50. *Fungi.*—There has been little fungal disease of major consequence reported from State forests. Damage to *Pinus radiata* at Beaumont (Southland Conservancy) was investigated and was found to be caused by *Dasyscypha calyciformis*, here recorded for the first time in New Zealand. This Dasyscypha is also found on *P. banksiana*, *P. ponderosa*, and *P. laricio* and is widely distributed. It mainly occurs saprophytically on wounds caused by rubbing, on pruning stubs, and on the bark of trees scorched by fire. *Dasyscypha calyciformis* is known as a saprophyte on pines (Pinus spp.), spruces (Picea spp.), and firs (Abies spp.) in Europe, where it has not been reported as causing any damage.

The chief investigation of heart-rot in living trees concerned *Pseudotsuga glauca* from Pukerau (also Southland Conservancy). The fungus appeared to enter the pruning scars of green-pruned, suppressed trees, attacking the heartwood while leaving a small central core and the outer sapwood unaffected.

51. *Damage from Natural Causes.*—The weather on the whole was colder and wetter than usual, heavy falls of snow being recorded in the Main Trunk district and in North Canterbury. At Hanmer the heaviest fall of snow since 1918 damaged larch stands, and in Wellington and Nelson Conservancies the severity of the winter hampered afforestation projects. Unseasonable frosts damaged nursery stock in most districts, while heavy frosts in Auckland and Rotorua reminiscent of the 1931 occurrence caused serious damage to planted areas.

Instances of damage by lightning were recorded for the first time for several years. Several fires were caused in old dry trees, whilst a severe thunderstorm in January caused considerable damage to a line of creosoted telephone-poles at Kaingaroa.

52. *Forest Offences.*—A firm policy of law enforcement has been persevered with as essential to the safety of the forest and the protection of public property. Twenty-nine convictions were secured for offences under the Forests Act—*viz.*, fires, 6; trespass and hunting, 21; timber trespass, 2. Other cases are pending.

CHAPTER VII.—FOREST ENGINEERING.

53. *General.*—While no new major construction work has been undertaken, preliminary surveys essential to important rehabilitation projects in both indigenous and exotic forests have been proceeded with to the limit of the personnel available.

54. *Roads and Bridges.*—The limitations imposed upon the extension and maintenance of roads and bridges by available equipment, referred to last year, were increased by man-power shortage, military operations, and civil defence needs, which made heavy demands upon the men normally engaged on these works and limited new construction to works essential to defence production and to forest-protection. Culverts and bridges have been constructed of creosoted exotic softwoods to demonstrate modern methods of design.

55. *Other Transport Facilities.*—As part of its station-yard development at Rotorua, the New Zealand Railways have provided a private siding to facilitate the handling of Department produce, which now amounts monthly to over 500,000 board feet of timber in the form of sawn timber or box shooks, and almost 80,000 cubic feet of timber in the form of poles, piles, props, posts, &c.

56. *Buildings.*—No major buildings have been built during the year, but four small houses constructed of exotic softwood have been added to the Waipa Mill Village. The extra accommodation required for workers engaged on the production of poles, piles, props, &c., at Waipa was provided by moving forestry camp hutments to the site of the single men's hostel, where catering facilities are already available.

Maintenance and improvement of buildings has been effected as opportunity has offered. The houses erected at the Waipa mill have been built as possible models for married forestry workers' accommodation, for which there will be heavy demands at the conclusion of hostilities. This development of accommodation suitable to forestry requirements is regarded as vital to departmental rehabilitation activities.

57. *Water-supply and Drainage.*—With the limited materials and man-power available little improvement in water-supply and drainage facilities has been possible, but to reduce the ever-present fire hazard in the box-factory at the Waipa State mill it has been arranged to install a modern automatic sprinkler system.

58. *Utilization Plants.*—The only major alteration to the plant at the Waipa mill was the installation of a mechanical log crosscut saw and conveyor for transferring logs to the sorting pond. Further experience in the operation of the mill demonstrates that only by the operation of this pond is it practical to reduce pumice wear on saw frame guides, &c., to a reasonable figure. The log frames have also proved adaptable to the sawing of crooked logs with a sweep in one plane, an advantage not possessed by any other type of sawing equipment.

The box-factory attached to the Waipa mill was finally completed during the year, for the latter part of which it has absorbed the whole of the mill output not required for other defence commitments. The key machines, a number of them the only ones of their kind either in Australia or New Zealand, have proved entirely suitable for the working-up of the exotic softwoods, and conversion processes are in course of development which it is hoped will revolutionize shook-manufacture.

The creosote-plants at Waipa, Hanmer Springs, and Conical Hills have been maintained and minor improvements effected.

59. *Transportation.*—No additions to the departmental motor-vehicle fleet have been made, and, as was the case last year, vehicles due for replacement have of necessity been repaired. Close supervision to ensure only essential running has been exercised by controlling officers. A tandem-axle pole-type logging-trailer, incorporating a North American axle assembly, was manufactured at the Waipa mill workshop and ranks as the best unit of its kind now operating in the Dominion. The transportation of manufactured produce from Waipa to railway has been improved by the use of detachable semi-trailers which reduce the idle time and increase the utility of available trucks.

Charcoal-burning producer-gas units have now been fitted to seven departmental trucks, while an eighth truck is operating with a unit mounted on a trailer. In co-operation with the Substitute Fuel Committee, a trailer-type charcoal-burning producer-gas unit for use with a passenger-car was developed and is now used with an inspectional car in the Wellington Conservancy.