

reported since the Commonwealth Government, at the request of the New Zealand Government, amended the Customs (Prohibited Exports) Regulations by the introduction of Statutory Rules 1942, No. 479, which came into force on the 1st December, 1942. This was the case in which a shipment arriving at Auckland was reported to contain infested material, but only four sleepers required treatment, and investigations in Australia disclosed that the vessel had been loaded under particularly difficult conditions, recurrence of which will be guarded against, as far as practicable, by the New South Wales Forestry Commission.

50. *Damage by Fungi*.—No serious outbreaks of fungal disease have been reported in indigenous or exotic State forests during the year. Investigations on the pathology of the chief forest species, including rot of silver-beech, kauri, and the exotic pines in the field, and larch rot and tawa stain during seasoning, have been continued. Constant observation is maintained by forest officers and periodic inspection by the forest pathologist has been made. Fungal attack has caused minor losses in nursery stock at Waipoua and Waitangi and in regeneration and young trees on sites subject to unfavourable conditions. Marked susceptibility to sapstain has been noted in logging operations in progress in areas of wind-thrown insignis pine in Canterbury Conservancy. A great deal of information has been obtained, supplemented by many herbarium specimens illustrative of pathological conditions in seedlings, trees, slash, and timber during seasoning and service, fructification of many species, and typical cultures.

51. *Damage from Natural Causes*.—The departmental reports of the first decade of the century appear to indicate a constant struggle with climatic conditions adverse to forestry work. Yet, for the past twenty years at least, although the climate has shown its vagaries from time to time, widespread ill effects have been but little known in forestry, and there was a tendency to suspect that reports of thirty or more years ago had drawn too gloomy a picture. The year just past, however, has disproved this and has pointed to the necessity for maintenance of old and tried ameliorative and precautionary measures that have fallen into abeyance to some extent in modern practice.

The winter of 1945 was marked by excessive severity, particularly in Canterbury. Heavy rains, followed within twenty-four hours by a gale of extreme severity, saw swathes cut through several North Canterbury forests so suddenly that it was at first feared that lives had been lost. Workmen in Balmoral State Forest in particular had to run for the forest edge amid falling trees, leaving tools and equipment. The estimate is that 4,000 acres of pine forest were laid low in this gale alone, damage being both from windthrow and from windbreak.

Within a few days this was followed in the same district by a severe snowstorm, and then by over a week of unusually severe frosts.

Hanmer Forest recorded temperatures below zero on three successive mornings. Fortunately, there are at the moment no areas of this forest in the regeneration phase and consequently no widespread frost damage occurred in State forest. But many miles of insignis pine farm windbreaks and forest-edge trees were completely browned and defoliated. The red- and mountain-beech forests of the same latitude lying between Hanmer and Reefton showed much snowbreak and much deformation and bending of natural young pole stands under the snow load, which in this case froze on the canopy to form a "glaze," such as is known to New Zealand foresters more from reading of other countries than from local experience.

The episode illustrated clearly the occasional climatic hazards to which the indigenous forest is subject. These hazards leave an impress on the forest physiognomy which is very hard to interpret during the decades which may be free of such extreme conditions. During this period the telephone service was completely disrupted throughout Canterbury, chiefly because of the load of frozen "glaze" on the wires, but in no small measure also because of fallen and broken trees, which smashed lines that had been located too near to windbreaks and forests. It was of interest to the forester to note that lines on iron, steel, and concrete poles appeared to suffer as much as, if not more than, those on wooden poles.