

GENERAL.

West Coast of South Island Experimental Farm.—Since the purchase last year of land at Wai-maunga, in the Grey Valley, for the purpose of an experimental farm, about three-fourths of the total area of 150 acres has been limed and is now being brought into cultivation. It is hoped that by the end of next season the farm will be ready for stocking with dairy cattle, the demonstration of sound farming methods, including the breeding, feeding, and management of purebred dairy cattle, being one of its chief functions. Owing to the extremely high prices required, the Department has so far been unable to have farm buildings erected, but the property has been securely fenced with both boundary and subdivision fences, and further development will be undertaken in due course.

Economic Investigation of the Montane Tussock-grasslands.—This investigation, conducted by Dr. L. Cockayne, has been continued during the year. Much interesting and useful information has been obtained and published in the *Journal*. Correlating this information with data afforded by the observation enclosures established at various points in Central Otago, it is expected shortly to arrive at a number of important conclusions, which should be of great assistance in measures taken for improving the very large area of tussock-grassland country.

CHEMISTRY SECTION.

REPORT OF THE CHEMIST

The Director-General.

Wellington, 5th July, 1921.

I FORWARD herewith the annual report of the Chemistry Section for the year ended 31st March, 1921.

B. C. ASTON, F.I.C., F.N.Z.Inst., Chemist.

INTRODUCTORY.

A further increase in the work of this Laboratory for the year is here reported. Three new lines of work have been undertaken—namely, (1) the determination of the quality of wheat from the percentage of flour it will yield when ground in a model mill, known as the “milling test” (see note in *Journal* of the Department for November, 1920: “Testing of New-Zealand-grown Wheats”); (2) the analysis of casein for export; and (3) the examination of samples of New Zealand leather.

The first-named work is still in the experimental stage, but it is hoped to publish some account of the results obtained shortly. The thanks of the Department are due to the technical officers of the Public Works Department, who have successfully installed the machinery for this work.

A number of applications have been received from trading firms for assistance in the analysis of various samples. As this Department makes no charge for analysis, and has never undertaken this class of work, there seems less reason than ever for doing it now that there are a number of analysts in private practice and in the employ of the various University colleges who are willing and allowed to do so. The principle that has hitherto guided the Department in accepting work for the Chemical Laboratory is, in intention, that the results must be of public interest and utility, while at the same time private rights are not interfered with. A private analyst would have just cause for complaint if the Department analysed fertilizers for trading firms, but would have no objection to the Department undertaking a lengthy investigation into some chemical problem affecting a large body of the public, in which work the private analyst could not hope to compete profitably.

The staff generally has worked enthusiastically and efficiently under somewhat crowded conditions, and the junior members are showing their desire to advance in the profession of chemistry by attending classes at the local University College. A Chemical Section of the local branch of the New Zealand Institute has been formed, in which the senior members of the staff are taking a leading part.

SOILS.

The collection of soil-samples, owing to various circumstances, had to be confined to those taken by the Instructional staff of the Department for the purpose of ascertaining the lime-requirement. It cannot be too strongly emphasized that the Instructors should not take samples of limited areas which do not represent any large tract of country. Garden-soils should, of course, never be collected, and it is difficult to see what good can result from the testing of a swamp soil—largely organic matter—the lime-requirement of which is invariably so high that to satisfy it would be impracticable. An article entitled “Lime-requirement of New Zealand Soils and Lime-development” was published in the *Journal* for June, 1920. Further articles on the Manawatu soils have been published in the August and September, 1920, issues of the *Journal*. In these the humus soils, loams, and Otaki sands were dealt with.