

sponsorship of outstanding orders was secured. An examination of filter aids for dry-cleaners, made in collaboration with the Dominion Laboratory, showed that a substantial proportion of imported filter aid was essential, and that local diatomaceous earths were suitable in admixture only if treated in a similar manner to the overseas earths. Representations were made and importation of adequate quantities of filter aids was permitted.

Reciprocal arrangements have been concluded with the leading institutions in the United States of America, Canada, United Kingdom, and Australia, and these have proved of great benefit.

The total membership was 65, including almost all of the Hospital Boards.

CAWTHRON INSTITUTE

Director: Sir THEODORE RIGG

The reports of investigations on soil, plant nutrition, and entomology, and the research on tomatoes and fruit, at the Institute are given below. Other work of the Institute appears under "Hop Research" on page 58. Further reports on tobacco research appears on page 60, on entomology on page 30, and on fruit on page 33.

ENTOMOLOGICAL INVESTIGATIONS

Potato Tuber Moth.—The influence of cultivation upon the infestation of a potato crop by the potato tuber moth (*Phthorimaea operculella*) was studied. Two areas of Sutton Supreme were used, in one of which the rows were moulded according to custom, while the other was left unmoulded though kept free of weeds. From the moulded area 280 lb. of potatoes were harvested, and from the unmoulded 180 lb., while 7 per cent. of the former and 35 per cent. of the latter were grub-infested. This demonstrated the necessity for adequate cover and depth for the production of a crop and for its protection. As the tuber moth causes considerable loss of tubers throughout New Zealand both in the field and after harvesting, together with extensive damage at times to the foliage during growth, the introduction and rearing of parasites is being undertaken.

St. John's Wort.—The establishment of the St. John's Wort beetle (*Chrysolina hyperici*), secured originally from Australia, is very satisfactory, and the insect is giving excellent control of the weed in areas after two years or so from the time of its liberation. In the Upper Awatere Valley, where the original establishment was secured, approximately 400 acres had been cleared of the weed by the close of 1947, and by the close of 1948 the cleared area had extended far beyond those bounds. The cleared land is now in pasture. On an area near Arrowtown where liberations were made in 1946 the experience of the Upper Awatere is being repeated, and there are definite indications of a similar state of affairs taking place in other parts. The insect has so far been liberated only over the South Island, but this year it will be sent to the North Island. Reports from Otago indicate that the beetle is also attacking Tutsan (*Hypericum androsaemum*) in the field as well as St. John's Wort (*Hypericum perforatum*), and if this continues the results will be of great economic value in having both weeds under control.

Chilean Saw-fly.—This insect (*Antholcus varinervis*) apparently has not yet managed to establish itself in the field. The colony in the Institute insectary, however, maintains itself abundantly, and requires considerable attention owing to its food-supply being rapidly eaten out. This demands hand-feeding of the larvæ, the surplus of which is liberated in the field.

Steel-blue Horntail Parasite.—The annual routine distribution of the *Rhyssa* parasite of the larvæ of the Horntail borer (*Sirex noctilio*) of pine-trees has been carried out, 704 females having been sent to Canterbury and Taupo plantations. This work entails heavy labour in the felling of infested trees, cutting of logs, and setting them up in insectaries, where the emerging *Rhyssa* are collected. In addition, each year a check is kept of the proportion of *Rhyssa* and *Sirex* that emerge from the logs.