

Sturmiers: Storage Temperatures.—Two lots of four cases of Sturmiers grown in Hawke's Bay were stored for eight months at 34° F. and 37° F. Both samples were 100 per cent. sound and free from wastage, but those stored at the lower temperature were slightly less coloured than those held at 37° F.

Cox's: Gas-storage Trial.—A small-scale trial of the transport of Cox's in refrigerated gas storage was despatched during 1936 season, and an interim report indicates that the fruit opened up in excellent condition. If the use of gas storage can allow the landing of Cox's and other varieties of apples on the English market in better condition, it should be of incalculable value to the industry.

Overseas Transport, 1936 Season.—Experimental shipments sent forward during the 1936 season have been designed to test the value of the tower method of dunnage both in holds with vertical and with athwartship circulation, and also no dunnage in a hold with vertical air circulation. The Deardon system (modified tower) was tried out in one shipment. Other shipments, or fruit held in local cool store, are designed to test the influence of position on the tree in regard to the incidence of bitter-pit in Cox's Orange Pippin; the conditions required for successful shipment of Winter Cole pears; the influence of oiled wrappers and maturity in the control of superficial scald; the influence of copper-sulphate-treated wraps in controlling the spread of Botrytis rot in Winter Cole pears; the influence of fertilizer treatments of the soil on the keeping-quality of apples; and the value of gas storage of four varieties of apples in England after shipment in ordinary cool storage.

SOIL SURVEY.—SIXTH ANNUAL REPORT.

The most important development during the past year was the commencement of land-utilization surveys of the Hawke's Bay and North Auckland districts. As a result of a meeting of the Research Council, together with representatives of the Unemployment Board, the Lands Department, and the Department of Agriculture, it was decided that the projected soil surveys of Hawke's Bay and North Auckland should form part of a wider scheme embracing the more important aspects of land-utilization. The Unemployment Board, which agreed to provide substantial financial assistance for the scheme, was mainly interested in the development of these regions with a view to providing avenues for the absorption of unemployed labour, either through the establishment of new and appropriate industries or through more intensive development of existing ones.

The Departments of Land and Agriculture, because of their obvious and considerable interests in any such survey, agreed to co-operate fully along such lines as lay in their respective powers.

A comprehensive scheme under the Directorship of Dr. L. I. Grange was drawn up, providing for: (a) Soil surveys to be carried out by the Soil Survey Division of the Department of Scientific and Industrial Research; (b) chemical investigations of soils to be undertaken by the Cawthron Institute under the direction of Mr. T. Rigg; (c) farm-management and pasture surveys by officers of the Department of Agriculture. The following committee was appointed to act in an advisory capacity to the Research Council, and to assist in co-ordinating the activities of the various workers concerned:—

Land Utilization Committee: Mr. T. Rigg (Chairman), Mr. A. H. Cockayne, Mr. G. A. Pascoe, Mr. W. Robertson, Prof. W. Riddet, Mr. R. B. Tennent, Mr. E. J. Fawcett, Mr. R. P. Connell, Dr. L. I. Grange, and Mr. F. R. Callaghan (Secretary).

REPORT BY DIRECTOR (Dr. L. I. GRANGE).

The programme of the soil survey has undergone a good deal of change since the last report was made. The highly detailed mapping in the Waipa County had proceeded far enough to take in all the main types on the Waikato lowlands; farm-management improvements which emerge from follow-up work could readily be applied to other parts of the Waikato by agricultural officers after making themselves familiar with the soil profiles. The closing-down of the Waipa work afforded an opportunity to recast our methods in order to speed up the mapping. As a result of a perusal of systems followed in other countries it was felt that methods somewhat similar to those adopted by Professor Stremme for mapping soils in Germany, in which genetic types are mapped, would best suit our needs. The method differs from that used in the United States of America in that more attention is paid to the soil processes operating, although perhaps in the long run both systems end up with somewhat similar soil types, for they are seeking areas in which natural fertility, &c., are similar. In the present survey some details have to be omitted; for instance, on alluvial flats the accurate mapping of the boundaries of all the different soil textures cannot be attempted. These may sometimes be surveyed in detail separately for specific purposes—e.g., the highly detailed survey of Heretaunga Plains for orchard soils. There is, however, the difficulty that the mapping may be too general to be useful; this can be balanced by maintaining close contact with the farm-management surveyors.

Two areas in the North Island were selected for general surveys, and a start was made in November, 1935:—

- (1) Hawke's Bay, under the direction of Dr. L. I. Grange, assisted by Messrs. I. J. Pohlen and A. M. Quennell.
- (2) North Auckland, under the direction of Mr. N. H. Taylor, assisted by Mr. C. F. Sutherland.

Brief accounts of the progress to date are contained in this report.

The genetic surveys will provide a basis for land-utilization studies. When all agricultural knowledge concerning the farming on different soil types is gathered, it will be possible to suggest improvements in farm-management and give guidance for future settlement. It should be possible then to advance our farming by organizing scientific knowledge rather than by the expensive trial and error method.