

26. *Inter-departmental Co-operation.*—In addition to the usual peacetime contacts with controlling and servicing departments, daily co-operation has proved necessary with the Defence Construction Council, the Housing Department, the Government Architect's Office, the New Zealand Railways, and the Shipping Controller.

#### CHAPTER III.—CONSTITUTION OF STATE FORESTS.

27. *Changes in Area.*—During the year 43,326 acres were set apart as permanent and provisional State forest, and 1,195 acres withdrawn from reservation, a net increase of 42,131 acres. The area under State forest reservation now totals 8,802,169 acres, 13.26 per cent. of the land area of the Dominion (see Appendix I).

28. *Changes in Status.*—Comprising mainly protection forests in the South Island, 2,372 acres of provisional State forest were permanently reserved, bringing the total permanent State forest area to 5,715,260 acres, or 64.9 per cent. of the total State forest area. Of the area withdrawn, the major portion 734 acres, was vested in the Nelson City Corporation for water-supply purposes.

#### CHAPTER IV.—FOREST MANAGEMENT.

29. *Surveys.*—Areas totalling 3,650 acres were topographically surveyed and 2,760 acres were subdivided into compartments. In connection with timber appraisals, 123 areas totalling 17,100 acres were surveyed, while 4,160 acres were covered by reconnaissance. Twenty miles of roads and 13 miles of boundaries were also surveyed.

30. *Mapping.*—Two new topographical maps were prepared and 2 stock maps renewed, additions were made to 33 stock and operational maps and 52 copies of these were prepared for general use.

Proclamations dealing with State forests affected 44,511 acres and necessitated 104 additions to the forest registers, while the recording of these and the various privileges granted during the year required 468 additions to the forest atlas. For general purposes 147 plans, 834 tracings, and 40 graphs were prepared, 584 lithographs, &c., coloured, and 321 plans mounted. The issuing of 186 licenses and 472 permits necessitated the drawing of 2,446 diagrams, 17 forest atlas sheets were renewed, and 644 photostat prints and 1,500 helio prints were used by the Service. A map of Kaingaroa Forest and a plan form were lithographed. One hundred and eighty-three negatives were added to the photographic record, bringing the total to 15,519.

31. *Forest-management Staff.*—Two trained assistants left for military service and the calling-up of the Chief Inspector under mobilization order further weakened the Head Office technical forest staff, where the Senior Working Plans Officer has only one trained assistant instead of three. Conservancy staffs, which remained virtually unchanged, are still most inadequate, while two conservancies are without trained staff. Retention of the remaining staff in both Head Office and conservancies is regarded as essential, as these officers' services are indispensable for the planning of forest work, for the maintenance of essential timber-production, and of rehabilitation schemes. The location of sites for new forests, the choice of existing forests for rehabilitation work, and the planning of the necessary operations within such forests are all activities demanding the exercise of specialized knowledge related to silviculture and forest management.

32. *Forest Working Plans.*—A working plan was finalized which regulates the felling of kauri during the quinquennium April, 1941, to March, 1946. The working-plan area is "the kauri circle," and comprises those State forests of Auckland Conservancy in which kauri is a component part of the growing stock. The kauri-working circle is subdivided geographically into six blocks in which the State forests concerned are the "compartments" or units of working. In accordance with statutory requirements, the section known as the felling plan specifies the maximum area from which kauri shall be taken annually and, secondly, the maximum amount of timber that shall be taken annually. The total maximum cut prescribed for the five-year period is 900,000 cubic feet, of which 380,000 cubic feet is from dead kauri and 520,000 cubic feet from living kauri-trees. An additional permissible cut for war needs is provided for.

At the close of the year the working plan for Whakarewarewa Forest was in draft form, and enumeration surveys of Waiotapu Forest had commenced. The Hanmer Forest working plan was completed as to Part I, Growing Stock Enumerations and Compartment Descriptions. Conical Hill Forest, area 4,200 acres, was resubdivided into 24 compartments. Under the original subdivision of thirty years ago there were 204 compartments of an average size of 16 acres. Bearing in mind that the forest compartment is the unit of forest management, it will be apparent that in New Zealand the degree of intensity of utilization and marketing is as yet far from being sufficiently developed as to warrant the detailed description and working of forest subdivisions as small as 16 acres. On the other hand, the new average size of 175 acres will be adequate for years to come.

During the year a standard method of assessment of growing stock was devised to ensure that enumerations and descriptions of all exotic-forest compartments are carried out on similar lines. Strip plots are employed, with permissive use of rectangular sample plots under special circumstances. Two sample trees are measured in each of the crop class and thinning class, and one in the suppressed class. Volume of the malformed-tree class, often too abundant in untended stands and unthrifty species, is obtained by the use of locally-prepared volume tables. Volumes are expressed up to 6 in. top, 4 in. top and to tip, thus providing an estimate of sawlog volume, of volume of prop, post, and pulp logs, and, finally, of total volume for increment purposes.

A compartment description form was drafted and printed, and has proved entirely satisfactory. Sections, chapters, and maps required for working-plan reports were standardized, and these also have proved quite satisfactory in use.

#### CHAPTER V.—SILVICULTURE.

33. *General.*—Shortage of man-power again seriously affected the annual programme of silvicultural works. Forest formation or establishment again diminished by one-quarter of the previous year's area, and only  $1\frac{1}{2}$  per cent. of the area of planted forests were improved, as against 4 per cent. in 1940-41 and  $4\frac{1}{2}$  per cent. in 1939-40. By reason of the maldistribution of age-classes referred to in recent reports, these figures are woefully small, but it is satisfactory to record that the two very important operations—high pruning and moderately heavy thinning—were given much more attention than in either of the two previous years.