

Bacteriology and Physiology.—Work on the control of collar-rot of peas has been continued and from a laboratory standpoint more or less completed. Last spring seed was treated with hot water for field trials, but, unfortunately, weather conditions in Marlborough did not permit the sowing of the seed. Other treatments, including dry dusting, have been tried out on a small experimental scale, and although none of the treatments will control the disease, some increase the vigour of the seedlings, probably sufficiently to maintain a healthy plant during the early stages of the disease. Inoculation with bacteria of seeds of the legume family, chiefly lucerne and peas, has been carried out on a limited experimental scale, and the indications are that this method of increasing the vigour of young plants is most advantageous. Methods of culturing the respective organisms have been devised, and cultures have been supplied to the Instructor in Agriculture at Christchurch. It is intended to develop this method of inoculation both for lucerne and peas. During the spring of 1925 a disease appeared affecting the apples (on the trees) in many of the orchards of Nelson and Motueka. An investigation was immediately begun, and although experimental proof is required the cause of the disease is now known. Detailed laboratory examinations of affected fruits are still being carried out. Cool-storage experiments are in progress in regard to this diseased fruit.

Fruit Cool Storage.—Investigations into the apple-disease known as flesh-collapse have led to extensive inquiries into the condition of New Zealand fruit cool stores, and a large volume of information concerning defects and their remedy has been secured. Cool-storage organizations throughout the Dominion have freely availed themselves of this information: in response to application for advice, visits have been paid to cool stores in Auckland, Taranaki, Hawke's Bay, Wellington, Nelson, Canterbury, and Otago, and reports have been made upon equipment and its manipulation to produce satisfactory cool-storage conditions. The information secured on the conditions necessary for cool storage for six to nine months on land is of considerable value to marine engineers in regulating the storage conditions for the much shorter time that our fruit is in transit to overseas markets. On behalf of the Cool Storage and Transport Committee most of the engineers in charge of our fruit shipments were therefore interviewed for the purpose of discussing the most favourable storage conditions, and how to secure them with the various refrigeration systems met with on board ships. Some gratifying reports have been made of the manner in which this work has contributed to the great improvement in last season's shipments. Further experimental work involving some thousands of cases of fruit has been carried out during the year, the storage of pears receiving particular attention. Certain delicate pear varieties were successfully stored in large quantities for eight to nine months.

Photography.—During the year a large amount of photographic work has been carried out in the laboratory for all sections of the Department. In addition to routine work, the bulk of the departmental photographs required for the New Zealand and South Seas Exhibition had either to be taken or printed, and most of this printing involved enlargements—a total of 700.

The routine work included printing (mainly for reproduction), approximately 2000; photographs taken, 1,368; lantern-slides, approximately 600.

STAFF.

I desire to acknowledge the hearty co-operation and support of all officers of the Division. The year has been a particularly busy one, but all officers have carried out their duties in a most exemplary manner.
