Iodine Deficiency.—Miss B. W. Simpson, on loan from the Rowett Research Institute, Aberdeen, has been engaged in the determination of the iodine content of soils, pastures, and animal specimens, and in the analysis of thyroid glands. An interesting case of iodine-deficient land was encountered in a low-lying area near Pembroke, Wanaka. The soil and pastures proved to be low in iodine, while lambs were born with greatly enlarged thyroids. The matter is discussed in the *Journal* for April, 1930.

Composition of Lucerne.—Samples taken in connection with the occurrence of pulpy kidney in lambs in Central Otago included a number of specimens of lucerne. The analysis of these samples (published in the *Journal* for June, 1929) indicate that lucerne is a plant that is peculiarly rich in lime. It is suggested that this valuable fodder plant might be particularly useful in soils deficient in lime but overlying calcareous deposits, such as the lime-deficient soils of Mairoa.

Soils.

The work of the soil laboratory at Fairlie Terrace has included a reconnaissance survey of the soils of Tokaanu, with special reference to Native lands, the analysis of further samples from Rotorua County, and the analysis of a large number of soils taken in connection with the investigation into the mineral content of pastures. A number of miscellaneous soil-samples from Fields Division officers and others have also been examined. The results of the Tokaanu soil-analyses appeared in a paper published in the *Journal* for December 1929, together with a map showing the distribution of the various types of soil encountered. A further contribution to the soil survey of Rotorua County was published in the *Journal* for May and June, 1929, where the subsoils of the district are discussed. The article is accompanied by a subsoil map of the northern portion of the county.

Some further analyses were made of the so-called alkali patches occurring in the irrigation areas of Central Otago. The results, which confirm previous analyses showing the presence of toxic amounts of magnesium salts, are embodied in a paper published in the April, 1929, issue of the *Journal*.

In addition to the usual routine work of the soil laboratory, a considerable amount of time has been occupied in the investigation of new and improved methods of soil-analysis, both chemical and mechanical.

Limestones.—Ninety-six samples of limestone were received for analysis during the year.

Fertilizers.

No official samples have been taken under the Fertilizers Act during the year, but many farmers have availed themselves of the Department's offer of analysis of fertilizers purchased by the senders, to ascertain whether the fertilizer is in accordance with the vendor's guaranteed analysis. Unfortunately, in a large proportion of cases it transpired that no invoice certificates were supplied by the vendors, and steps are being taken to impress on the fertilizer trade the duty of vendors in this matter. No instances of serious deficiency were found among the informal samples analysed.

The bringing into force of the Fertilizers Act, 1927, has involved a great amount of correspondence with vendors, and the work of registration of brands has fully occupied the time of the Inspector of Fertilizers during the year. Vendors are now becoming acquainted with the requirements of the Act, and it is hoped that the work of registration will proceed more smoothly in the coming fertilizer year, which commences on the 1st June. The returns of importations of fertilizers have been compiled and published in the *Journal of Agriculture*, as usual.

No deposits of any commercial value were found among the various reputed fertilizers submitted for analysis.

Work for the Departmental Divisions.

An increasing number of samples of a varied character has been submitted for examination and report by the departmental Divisions. For the Live-stock Division the periodical examination of the public cattle-dips of the Auckland and Taranaki Districts has been continued. Several instances of suspected poisoning of stock have been investigated. Analyses of soils, pastures, and animal specimens have been carried out in connection with the veterinary research work of the Division. Officers of the Fields Division have submitted many samples of soils, fertilizers, limestones, fungicides, &c. This work is usually required in connection with the field experimental work of the Division. For the Dairy Division samples of milk, cream, cheese, and casein have been analysed, and advice has been given on chemical matters affecting the dairy industry. Samples of water have been examined to test their suitability for dairy-factory supply, and various stock-licks and reputed tonics, &c., have been reported on. From the Horticultural Division have been received samples of soil, honey, and insecticides and fungicides. A sample of passion-fruit " husks " from North Auckland was submitted for an opinion as to the possible uses of this waste material. The samples contained in the water-free substance 5·23 per cent. of a golden-yellow drying (or semi-drying) oil, with an aroma resembling that of olive-oil. The sample was too small to permit of an extended examination of the oil, but from the small amount present it seemed unlikely that its extraction would be profitable.

Summary of Samples received during the Year.

Soils collected by officers of the Chemistry Section, 510; soils, general, 81; pasture, 491; thyroids, 158; other animal organs and tissues, 22; milk, 146; cheese, 13; cattle and sheep dips, 193; fertilizers, 93; limestone, 96; water, 31; toxicological specimens, 12; stock-licks and medicines, 43; casein, 16; honey, 6; wool, 21; miscellaneous, 107: total, 2,039.

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