

browsed to some extent on the needles of the pines. Three years after sowing, the crop, when counted, produced 600 seedlings (from $\frac{1}{2}$ lb. seed) with height from 6 in. to 12 in.; the greater percentage of germination had taken place actually in the tussocks, but sufficient germination was also obtained on the clear, open space between grass tussocks.

Spot sowing of Douglas fir was made in the Auckland region on cleared kauri-forest land and resulted in appreciable germination.

Experimental Planting on Dredge Tailings.

At the request of the Hon. G. J. Anderson, Minister of Mines, the Service undertook the planting, as an experiment, of several exotic species on dredge tailings at Hokitika. Relative adaptability in the first year is shown in the following table:—

Species.				Survival Percentage.	Maximum Growth.	Mean Growth.
					In.	In.
Insignis pine	..	..	..	72	6	3
Pondosa pine	..	..	..	92	6.5	4
Douglas fir	..	..	..	80	8	3.4
<i>Thuja plicata</i>	..	..	..	92	6	4.1

The mortality over all species is 16 per cent.

Thinning Projects.

The work of thinning out the closely planted areas in the North and South Island stations was continued and expanded. Whakarewarewa Plantation thinning operations were carried out in blocks of *Eucalyptus Risdoni* and *E. amygdalina*, the yield being profitably disposed of for mine-props, poles, &c. Areas of insignis pine (twenty years old), and larch were given a trial thinning, the small-size material removed from the latter being used for camp firewood, while at Waiotapu 53 acres of pondosa pine were thinned, making a total area thinned to date equal to 435 acres larch and 65 acres pines.

At Dumgree Plantation, Nelson, Marlborough region, 2.55 acres of larch planted twenty years ago were thinned, giving 670 small-size poles per acre, which were sold locally for firewood. Ten acres of larch (nineteen years old) at Hanmer were thinned on contract, all trees above 3 in. diameter being marked by a State Forest Service officer. The smallest suppressed stems over this block found a city market as tomato-stakes.

FORESTRY IN THE PRIMARY SCHOOLS.

In co-operation with the Education Department a special campaign has been inaugurated during the year to stimulate the interest of teachers and school-children in the national problem of forest preservation and growth.

Widespread enthusiasm has been aroused in the subject, and 765 schools throughout the Dominion have formed school forest nurseries. The seed for raising exotic trees is supplied free by the Forest Service, the children carrying out the work as part of their practical instruction in agricultural science. In several regions agricultural show committees have willingly co-operated, and are offering forestry shields as trophies to be competed for in the forestry exhibit class of the schools section, while subsidiary prizes are also being offered by the State Forest Service and others. During the year a conference of School Agricultural Inspectors and Instructors met representatives of the State Forest Service and formulated a programme for stimulating interest throughout primary, secondary, and district high schools, and as a result the Education Department has indicated that forestry-teaching will be included as a subject in the school syllabus. The formation of school plantations is being kept in view where conditions are favourable, and a direct impetus to farm planting has been given in certain districts where surplus stock from the school nursery has been taken home and planted by the pupils. An effort is being made, with the help of the schools and forestry societies, to revive the observance of Arbor Day and Forest-protection Day throughout the country.

A special pamphlet, "Schools Forestry and Plantations," dealing with school nursery procedure and planting of school-grounds has been issued to all schools in the Dominion, and special articles on various aspects of Forestry are being supplied for publication in the *School Journal* and the Educational press.

2. FOREST PRODUCTS INVESTIGATIONS.

One of the most important factors responsible for swelling the drain on our forests to its present volume is the large amount of preventable waste so conspicuous at every stage of exploitation and manufacture. To the solution of the waste problem the energies of the Branch of Forest Products are directed. During the reporting period the scope of the work has been enlarged, its application increased, co-operative work with industrial interests extended, and new methods of disseminating results developed.

The greater part of the investigative work remains in the hands of co-operating institutions, notably the Engineering Schools attached to the Auckland and Canterbury University Colleges, where valuable work has been performed. The high labour turnover, the interrupted character of the work, and the supervision available necessitates, however, additions to the permanent staff if economy of effort and the highest efficiency are to be secured.