THOUGHTS ON SILVER BEECH MANAGEMENT.

By R. W. G. JANSON.

It has been said that by sustained yield is meant the production of annual timber crops of equal or increasing size on a given area of land, and the maintenance of an industrial community providing permanent employment, wages and purchasing power, together with the attainment of the full use of the productive capacity of the forest. A change in utilization may of course occur, but the forester is still left to face the responsibility of carrying out a working plan for his exotic plantations or his indigenous forests, be he working in the interest of local body, state or private enterprise. With regard to such plans for pure or mixed stands of even aged exotic species, much has no doubt been accomplished, but apart from a general assessment of the regenerating capacity peculiar to indigenous species, little real progress has been made in New Zealand. Sample plots have indeed been operating in certain localities for several years, and much valuable information is all the time being accumulated—but we must not permit any lag to occur between experimental forestry and the larger scaled field forestry. If necessary, the former must be speeded up in order that its findings may be applied to the thousands of acres crying out for treatment, although having been dedicated to forestry for over a quarter of a century.

Commercially, silver beech or as commonly known, Southland beech (Nothofagus menziesii), was practically unknown until twenty-five years ago, and until recent years was described by sawmillers as a weed species. Its growth in comparison with that of the podocarps is quick, and the species regenerates freely from its intermittent seed years, given a generous share of light and conditional upon the floor of the forest being reasonably clear from crown fern (Blechnum discolor) and dry duff. Of the five Nothofagus species, N. fusca, N. truncata, N. solanderi, N. clifortioides, and N. menziesii, the latter is the one species which does not hybridise. This obviously has a very important bearing when seasoning and utilization in general are considered, while in the forest there is little difficulty presented on the question of epharmony. It must, however, be stated that an irresponsible marketing of hybrid beech would undoubtedly go far in ruining the rapidly growing sale organisation enjoyed by the silver beech sawmiller. To-day, most if not all of Southland’s beech forests are decadent and present veritable tree cemeteries. In some localities easily a third of the trees is of no millable value, while a high percentage of defect in the remainder results in increased logging costs and lamentably low stumpage values, the millable stand per acre ranging from frequently under 3,000 ft. B.M. up to 7,000 ft. B.M. The silviculturist is thus afforded the one opportunity of getting a new
crop away by the aid of a slight improvement in light conditions brought about through the removal of the few millable trees as saw logs. Small wonder he views a logging fire with somewhat mixed feelings, hoping that while the dense canopy may be opened up, the heat may not be sufficient to kill the indispensable seed trees.

In Southland there is little if any regeneration of rimu (*Dacrydium cupressinum*) and not infrequently there are to be found mixed stands of rimu and silver beech with a customary decline in the quality of each.

In New Zealand we have at a conservative estimate some 800,000 acres successfully established in exotics, and, with an increasing demand for this class of timber, there appears to be cause for general satisfaction. That the forestry world does not find itself in complete agreement upon the advisability or not of such large-scaled exotic establishment should not necessarily disconcert foresters in this country, but it might be wise to appreciate the likelihood of a hardwood problem in the not very distant future when the public, who so happily acquired an early forest sense, might seek a report of stewardship with the result that in comparison with old world forestry the reputation of the New Zealand forester might indeed suffer. We have a remarkable asset in the silver beech forest but if something is not done other than exploiting the millable areas outside those so essential for protection and maintenance of stream flow, then they will be lost entirely.

In accepting the reader’s appreciation of the position as it is to-day, it is felt further that there must be a general desire to see that no more time is lost before facing the situation and it is with a view to opening up for discussion various aspects that the following comments are made in something of an apologetic manner.

### Sapling and Pole Stands:
A technique for the treatment of these dense stands should shortly be forthcoming as a result of volume and increment studies which are being carried out in sample plots in various State Forests.

### Early Worked-over Areas:
Here one finds that following logging activity, the second growth species, wineberry (*Aristotelia serrata*), lawyer (*Rubus australis*), crown fern (*Blechnum discolor*), Coprosma thicket and occasionally light kamahi (*Weinmannia racemosa*) have evidently taken charge before regeneration could be established or else from one, or from a combination of several unfavourable circumstances, the crop has been lost. There are, however, occasional patches of a secondary beech crop varying from 6 inches to 12 inches d.b.h. and seemingly assured of a normal life even when a big canopy factor is present. Although this will not by itself stock the area, the land influenced by such trees will in time be persuaded to regenerate freely, more particularly if additional light can be let in by means of, say, poisoning or
ringbarking. Any country destitute of secondary or regenerating beech should be opened up likewise in anticipation of a good seed year, and failing satisfaction in results, underplanted with suitable imported species. This is an undertaking for a small gang of men and much progress could be made in hundreds of acres conveniently situated and at a nominal cost.

**Recently Worked Areas:**

In some of these areas a light firing of logging slash might be effected, again in anticipation of a good seed year, care being taken to safeguard the minimum number of seed trees required to cover the area. Patch burning could be adapted in order that the greatest area might be burned under proper control while any necessary ring-barking would be carried out. Healthy beech regeneration is available along almost any bush road, and from a small experiment conducted at Pebbly Hills State Forest, the question of planting with this already provided stock is food for thought.

Where workings open in their natural state miss a seed year and the flush of second growth species threatens to take control, no time should be lost in arranging for establishment with three-year-old exotics.

**Unworked Areas:**

Here is presented the best chance of inaugurating a sustained yield programme, but unfortunately most areas in millable silver beech are not accessible in the sense that worked areas have been. This is a penalty resulting from a delayed forest policy. However, an inventory of the remaining areas might result in the closing of at least one forest for say 25 years. During this time non-millable trees could be removed, crop rotation closed up and vastly increased yields of timber result. Pure beech stands of 30,000 ft. B.M. to the acre are not inconceivable.

In a district where local knowledge means a good deal, the busy ranger-in-charge must be painfully aware of how well he could use a special officer upon work of an experimental nature dealing with a native hardwood forest offering such prospects. Something more must of course be known about the platypid borers in their variety of form and habit while the existence of *Armillaria mellea* is of importance to any such scheme of management.

A reasonable cost for establishing cut over areas with exotics has by now been accepted, yield tables have been compiled and something is known of utilization. There are, however, perhaps too many foresters who hasten to condemn in its entirely the management of these third generation beech forests with only the most vague idea of treatment, cost and results. The customary reply to hardwood requirements is, ignoring site factors, English oak, and where deer
are present then certain eucalypts which are immune from such attack and regenerate freely. But we already have these hardwood forests (perhaps not so conveniently situated to-day as they would have been some years ago) and there are thousands of acres in early cut over indigenous forest, some of it already in heavy pole crop. The fine utilization record of *N. menziesii* must also be borne in mind, with no little importance attached to the fact that this timber is usually immune from attacks by the common house borer (*Anobium domesticum*) and the native longhorn (*Ambeodontus tristis*).

---

**DISCUSSION ON AERIAL SURVEYING IN ITS RELATION TO FOREST RECONNAISSANCE.**

By H. P. D. VAN ASCH and H. C. WICKETT.

Quite a number of those connected with milling in this country are at least curious to learn what fruits are being reaped from an aerial survey recently completed by the N.Z. Aerial Mapping Ltd., of Hastings, of a timber area at National Park, and to throw a little light on this subject the writers propose to outline briefly how this survey was undertaken and the advantages that have been found to exist in this work as an aid to forest reconnaissance.

There is no need to mention here that general timber cruising and surveying is a lengthy and costly business, and that on this account any new form of science, such as aerial mapping, is welcome if it is only able to improve on these two factors of time and cost. Then, again, shortage of supplies in the more accessible areas is causing milling operations to go back into remotely situated parts, perhaps in rough country, where surveying becomes increasingly difficult and indeed more costly. It is under these conditions, and where the eye of the camera is able to work with the same efficiency as on the easier country, that the greatest advantage is possibly achieved.

As far as is known, this has been the first controlled aerial survey of forest land in N.Z., and although the main purpose of this article is to discuss the value of the results obtained from the aerial method, it will be interesting to foresters and millers if the discussion is prefaced by a brief description of how this photographic mosaic map was produced.

**Aerial Equipment:**

The work was undertaken by a specially equipped photographic twin-engined machine fitted out in England with complete survey equipment, comprising a special aerial camera mounted on gimbal vertically over a hole in the floor of the cabin, with Aldis aiming