IN NEW ZEALAND CONTEMPORARIES

TRANSACTIONS AND PROCEEDINGS OF THE ROYAL SOCIETY OF NEW ZEALAND


Although classical taxonomy uses floral morphology to define major characters in the separation of species it is a curious fact that no botanist had adequately or accurately described the flowers of New Zealand Nothofagus. The most satisfactory taxonomic treatment of this genus in New Zealand is that of Cockayne, made in 1926, which is based entirely upon leaf form. The present study fills in the gap and describes in some detail the floral morphology. The results fall into line with the species as defined by Cockayne and also into the grouping shown by the leaf morphology. Thus the flowers of N. fusca and N. truncata, the two tooth-leaved beeches, are very similar but have small distinctive differences. Those of N. solandri and N. cliffortioides, the two entire-leaved species, which are still a puzzle to botanists, are also very similar, but the pistillate inflorescence of the former is very hairy while that of the latter is only slightly hairy and very gummy. Both the staminate and pistillate flowers of N. menziesii differ considerably from those of the other species. The staminate flowers have wide-spreading, toothed perianths and 30-36 stamens, whereas those of other species have bell-shaped perianths with fewer than 18 stamens; the pistillate inflorescences and flowers are glandular but in other species are non-glandular. This is one more addition to the growing evidence that N. menziesii could, in taxonomic practice, be placed in a sub-genus.


Author's Summary: The general development of the cupule and nut from the pistillate inflorescence is described. This may be parthenocarpic, especially in poor flowering years, and proceeds independently of seed formation. A description of mature cupules and nuts of the species as defined by Cockayne is given, and these descriptions are discussed taxonomically.

NEW ZEALAND MANUFACTURER

A FOREST WHICH RENEWS ITSELF. A. L. Poole and N. Elder, Vol. 1, No. 8, March, 1950.

In that country lying between the northern Ruahine and Kaweka Ranges and the Kaimanawa Mountains, and ranging about 3,000 feet and over, are isolated pockets of beech forest. These are surrounded by natural tussock country, which, since the days of early settlement, have been run extensively with merino sheep. The authors, one an authority on the ecology of Nothofagus, and the other possessing an intimate knowledge of the district, have described the effects of settlement on one of the pockets situated on the Ngamatea Station.

In this country, difficult of access and low in revenue production, local timber, post and firewood supplies are of great importance: hence the two species present, Nothofagus cliffortioides and N. fusca assume an economic value they would not do in other areas.

Examples are given of the successful establishment of even-aged stands following on heavy cutting and periodic heavy seeding years as in 1949. It is pointed out that, in an area so short of timber and where plantations of exotic trees are difficult to establish, it is worthwhile safeguarding the forest so that it can continue to replace itself and produce wood as long as required. This implies protection from fire, grazing and the increasing menace of deer and opossums.

This article is the substance of a letter from the Director of Forestry setting out the viewpoint of his department on the utilisation of insignis pine, received by the annual conference of the N.Z. Federated Builders' and Contractors' Industrial Association of Employers held at Napier in March, 1950.

The article deals separately with the three main categories into which problems associated with the use of insignis pine fall. These are:

1. Where should untreated insignis pine be used?
2. For what purposes should insignis pine be treated with preservatives?
3. What grade of insignis pine should be used?

The majority of available insignis pine is untreated sapwood and as such is suitable for purposes where it is customary to use non-heart, or what is commonly termed Building A, rimu. However, because the sapwood of insignis pine is more susceptible to stain and mould infection than rimu, certain precautions are desirable to obtain the best results from its use.

Simple but well proven methods to assure this objective are now well established and include:

1. Kiln drying within two days of sawing—which however is expensive.
2. Rapid air drying—frequently impossible in most parts of New Zealand.
3. Dipping the timber, soon after sawing, in anti-sapstain solutions.

This last method appears to be the most desirable from an economic point of view, if followed by fillet stacking, and costs 1/6d. per 100 board feet more than undipped timber. Insignis pine treated in this manner can be used with absolute confidence and no further treatment, for all framing members above the ground floor level except exterior wall framing which may absorb moisture during service due to covering with finishes such as brick veneer, etc.

Although further treatment of insignis pine for some parts of the house, such as sub-floor timbers, is undoubtedly desirable, the author stresses the fact that an unnecessary economic burden is placed on house builders if treatment is insisted on where untreated insignis pine will give adequate service. Also, rather than insisting on one particular treatment or chemical, it is in the public interest that the building industry should favour the acceptance of standardised wood preservatives and approve of any process complying with the minimum acceptable standards of preservation.

As the percentage of the higher grades which the log is capable of producing is small, it is unfortunate that a spread of conservatism is causing builders to use grades which are unnecessarily high for the purpose intended. Ultimately, this must accentuate builders' difficulties in securing supplies of suitable timber, and application of the grading schedule given in the article would undoubtedly alleviate the position.


This paper was delivered to the Wellington branch of the Economic Society of Australia and New Zealand by the Secretary of the Dominion Sawmillers' Federation.

Apart from whaling, the procurement of timber is New Zealand's oldest industry—the author's grandfather supervised the procurement of kauri spars for the Royal Navy as early as 1836. The earliest production of sawn timber was by pit-saw adjacent to the earliest settlements in the Colony. Inevitably in the early years of colonization much more timber was destroyed to make room for grassland than could be absorbed by the infant industry; only the very best and most conveniently situated bush could be used.

In fairly early years some quite substantial areas of timber were acquired for milling purposes, but such well established units comprised but a small part of the industry. The bulk of production has always been from medium and small sized undertakings, mainly as a result of the land settlement policies of successive Governments. Sawmilling has thus been a migratory industry, moving from the Hutt Valley to Wairarapa, thence to the "Forty Mile Bush," thence to Western
Hawkes Bay, and from there to Rangitikei and Taranaki, and again onward to the King Country, and more recently towards the remaining North Island forests around Taupo. Southland, Nelson and even Northland sawmillers have migrated to Westland as the last substantial South Island supply.

Such migration illustrates that sawmilling has been, and still is, a short-lived operation; a fact which has dictated the measure of capitalisation and consequently the type of equipment used. Handicapped by lack of security of tenure and the wide range of log sizes to be handled, the New Zealand sawmiller merits commendation for having evolved a type of sawmill which is undoubtedly the most efficient for the type of trees and logs he is called upon to convert.

These conditions made heavy demands on those employed in the industry. With wages forming more than half the total costs, the quality of labour has been of the utmost importance. The New Zealand timber worker has shown marked ability and character. In spite of the often very unpleasant conditions of employment, strikes are almost unheard of.

Though overhead is usually a small item in these sawmills, renewal, repair and maintenance of equipment is costly. Logging methods and equipment have changed markedly over the years, the bullock team being superseded by the steam winch and then the tractor.

Over the years changes in location and equipment have been paralleled by changes in species and timber usage. The early period of settlement was the heyday of kauri exploitation. As its supplies began to dwindle, timber users turned to totara, later to matali and rimu. With the decline of matali and rimu, hitherto neglected species such as beech and tawa and the exotic *Pinus radiata* have found a responsive market.

The margin of profit in sawmilling has always been low in comparison with most industries, and since 1936 there has been price control and a tendency for granted increases in selling price to lag behind increasing costs. Apart from manpower shortage during the war years, this state of affairs led to the failure of production to keep pace with the increase in demand until the adjustments brought about in recent years.

It is generally agreed that indigenous timber production must soon steeply decline; the resulting shortage being filled by accelerated production from exotic forests. The annual increment of these exotic forests greatly exceeds the maximum timber production yet obtained by the industry. Already ambitious development schemes are being undertaken on both the private and State-owned forests, and one can confidently predict that this considerable potential wealth will be recovered by greatly expanded forest industries of material significance to the future economy of the country as a whole. For not only does the timber industry provide an avenue for a higher employment factor than most, but its products are basic to the prosperity of a great chain of ancillary industries and channels of employment. These aspects are of greater importance than the monetary return from exportable surpluses when one considers the relationships of the many and varied productive industries of the Dominion.

NEW ZEALAND JOURNAL OF SCIENCE AND TECHNOLOGY

A NOTE ON THE LIFE-CYCLE OF *ANOBIUM PUNCTATUM* DE GEER.


Author's Summary: The life-cycle of *Anobium punctatum* de Geer occupies not less than three years in air-dried sap-wood kahikatea, and not less than four years in air-dried sap-wood *Pinus radiata* when recently milled. In both timbers the life-cycle for some individuals extended to at least one year beyond the above figures. Kiln-dried timber prolongs the life-cycle but does not prevent infestation.

TIMBER PRESERVATION TESTS WITH *ANOBIUM PUNCTATUM* DE GEER.


Author's Summary: This paper describes a laboratory technique for determining the exact thickness through which *Anobium* larvae can tunnel in preserved timber and then survive in untreated wood. In general, larvae would not cross
glue lines from untreated to treated wood, but did so in the reverse direction and when timber each line of the glue line was untreated. Two preservatives were tested—one water-and one oil-soluble—each at a concentration of 5 per cent by weight. Results indicated that timbers treated in such a way as to give a preserved outer zone of up to 1/8 in. in thickness, did not constitute an impassable barrier to Anobium larvae under the conditions of the experiments. Results indicate the danger arising from cutting or other damage to wood treated by superficial methods.

NEW ZEALAND JOURNAL OF AGRICULTURE


Characteristics of the better-known pines and the uses to which they may be put are the subject of this article by H. M. Steven, formerly Assistant Farm Forestry Officer, Department of Agriculture, Wellington.

Pines are used widely for shelter in all districts of New Zealand, but few of these belts are entirely satisfactory. Before they are very old they tend to become open at the base and draughty because of the loss of the lower limbs, so that, though they still act as a break to the wind, they cause chills to stock which endeavour to shelter under them.

In general planting single-row belts of Pinus radiata is inadvisable, but five or six rows or a plantation block form the most satisfactory windbreak, especially on the poorer land where the extra feet necessary for the wider belt can be spared.

A combination of P. radiata with a hedge provides permanent low shelter, provided ample space is allowed so that the hedge is not over-crowded. Any species suitable to local conditions may be used with the pines—barberry, boxthorn, gorse, Hakea saligna and Eleagnus are satisfactory and should be put on the sunny side and fenced.

P. radiata is better not planted in a mixture with other trees as little else can compete with its rate of growth, better results being achieved if species such as P. muricata, P. pinaster or cypress are used as a marginal band. Sometimes pines are planted with other species solely for their value in giving temporary shelter which enables slower-growing, longer-living trees to become well established, the pines being cut out later. If the belt is left untouched, the pines will probably suppress the “permanent” trees completely. Eucalypts with P. radiata provide variety and both are quick growing, but, as they have few branches low down, they should be used in conjunction with a hedge.

Pinus radiata planted in plantations is useful when required for timber production, to suppress weeds such as gorse or blackberry, to utilise rough, otherwise waste country, or to control erosion. To improve the appearance and to add valuable humus to the soil the author suggests the inclusion in these blocks of some broadleaved species such as ash, oak, etc.

Other species of Pinus discussed in the article include P. muricata, which is described as the most useful secondary species. It has one advantage over P. radiata in that being of slower growth it is less likely to dominate other species in a mixture. For planting in waste areas P. muricata is not very suitable, as it is not likely to grow quickly enough to smother weeds and its timber is not of first quality. Undoubtedly its greatest value is for planting on coastal farms as the first line of shelter where the exposure is too much for P. radiata.

The maritime pine, P. pinaster, is suitable for planting on sand dunes, and as well as being hardy it seeds prolifically, so that there is much natural regeneration. P. ponderosa is another species which is not particular in its soil and climatic requirements, and if drainage is good it will thrive on moist or dry soils. It is also an attractive tree planted as a single specimen or in a mixed driveway.

P. laricio is very hardy and planting it is warranted in districts where the climate is too severe for P. radiata.

Pines grown in shelter belts of only a few rows rarely produce good timber due to the knots that develop from the large side branches; however, well-grown trees of P. radiata, preferably from block planting, can provide sawn timber useful to the farmer. The author does not consider that other species of pines grown on farms are likely to produce much valuable timber due to limitations of size, form and durability.