During the first season the rates of mortality from myxomatosis in large populations of rabbits were as high as 99·8 per cent. By the following year, however, they had declined by about 10 per cent, and 3 or 4 years later they had declined to 80 per cent. It is probable that as a result of mutation, less virulent strains of the myxoma virus had appeared.

The research group in the C.S.I.R.O. Division of Animal Genetics has developed a simple and fast blood test for immunity to myxomatosis which should facilitate field studies and thus help to determine the circumstances in which the re-introduction of a new virulent strain of the virus would be practical to curb the number of rabbits (Sobey, W. R., Conolly, D., and Adams, K. M., *Austral. J. Sci.*, **28**, 54; 1966). Such a virulent strain of the virus is the Glenfield strain, and this will kill nearly 100 per cent of a rabbit population provided it reaches them before they become infected by weaker immunizing field strains. Dr. Sobey proposes that when the proportion of susceptible rabbits in a population is less than 10 per cent, poison or other conventional methods of control should be used; when the proportion is 10–70 per cent, that these techniques should again be used, but that virus should be introduced after young susceptible rabbits appear; and that when the proportion of susceptible rabbits is greater than 70 per cent, virulent virus should be re-introduced just before and during the season when an adequate vector supply is likely. Sooner or later, the Australian rabbits will obviously develop a resistance to the Glenfield strain, and then a new virulent strain will have to be found.

Synthetic Quartz

ELECTRONICS engineers will be glad to know of an improved process which can produce quartz of sufficiently high quality to be used in place of natural crystals.

Crystals of quartz play an important part in many modern electronic devices; quartz is a piezoelectric material, which produces electricity when subjected to stress, or a mechanical displacement when a potential difference is applied across its ends. Quartz crystals can be used to provide stable and highly accurate standards of frequency and time, and are used in telephone systems, data networks and satellites. Although quartz occurs abundantly in the Earth's crust, only a small proportion can be used, and must be mined by hand to avoid damage.

The technique has been developed by Bell Telephone Laboratories and the Western Electric Company, and is a development of the existing crystal growing methods. Quartz is almost insoluble in water, and has to be grown in a hot sodium hydroxide solution at high pressure. A vertical vessel which is hotter at the bottom than at the top is used; at the bottom small pieces of natural quartz are placed, and at the top a "seed" crystal is suspended. The pieces of natural crystal at the bottom dissolve, and are carried by convection up the vessel; when they reach the cooler region at the top, the solution becomes supersaturated, and the seed crystal acts as a source of new crystallization. The new work has shown that if lithium nitrite is added to the solution, the crystals produced are of much better quality, and can be used to replace natural crystals even for very high frequency operation. It is thought that the lithium nitrite excludes water from the growing crystal, since infra-red spectroscopy has shown that water or hydroxyl ions are present in artificial crystals but absent from natural ones.

Shy Bandicoot

THE first investigation of the bandicoot has been completed by Eleanor Stodart of the Scientific and Industrial Research Organization in Canberra.

The bandicoot (the name is Indian and means pig rat) is a nocturnal, and usually solitary, marsupial of the family Permamelidae. Of the four genera *Thylacomys* is rare and *Chaeropus* is presumed extinct, but *Perameles* and *Isoodon*, the long and short nosed bandicoots, are still common in parts of Australia. They are of evolutionary interest, for they represent a group of ground-dwelling marsupials with teeth specialized for feeding on insects and flesh. In *Perameles* and *Isoodon* the hindfoot has four digits similar to those of the kangaroo-like animals.

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In an enclosure which simulated natural conditions *Perameles nasuta* used its long nose to obtain food from holes which it dug in places to which it was attracted by the scent of the food. This involved a great deal of snuffling, and sometimes a short squeak was heard. Possibly only half of the holes which the bandicoot instinctively digs provide food. Several of the short and long nosed bandicoots build shallow nests under cover, and here they spend the day. Other bandicoots may use hollow logs or empty rabbit burrows. The nest may serve as a nursery; one long nosed female seems to have fed her young after returning to them in the nest. The gestation period is 12 days and 15 h, and the animal which climbs from the womb to the pouch at birth has well developed forearms and feet but is hairless, blind and earless. The pouch, unlike that of kangaroos and wallabies, has an opening which faces backwards and downwards.

Bandicoots are usually solitary, and when two or three males were caged together they fought, sometimes to the death, although females seemed to ignore each other in similar conditions. They are furtive animals, highly sensitive to unusual noises and scents, and they are rarely seen.