

REPORTS OF RESEARCH COMMITTEES OF THE COUNCIL OF SCIENTIFIC AND INDUSTRIAL RESEARCH

BUILDING RESEARCH

Building Research Committee.—Mr. G. F. Wilson (Chairman), Mr. G. W. Albertson, Dr. J. C. Andrews, Mr. B. C. Ashwin, Mr. L. E. Brooker, Mr. R. A. Campbell, Mr. A. R. Entrican, Mr. F. W. Furkert, Mr. A. R. Galbraith, Professor C. R. Knight, Mr. L. J. McDonald, Dr. E. Marsden, Mr. J. Mawson, Mr. R. A. Patterson, Mr. C. W. O. Turner, Mr. F. J. A. Brogan (Secretary).

Research work under the direction of the Committee has continued along the lines of the previous annual report. No new projects have been commenced, but the Committee has during the year given consideration to what are the problems, the solutions of which are likely to yield results of immediate value to the building industry in New Zealand. It has not been possible to take any definite steps pending the appointment of a nucleus research staff, which should consist of a director, an architect, an engineer, and a chemist. When such appointments have been made it is hoped that the Department will be in a position to carry out a survey of the building industry and thus obtain detailed information on the problems which are at present facing the architects, engineers, and others who are intimately connected with it.

The following is a report of the work carried out on building problems during the year in various branches of the Department :

PLANT DISEASES DIVISION, PLANT RESEARCH BUREAU

I. *Testing Toxicity of Preservatives*

(a) *Biological Evaluation of Toxicity.*—Two techniques have been developed for testing toxicity to *Anobium punctatum* of preservative chemicals. One, giving a quick measure of relative toxicity, involves transfer of part-grown larvæ to treated test blocks, which are cut open and recorded after four months. The second gives a measure of actual toxicity. Test blocks are exposed to large numbers of beetles, so that mass loadings are secured of newly-hatched larvæ. Results are recorded at the end of eighteen months.

(b) *Toxicity Studies of Thin Layers.*—Previous work has shown that part-grown larvæ are able to bore through considerable depths of wood treated with toxic materials, since they appear to possess the ability to select wood for ingesting. A series of experiments has been laid down to ascertain if newly-hatched larvæ are also able to do this, and to determine the protective value of thin layers of therapeutants such as are deposited by cold dipping processes.

(c) *Contact Poisons for House Treatments.*—Work has been commenced on residual contact effects of therapeutants to *Anobium* beetles, the purpose being to ascertain if timbers of dwellings can be protected by application to the exterior of various therapeutants. Materials used will be those effectual as contact poisons four years after application, by which time all larvæ present at the time of treatment will have emerged as adults.

(d) *Mass Breeding of Testing Material.*—Quantities of beetles have been placed in cages to provide for mass breeding of larvæ and beetles required for test purposes. It is anticipated that sufficient numbers will have been bred in the laboratory for testing work during 1947-48 season, thus saving the labour and expense of collecting annually from infested timber derived from buildings.

II. *Biological Studies of Anobium*

Investigations have been completed on the anatomy, histology, and pH of the gut of *Anobium* larvæ. The studies made on growth-rate and frass-production of larvæ have provided information of particular value in developing biological methods of evaluating toxicities of therapeutants.