Erosion Control

Further vegetational survey work has been done in the area controlled by the Wairarapa Catchment Board. A nucleus line of shipmast locust supplied by the Soil Erosion Council has grown vigorously, and will now be multiplied. Athel-tree (*Tamarix aphylla*) has also grown well and will shortly provide a good series of cuttings for propagation. Further supplies of seed of kudzu-vine have come to hand.

Seaweed Investigations

Fundamental studies on the taxonomy and ecology of species of economic importance have been continued and papers prepared for publication. The seaweed herbarium has been considerably augmented. Further field studies have shown that there remain areas yielding valuable quantities of agar-weed that have not yet been drawn on, but that there may be difficulty in organizing collection.

Taxonomy and Ecology

The taxonomy of the indigenous grasses is receiving detailed study, and a paper is in preparation on the species of *Danthonia*. Work is also being carried out on the taxonomy and ecology of scabweed and related species, and on the different varieties of blue-grass (*Agropyron scabrum*).

ENTOMOLOGY DIVISION

Director: Dr. D. Miller. Associate Director: Mr. J. Muggeridge

Grass-grubs (Odontria spp.)

The establishment of the field station at Ashburton in connection with the grass-grub project has reached the stage where contracts have been let and plans approved for the erection of the laboratory accommodation.

Field surveys have been carried out to determine the fluctuation of grass-grub populations during infestations. A study is being made of the influence of varying soil moisture and relative humidity upon grass-grub and egg development. Experiments are being carried out on the influence and possible use of insecticides for control of the larvæ.

As a result of a preliminary survey made during May and June, 1945, into the possibilities of securing parasites from Australia, an officer has been stationed in the south coastal region of Victoria to carry out a detailed study of the subject.

A consignment of the parasitic nematode (*Neoaplectara glaseri*), which infests *Popillia japonica* and other soil insects in the United States of America, was received in 1945 by courtesy of the Rockefeller Institute for Medical Research. This nematode has been tested against the larvæ of *Odontria zealandica* and proved positive, though it is possible that field experiments will reveal that the rather dry soil conditions in the Canterbury area may militate against its use. On the other hand, the nematode has been found to attack the destructive subterranean grass-caterpillar (*Oxycanus*), and since this insect tends to occur in heavier and moister soils the parasite may be more effective against the caterpillar than against the grass-grubs.

Experimentally *Bacillus popilliae*, the causal agent of "milky disease" of *Popillia japonica* in the United States, was found to attack the larvæ of *Odontria zealandica*. However, it has been discovered that a similar but distinct bacillus already occurs in New Zealand and is responsible for a milky disease of *O. zealandica*. The relative virulence of the two organisms in relation to the host, and the temperature ranges within which they are active, have to be investigated.

A comprehensive monograph has been prepared on the taxonomy and distribution of the New Zealand Melolonthidæ, both beetles and larvæ having been dealt with.