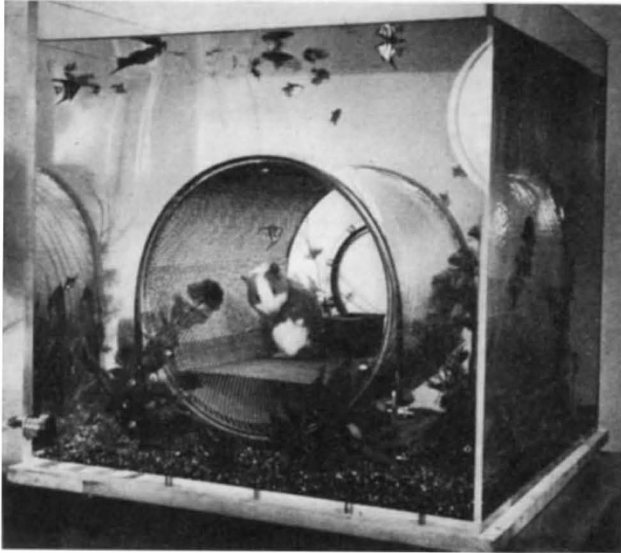


contamination or damage. Existing membranes are too weak and too small to use but 'Silastofilm' is said to be strong enough to be used at thicknesses down to  $3\ \mu\text{m}$ . Combined with its high permeability to gases and vapours, this means that compact oxygenators can be designed needing priming volumes of less than half a litre. Selective permeability to carbon dioxide in solution, twelve times greater than for oxygen, is especially suitable for oxygenators where the rate of exchange of gases is limited by the partial pressure of carbon dioxide in the blood. All silicone rubbers are relatively inert in the body and can be sterilized.



This guinea-pig was able to breathe quite normally in an underwater cage made of metal mesh covered with silicone rubber film.

'Silastofilm' is now being produced continuously at Hammersmith by the process developed by Dr Burns. So that it can be made sufficiently cheap to be disposable, production on a much larger scale is being undertaken by Midland Silicone Ltd. The main demand may be from the petrochemical industry, where selective permeability makes the membrane particularly attractive for recovering useful products from waste gases.

Other potential applications include underwater breathing apparatus and water desalination apparatus. Here the membranes allow the passage of oxygen from the water and the return of carbon dioxide to the water, or the diffusion of fresh water vapour. Possible scientific applications are breeding germ-free cultures for biological research, and detecting and analysing trace quantities of a gas in a gas or liquid mixture.

#### COMPUTER BOARD

### To Pay or Not to Pay

AN appeal for a clearer realization by university research workers of the costs of their computing facilities was made by Professor Sir Brian Flowers, chairman of the Computer Board, at the opening of the new computer centre at King's College, London, last week. He said that the controversial question of whether or not to introduce a system of charging for

university computing was now being urgently considered by the Computer Board; though it seems clear that there will be a toughening of the board's attitude, there is no sign of what it will be.

The path towards the creation of the three regional computing centres envisaged in the Flowers report seems also to be strewn with administrative stumbling blocks. London and Manchester were chosen as major regional centres and Edinburgh as a special centre based on a multi-access system, but for various reasons the scheme has not materialized. Professor Flowers said that the Computer Board was having to reconsider some of the basic points in the regional centre idea. One snag, he said, was that the machines available at present could not offer the surplus of power over and above the needs of the host university, as assumed in the report. Moreover, the increase in demand foreseen for the coming years is likely to overshadow progress in developing extremely powerful computers.

In this context, Professor Flowers admitted that the board may have to adopt a more flexible attitude on regional centres. "It is one thing to say that a university equipped with a large machine should, as far as possible, provide facilities for other universities," he said, "but it is another thing to see how this obligation can be formalized to give satisfactory definition of a regional centre." He thought that the new centre at King's College, in which there is a small CDC 1700 computer and a link to the huge CDC 6600 computer, has particular significance, both as a prototype of what may become the general pattern of computing facilities and as Britain's guide to how the compromise plans for the University of London itself are working out. The CDC 1700 was installed for the joint use of King's College and the London School of Economics.

#### GLASS TECHNOLOGY

### Making and Breaking

THE way in which glassware can be damaged in a domestic dish-washing machine is one of the investigations at the British Glass Industry Research Association described in its latest annual report, now published. A review of the year's activities by the director of research, Dr R. G. Newton, points out that in spite of manufacturers' claims that the washing machines will not cause trouble if there is no gritty material trapped between articles being washed, abrasions still occur, and this implies that glasses rotate against each other in jets of detergent.

Other topics include a study of heat transfer in the formation of glassware which reveals how temperatures vary within a newly moulded article and how the cooling process is related to the production of deformed glass. Nothing conclusive can be reported about new ways of saving money, but when a better understanding emerges of the manner in which deformities arise, it will clearly be seized on to improve the efficiency of an industry with a high wastage rate.

The association has had a successful year in other respects. The membership has risen to ninety-eight companies, including for the first time four from overseas, so that the association's influence is becoming international. The income of £195,000 included a capital grant of £25,000 from the Ministry of Tech-

nology towards a new wing for the laboratories, which is now under construction and will eventually provide a 50 per cent increase in floor space. A new system for supervising the research programme itself is intended to link activities more closely to the needs of the industry through four Industry Committees which are responsible to a Research Policy Committee. It is too soon to see how far this reorganization is achieving its aims, but one agreement that has been arranged involves the National Research Development Corporation, which is helping to finance an industrial-scale trial of new ways for using refractory materials in furnaces.

#### INTENSIVE FARMING

### Looking After Animals

FOUR codes of practice on the welfare of animals were last week accepted by both Houses of Parliament, but the debates often reached a highly emotional level, perhaps reflecting the depth of feeling which usually surrounds the topic of intensive farming. Both Lord Beswick, who moved acceptance of the codes in the House of Lords, and Mr N. Ross, Secretary of State for Scotland, who moved this in the Commons, likened the codes to the Highway Code: they are apparently intended as a guideline but, if they are broken, legal proceedings can be instituted.

The codes have sprung largely from the report of the committee under Professor F. W. Rogers Brambell which investigated practices in intensive farming, but the main criticisms of the codes have been that they do not go as far as the recommendations suggested by the Brambell Report. They relate respectively to pigs, cattle, turkeys and domestic fowls, and the debates last week were chiefly concerned with the recommendations about the physical space which should be allocated to poultry and calves. The Earl of Selkirk and Mr W. Burden both moved amendments regretting that the codes do not adequately reflect the recommendations of the Brambell Committee; and, in the event, both amendments were withdrawn.

The Earl of Selkirk was concerned that nothing positive would be achieved, because they merely stated principles which were already being practised by any good husbandman. He thought that a better course of action would be to introduce amended codes in the next session of Parliament—"a code of which we can be proud and which stands clearly for certain principles". Mr Burden echoed this line of argument in the Commons, but both agreed that intensive farming is unavoidable and, if correctly carried out, would not result in the ill-treatment of animals.

Debates on these amendments centred largely around the argument that the codes are a step in the right direction, and that to throw them out at this stage would leave nothing. Members of both Houses accepted that economic pressures bearing on the farming community could only increase the scale of intensive farming, and these codes, if widely followed, would ensure that such a development would not be detrimental to animal welfare. Mr Cledwyn Hughes, Minister of Agriculture, Fisheries and Food, undertook to instruct the state veterinary service to provide a full report during the next session on how the codes work out in the field.

## Parliament in Britain

#### Nuclear Power

MR ANTHONY WEDGWOOD BENN, Minister of Technology and Minister of Power, said that oxidation of minor steel components in six Magnox reactors had reduced output from these stations by about 400 MW, and they are now being operated at reduced temperatures. The stations are still exceeding their design load factors, however, and there is no threat to supplies this winter. Mr Benn was also satisfied that the nuclear consortia and the Central Electricity Generating Board are investigating the full consequences of the problem of oxidation, and that the advanced gas cooled stations will not be affected. Mr Frank Judd had asked for a statement on the technical difficulties which had led to a reduction in output at nuclear power stations in Britain. (Written answer, October 13.)

#### Multi-role Combat Aircraft

MR DENIS HEALEY, Secretary of State for Defence, announced that the Rolls-Royce RB 199 engine proposals have been accepted by all the countries concerned in the Multi-role Combat Aircraft (MRCA) project. The engine will be developed and produced by a joint company consisting of Rolls-Royce, Motoren und Turbinen of Germany and Fiat, and an initial contract had already been placed with this new company. Mr Healey said that he was not able to give the costs of the project. (Oral answers, October 15.)

#### Virology

SIR WALTER BROMLEY-DAVENPORT asked the Minister of Agriculture, Fisheries and Food whether there were any proposals to carry out experiments with Blue Tongue, an African cattle virus, at the Animal Virus Research Institute at Pirbright. Mr Cledwyn Hughes replied that the consent of both himself and the Secretary of State for Scotland is needed before the institute can start fresh work on viruses capable of setting up infectious diseases in animals, and that they had both informed the Agricultural Research Council and the institute that they were not prepared to take the risk of introducing the virus into the country, even for research. (Written answer, October 15.)

#### Royal Society

MR GERRY FOWLER, Minister of State for Education and Science, replying to Mr Arthur Dodds-Parker, who inquired about the financial support being given to the Royal Society's plans to further contacts with Western and Eastern European countries, said that the way in which the society spends its own grant-in-aid is largely its own affair. However, £110,000 of the current grant of £871,000 is being used to fund fellowships to western European countries, and a substantial proportion of a further £96,000 grant, for travelling expenses and to send delegates to overseas conferences, is being devoted to Europe. (Written answer, October 16.)

#### Select Committees

MR FRED PEART, Lord President of the Council, introduced proposals to reform the select committee system, including a transformation of the Estimates Committee into a select committee for expenditure. The Government intends to publish a White Paper on public expenditure each autumn which will be debated in the House of Commons for two days.