reservoir at Wraysbury, which will be fitted with the pumping system and which is due to come into service two years from now, will store 7,000 metric gallons on 340 acres. The largest of the board's existing reservoirs stores 6,500 metric gallons on 770 acres. The saving in land costs alone is estimated at £1.7 million, and there will be a comparable saving at the new reservoir being built at Datchet.

The trials of the pumping system which have been carried out at the King George VI reservoir have been impressive. Within five days during the summer of 1966, the volume of usable water was increased by 6×10^6 cubic metres—almost a third of the capacity of the reservoir—by lifting water between 11 and 13 metres below the surface to 4.6 metres below. The volume of usable water was increased at a rate of 14 cubic metres a second although the output of the pump was only one cubic metre a second, apparently because pumping creates conditions in which wind-water energy interchange is effective at comparatively great depths.

The problem of stratification in reservoirs is not new, of course, and neither are attempts to break it by pumping. The secret of the board's success seems to be the efficiency of the pumping system. Water is discharged horizontally as jets a few metres below the surface and these entrain large volumes of surrounding water so as to ensure turbulent heat exchange. In the experiments at the King George VI reservoir, mixing occurred to a depth of one metre below the level of the pump discharge even though the pumps were designed to draw water only from radial positions. According to the board's 42nd annual report, the operating cost of the pumps is negligible.

Transfer of deoxygenated bottom water to the surface layers necessarily reduces their oxygen content, but surface re-aeration and photosynthetic algae rapidly restore the oxygen level to near saturation. By bringing deep water rich in minerals to the surface, there is the risk of inducing algal blooms. Thus, in the King George VI experiments, pumping resulted in a bloom of the diatom *Asterionella formosa* which normally blooms in the Thames valley in February and March—not in July—but the bloom died dramatically in August. In fact, the board considers that by controlling pumping operations, it can prevent micro-organisms rendering the water unacceptable.

New Fields to Conquer

THE Radiobiological Laboratory of the Agricultural Research Council at Wantage is one of the few laboratories to have redirected much of its research from an area of decreasing importance. The laboratory was established in 1957 to investigate environmental radioactivity from fallout, but the decreased demand for surveys and for quantitative measurements of the amount of strontium-90 in milk has meant that more time and effort can be spent on nutritional relationships between soil and plants. The laboratory claims to work in close cooperation with the other institutes of the ARC—the Grassland Research Institute, the Weed Research Organization, the Plant Breeding