

SOIL SURVEY.

In recent years there has been widespread interest in land-settlement, which has arisen from a desire to absorb as much unemployed labour as possible on the land, and it was natural that a primary-producing country such as New Zealand should endeavour to create new avenues of employment through land-development. It will not be disputed that a systematic soil survey is a sound basis for the study of land-utilization problems. During the past few years the Department has built up an efficient soil survey organization, which has already completed surveys and soil maps of a number of counties. During the past season an extensive programme was mapped out, involving soil- and land-utilization surveys of the Hawke's Bay and North Auckland Districts. These projects were intended to be a guide to developmental policy, and as such received practical help from the Unemployment Board and the active co-operation of the Departments of Land and Agriculture. It was felt that a long-range policy should be followed, and that the actual soil surveys should be followed up by farm-management and pasture surveys in order to reveal the full potentialities for future development of the districts concerned. Field work was begun by the soil survey officers towards the end of the year under review, and at the time of writing the main soil types over nearly 1,500 square miles of territory in both Hawke's Bay and North Auckland have been mapped. Special attention has been given to orchard soils in Hawke's Bay and citrus-growing areas in North Auckland, and some of the main problems and methods of attack have already been clearly indicated. Pasture- and farm-management surveys have been commenced in Hawke's Bay in order to complete the picture which has been delineated by the soil survey.

In addition to the main activities in North Auckland and Hawke's Bay, soil survey work is proceeding in connection with certain irrigation areas in Central Otago.

LEATHER AND PELTS.

In the export of hides, no less than in other export industries of New Zealand, close attention must be given to all stages of production in order that a high and uniform standard of quality may be maintained. The regulations for the export of hides which are now being framed should help a great deal in this respect by laying down approved methods of treatment, particularly in regard to flaying and curing. The Research Chemist, during his recent visit to America and England, closely investigated problems of storage and marketing of pelts in their relation to the processing and grading of the raw products.

During the year the Leather Research Laboratory has carried out some researches of considerable importance to the industry, notably a study of the seasonal variations in lamb-skins. It was shown that the state of the sweat-glands in the skin of the lamb at different periods of the year has a profound influence on the structure of the skin, and consequently on the texture of the leather prepared from it. The results of the work indicate that loose grain may sometimes be inherent in the skin, and not the result of the fellmongers' work. This discovery may explain the differences in quality in New Zealand lamb-skins which have been remarked on by overseas buyers, and will direct attention to the necessity of killing at the right season in order to obtain leather of the best quality.

MISCELLANEOUS INVESTIGATIONS.

In addition to the research work which is recorded under specific headings in this report, the Department has undertaken a number of miscellaneous investigations to assist industry, particularly with a view to creating an export market for a wider range of New Zealand's agricultural products.

Chilled Beef.—It has already been demonstrated that chilled beef can be successfully shipped to the United Kingdom. A shipment which left for England by the "Port Hunter" in November was considered by London experts to reach a high standard of quality. A great deal of work has been done in New Zealand to ensure that every stage in the process of slaughter, preparation, and transport of the beef has been conducted under strict scientific control, and the observations and recommendations which have been made will be published as a bulletin in the near future.

Pork.—Experimental work in connection with the shipment of pork carcasses overseas has been continued. A committee consisting of Dr. Hammond, Messrs. Davidson and Swain, and Mr. Nevill Wright, the Department's Scientific Liaison Officer, has rendered very valuable service in arranging for the examination of carcasses on arrival in London, and in drawing up a scheme of evaluation.

Asparagus.—An experimental shipment of asparagus was sent to England in December. The consignment consisted of thirty-two bundles of asparagus, packed in crates, and held at 33° F. in the ship's egg-store, together with several tins containing asparagus in gelatine and agar-agar. While the shipment did not meet with the degree of success that was hoped for, it was shown that, with closer attention to temperature of transport, stage of maturity, and grading, New Zealand asparagus should find a definite place in the United Kingdom markets.

Chilled Eels.—A half-ton shipment of chilled eels was sent to the Torry Research Station, Aberdeen, with a view to testing the market for this product, for which there appears to be a seasonal demand. If a profitable outlet for eels cannot be found, it is possible that an industry for eel products—*e.g.*, skins, livers, oils, &c.—could be developed.

Overseas Contacts.—The Department's Scientific Liaison Officer, Mr. Nevill Wright, who is attached to the High Commissioner's Office in London, has continued to perform valued service in maintaining contact with research organizations in the United Kingdom; in representing the Government on the Executive Council of the Imperial Agricultural Research Bureaux and other scientific bodies; in making the necessary arrangements for the examination and handling of experimental shipments of various kinds; and in procuring information in connection with numerous scientific investigations.