

*Exhibits at Agricultural Shows, &c.*—This work was continued on a considerable scale during the winter of 1921, but had then to be suspended for reasons of economy.

*Farm Supervision for other Departments.*—As previously, a great deal of the time of the Superintendent of Experimental Farms (Mr. J. L. Bruce) has been devoted, by arrangement, to supervising the operations of farms constituting or forming part of institutions administered by other public Departments—including Repatriation, Health, Defence, and Public Trust. Economy and co-ordination have thus been promoted.

*Regrassing Experiments in Central Otago.*—Since February, 1920, a series of important experiments concerning the possibility of regrassing by payable methods the depleted area of Central Otago has been carried out by the Department on lines suggested by Dr. L. Cockayne, F.R.S., in whose hands the investigations is placed. A brief account of this work has been given earlier in dealing with the rabbit question.

#### CHEMISTRY SECTION.

This section, under Mr. B. C. Aston, has put a varied amount of useful work to its credit.

*Soils and Lime-requirement.*—Interesting evidence on the lime-requirement of New Zealand soils is steadily accumulating, and there should be available in a few years' time some important data which will help to decide the lime-requirement of each area and correlate climate with soil. The following table shows the number of soil-samples received from the various districts through officers of the Agricultural Instruction Service, and the average lime-requirement (as determined by the Hutchinson-MacLennan method) expressed as a percentage of carbonate of lime: North Auckland (6 samples), 0.31 per cent.; South Auckland (39 samples), 0.38 per cent.; Taranaki (9 samples), 0.42 per cent.; Hawke's Bay (8 samples), 0.15 per cent.; Manawatu (6 samples), 0.33 per cent.; Wairarapa (19 samples), 0.26 per cent.; Marlborough (17 samples), 0.27 per cent.; Nelson (3 samples), 0.42 per cent.; Canterbury (27 samples), 0.19 per cent.; West Coast, South Island (17 samples), 0.32 per cent.; Otago (8 samples), 0.18 per cent.; Southland (4 samples), 0.46 per cent.

*Estuarial soils:* These and similar littoral soils near towns are often of high potential value owing to their capacity for growing market-garden crops. Analysis of soil from Park Island, Napier, subject to periodical submersion by sea-water, showed that could the land be reclaimed a very rich soil would result.

*Lime.*—The Lime Committee, of which our Chemist is convener, has continued to confer when necessary, and to advise groups of farmers and others on matters relating to the development of limestone deposits. The following general policy with regard to lime-supply development was formulated, and approved by the Minister of Agriculture: (1.) That every application for assistance in supplying lime to a district should be considered on its merits. (2.) Where possible, without incurring unusual expense, the district and deposits should be inspected by officers of the Agriculture and Public Works Departments, and advice given as to the best method of increasing the supply. (3.) Only under very exceptional circumstances and after full inquiry should the Government subsidize by a money grant any organization for supplying lime to a district for agricultural purposes. (4.) All limestone deposits on Crown lands should be reserved to the Crown. (5.) Further legislation with the intention of giving power to the Government to take land from time to time for lime-quarries appears to be unnecessary, as such power is given by the Public Works Act Consolidated, 1908. Areas taken under this Act can be leased to private individuals to work as lime quarries or works, and, provided the necessary money is voted by Parliament, the work automatically becomes a "public work" under the Act. (6.) Finally, the Committee would broadly advise that the policy of allowing lime-development to proceed by private enterprise, assisted merely by Government advice, should be the keynote of the Government's policy, exceptional cases to be met by exceptional methods. The Committee is collecting evidence as to lime deposits suitable for agricultural use occurring on Crown lands, with a view to the reservation of those which are suitable and necessary for the district.

There is no doubt that the cost of ground limestone in general is too high, and the remedy for this is the establishment of more works. The requirements of each district should be determined, with a knowledge of its limestone and power resources. There is room for much diversity of treatment when the differing factors—soil, power-supply, quality of stone, and weather of each district—are considered. It was largely in order to sort this evidence and decide and advise what is necessary in each case that the Lime Committee was called into existence. A large number of specimens of limestone and reputed limestone has been received for examination. It is satisfactory to learn that soft deposits of high-grade limestone continue to reward the searcher, and thus enable cheap sources of carbonate of lime for agricultural purposes to be utilized.

*Fertilizers Control.*—The registration of fertilizers, which, as the law now stands, consists merely of depositing the name and brand of the fertilizer to be sold, together with its guaranteed minimum composition, with the Department, has been supervised by this Section. It has not been found possible to publish the particulars of the registration, as was done in a previous year, neither have any official analyses been published side by side with the maker's name. During the past year thirty samples taken under the Fertilizers Act, and forty-eight unofficial samples, were submitted by the Inspectors under the Act. A notice was published in the *Journal* for September, 1921, inviting farmers to forward for analysis samples of commercial fertilizers purchased by them. The response, however, was disappointing, only some half-dozen samples having been received. Of the thirty samples taken under the Fertilizers Act, nine were from Auckland, nine from Taranaki, and twelve from Wellington. In none of these samples was there found any deficiency to the prejudice of the purchaser, but such a small number of samples is inadequate in deciding whether or not the Act is being complied with. Of the forty-eight unofficial samples examined, five (or 10 per cent.) were found