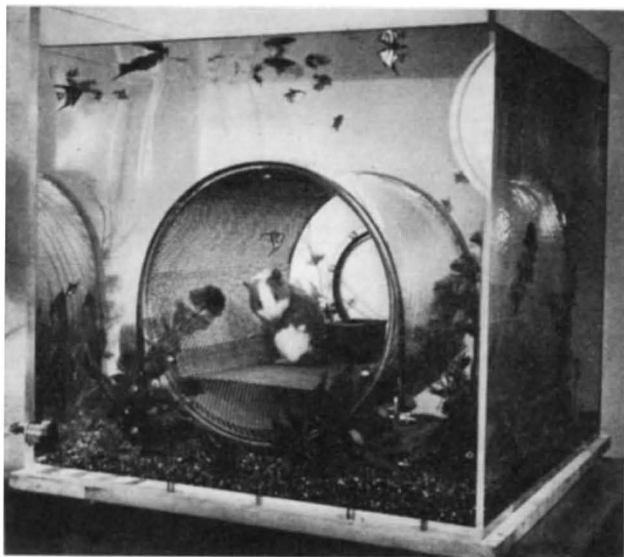


contamination or damage. Existing membranes are too weak and too small to use but 'Silastofilm' is said to be strong enough to be used at thicknesses down to  $3\ \mu\text{m}$ . Combined with its high permeability to gases and vapours, this means that compact oxygenators can be designed needing priming 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-