

STOCK-FOODS.

Evidence is not wanting of the necessity for legislation dealing with artificial stock-foods, including those substances now sold as calf-food and pig-food. It seems necessary that such legislation should provide that in addition to the usual guarantee as to the amounts of the food ingredients—fats, carbohydrates, and proteins—the vendor shall disclose the name and portion of the plant or plants from which the food is made. For instance, it would seem quite possible for a meal to be placed on the market showing by analysis a high food-value if its content of fat, carbohydrates, and protein only be given; whereas the additional information suggested above might show it to contain the seeds of poisonous plants, rendering it not only valueless but positively detrimental as a stock-food.

INSECTICIDES AND DIPS.

The need for comprehensive legislation dealing with insecticides, spraying-compounds, and stock-dips becomes more apparent as our knowledge of the presence of agricultural pests in New Zealand increases. To cope with the cattle-tick, arrangements were made with the Director of the Live-stock Division for one of his officers to be given instruction in the Chemical Laboratory in the rough testing of the fluid in the cattle-dip, to ascertain whether the dip was maintained at a state of working efficiency during its use. Sets of testing-apparatus and reagents have also been prepared for this testing-work and forwarded to the officers responsible. A proposed amendment to the Stock Act, dealing with sheep-dips, was proposed last year, and it has been decided to proceed with the voluntary registration of sheep-dips; but the writer considers that an Act on the lines of the American Insecticide Act, dealing with all such compounds, is desirable.

LIME.

The committee of Government experts—consisting of the Chemist (convener), the Assistant Engineer-in-Chief of the Public Works Department, and the Director of the Geological Survey—appointed to assist and advise those interested in working limestone-deposits, as mentioned in last year's annual report, has kept in touch with developments in this direction. It was thought that such a combination of engineering, geological, and chemical effort would be able to advise on any set of circumstances which was preventing the supply of lime to a district, and how best to remedy the short-coming. The committee has dealt with and reported on a number of applications received during the year. The first of a series of articles on this subject, by an engineering officer, dealing with the proper types of machinery and kilns for producing lime and limestone for agricultural purposes, was published in the *Journal* for March, 1921.

In the Laboratory a large number of specimens and samples of limestones and reputed limestones, received from the public and from officers of the Department, have been tested for agricultural value. Certain soft limestones have been examined for putty-making, and other earthy materials have been similarly tested. A local factory has been instrumental in making practical tests of these raw materials, and has been assisted in utilizing these and other raw materials of indigenous origin. In my last report the suggestion was made that the mineral part of putty, which was then entirely imported, might be obtained from New Zealand sources. It is satisfactory to know that putty is now being successfully made from New Zealand chalk, about 2 tons of this and 10 tons of distemper having been made by a Wellington manufacturer.

The importance of the lime industry in New Zealand may be gauged by the fact that in the year ended 31st March, 1920, 102,010 tons of limestone were quarried for agricultural purposes.

TANNING BARKS AND MATERIALS.

A number of tanning-materials derived from native trees have been assayed for tannin content, and the results published in the *Journal* for February, 1921. This is a work which will probably increase in the near future, as the recent establishment of a State Forest Service will tend to promote intensive forestry operations, of which tanning-materials are one of the most important by-products. So far, the study of New Zealand vegetable tanning-materials has been confined to the bark of trees. It is intended to extend the examination to the wood and leaves. The cladodes (false leaves) of the *Phyllocladus* were suggested as a source of tannins by the late Professor T. Kirk. Examination of one specimen has shown that they contain an appreciable amount. Information is therefore accumulating as to the value of all parts of this native tree. Its quick growth, highly ornamental appearance, hardy nature, capacity for growth on poor soils, small amount of sap-wood, excellent quality of heart-wood, high tannin content of the thick bark, and now the value of the leaves and twigs for tanning, render it a fit subject for forestry research as possibly one of the few New Zealand trees which might be raised to a profitable maturity.

TOXICOLOGICAL.

A comparatively large amount of this work has been carried out during the year. As in the past, the greatest difficulty was found in obtaining adequate specimens or samples. Although the confidence of the sender in the analyst's capacity to fathom the cause of death from very slender evidence is flattering, it is none the less to be lamented that his efforts are frequently unavailing owing to the want of judgment displayed by the sender in the selection of specimens.

Two interesting cases of poisoning occurring in travelling stock are recorded in the *Journal* for April, 1921. In one of these the symptoms recall those of a previous case having some similar post-mortem symptoms (*Journal* for June, 1918). In this case *Ranunculus* (buttercup) plants