

ecological information gathered should help towards the formulation of a policy which will have reference not only to fifty but to five hundred or even one thousand years ahead.

5. *Indigenous Management and Silviculture.*—The management of the indigenous forest after logging would be an easy matter if no regard need be paid to the succeeding composition and structure of the regenerated areas. The forester, however, is faced with the problem of regenerating his used forest to the same forest as before; or, if possible, to a richer and more utilizable forest than the original one. To examine the physical possibilities of such a procedure, each type of commercial forest must be considered separately, for it is almost self-evident that no single finding is likely to be applicable to all the numerous species that constitute New Zealand's commercial indigenous forests. The simplest analysis of these various forests is by species, for, although nearly all of them are mixed stands, there is in each a dominant species or species mixture which gives to each forest its individuality.

*Kahikatea Forests:* These forests stood in the main on swampy lowlands or good rich land which has now been converted into dairy-farms. The species is not transferable, as significant forest stands, to the poorer-quality lands now devoted to forestry. The problem is a simple one, therefore. It is merely dairy-farming versus white-pine forestry; and there can be little doubt about the decision. Dairy-farming demands such land in the national interests, and commercial kahikatea forests are therefore impossible.

*Matai Forests:* Here again is a species that prefers better-class soils. There may be small exceptional areas in Taranaki and in the central North Island where matai forest is on non-pastoral soil, but, broadly speaking, the species gives place to farming and cannot be transferred to less-fertile areas.

*Totara Forests:* Again the best totara was on rich farming-land, notably on alluvial flats. It cannot be permitted to retain such land. There are, however, totara forests of the mountain type that grew on poorer land; and there was a distinct range of the species (using the term in the broad sense to include all timbers called totara) from very good to comparatively poor land. There have always been well-known areas where it regenerates and persists in quite remarkable fashion, and it is very amenable to artificial handling in youth. There is therefore a distinct possibility that it could be retained as a minor constituent of some forests on a very long rotation. It is even then, however, very doubtful whether it will ever attain a significant place in any future forestry.

*Rimu Forests:* Rimu is the problem species of New Zealand forestry. In nature it occurs or has occurred from the farthest North to the farthest South; from sea-level to 2,500 ft. altitude; on good soils and on poor soils; as almost pure stands and as components of various mixtures in which at different places each or several of the other commercial species accompanies it; and in these mixtures it occurs at all places on the frequency scale, from dominance to rarity. This ubiquity of the species has been a basis for the argument that its silviculture must be simple and results certain. Unfortunately, this has not proved to be the case. The silviculture of rimu is not simple. Rimu forests, except in a few specially favoured localities, are not tolerant of the axe and the saw; and the factors underlying the intolerance are still obscure. It is not improbable that one of the keys to the difficulty is the rarity of seed years and the comparative paucity of seed even in a good year. Another, undoubtedly, is the great gap between intolerance of the seedling to light and drought and the tolerance of the adult to the same climatic factors.

All that can be said at the moment is that there are definitely hopeful localities and conditions. There may in the future be a form of silviculture evolved for rimu. Its nature is not yet clear, but it must depend upon some local adaptation of the selection system; and there are certain natural types of mixtures in which rimu occurs where regeneration and seedling and sapling growth of rimu is constant and very encouraging.