

defoliated in late summer by *Pyronota festiva*, but, as this native beetle is almost polyphagous so far as broadleaved tree foliage is concerned, no special significance other than a local one attaches to the report.

50. *Damage by Fungi*.—There have been no serious outbreaks of disease reported in indigenous or exotic State forests during the year. Investigation of the pathology of the chief forest species in the field and during seasoning has been continued, and constant observation by forest officers is maintained. A survey of the effects in the sawn log of defects of silver-beech visible in the standing tree has been carried out, and heart rots of larch, insignis pine, and rimu, &c., have been investigated. Fungal diseases have caused minor losses at Ashley, Ermedale, and Waipoua nurseries. New host records include Australian mountain ash (raurimu) and American western red-cedar (erua) for *Armillaria mellea*. Herbarium specimens and typical cultures of many fungal species have been acquired.

51. *Damage from Natural Causes*.—The season was, on the whole, a favourable one, though far from being a normal one. Southland had the driest and finest summer for many years; mid-Canterbury experienced the heaviest snowfall recorded since the commencement of planting operations there; Wellington Province had several months of very low rainfall but of also comparatively low temperatures and high atmospheric humidity, which obviated excessive fire danger. Actual fire danger was most acute in Rotorua and Canterbury Conservancies, the special cases being narrated in previous paragraphs. On the whole, the season was excellent for tree growth in all parts, though there was localized damage of small acreages reported from storms and snow during July and August, 1943 (Riverhead-Karioi-Southland).

The super-excellent growth recorded during a very favourable season may not be without its drawbacks. A condition known colloquially as the "retarded leader" of insignis pine and certain other pines (the leading bud develops weakly or not at all, and a group of massive laterals outstrip it) has been familiar for many years as a regular but numerically insignificant condition. During the past season, widely separated stations have reported it as prevalent to a greater extent than usual—e.g., Kaueranga, Kaingaroa, Ashley. The stands affected have made more than normal growth, but it is largely of this distorted nature. Careful counts made over a year at Ashley reveal that 40 per cent. of recently planted trees are so affected, the affected trees growing very freely and rankly, as might be expected in a good growing season, so much so that at Kaueranga in particular many well-rooted trees are falling over by their own weight. There is no cause for alarm as yet, nor is it intended to imply that the condition is of epidemic proportions; but it is recorded as being probably correlated in this instance with a growing season of better than average.

52. *Forest Offences*.—Offences against the Forests Act, 1921–22, and the Forest (Fire-prevention) Regulations 1940 show a considerable increase over those of the previous year, and convictions were secured in 40 cases (18), in which the total fines, costs, and damages imposed amounted to over £476. These offences comprise lighting of fires in State forests and fire districts without authority, failure to take adequate steps to prevent fire spreading, leaving fires unattended, failure to notify a forest officer of an outbreak, and operating a steam-engine not fitted with devices to prevent the escape of sparks, which accounted for 17 offences; cutting and removing timber from a State forest without authority, 13 offences; with entering a State forest and hunting without authority, 10 offences.

In one case of unlawfully lighting a fire the offender, in addition to payment of a fine and costs amounting to nearly £10, was ordered to pay expenses incurred by the Forest Service, exceeding £54, while in another case the offender was ordered to pay the sum of £154, the amount of the damage to the forest. Early in 1943 North Auckland had a period of particularly dangerous fire hazard, and several offenders who lit fires without authority were fined £15 each and costs.

In order to suppress unauthorized fire-lighting with attendant danger to State forests and unauthorized cutting and removal of forest produce, legal proceedings are instituted wherever practicable.

## CHAPTER VII.—FOREST ENGINEERING

53. *General*.—Plant and man-power shortages have again created difficulties in satisfactorily maintaining existing services, and new construction work has been limited to bare essentials.

54. *Roads and Bridges*.—Existing roads have been maintained to the limit of available man-power and equipment. New roading has been chiefly for the extraction of kauri in the north for ship-building purposes, for the logging of insignis pine at Whakarewarewa, and for the extraction of saw logs from indigenous forest at Te Whaiti.

A summary of operations under this heading is as follows: new roads formed, 14 miles 26 chains; roads maintained, 794 miles; new tracks formed, 25 miles 48 chains; tracks maintained, 43 miles; new culverts, 60; culverts maintained, 18; drains maintained, 52 chains; bridges maintained, 29; new bridges, 4.

55. *Construction Equipment*.—In order to increase the mobility of angledozers in the Rotorua district, particularly for fire-fighting purposes, a tank transporter has been secured and located at Kaingaroa. Much of the earth-moving equipment used for the building and maintenance of both roads and firebreaks has completed its economic life, but is being kept in operation, although at considerable expense, until new equipment is available.

56. *Buildings*.—No new dwellings have been erected during the year, but additions at the Waipa Mill include a store-workshop extension and the saw-doctor's workshop, while the fire hazard at the mill has been reduced by completing the sprinkler system throughout the box-mill, dry kilns, dry-timber storage, and fuel-bins.