

TOXICOLOGICAL.

Carelessness in allowing stock to have access to food contaminated by poison, to stray paint-tins containing poisonous paint, to fences recently painted with white-lead paint, or to pastures treated with arsenical weed-killer has resulted in many deaths hitherto, and this year was no exception. Two cases of arsenical poisoning—one in horses and one in cattle—one case of lead and arsenic together, and one in which stock have been poisoned by yew, have been demonstrated in the Laboratory this year.

Analyses of some stock-foods which were reputed to have caused deaths in stock have been made. In one case there was some suspicion that an excessive quantity of saccharine food containing potash salts may have caused death in young calves.

A case of heavy mortality in pigs fed on dairy by-products containing small quantities of alkaline salts was investigated, and the Director of the Live-stock Division was advised to carry out experiments to test whether death could be caused by these.

New Zealand poisonous plants yearly provide some interesting cases of stock-poisoning. The ngaio (*Myoporum laetum*), a common tree usually found near the sea-coast, has this year accounted for many deaths. Care should be exercised in allowing cattle access to recently felled ngaio trees or branches broken off by gales, especially in drouthy years, when anything green will be greedily devoured. The flowers have been suspected in the case of mortality among young chickens, the mother being penned beneath ngaio-trees in flower. Some chemical work has already been done with a view to isolate and examine the poisonous principle, but this is another research which has been pushed aside for the present.

Several cases of mortality in poultry have been submitted for investigation, but unless a number of the crops and gizzards are sent it is almost hopeless trying to obtain definite chemical or botanical evidence of poisoning in such small animals.

BUTTER FOR EXPORT.

Numerous analyses of butters for export have been made for the Dairy Division, especially for the percentage of water. As a result many prosecutions have been undertaken by the Department under the Dairy Industry Act, and substantial fines imposed on careless manufacturers. The analyses were made subsequent to preliminary tests by the Dairy-produce Graders, whose results have always been confirmed.

TANNIN BARKS OF NEW ZEALAND.

Samples of mangrove-bark (*Avicennia officinalis*) tested for tannin at the request of the Lands Department showed merely a trace to be present, a result which I subsequently found is borne out by Baker in his recent word on "The Australian 'Grey Mangrove' (*Avicennia officinalis* Minn.)."

Several inquiries having been received regarding the tannin-content of New Zealand trees and the possibility of New Zealand becoming a tannin-producing country, the matter is being looked into, and already some valuable material for a report has been collected.

OTHER WORK FOR THE DEPARTMENT'S OFFICERS.

Additional work for the Live-stock Division consisted in selecting and purchasing fertilizers for farms and experimental plots, and medicines for stock; investigations in compounding new stock-medicines, suggesting treatment and advising regarding bone-sterilizing work, and other matters generally; advising and supplying dressings to combat grass-grub; analysing and advising on patent and proprietary medicines for stock; examining waters used for drinking purposes for stock.

Additional work for the Fields Division consisted in frequent advisory letters; additions to the native-plant collection at Ruakura Farm; analyses of soils, fertilizers, and insecticides for Ruakura Farm; analysing soils for the Fields Instructors (which it is not proposed to continue).

Additional work for the Dairy Division was analysing waters for dairy factories; testing Babcock ware for the Division and for merchants; inspecting various dairy-factory plants with the Director of the Division with a view to determine cause and remedy for corrosion of milk and cream vats of tinued plate (copper or steel). The matter has been investigated from various aspects, and after inspecting the vats used in other industries and subject to similar risk of corrosion, a report was submitted to the Director in which the experimenting with more heavily tinued plated vats or glass-enamelled lined vats was advocated. A most interesting point elucidated was that pasteurized milk corroded the vats worse than non-pasteurized fluids. Many samples of cream and milk have been examined in connection with dairy administration. Several samples of parchment paper used in wrapping butter have also been analysed with regard to their suitability for that purpose. Instruction in determining ash in casein samples has been given to Dairy Division officers, and samples of casein have been analysed for quality. Analyses of butters for preservatives and other substances added in process of manufacture have also been made and advice given thereon.

Work for the Horticulture Division was reporting on spray diagram and examination of sprays for fruit-trees. I have also reported to the Director several matters which concern his