

CHAPTER IV.—RESEARCH AND EXPERIMENTS.

1. FOREST-MANAGEMENT.

The collection of data concerning the growth and yield of exotic species growing on different soils and under different climatic conditions throughout New Zealand has made steady progress during the period under review, and forty-six tables for ten species were compiled. With the completion of the detailed inventory of 12,000 acres of State plantations in the South Island, yield tables, and total volumes of timber compiled by species, diameter, and age classes, are now available for all but the minor plantations. Hence it will be possible to formulate more complete working-plans than those hitherto in force.

Planting plans were inaugurated for Riverhead, Kaingaroa, North Canterbury, and the Blue Mountains, after the areas had been topographically mapped and the planting compartments, blocks, roads, and fire-breaks demarcated. The topographic survey preliminary to the layout of the newly-acquired area of 33,000 acres at Karioi, was completed.



STAND OF SILVER-PINE (*Dacrydium Colensoi*), WESTLAND.

2. FOREST ECOLOGY.

Forest ecology deals with the study in the forest of the trees, shrubs, and plants comprising it. An exact knowledge of the development, succession, and association of species is an essential preliminary to forest-management. During the year Dr. L. Cockayne, Honorary Botanist, continued his investigations in the beech forests, and studied the regeneration on the outskirts of the forest. Here the value of the protection afforded the beech seedlings from browsing animals by the spiny wild-irishman scrub (*Discaria toumatou*) was specially noticeable. Observations in the cut-over stands of silver-pine in Westland indicated that this species when given abundance of light grows faster than is generally supposed, and that it will possibly form a useful second crop on poor boggy land.

The Service was pleased to be of assistance to the distinguished Swedish botanist, Dr. G. E. du Rietz, of the Swedish-Australasian Botanical Expedition and Upsala University. Dr. du Rietz, accompanied by his wife, a botanist of repute, spent six months in New Zealand studying the ecology of the natural forests, and more particularly the various lichens. His observations will shed light on the origin and history of the indigenous species, and show how these are connected with those of other countries.