

ROT-PROOFING OF FABRICS

Analyses of rot-proofing compositions for tarpaulins and tentage were made. Conferences with Army representatives on this question were attended. This work has now been placed under the supervision of a "Rot-proofing Committee" set up by the Standards Institute.

BUILDING RESEARCH

The accumulation of knowledge and of experimental data acquired by members of the staff over a period of several years has made it possible not only to carry out useful investigational work on building-materials, but also to assist with technical advice on several Committees set up by the Standards Institute.

Among the problems considered were (a) mould in houses (tests of gypsum plaster, flour pastes, and moisture contents of wallboard, &c.); (b) fire-resistance of wallboards; (c) roofing-tiles (concrete and earthenware) specification tests; (d) enamelled sinks (tests of enamel quality); (e) copper supply tanks (corrosion and water-supply problems); (f) timber-preservation (routine control of samples and investigation into permanence); (g) examination of New Zealand Portland cements, with special reference to alkali content and interaction between certain aggregates and cement; (h) examinations of bricks, pipes, and other items included under ceramics.

Two members of the staff were sent abroad to study building-research methods in Great Britain, Canada, and the United States of America, and the application of plastics to building. The technical knowledge now available on the staff, the experience already acquired, and the study being made of modern developments abroad all combine to place the Laboratory in a particularly happy position to play a prominent part in the field of post-war building research.

ACCOMMODATION

In view of the many and varied activities of the Laboratory, accommodation has for a long period been far from adequate, and the position during recent years has become acute. It is hoped that this will be remedied in the near future, when the Laboratory will be able to increase its usefulness to other Government Departments and particularly to meet the increasing demands of industry and of the newly-constituted Division of Industrial Hygiene of the Department of Health.

ADVISORY AND CONSULTING

The Director and other senior members of the staff have been consulted frequently on scientific and industrial matters. It is gratifying to note that there has again been an increase in this part of the work of the Laboratory. They have also represented the Laboratory on various technical and inter-departmental committees, including those of the New Zealand Standards Institute. Papers by various members of the staff have been published.

DOMINION OBSERVATORY

Acting-Director: MR. R. C. HAYES

REPORT FOR THE YEAR ENDED 31st DECEMBER, 1943

TIME SERVICE

Control of Clocks.—The Observatory clocks have been kept correct by radio time signals received daily from Greenwich and Washington, and also by occasional local transit observations. The clocks were disturbed by local earthquakes on 16th January and 26th February, but no interruption in the time service resulted on either occasion.

Time Signals sent out.—In addition to the usual time service, arrangements were made during the year for three additional time signals to be sent out daily through station ZLW for Navy and Air Force use in New Zealand and the South-west Pacific. Two of these signals are retransmitted by Auckland and Suva radio stations.

The errors of the main ZLW signals were less than 0.25 second on every day of the year except two. On one day in April an error of 0.5 second developed, due to trouble with the clocks. The signals failed or were faulty on several occasions during the year, due to faults either at the Observatory or at the radio station.

Although not part of the scheduled time service, correct time is given frequently by telephone in response to calls from all sections of the community. The total number of calls attended to in 1943 was 810, compared with 726 in 1942.

Public Clocks.—The Government Buildings clock was checked daily. The maximum errors observed during the year were 48 seconds fast and 78 seconds slow. The clock was stopped by a local earthquake on 26th February.

The synchronous electric clock ran without interruption from 1st January to 9th August (221 days). The maximum errors observed during the year from readings taken twice daily were 10 seconds fast and 27 seconds slow.

General.—During the year 103 astronomical watches were rated for the Royal New Zealand Air Force, and several others for the United States Marine Corps and the New Zealand Army Engineers.

New synchronizing-apparatus was fitted to the signals clocks to reduce the disturbing effects of earthquakes on them.

SEISMOLOGY

Summary of Seismic Activity in New Zealand in 1943.—During 1943 slight or moderate activity continued in the Wairarapa region, with generally decreasing frequency. There were occasional rather strong shocks in that region in the early part of the year. Of special note was the unusual activity in the South Island, particularly in the south-western portion