use of different seed-bed-covering materials, and different methods of raising the seedlings. At the same time observations on the incidence and severity of mosaic disease were made, from which results of very considerable practical importance in the control of mosaic were obtained. It was shown that not only did plants raised directly from seed without pricking out make considerably better growth than those raised by the usual glasshouse method, but they also showed less than 10 per cent. mosaic infection, as compared with 90 per cent. in the pricked out plants. Arrangements have been made for growers to try out for themselves this method of raising seedlings which has proved so successful at the Tobacco Research Station.

The erection of three flue-curing kilns and a bulking-shed was not completed until the middle of February, with the result that owing to overmaturity of the crop it was not anticipated that the best results would be obtained with the curing. From information just to hand, however, it appears that the cured leaf is grading better than was expected.

The Cawthron Institute, in addition to collaborating in the mosaic investigation, carried out a soil survey of the tobacco lands at Nelson, in the course of which 3,400 acres were mapped. The soil survey has shown the presence of considerable areas, now utilized for other purposes, which appear suitable for tobacco. On the other hand, areas have been found where the nature of the soil seems to render the production of high-grade leaf from the crops they are now growing most improbable. In connection with the chemical investigations of soils and tobacco-leaf, data have been obtained which suggest that boron may prove beneficial in the manurial treatment of tobacco, particularly on the coarse sandy types of soil. Analysis of tobacco-leaf also suggests the possibility of deficiency of magnesium as well as boron in certain samples.

PHORMIUM RESEARCH.

Research work on phormium has been continued during the year from the botanical, chemical, and mechanical aspects. The botanical work, which has been carried out since its inception by Dr. J. S. Yeates, of Massey College, has now been placed in charge of the Botany Division of the Plant Research Bureau. To Dr. Yeates, who was obliged to relinquish this work on account of pressure of other duties, a debt of thanks is due for his very valuable contributions to this branch of phormium research for a period of some ten years.

The Botany Division has been occupied chiefly with stocktaking of the plants in the various research areas and with the planting-out of selected varieties in various localities for ecological and yield tests. The Division has also initiated studies on the life-history of the phormium plant, with special reference to the rooting-system, and has co-operated in large-scale stripping tests with selected varieties using the improved tail-stripper.

Investigations relating to the mechanical decortication of phormium have been concerned with the designing of an improved flax-stripper. A four months' trial of an improved tail-stripping machine indicated that further improvements could be effected, and a second machine was designed which after continuous tests over a period of six months definitely confirmed its superiority over previous strippers. Patent rights have been taken out by the Department for this machine.

The Dominion Laboratory investigated various processes for the chemical treatment of phormium leaf for the production of fibre or pulp. The chemical examination of several varieties of phormium has also been undertaken, from which it appears that varietal differences are accompanied by differences in the chemical composition of the leaf. Further work in this direction is being done.

TIMBER PROTECTION RESEARCH.

The serious damage being done to wooden structures in New Zealand, as in other countries, by boring insects and wood-rotting fungi is a matter of national concern, affecting not only the Government, which has large sums invested in building securities, but also all owners of wooden buildings. The State Advances Corporation, as one of the largest holders of building securities, became seized with the necessity for an organized attack on the problem, based on scientific principles, and requested the Council of Scientific and Industrial Research to set up a Timber Protection Research Committee to direct and co-ordinate the necessary investigations. The Committee, which was accordingly established, includes representatives of the State Advances Corporation, the Housing Construction Department, and the Department of Scientific and Industrial Research. The programme of work provides for field surveys by officers of the State Advances in collaboration with officers of the Entomology Division, Plant Research Bureau, and laboratory investigations on the effectiveness of wood preservatives and fungicides to be undertaken by the Plant Diseases Division and the Dominion Laboratory.

While useful preliminary work along these lines has been done, additional staff and facilities are required to carry out the full programme of research that is considered necessary. In order to enable this object to be achieved, a number of interested Government Departments, in addition to the State Advances Corporation and the Department of Scientific and Industrial Research, have agreed to provide jointly the necessary funds and other resources available.

Since the initiation of research work a new and urgent problem has been presented by the discovery of extensive damage to houses by white ants, particularly in the Auckland District. Ways and means of combating this serious pest will accordingly form an important part of the Committee's activities during the coming year.