

ticularly on such questions as the function of the senate, the relation between individual colleges and the university, and student participation.

The committee has been appointed jointly by London University and the University Grants Committee (UGC) and the hope is that it will report within two to three years. Five of the ten members are from outside the university and include Professor W. M. Cooper and Professor F. S. Dainton, the Vice-Chancellors of Manchester and Nottingham Universities respectively.

One of the most immediate problems before the committee is what to do about the 35,000 external degree students who are examined but not taught by the university. Despite the establishment of the Council for National Academic Awards (CNAA) in 1962, the number of external students has been growing rapidly and the senate has warned that if the number of school leavers increases as fast as the Department of Education and Science predicts, the present London University external degree system will be unable to cope.

Some of the hardest in-fighting may be done over the distribution of finances within the university. The University Court is responsible for dividing out the block grant from the UGC between the individual colleges although for the present, at least, Imperial College and Chelsea College have funds allotted specially for them by the UGC. But rumours of secession and unilateral declarations of independence have long been in the air, and up and down Prince Consort Road and in the shadows of the Albert Hall there can be heard faint mutterings that Imperial College would perhaps do better to be known to the world as the University of Kensington. This, no doubt, is one of the matters that will exercise the attention of Lord Murray's committee.

ATMOSPHERE

Whitewashing Coal

THE development of fluidized bed processes for burning coal more economically and less poisonously, now under way in the laboratories of the National Coal Board, has attracted backing worth £125,000 from the US National Air Pollution Control Administration. According to an agreement signed this month by Lord Robens, chairman of the NCB, and Mr John T. Middleton, commissioner of NAPCA, the two organizations will jointly finance a £0.25 million programme which includes further research into the capacity of fluidized beds for retaining sulphur and oxides of nitrogen in the ash instead of liberating them into the atmosphere. This agreement follows a decision in principle to cooperate over the process, which was taken last year.

The basis of the process is that the air required for combustion is blown through a bed of coal particles, and because the solid mass then behaves as a liquid, boiler tubes can be immersed in the bed. As a result, heat transfer improves and the boiler need not be as voluminous as usual—a 660 MW boiler for a power station, for example, might be only about 50 feet high, compared with more than 200 feet for the most recent conventional designs, and if the coal is fluidized with air under pressure the size can be shrunk further. If limestone is added to the coal, most of the sulphur

can be trapped in the bed, together with a fair proportion of the oxides of nitrogen.

So far plans for large fluidized bed boilers are confined to design studies, although the NCB is now thinking of installing a pilot unit at a power station in Grimethorpe. A small prototype shell boiler, giving 8,000 pounds/h of steam, has been running for more than a year at the Coal Research Establishment near Cheltenham, and this is providing the data on which larger designs are to be based.

DESALINATION

Freezing out Brine

PLANS for a large experimental desalination plant to be built at Ipswich are being considered by the government, Lord Kennet, Parliamentary Secretary at the Ministry of Housing and Local Government, said in London last week. The proposals, put forward by the Atomic Energy Authority and the Water Resources Board, are for a plant to produce a million gallons of water a day using a new process in which the salt is removed by refrigeration.

The traditional means of desalinating water is by flash distillation, in which fresh water is obtained by repeated condensation. This method has been adopted by several countries which have embarked on desalination programmes, but its economic viability has often been questioned. The power consumed by the process is large, and the attractions of linking such an installation directly to a nuclear power plant have so far proved illusory. As pointed out by the head of the International Atomic Energy Agency at the recent conference on desalination in Madrid, only the advent of fast reactors will bring about a significant change in the economics of desalination by this means. But operational fast reactors are still a decade or so away.

For a country such as Britain, the relatively low temperature of the neighbouring seas is considered an additional factor in favour of experimenting with the refrigeration process. Less power is consumed in this process, in which impurities are removed in the form of a brine slurry by the addition of a hydrocarbon freezing agent, and although no large scale plant has yet been built, test installations built by Simon Engineering in Stockport—producing 10,000 gallons a day—and by the Atomic Energy Research Establishment, Harwell, have produced promising results.

When the desalination programme started at Harwell in 1965 the emphasis was chiefly on flash distillation. Over the first three years the government spent £1.3 million on this programme, and although there are more than 100 distillation plants for desalination in industry it became steadily clearer that for domestic supplies the refrigeration process was likely to prove more economic. Work on the desalination programme is also being carried out at the AEA establishments at Risley and Winfrith.

Although countries such as the United States and Israel are also interested in the refrigeration process, flash distillation is still the most common technique. The French company SIDEM is at present enlarging the desalination plant at Le Havre, which turns out a million gallons a day by distillation, and it is believed that for a country such as France with frequent shortages of water there will have to be increasing reliance on desalination plants in future.