

The annual output of trees from the State nurseries was increased from 3,988,000 trees in 1919-20 to 10,297,000 trees in 1924-25, while the stock of trees on hand in March, 1925, was 24,140,000, compared with 15,890,000 in March, 1920.

Excepting the British Forestry Commission, New Zealand has now the largest output of any State-owned nursery system in the Empire.

(17.) Profitable disposal of thinnings from the large areas of State plantations formed years ago at 4 ft. spacing has been successfully tackled on a small scale, mainly at Rotorua, where marketable intermediate yields in the shape of saw timber, mine-props, poles, and cordwood, obtained from a thinned area of 88 acres, prove that the success of large-scale thinning operations is assured.

(18.) Silvicultural investigations have been carried out into the effect of thinning upon the rate of growth of indigenous forests and plantations; underplanting of indigenous forest with exotic conifers; fixation of sand-dunes and tree-planting thereon; and the planting of exotic tree species on a forest scale in fresh districts, as on the Westland Forest Experiment Station, and on the gum lands of North Auckland. There are now in operation seventy-two permanent sample plots, compared with ten in 1919-20. In addition, many experiments have been made with a view to improving forest nursery and plantation technique and economy, and already results have been applied to large-scale operations with success. Ecological and silvical study of the life-history of the beech forests was completed, that of the kauri forests and of the West Coast forests practically completed, and a study of the tawa forests commenced. These and forest-management studies afford the essential preliminary data for the preparation of scientific forest-management plans designed to regulate the growth and harvesting of timber crops.

IV. FOREST-PROTECTION.

(19.) The problem of forest fires and the adequate protection of the Dominion forests has been satisfactorily solved during the period. A system of prevention and control was placed in operation which resulted in reducing the enormous annual monetary losses in State forests to a loss of only £61 in the fire season of 1924. Public support, the fire-district system, and organized patrols are responsible.

V. FOREST-UTILIZATION.

(20.) *Forest Products Investigations.*—A Branch of Forest Products in charge of the Engineer in Forest Products was formed in 1921, with the main objective of eliminating the enormous waste in the utilization of the Dominion's timber forests. An assistant engineer has been appointed recently. Since 1921 a broad study of all phases of wood conversion and manufacture by both primary and secondary industries has been completed as a basis for a broad scheme of research. A revision of building by-laws is already reflected in closer utilization of timber by the building industry.

Strength properties of native and exotic woods in the form of poles, cross-arms, and ply woods have been determined accurately for the first time in the history of the country. Important improvements have been found possible in the technique of the drying of native woods by air-seasoning and kiln-drying, and in the use of wood-preservedatives in poles and fencing-posts cut from State plantations. An effective remedy has been found for sap-stain, and the forest and timber insects of the Dominion have been investigated, classified, and described. Other researches include kauri-bleeding, destructive distillation of kauri waste, and the use of native woods for the manufacture of pulp and paper.

The greater part of the forest-products research work already begun has been carried out in co-operation with the University Colleges of Auckland, Wellington, and Canterbury under the direct supervision of the Engineer in Forest Products.

IN REVIEW.

A careful analysis of the results accomplished during the period—which may be known as the period of orientation—will indicate that only a very insignificant part of the foundation for the national forestry policy has been laid—a policy which has for its goal the complete assurance of New Zealand's timber requirements; the conservation of all protection, climatic, and recreational forests; the preservation and control of our wild life; and a leadership in all Dominion-wide forestry interests concerned in the steady and prosperous development of our national life.

The suggested programme of action which follows should, it is submitted, go a long way towards permanently assuring the objectives aimed at.

THE NATIONAL FOREST POLICY.—PROGRAMME OF ACTION FOR THE PERIOD 1925-1935.

(A.) INDIGENOUS MATURE AND GROWING FOREST RESOURCES.

The indigenous mature and growing forest resources of the Dominion, as shown by the first forest inventory, indicate that on 5,589,500 acres of commercial forests there are,—

- (1.) 38,878,040,000 ft. board measure of softwoods (kauri, totara, matai, rimu, miro, white-pine, silver-pine, and kaikawaka).
- (2.) 23,187,560,000 ft. board measure of hardwoods, and broad-leaved trees (beeches and tawa).

(Ownership: 75 per cent. State, 25 per cent. private.)