

composition was as follows: Tricalcic phosphate, 18·6 per cent.; sodium chloride, 10·4 per cent.; potassium carbonate, 13·1 per cent.; sodium carbonate, 23·3 per cent.; magnesium sulphate, 6·0 per cent.; magnesium carbonate, 2·9 per cent.; calcium oxide, 9·1 per cent.; combined water and soluble silica, 7·0 per cent.; insoluble matter, 8·8 per cent.; moisture, 0·8 per cent.

A commercial pig-meal on which it was stated the pigs were not thriving was found to contain much hard spicular and chaffy material, apparently barley husks and awns, and a large percentage of cocoa-husks. Such material should not form any great portion of the ration for pigs, especially as cocoa-meal contains the alkaloid theobromine.

Water which came from a bore and which was considered to be the cause of the consistent degrading of the cream was found to contain small amounts of sulphuretted hydrogen.

The analyses were completed for the Plant Research Station of a number of pasture samples already on hand.

At the request of the Imperial Bureau of Animal Nutrition the methods of analysis adopted by the Rowett Research Institute were critically considered in relation to methods used in this laboratory. Some alternative methods were recommended on the basis of comparative tests and additional methods for some of the trace elements outlined for consideration.

#### WORK ON ACTIVE PRINCIPLES OF NEW ZEALAND PLANTS.

The poisonous tutu plant (*Coriaria* species), from which the active principle tutin was first obtained in this laboratory in the year 1900, may come into prominence in the field of pharmacological science owing to the fact that it has been discovered that poisoning by barbituric acid, better known when compounded as the medicine "veronal," may be cured by coriamyrtin, the active principle of the European *Coriaria myrtifolia*. This effect is reversible, and coriamyrtin poisoning may be cured by barbituric acid. As coriamyrtin is closely allied to tutin it is likely that barbituric acid may be an antidote for poisoning by the tutu plant; similarly, tutin may be an antidote for barbituric acid poisoning. (See Swanson and Shen of Lilly Research Laboratories, Washington, U.S.A.: Meeting of the Fed. Am. Soc. Expt. Biology., March, 1936.)

Pukateine, one of the alkaloids (first isolated in this laboratory) of the Pukatea-tree, has been studied by Dr. Fogg (late Demonstrator in Physiology at the Otago Medical School), who worked on the pharmacological action of pukateine at American medical schools and has recently published his results (*Journal Phar. Exper. Therapeutics*, June, 1935). It is well known that morphia induces in some patients continued nausea as an after-effect of the drug. Some of Dr. Fogg's experiments suggest that a use may be found for pukateine as a morphiate for humans without danger of producing the ill effects induced by morphia.

Several overseas research workers on New Zealand plants and their products have been supplied with the material they required from this laboratory.

#### WORK FOR THE DEPARTMENTAL DIVISIONS.

*Live-stock Division.*—The usual periodical analyses of public cattle-dips have been carried out. Other analyses include toxicological specimens, licks, wool-scouring materials, medicines, &c. Some experimental work was done on the best method of preparing the new brown meat-marking fluid, and samples of the prepared ink have been regularly checked after manufacture by the Government Printer.

*Dairy Division.*—A successful prosecution of a cheese-factory supplier for supplying milk containing added water was based on the analysis of official samples taken under the Dairy Industries Act.

*Fields Division.*—Numerous analyses of liming materials were made as in previous years, particularly with regard to applications for free railage concessions. Samples from natural deposits of suspected fertilizing value were also examined. In most such cases the good results reported appear to depend on the large amount applied. Such material would not be economical to transport.

Samples received for analysis from the 1st April, 1935, to the 31st March, 1936, were: soils, 145; liming materials, 103; fertilizers, 21; pastures, 5; weedkillers, 8; waters, 12; licks and medicines, 5; limonite, 5; dips, 18; toxicological, 77; thyroids, 75; bloods, 434; miscellaneous, 86: total, 994.

#### CONTROL OF THE SALE OF AND TECHNICAL ADVISORY WORK ON FERTILIZERS AND RELATED PRODUCTS.

During the year ending 31st March, 1936, the Fertilizer Act administration and registration was carried out as usual. The following are particulars of registration:—

Registration certificates issued to manufacturers and owners	..	..	165
Manufacturers and owners of brands registered	..	..	92
Branches registered	..	..	233
Brand-registration fees collected	..	..	£497 16s.
Number of brands registered	..	..	924
Number of different analyses registered	..	..	464
Number of analyses registered containing—			
One fertilizing ingredient	..	..	59
Two fertilizing ingredients	..	..	174
Three fertilizing ingredients	..	..	231
Secondary vendors registered	..	..	446
Branches registered	..	..	251