

ENTOMOLOGY DIVISION, PLANT RESEARCH BUREAU.

The researches projected for the year were of necessity curtailed, and the activities have centred round (1) the identification of termites in the Auckland and New Plymouth region; (2) the study of the systematics of the insects; and (3) the biology of native species. The identification of termites is a routine activity in relation to the administration of the Termites Act. The results show a wide distribution of Australian termites: Onehunga, Epsom, Mount Roskill, Mount Eden, Great North Road, Remuera, Mount Albert, Point Chevalier, Herne Bay, and One Tree Hill; while at New Plymouth an interesting reinfestation is recorded. The systematic study of the Australian termites reveals that several additional species occur in New Zealand. Further, there are certain groups of "species" that are apparently biologically the same though specific from the systematists' point of view. It is here that the clear identity of the forms or "species" breaks down. The outcome of this phase of the work is reaching a stage where a publication of the results can be made. A certain amount of work, from which valuable data have been secured, has been carried out on the biology of the native termites. The studies so far have been made on termites infesting buildings, but a study of the insects under field conditions has been inaugurated.

PLANT DISEASES DIVISION, PLANT RESEARCH BUREAU.

Work has again mainly been directed towards determining a standardized method for toxicity tests of products used to control fungous and insect diseases of timber.

Testing of Fungicides.—It has proved a difficult matter to secure satisfactory conditions for block tests with wood-rotting fungi. However, experiments have been carried sufficiently far to enable work to be commenced on this phase.

Testing of Insecticides.—Dowel tests with *Ambeodontus* have been progressing favourably until recently, when a parasite injurious to the larvæ appeared and upset results. Difficulty is still being experienced in breeding large numbers of *Anobium* in the laboratory as a preliminary to using this species for test purposes. Treatment of subterranean termites has now been taken over by the State Advances Corporation. Experiments are being carried out to ascertain if treated and untreated "Pinex" wallboard is resistant to native drywood termites.

Testing of Therapeutants.—A method has been devised to test the length of time a certain therapeutant will remain in selected timbers. A new method has been devised for measuring penetration of petroleum oils into woods.

STATE ADVANCES CORPORATION.

The State Advances Corporation has concentrated upon field investigations of timber-infesting insects and fungi, the field application of termite control, and the field application of wood preservatives.

Termite Control.—Under the Termites Act, 1940, the application of chemical measures to control foreign termites is the responsibility of the State Advances Corporation. The work, however, in the initial stages was placed in the hands of the Plant Diseases Division, which was engaged in developing a technique for the application of arsenic dust. Most of the early termite treatments were carried out by the Plant Diseases Division in collaboration with the State Advances Corporation, but in the middle of 1941 the treating technique was found to be giving satisfactory results and the whole of the chemical control work was taken over by the Corporation. The Corporation, however, continues its very close co-operation with both the Plant Diseases Division and the Entomological Division in all termite-control work. Special attention is being paid to the biology of Australian termites, and numerous specimens and colonies are supplied from time to time to the Entomological Division for study. In addition, both the Entomological Division and the Plant Diseases Division co-operate with the State Advances Corporation in field studies, both biological and those connected with the application of poison dust. Although the control of termites is a function of the Minister of Housing, its work is closely connected with this Committee, and it is not out of place to mention that some 230 individual infestations have been treated to date and there is every indication that a very large measure of success has been obtained.

Native Termites.—The Corporation is particularly anxious to obtain further information regarding the biology of native termites. Field studies which have been conducted show that the incidence of native termites in some portions of Auckland is very high and considerable damage is being done. In co-operation with a commercial concern a new method of chemical control for native termites has been planned, and the early trials which have been conducted appear to be promising. The method, however, is fairly costly, and it is hoped that some modification may be adopted which will reduce this cost.

Ambeodontus tristis.—This house longhorn continues to engage the attention of the Corporation, and cases have been found in which houses which have been erected for a few months only have yielded infested timber. Unfortunately, this insect attacks heartwood as well as sapwood, and it is often the more valuable timber which is damaged by this beetle.

Supplies of insects have been obtained from time to time for the Entomological Division and the Plant Diseases Division.

Fungi.—Field information upon the incident of wood-rotting fungi in houses, especially in relation to the type of house construction involved, is still being obtained.

Wood-preservation.—The application of wood-preservatives on a field scale is still proceeding. In order to gain information regarding the penetrability of the commercial species of New Zealand timber by water-soluble wood-preservatives under pressure, arrangements have been made with the Forest Products Division of the Commonwealth Department of Scientific and Industrial Research to have a series of pressure impregnation tests carried out in Melbourne. Supplies of the main commercial species of timber have been obtained, kiln dried to the correct moisture content, and shipped to Australia. It is expected that the results of the tests will be to hand in the near future.