

Stanton test has the disadvantage that it takes up to two years to complete, it will give a more direct and, therefore, probably truer indication of the reactivity of aggregates with cements than is possible with the quick but possibly unreliable chemical test.

Commenced in 1945 at the request of the Ministry of Works, an extensive investigation into the extent of the deterioration of the concrete of the Manorburn irrigation dam was completed and a final report made. The causes of the deterioration appear to have been satisfactorily established, and can be provided against in future dams.

Examination of concrete pipes from the Hutt Valley suspected to have been damaged by corrosive ground water showed that the damage was less than had been supposed and was largely due to faulty manufacture of some of the pipes.

Investigation of the deposits of volcanic materials of possible value as pozzolanas for the making of improved Portland cements was carried a stage further with the completion of determinations of lime-reaction rates and solubilities in alkali on selected samples. Materials from the Oamaru and Gisborne districts were shown to be promising. The results obtained require confirmation by strength tests, for which a standard vibration machine is expected to arrive shortly. In the meantime, as an aid in the evaluation of pozzolanic materials, methods of determining free lime in hardened cement mortars are being studied.

In addition to the routine examination of many concrete and clay roofing-tiles for compliance with specifications, assistance was given to manufacturers in overcoming manufacturing difficulties. Curves showing the grading of the aggregate are drawn for all concrete tiles tested, and it is possible to assist manufacturers in improving their product where the grading of the aggregate is faulty.

#### FOOD, DRUGS, AND WATER

Milk-supplies in the Wellington Province were found to be reasonably satisfactory. Of 4,500 samples, 50 contained added water, 30 were deficient in fat, 13 were insufficiently pasteurized, and a small number were stale. These figures do not give quite a true picture, as supplies found to be at fault are usually sampled repeatedly, and the figures therefore include rather an undue number of faulty samples.

Auckland district milk-supplies showed no marked improvement during the year.

In Canterbury the most striking points about the milk-supplies were the substantial increase in the number of milk samples found to contain added water and the continued fall in the percentage of milk solids other than milk-fat, which has now reached the low average figure of 8.72. Over 300 samples of milk contained less than the legal minimum percentage of milk solids other than milk-fat.

The general trend of improvement in the Dunedin milk-supplies continued. The proportion of improperly pasteurized milk fell very sharply, but is still too high. About 8 per cent. of raw milk sold in Dunedin City was found to be stale, which is a slight improvement on the previous year. The number of milks low in solids other than fat has, however, increased.