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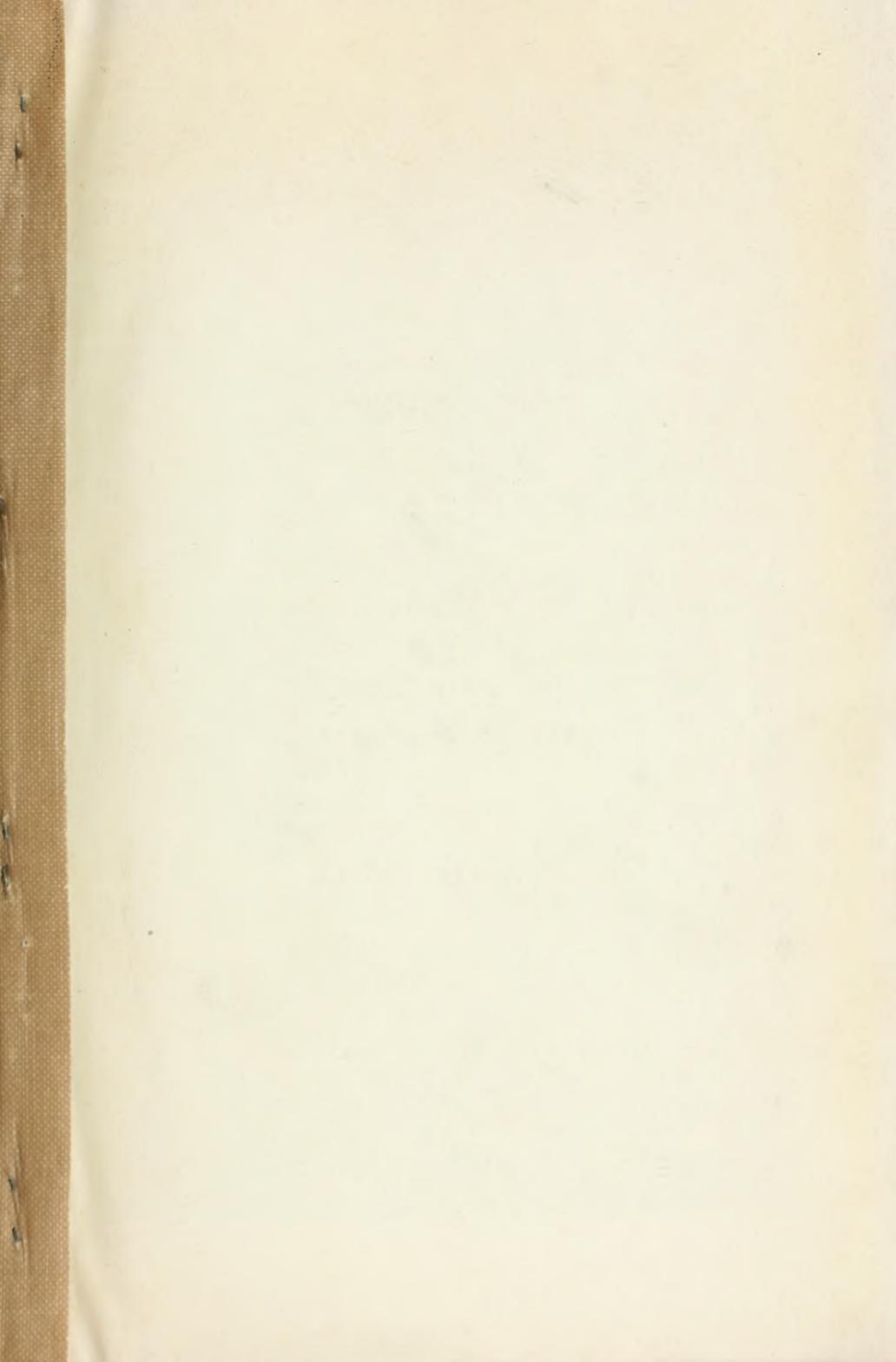
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# TASMANIAN FORESTRY

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## TIMBER PRODUCTS

AND

## SAWMILLING INDUSTRY

A DESCRIPTION OF TIMBER TREES INDIGENOUS TO TASMANIA, THEIR  
COMMERCIAL VALUE AND PROCESS OF MANUFACTURE, WITH  
METHODS ADOPTED BY THE GOVERNMENT TO FOSTER  
THE INDUSTRY

Compiled by J. COMPTON PENNY, Chief Forest Officer, under  
the Superintendence of E. A. COUNSEL, Esq., F.R.G.S.,  
Surveyor-General and Secretary for Lands

Published by authority of the Hon. ALEXANDER HEAN, Commissioner  
of Crown Lands for the State of Tasmania

SECOND EDITION



Tasmania:

JOHN VAIL, GOVERNMENT PRINTER, HOBART

1910



## PREFACE.

IN presenting the second edition of "Tasmanian Forestry, Timber Products, and Sawmilling Industry," it is observed that the information that was contained in the first edition has been carefully revised, added to, and brought up to date by the Chief Forest Officer.

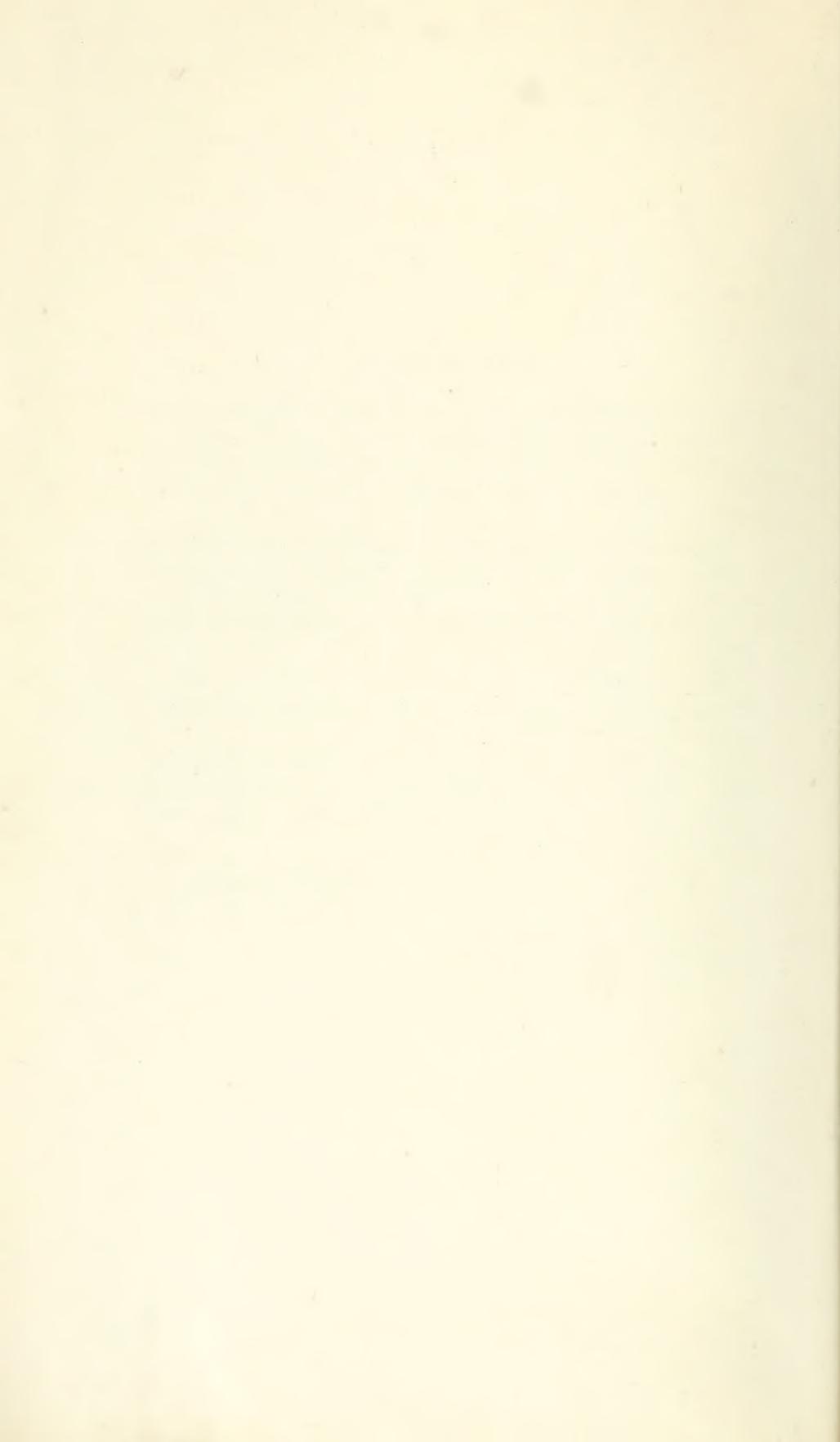
The publication of a pamphlet on Tasmanian timbers has been found to supply a want, as a means of disseminating information in regard to the value of the woods produced by the indigenous trees of the State, and the various uses for which these woods are adapted.

The number of requests that have been received for copies of this small work have far exceeded expectations, and the distribution of them has extended to all parts of the world.

It is desired to specially acknowledge the valuable services rendered by Mr. L. Rodway, Honorary Botanist to the Government of Tasmania, in the compilation of this pamphlet, and for his instructive contribution, "The Genus Eucalypt."

ALEXANDER HEAN,  
Minister of Lands and Works.

Department of Lands and Works,  
Hobart, February, 1910.



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# TASMANIAN FORESTRY.

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## A GENERAL ASPECT.

PROBABLY in no other country in the world of a similar area, and certainly in no part of the temperate zone, is to be found the variety of forest trees that exist in the State of Tasmania.

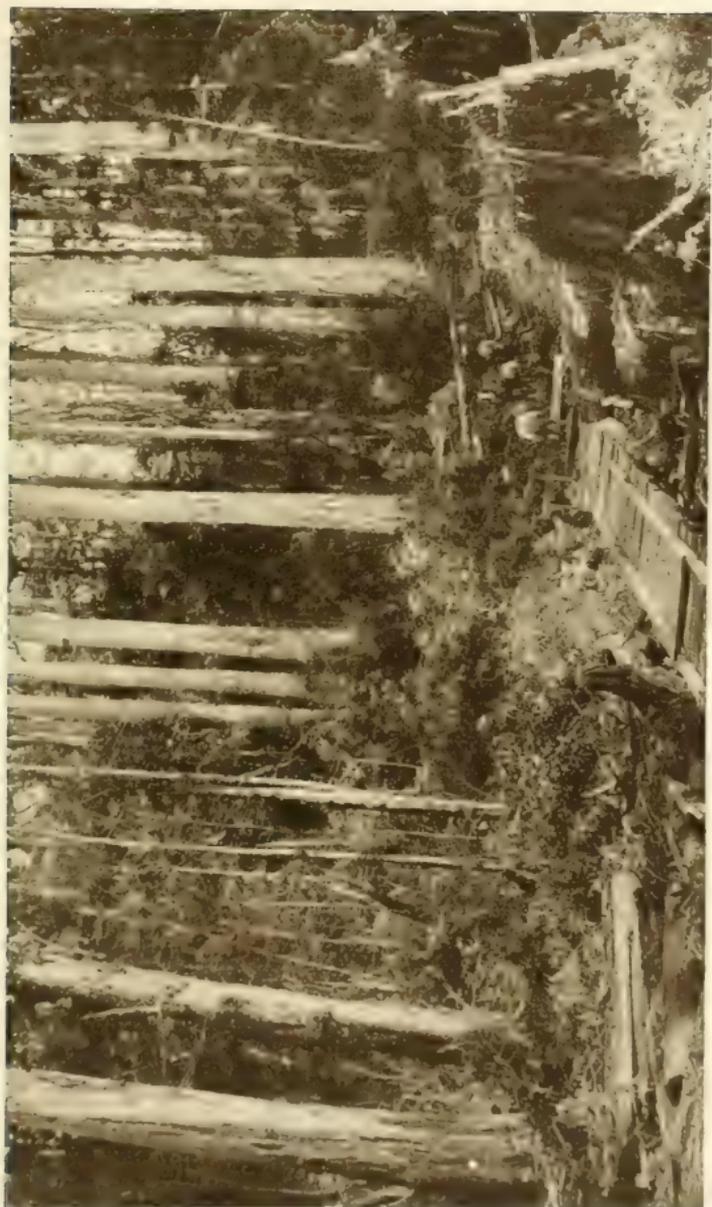
In the north-western, western, and southern parts of the island are to be found the chief timber-beds, where grow the giant Eucalypti and smaller forest trees, which produce some of the finest timbers known, and greatly add to the natural wealth of this—the smallest—of the States of the Australian Commonwealth.

Although to the ordinary lover of nature, the botanist, and explorer, difficulty is often experienced in reaching the heart of the virgin forest, by reason of its density and the broken nature of the surrounding country, he will be amply rewarded (after a struggle with the thick undergrowth of hemlock and vine, interlocked with fallen brushwood, native pear, cutting-grass, or horizontal scrub) with the many beautiful scenes which meet his eye in a journey through the Tasmanian forest. At one stage he may enter a beautiful grove of tree-ferns, untouched by fire or the ruthless axe of the bushman, overshadowing a natural carpet of green velvet of varying shades, composed of mosses and innumerable small ferns, and forming, may be, a shroud for some "giant of the forest," fallen years ago—whilst towering above all he views the barrels of the magnificent Blue Gum, Stringy-bark, and Swamp Gum (similar to the Ash of Victoria), which rise perpendicularly to a height of from 100 to 200 feet, with a diameter of from 4 to 10 feet at the butt, the whole presenting a panorama of exceptional beauty. A deep gully or ravine is probably next entered, where grow the Musk, Dogwood, Sassafras, or Silver Wattle (possibly in full bloom), of comparatively small dimensions, beautiful to the eye, yet esteemed of little or no commercial value to the sawmiller, who will eventually carve his way through in his operations upon the large and more plentiful hardwoods. In other parts may be met with the Blackwood (an ornamental and valuable furniture wood), Ironbark, King William Pine, Huon Pine, Celery-top, or Beech or Myrtle, which, with numerous others

of secondary value commercially, comprise a list of some 35 species of timber trees.

The family of Eucalypts are the trees on which the sawmiller is chiefly dependent to produce hardwood timber in quantity sufficient to meet his requirements and the demands of the industry generally; whilst the timbers of limited supply, such as Blackwood, King William Pine, and others above referred to, are valuable timbers, and fully recognised as such by those who have tested their uses in various ways.

Much could be written regarding the by-products obtainable from Tasmanian forest trees (the oil of the *Eucalyptus globulus* has now a wide-world reputation for medicinal and other purposes) which it is not possible here to enlarge upon. Suffice it to say, that in these days of scientific research the time is not far distant when much that is now destroyed as worthless in the Tasmanian forest will be utilised for many purposes now unthought of.



CONSTRUCTING A BUSH TRAMWAY. *Tasmania*

## TIMBER TREES.

### DESCRIPTION OF THEIR GENERAL APPEARANCE AND COMMERCIAL VALUE.

#### Section I.

#### HARDWOODS.

##### BLUE GUM (*Eucalyptus globulus*).

(A tree which must not be confounded with some of those similarly named growing in the mainland States.)

This valuable tree, which is almost entirely confined to the southeastern portion of the island, in proximity to the coast, has doubtless derived its name from the bluish-grey appearance of the whole plant in the early stages of its growth, caused by a waxy bloom, which always exists on the young Blue Gum. During this stage the leaves are sessile and opposite, in pairs, varying on different plants from 4 to 8 inches in length, and 2 to 4 inches in breadth. From the junction of the leaves on the stem, ridges are observed running to the next pair, which gives the small branches a square appearance. At the end of three to four years a change takes place in the appearance of the young tree—the bloom disappears, and the leaves become stalked, alternate, and pendulous, and when full grown vary from 6 to 18 inches in length and 1 to 2 inches in breadth, being long, narrow, tapering, and curved downwards at the point. A Blue Gum tree of full growth will average 7 feet diameter at the butt, 100 feet in length to the lowest branch, and from 200 to 250 feet in extreme height. In the sapling or pole stage Blue Gum grows rapidly, but when reaching maturity the growth is almost imperceptible, and it would probably take from three to four hundred years to attain its full dimensions. The rapidity of growth, however, is materially affected by the natural surroundings, trees, for instance, under a sheltering hill, or in deep moist soil, being of much more rapid growth than those in the more exposed and rocky situations. The trunk is usually straight and cylindrical, with a thick bark, composed of numerous layers of a compact, short-grained, fibrous nature, and at certain periods the outer layer dries and peels off, sometimes in long strips, whilst in other cases the bark is shed in short curly



FELLING A EUCALYPTUS TREE. *Tasmania*

chips, of which the butt of the tree never seems altogether free. The smooth bark remaining after shedding has taken place is of a bright buff colour, gradually changing to a leaden grey or green. The branches of the Blue Gum are usually few and of an erect nature.

The Blue Gum, together with other timber trees of Tasmania, is an evergreen. There is diversity of opinion regarding a period when it is stated the sap is either rising or quiescent in our trees, more especially in regard to the Eucalypti, specimens of which may be found in bloom at any period of the year. Some contend that the sap is always moving, such contention probably being occasioned by the varying local conditions in rainfall, humidity, and swampy and hilly country. One fact is undisputed, viz., that whilst at one period of the year the bark may be stripped from a tree with comparative ease, at another it can only with difficulty be removed, showing that the natural functions of the tree in regard to sap are in more active operation at one time than another. But whether this is due to the effect of a greater or less degree of rainfall and moisture, or to a purely neutral condition existent in the nature of the tree, seems open to question.

#### VALUE AND UTILITY.

Blue Gum under certain conditions is considered the most durable of the Tasmanian hardwoods, being of great specific gravity, hard and very close in grain (wavy and inlocked in the butt of the tree, especially in those grown on dry, hillside localities), and of great strength.

For wharf and bridge construction, for piles and the heavier timbers of superstructure, it is superior to anything produced in the Australian States. For bridge or wharf decking it would be hard to find its equal for durability, if laid when thoroughly seasoned.

The value of Blue Gum has long been appreciated throughout the Australian States, and in the tests to which this timber has been submitted at Dover, England, in connection with the Admiralty Harbour Works, and also at Keyham dockyards, it has been most favourably reported upon by the contractors (Messrs. S. Pearson & Sons, Ltd., and Sir John Jackson, Ltd.).

For the Dover works several shipments of Blue Gum piles, hewn square, to 18 × 18 and 20 × 20, from 70 to 100 feet in length, with a large quantity of sawn timber in junk sizes, were supplied from Southern Tasmania. The high specific gravity of the timber, its capability to withstand hard driving, and its



GIANT EUCALYPTUS TREE (E. OBLIQUA). *Tasmania*

partial immunity from the ravages of the teredo, render Blue Gum specially adapted for piling purposes. It is used also largely for railway-sleepers, railway wagon work, and wheelwright purposes (for shafts, felloes, and naves). Mr. Dudley, a woodbender, manufacturer from seasoned timbers, and one of the best authorities on the practical use of Blue Gum, has supplied excellent testimony, as given in these pages, of the value of Blue Gum for the various uses to which he applies it.

Tables of strength, and other tests, weight, &c., of Blue Gum, and other timbers subsequently dealt with, together with testimonials from reliable sources, will be found on the later pages in this publication.

#### STRINGY-BARK (*Eucalyptus obliqua*).

The Stringy-bark, so called, as its name implies, from the fibrous nature of its bark, is probably the most valuable tree that Tasmania possesses, inasmuch as it produces a timber of excellent quality, suitable for all constructive work, and by reason of its general distribution throughout the island gives the supply of timber requisite for extensive sawmilling operations.

Although generally distributed, probably the finest beds of Stringy-bark exist in the north-western and the south-eastern portions of the State, in coastal and semi-coastal situations—and here the trees attain gigantic proportions.

In this tree the leaves are never sessile, nor is waxy bloom to be found at any time thereon, as is characteristic of the young Blue Gum. They are smooth, oblique-shaped, and of a dark-green colour. The average tree at maturity is of even greater dimensions than the Blue Gum, often attaining a height of 250 feet, with a diameter of from 12 to 14 feet at the butt. The bark is exceedingly fibrous, brown in colour, the outer layers much resembling the husk of a coconut, the inner layers near the sapwood being compact. Had nature given tenacity of fibre to this bark the possibilities of a valuable by-product in the manufacture of cordage, mats, paper, &c., would be largely increased. At present it chiefly finds use in the kindling operations of the bushman as he "slings his billy" or makes a roof for his temporary forest home. The branches of the Stringy-bark are in most cases considerably more numerous and wide-spreading than those of the smooth-barked trees. The timber varies in colour, in some cases being of a light-brown, in others (chiefly in the younger race) of pale straw-colour.

Defects, which are usually more or less existent in all Australian hardwoods, such as gum veins and blotches, dry rot, or "speck,"

are more apparent in Stringy-bark than in Blue Gum, consequently a larger percentage of the log is "waste" in the process of manufacture. As, however, the chief blemishes are in the majority of cases confined to particular portions of the tree, the value of the timber retained for commerce is unimpaired.

#### VALUE AND UTILITY.

Stringy-bark is, as already stated, esteemed as the most valuable general-purpose timber produced in Tasmania. It is, generally speaking, more open and free in grain, and of lower specific gravity, than Blue Gum, but equally durable and adapted for many similar purposes for which that timber is used, such as in piles, wharf and bridge timbers, &c. For mining purposes (underground and surface work) it is largely in demand. Railway-sleepers have a life equal to, if not greater than, Blue Gum. For house-building, being of a softer nature and more easily worked, it is more generally used than the close grained Blue Gum. When seasoned it is in general demand for flooring, dado, and internal fittings; it polishes well, and when planed, very much resembles English Oak, picture-framing made of Stringy-bark being extremely difficult to detect from that of Oak. Wood-paving is also one of the uses for which Stringy-bark is well adapted, possessing as it does the requisite qualities for that purpose—viz., durability under wet and dry conditions, evenness of wear, with a minimum polish under traffic.

Prejudice to Stringy-bark timber is sometimes set up by the appearance of seasoning cracks, which mostly appear in the ends of the freshly-cut timber—when cut green and exposed to stringent conditions of sun and wind. These, although not desirable so far as appearance is concerned, do not really affect strength and durability. The cracks at first noticeable gradually close as the process of seasoning proceeds, until the whole piece again becomes thoroughly consolidated.

#### ASH, OR SWAMP GUM (*Eucalyptus rostrata*).

This timber, known as the Ash, and more generally as Swamp Gum (from its partiality in growth to low-lying and swampy localities) is identical with the Mountain Ash of Victoria, and, together with other species of Eucalypts, is distributed throughout Tasmania.

Whilst in outward appearance it greatly resembles the Blue Gum, and is not easily distinguishable from it by casual observa-

tion, in several characteristics it differs materially. The leaves, though of the same form as in the Blue Gum, are much smaller and thinner, the bark also being about half the thickness. Swamp Gum is of very rapid growth, and the timber is much more open in grain than either Stringy-bark or the Blue Gum. Like these trees, however, it attains immense proportions, probably of greater average size than either of them.

#### VALUE AND UTILITY.

Whilst Swamp Gum timber cannot be classed with Blue Gum and Stringy-bark in regard to durability for general purposes (although cases have been known in which it has lasted equally well), if carefully selected, well clear of heartwood, there are many purposes to which it is admirably suited. It is of low specific gravity, floats easily in sea-water, is light-brown to white in colour, open and free grained, and easily worked. For inside work in house-building it is largely used, but for use in the ground or exposure to the effects of the weather it cannot be highly recommended. It is very largely used for paling-splitting, and in connection with the fruit industry it is employed in the manufacture of packing-cases.

#### PEPPERMINT (*Eucalyptus amygdalina*).

The Peppermint grows generally throughout the State in the open situations and on poor land. It splits freely, and is of a more stunted habit than other Eucalypts. The leaves of the true species are numerous and small, giving the tree a thick, bushy appearance.

#### VALUE AND UTILITY.

The timber is good and durable, especially when placed in contact with the ground, and therefore for fencing-posts it is generally preferred to any other class of timber. For roofing purposes Peppermint shingles are highly esteemed.

Like some other hardwoods, it is sparsely scattered throughout Tasmania, and does not exist in sufficient quantities to make it available for export.

#### IRONBARK (*Eucalyptus sieberi*).

This timber tree, which is confined to the North-East Coast of Tasmania, is similar to the Ironbark of the Mainland. It is not generally known commercially. In appearance it is similar to the

Stringy-bark. The bark, however, is darker in colour, very thick, and furrowed.

#### VALUE AND UTILITY.

The timber is adapted for many general purposes similar to those for which Blue Gum and Stringy-bark are used, but beyond filling local requirements it has not been brought into general use for sawmilling and export purposes.

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## Section II.

### ORNAMENTAL AND OTHER TIMBERS.

#### BLACKWOOD (*Acacia melanoxylon*).

Blackwood is the most valuable of the fine-grained timber trees of Tasmania. It is generally distributed, but is found in greatest abundance in the west and north-western areas. It does not, however, exist in sufficient quantity to supply more than a moderate demand of local and interstate requirements. The tree does not attain the proportions of the Eucalypts, being of an average height of from 60 to 80 feet, with a diameter of from 3 to 6 feet.

The timber is close-grained, of a dark-brown colour, sometimes of lighter shade, much resembling Cedar in appearance. It gives a splendid polished surface, and the figured wood from some of the trees is exceedingly beautiful, the effect in artistic panelling and the best of cabinetmakers' work being highly pleasing. It is sometimes called "fiddle-back," from the resemblance of its barred and mottled surface to that of the back of a violin.

#### VALUE AND UTILITY.

Blackwood is extensively used for the better class of furniture, panelling of railway-carriages, &c. The well-known billiard-table makers, of Melbourne, Messrs. Alcock & Sons, have for many years used Blackwood largely in the manufacture of billiard-tables. Messrs. Collard & Collard also use this very valuable timber for pianos.

#### BEECH OR MYRTLE (*Fagus cunninghami*).

The Beech, or, as locally called, Myrtle, is fairly well distributed throughout Tasmania, and plentiful in the western and north-western districts, where it attains dimensions exceeding those of the Blackwood. It is of two kinds. One resembles in character the hardest and heaviest English Beech, and has been favourably reported upon by Messrs. Ransome, of Chelsea, both for strength and the high finish it takes; is of a dark pink colour when freshly cut, quickly fading to a lighter shade with brownish tint; and is a timber that stands traffic well, acquiring a smooth surface, which does not shred or tear away. The other variety is white and soft, splits excellently, and burns well, even when quite green.



PULPIT OF TASMANIAN BLACKWOOD, ST. PAUL'S CATHEDRAL,  
MELBOURNE.

The accompanying illustration in Blackwood shows the adaptability of this wood to the most technical work of the true artist. Both Blackwood and Hume Pine will be found to lend themselves very readily to work such as the carving shown in the illustration. GEORGE S. PHIPPS, F.L.S., F.R.G.S., F.R.H.S. (London). — *Arts and Crafts*.

## VALUE AND UTILITY.

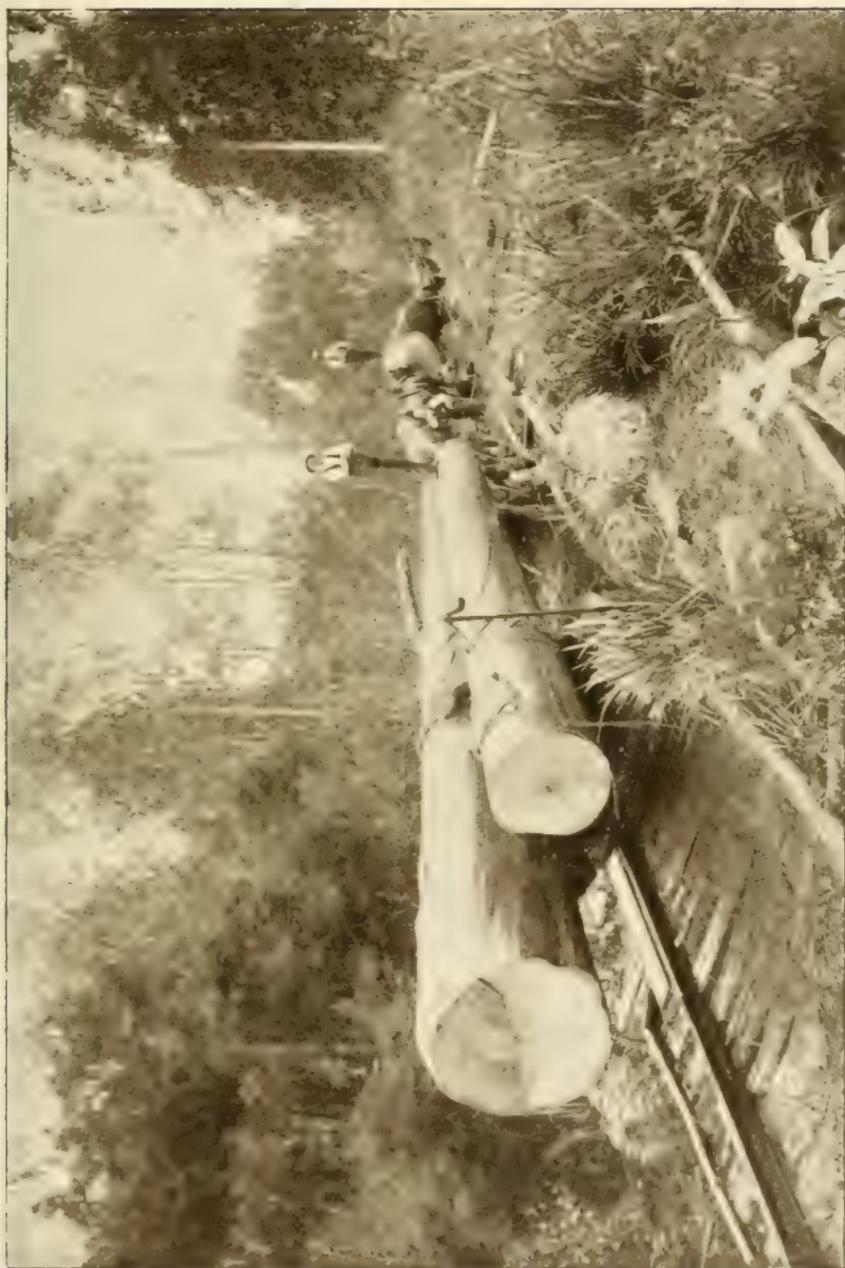
The value of the Beech is not sufficiently appreciated in Tasmania, and little is exported, probably owing to the difficulty in conveying the timber to a loading port in the districts where it grows in abundance. For flooring it is exceedingly durable, and gives a beautiful surface, also for furniture and decorative work its value is fully recognised by many.

The Tasmanian Myrtle tree (*Fagus cunninghami*), says the "Timber Trades Journal," has found a market in this country for fret-saw work on account of its density and superior carving qualities. Up to the present, however, only inferior parcels have been shipped, but we believe when the wood is cut in its season and imported in planks, say 2-inch, 3-inch, and 4-inch, of good widths, instead of being shipped in the log, there is nothing to stop its having a ready sale for sundry cabinet work. We hear of a sale of 20,000 feet of 1-inch boards to the piano trade, of this timber, which, we take it, is for inside work and for veneering on. It will be interesting to hear in the future the result of this experiment. For panelling and sundry work myrtle wood will be found to be highly artistic, especially if allowed to remain unpolished, and would make a good substitute for Cedar. Moreover, the wood is plentiful, and can be obtained in excellent dimensions, say up to 40 inches wide, without a knot. There seems to be a good future in store for this wood if rightly worked.

HUON PINE (*Dacrydium franklinii*).

The Huon Pine, which derives its name from the locality in which it was first discovered, in the Huon District, doubtless produces the most durable timber known in this State. It grows in abundance in the low-lying localities of the rivers of the West Coast of Tasmania, but practically all timber within easy access has been disposed of. Of what remains, the difficulties to be overcome in bringing it out of the forest are almost insurmountable. It is mainly done by floating the logs down the rivers in flood-time. Huon Pine is therefore only obtainable in limited quantity, and not more than sufficient for local and interstate requirements.

The wood is white, contains little sap, and works easily. It is much in demand for furniture manufacture, being free of grain and very durable. For boat-planking and joinery work it is far superior to any of the imported Pines.



LOGS ON TRAMWAY

Tasmania

KING WILLIAM PINE (*Athrotaxis selaginoides* and *A. cupressoides*).

This Pine, though of very different description from the Huon Pine, is practically of equal commercial value, and is also found chiefly in the western and inland portions of Tasmania, and in limited quantities. When seasoned it becomes very light, of a pale pinkish colour, very straight and open-grained.

It is largely used locally by cabinetmakers and joiners, also by boat-builders, its qualities of lightness, toughness, and strength rendering it very suitable for the manufacture of furniture and for boat-building.

CELERY-TOP PINE (*Phyllocladus rhomboidalis*).

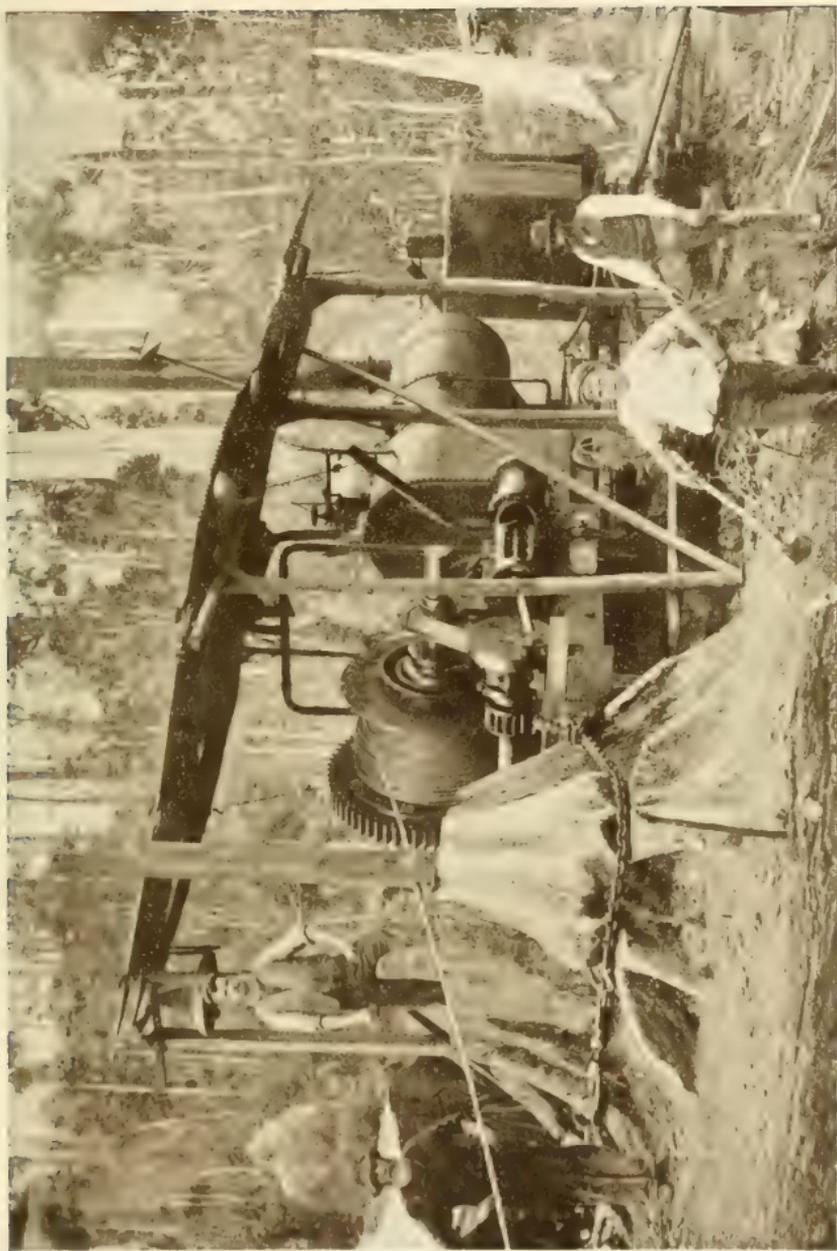
This Pine, which derives its name from the likeness of the leaves to those of the Celery, is another valuable tree, which is generally distributed throughout Tasmania, but in limited quantities.

The timber is strong and lasting, and, owing to the absence of shrinkage, is very much esteemed for flooring-boards and other internal fittings in house-construction, railway-carriage building, &c.

Sufficient of this Pine is not obtainable for the purpose of an extensive export trade.

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The timbers that have so far been referred to are those which may be classed as of primary importance in the Timber Industry of Tasmania in connection with the local or the export trade.



BUSH LOG-HAULER, Tasmania.



**SILVER WATTLE**  
(*Acacia dealbata*).

Locality: General. Dimensions: Up to 50 feet in height, and from 1 to 2 feet in diameter. The leaves are of a silvery green, hence the name. Timber not in general use, except for staves, of which a great number are used in the manufacture of tallow and other casks. Bark used for tanning purposes.

**BLACK WATTLE**  
(*Acacia decurrens*).

Locality: Chiefly in Eastern and Midland districts. Dimensions: Up to 40 feet in height, and to 18 inches diameter. Leaves and bark of a darker colour than those of the silvery variety; timber, although similar in nature, is tougher and heavier. Black Wattle bark is very valuable for tanning purposes, and is exported for this purpose to the Australian States and foreign countries in large quantities.

**SHE-OAK**  
(*Casuarina quadrivalvis*).

Locality: Widely distributed throughout the open country of the State. Dimensions: Small of growth—up to 30 feet in height, and from 6 to 8 inches in diameter. Chiefly in demand for firewood, timber of She-oak having excellent burning properties.

**BULL-OAK**  
(*Casuarina suberosa*).

Similar to the She-oak in general details.

**LEATHERWOOD**  
(*Eucryphia billardieri*).

Locality: Western and Southern portions of State. This tree does not assume large dimensions, and timber is not in general use. Excellent for axe or pick handles, being tough and durable.

**LANCEWOOD**  
(*Erastemon squameus*).

This small tree is not generally distributed throughout the State. Timber is yellow in colour; useful for shafts, tool-handles, and such like. Supply small.

IRONWOOD OR  
NATIVE OLIVE  
(*Natela ligustrina*)

Not found in any quantity. Trees are of small dimensions, producing timber of extremely hard nature, resembling *lignum vitæ*, and is used for similar purposes. It takes a splendid polish.

HORIZONTAL  
(*Anodopetalum biglandulosum*).

Low-growing branchy tree, found chiefly in the West and South-western districts. Timber is very flexible and tough, and excellent for use as handles for picks, axes, &c.

DOGWOOD  
(*Pomaderris apetala*).

Of limited supply, and not generally distributed, being confined to the Counties of Kent, Buckingham, Devon, and Wellington. Trees average 30 feet in height, and 12 inches in diameter. Timber is useful for cabinetmakers' work. Boles on trunk give excellent figured veneers. Small tree, of limited supply.

TALLOW-WOOD  
(*Pittosporum bicolor*).

BOX  
(*Bursaria spinosa*).

Common in various parts of the State. Small in dimensions; wood close-grained, of creamy colour, and useful for turnery and carving.

PINKWOOD OR  
ROSEWOOD  
(*Beyera viscosa*).

A small tree, producing close-grained timber, of a reddish colour, and useful for cabinetmakers' work.

WARATAH  
(*Telopea truncata*).

A small tree, found chiefly in the higher localities. The flowers of the Waratah are its chief attraction. Timber is used from some of the larger trees for inlaying work, the grain being very handsome.

NATIVE CURRANT  
(*Leptomeria hillardieri*).

NATIVE LAUREL  
(*Anopterus glandulosus*).

LABURNUM  
(*Gonardia latifolia*).

MINT TREE  
(*Prostanthera lasianthes*).

NATIVE BIRCH  
(*Dodonaea viscosa*).

NATIVE CHERRY  
(*Eucarpus cupressiformis*).

These trees, in reality bushes, are of practically no value, except for the smaller articles in turnery and cabinetmakers' work.



BLUE GUM FOREST (EUCALYPTUS GLOBULUS).

## Section IV.

### THE GENUS EUCALYPT.

By L. RODWAY.

This genus of shrubs and trees forms the prevailing constituent of Australian forests. The members of it are commonly known as Eucalypts, or Gum-trees. Though a large genus, both in numbers and species, containing more than 150 forms, and dispersed throughout Australia, it is practically confined to that region, about three species extending beyond towards the Indian Archipelago. Eucalypts belong to the Myrtle family, to which also belong Teatrees, Bottlebrushes, and 40 other genera of Australian shrubs and trees, which together form a vast assortment of Myrtles which is peculiarly Australian. The family is not so copiously represented in any other part of the world. The tree we commonly call Myrtle has no right to the name; it is a true Beech, and should be called such. Eucalyptus is very close to the Australian genus Angophora, and is probably descended from it, and possibly in comparatively recent times. Mr. R. M. Johnston has described two Eucalypts from leaf impressions in Tertiary deposits, but the identification is open to question.

Though Eucalypts are so characteristic of Australia, and so widely distributed, each species, with few exceptions, has a restricted natural home, and very few are common alike to Eastern and Western Australia. Which is the centre from which they migrated is quite unknown, nor do we know definitely that the genus originated in Australia. No Eucalypt is native of New Zealand or South America.

Like all the rest of the Myrtles, Eucalypts are evergreen. The leaves are always of simple outline, and the primitive condition appears for them to have been attached to the stem directly, that is, without stalks, and in opposite pairs. In a few cases this condition continues throughout life, but as a rule sooner or later the foliage alters in character, each leaf becoming stalked, singly inserted, and more or less pendulous. This appears an adaptation to life in a region of excessive light.

The genus is remarkable for the quantity and variety of essential oils and allied compounds stored in the green tissues. The leaves store these in subcutaneous glands that appear as pellucid spots.

The pendant condition of the leaves makes Eucalypts bad soil protectors. When undergrowth is absent the soil is subject to

direct isolation, and suffers considerable injury accordingly. A Gum forest is not an effective soil-producer, as the leaf-shedding is not copious, and does not rapidly decompose.

Eucalypts are very accommodating with regard to soil and moisture. Size is influenced largely by protection from excessive influence of drying winds. Given this protection, a Gum-tree will do as well on the East Coast, with a 12-inch rainfall, as in the superfluous precipitation of the West. A dry or moist atmosphere alone has little effect; soil moisture is the principal desideratum. Variation of temperature, provided it does not sink too low, only affects rapidity of growth. But Eucalypts are very sensitive to the range below freezing point, consequently in our landscape species are clearly marked off in zones, according to altitude. From sea-level to the top of Mt. Wellington there are three zones—first, of Blue, White, Stringy, and Peppermint, below 1200 feet; second, Urn Gum and Brown Gum, about 2000 to 3000 feet; above that, Mountain Peppermint. Connecting zones one and two are mainly Swamp Gum and Gum-topped Stringy. Eucalypts of the upper zones will not thrive at a lower altitude. Urn, Brown, Mountain Peppermint, Cider, and Dwarf resent a low altitude, even when grown from seed. Altitude alone has nothing to do with this, as these do well in England at a low altitude.

Eucalypts received the name of Gum-trees from the veins of gum kino commonly found in the wood, and often seen exuding from the bark. The presence of kino is a diseased condition, due to the entrance of a micro-organism through a superficial wound. The lignin of the wood fibres is reduced to a sugar, which combines with the ever present tannic acid to form kino. The disease may extend for a considerable distance along the course of the same year's wood, and only slowly attacks older layers, but may accumulate in sufficient quantity to form a thick vein. The disease does not as readily attack the medullary rays as the woody fibres.

Eucalypt wood varies greatly, according to species, in weight, form of grain, durability, resistance to stress and strain, and in colour; but in structure there is a close similarity in all the species. The wood consists principally of fibres of medium length, whose walls are more or less thickened, according to whether formed rapidly or slowly; some are marked by small bordered pits, others by minute oblique slits. There are no true vessels in the body, but only in the first formed portion of the wood; their place is taken by large calibred ducts with thin walls arranged in succession, so as to function as vessels. The walls of these ducts are copiously

marked with bordered pits, where they touch the wood-fibres. The medullary rays are numerous, seldom broad, and in most instances only one cell thick. They bear small simple pits, except where they abut on the ducts, and there have large round or oblong pits. The durability of the wood largely depends on the tannins with which some of our gum-woods are impregnated.

Like all other woods, especially hardwoods, Eucalypt timber varies in character greatly, according to the conditions under which it has been grown, and the true quality of our timber for purposes of higher construction can only be properly appreciated when this shall receive its full recognition. At present timber is cut and marketed too often simply as hardwood, with very seldom any record of species; never of age or condition of growth.

Some of our Gums have normally a very straight grain—Swamp, Stringy, Brown Gums, and Black Peppermint—enabling the wood to be split into palings and shingles. Others, as Blue Gum and Red Gum, have a considerable curvature of the fibre. But any may take on an abnormal twist, considerably modifying their utility. The commonest form is for the wood fibres to be placed at an angle to the erect, so the grain forms a spiral. This spiral may be to right or left, without reference to species or local condition. Such twisting renders the wood worthless. Another modification occasionally met with is where the fibres maintain an erect setting, but wave in all directions along their course, producing the grain known as fiddleback. Either of these conditions is assumed while the tree is very young, and when once begun continues through life. The twisting appears to be due to the wood fibres of such a tree elongating beyond their power to overcome resistance to their sliding growth, when accommodation to space has to be made by a lateral or spiral curve.

In trees that shed their leaves in winter, it is the rule for the new leaves and flowers to burst out of the buds and attain maturity in a remarkably short space of time. In order to enable the plant to do this it is necessary for it to store up a considerable amount of reserve food in the previous season. This food is a form of starch, and is stored principally in the medullary rays. Starch has little affinity for water, contains but little, and does not attract it. Consequently in the winter condition of the wood of such a tree, the contained water may be got rid of with little difficulty. When active growth is taking place the contained food is in the form of a sugar, a substance which attracts water and holds it with great avidity. If wood is taken from a tree in this condition it is very difficult to eliminate its moisture. For this



LOADING LOGS ON MILL WAGONS, Tasmantia.

reason it is best to cut such timber in the autumn or winter. A forester speaks of it as cutting when the sap is down, but the quantity of sap is not the important matter; what is, is to cut when the contained food has no strong affinity for water, and therefore readily parts with it. Evergreen trees form food whenever temperature is not too low, and, except in rare instances, where provision has to be made for an extensive outburst of flowers, do not store much food in a starchy condition. The food in the tissues is mostly in the sugary state, no matter what the time of year may be. The relation of moisture in the timber is mainly influenced by the conditions of the soil. The timber produced on alluvial flats is of less dense fibre than that of rocky hills, and is in consequence much more difficult to season. Eucalypts grow all the year round, and are as suitable for cutting at one season as another. The food is as active and water-contained practically as much in winter as in summer.

Eucalypts growing at a considerable altitude are subjected to a winter cold of greater intensity and consistency than those living at a low elevation. Their periods of growth are better marked. The winter wood is formed slowly, and the fibres are greatly thickened. The summer wood is formed with relative rapidity, and the thickening of the walls of the fibres is much less. We find in trees in such a locality well-marked annual rings of winter and summer wood. In trees at a lower elevation these rings are not well marked, and their recognition is further obscured by rings of hardened fibres produced in response to a shortage of water. If during summer a long period of drought occurs and a tree grows in such a situation that its water-supply is affected by it, the wood produced during that period will be scanty, and the fibres thickened; in consequence of this, we shall have a supplementary ring. The number of rings in a tree grown at a low elevation is often greatly in excess of the number of years lived. This has given rise to the assertion that a Gum-tree forms two layers of wood per year, which is not necessarily so.

The result of the evergreen character of Eucalypts renders their wood more difficult to season than that of deciduous trees cut at the right season. At the same time, no sufficient effort has been made to ascertain the best methods of seasoning our woods. Till that is done we cannot expect to show our wood to the best advantage. When we select woods required for high technical purposes, according to species, age, and conditions of growth, and season them properly, then, and not till then, shall we properly demonstrate their intrinsic worth. It has often been urged that our Gums should

be effectually ringed and allowed to dry before cutting. This does not seem to suit the timber for two reasons. The rapid drying appears to render the wood more brittle, and as our trees attain an enormous size and great weight, the felling of them in dry condition is responsible for great concussion, resulting in injurious shakes.

A Eucalypt forest will readily replace itself if conditions are suitable, and the principal condition required is that the young seedling shall not be subjected to drought. When once a district has been so denuded of trees and shrubs that the surface soil is exposed to drying winds, no more young gums will show themselves, but in our wet southern and western districts the forest is readily renewed; not so in our wind-swept midland plains.

Natural forests do not give the greatest returns from the land, but our woodlands are so extensive, and the price of the timber so low, that there is little temptation to bring our forests within a scheme of scientific attention. Yet we have so much to learn in this direction that at least experimental areas should be planted for the purpose of ascertaining the best forest conditions under which a high-class timber may be produced from our native trees, as well as exotics.

Our Gums may be naturally divided into two sections. One of these contains Stringy-bark, Peppermint, Swamp, Weeping, &c.; the other, Blue, Manna, Cider, Red, and some others. The practical man will always detect the one section from the other, but there is only one feature that can be suggested to the student by which he may know them, and that is by the shape of the anthers. In the first section the two halves of the anthers diverge below so as to give it the appearance of a kidney; in the other the two halves are upright and parallel. The following is a list of our Gums, with their popular names, but it must be remembered that these latter names are not rigidly used in all districts.

Section with kidney-shaped anthers:—

Stringy-bark .....	<i>E. obliqua</i> , L'Her.
Gum-topped Stringy .....	Mostly <i>E. obliqua</i> , var.
Swamp Gum .....	<i>E. regnans</i> , F. v. M.
Black Peppermint .....	<i>E. amygdalina</i> , Lab.
White Peppermint .....	<i>E. linearis</i> , Dornh.
Blue Peppermint .....	<i>E. risdoni</i> , Hooker.
Bastard Blue Gum .....	} <i>E. risdoni</i> , var. <i>hypericifolia</i> .
Cabbage Gum .....	
Mountain Peppermint .....	<i>E. coccifera</i> , Hooker

Ironbark .....	}	<i>E. sieberiana</i> , F. v. M.
White-topped Stringy .....		
Weeping Gum .....		<i>E. pauciflora</i> , Sieber.

## Section with parallel anther-cells:—

Blue Gum .....	<i>E. globulus</i> , Lab.	
Manna Gum .....	}	<i>E. viminalis</i> , Lab.
White Gum .....		
Red Gum .....	<i>E. acervula</i> , Hooker.	
Apple-scented Gum .....	<i>E. stuartiana</i> , F. v. M.	
Cider Gum .....	<i>E. gunnii</i> , Hooker.	
Brown Gum .....	<i>E. muelleri</i> , Moore.	
Heart-leaved Gum .....	<i>E. cordata</i> , Lab.	
Urn Gum .....	<i>E. urnigera</i> , Hooker.	
Dwarf Gum .....	<i>E. vernicosa</i> , Hooker.	

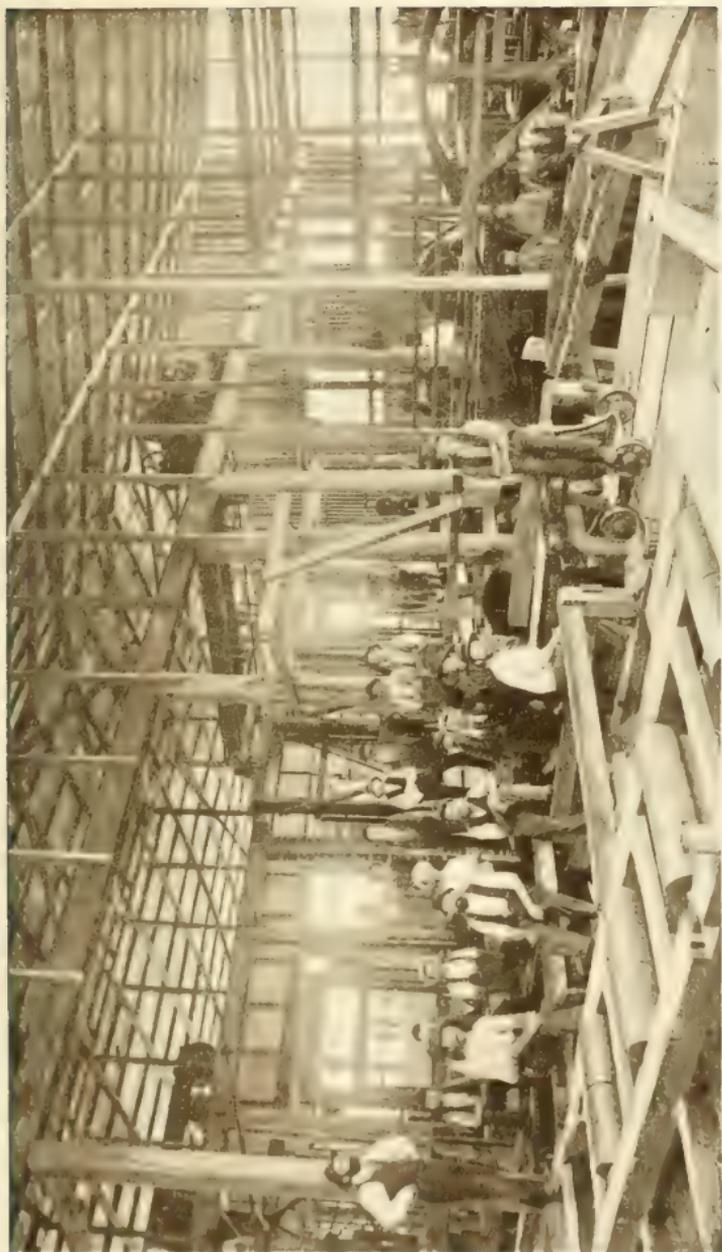
The following descriptions should enable the student to discriminate between species:

*Stringy-bark (Eucalyptus obliqua, L'Heritier).*—In shady situations with a tall preponderating stem with sub-erect branches; in the open, a medium-sized tree, with spreading branches and a poorly defined stem in the branched portion. Bark persistent, thick, and fibrous. Leaves 4 to 5 inches long, very unequal sided, ovate, acute, veins few, not widely spreading, freely netting. Flowers many, in axillary umbels. Operculum very short, convex. Calyx about 3 lines diameter, tapering into the stalk. Stamens all perfect; anthers with diverging cells. Fruit pear-shaped, about 4 lines diameter; capsule sunk.

*Gum-topped Stringy.*—This name is used pretty generally for any Gum with stringy-bark below and smooth above. The typical form is generally considered to be a variety of *E. obliqua*. A tall, erect tree; the bark thin and fibrous generally to the lower branches; leaves small, 1 to 2 inches long, unequal. Flowers and fruit similar to those of Stringy-bark, only smaller. Wood, when fresh, yellow.

*Scamp Gum (Eucalyptus remans, Mueller).* Very similar to the last, only the bark not stringy and stripping off in long ribbons, as in Blue Gum. Leaves and fruit approaching the type of Peppermint. Fresh wood is pink.

*Blue Peppermint (Eucalyptus amygdalina, Lindl. & Murray).*—Most variable in stature, flowering when a small shrub or attaining 100 feet or more. Stem preponderating, except in some open situations, where the branches may spread. Bark thick, persist-



INTERIOR OF SAWMILL, PORT ESPERANCE.

ent, and rather fibrous in the typical form, deciduous and smooth from the base in others. Leaves very variable, narrow lanceolate in the type, but varying from narrow linear to ovate; nearly equally-sided, veins few and obscure, 2 to 4 inches long. Flowers many, in axillary umbels. Operculum short, convex. Calyx hemispheric, mostly 2 lines diameter, sometimes more, anther-cells diverging. Fruit nearly hemispheric, rarely tending to pear-shaped, about  $2\frac{1}{2}$  lines in diameter; capsule level with the rim or slightly sunk.

It is not possible by any character to clearly mark off this species from Swamp, Blue Peppermint, or White Peppermint. Mueller got over the difficulty by uniting them all, but an acquaintance with the various forms in the field will not permit that. Black Peppermint has characteristic structure when very young. The shoot is glandular; the leaves are also minutely so, and they are narrow, often reddish, generally opposite, and narrowing at the insertion. In White Peppermint in the young state there is less glandular leaves, not very narrow, pale, and the base is broad, but only attached by the obsolete stalk. In Blue Peppermint the young, and sometimes all the leaves, are broad bluish-grey, and united across the stem by broad bases.

*White Peppermint (Eucalyptus linearis, Derhardt).—*This differs from Black Peppermint in the bark being white and coarsely scaly only at the very base, and the leaves are very narrow and fruit smaller.

*Blue Peppermint, or Risdon Gum (Eucalyptus risdoni, Hooker).—*A small medium-sized tree, with a branching, often drooping, tendency. Leaves in the typical form opposite and connate, but often, without reference to size or locality, becoming, except where very young, alternate, stalked, oblique, narrow, ovate-lanceolate, few and obscurely veined, 2 to 6 inches long. Flowers many, in axillary umbels. Operculum very short, nearly flat, and rough. Calyx about 3 lines diameter, hemispheric; anther cells diverging. Fruit hemispheric, or sometimes pear-shaped, about 4 lines diameter; capsule hardly, or not at all, sunk. A variety of this tree is common in low-lying poor country. It has very broad leaves, sometimes opposite, at others alternate, always with a bluish bloom-like appearance. The juvenile leaves are opposite and united across the stem, as in the typical Blue Peppermint, but they are always much narrower and longer. It is generally called Cabbage Gum or Bastard Blue Gum.

*Mountain Peppermint (Eucalyptus coccifera, J. D. Hooker).—*This is a small tree, only found towards the summit of our moun-

tains. It has a nearly white, smooth bark. The young leaves are small, opposite, and broadly oval; the leaves or mature branches are stalked, alternate, and broadly lanceolate, ending in a narrow curved point. Buds are club-shaped, with a nearly flat, small, nodulose operculum. The fruit is large, with a very broad and flat top, and usually, but not always, placed three together. On some of our mountains the fruit is much smaller than in the type, and the tree is then generally called False Cider.

*Ironbark (Eucalyptus sieberiana, F. v. Mueller).*—A tree often attaining a considerable size, the main stem tending to predominate, but not so much so as in *E. globulus*. Bark persistent, thick, and furrowed to the branches. Leaves alternate, oblique, lanceolate, rather broad, 4 to 6 inches long; the veins not numerous, much smaller than the midrib, and coming off and travelling at a very acute angle. Flowers many, in axillary umbels, the common stalk much flattened. Operculum very short, hemispheric. Calyx hemispheric, about 2 lines diameter; outer stamens without anthers: anthers with diverging cells. Fruit pear-shaped; capsule sunk; about 4 to 6 inches diameter. In low-lying sandy places this tree may retain the dimensions of a straggling shrub. On the hills it is very erect and slender, with persistent fibrous bark only at the base and whitish smooth bark above. In this form it is known as White-topped Stringy. This condition was commonly referred by Mueller to *E. haemastoma*, Lin., and as such has been included in our flora. It is better cut out. Not related to the Ironbarks of Australia.

*Weeping Gum (Eucalyptus pauciflora, Sabur).*—Attaining in favourable situations 60 to 70 feet or more, and erect; otherwise it is much branched, and rather spreading. Bark smooth, and deciduous from the base. Leaves alternate, oblique, lanceolate, and usually rather broad, 4 to 8 inches long; the primary veins bold, few, nearly as large as, and nearly parallel with, the midrib, giving the leaf a penninerved appearance. Flowers many, in axillary umbels. Operculum hemispheric, very short. Calyx hemispheric, about 3 to 5 lines diameter. anther-cells diverging: stamens all, or nearly all, complete. Fruit pear-shaped, about 4 to 5 lines long; capsule sunk.

*Blue Gum (Eucalyptus globulus, Labillardiere).*—Tall, erect tree, even in exposed situations, tending to preserve a preponderating main stem till the high forest age is reached. The branches few, and acutely diverging. Bark deciduous, stripping off in long shreds, as in Swamp Gum. Mature foliage, alternate, stalked, lanceolate, acute, oblique, 6 to 12 inches long, 1 to 2 inches wide;

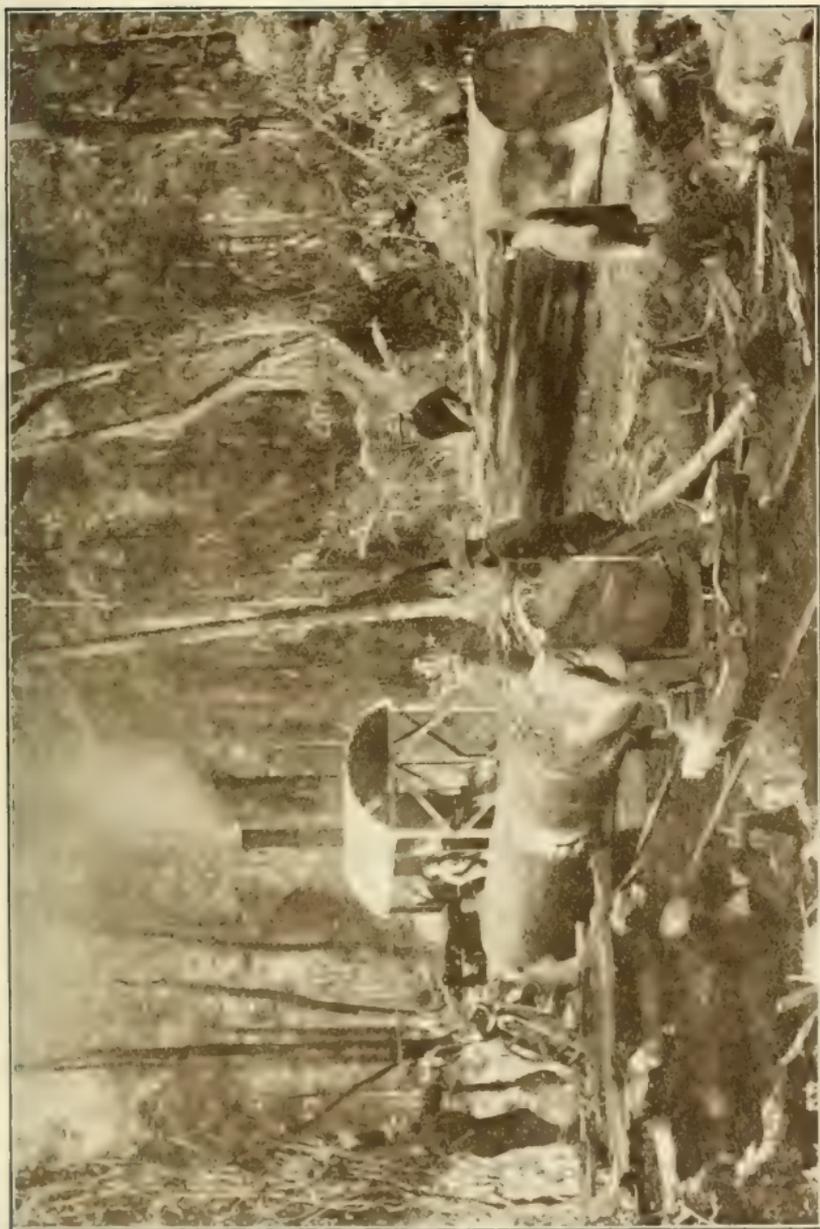
juvenile leaves broad, opposite, and pale. Flowers solitary, in leaf axils. Outer operculum smooth, shed while the bud is approaching maturity. Calyx and inner operculum rough, warted, and obscurely four-ribbed; mature calyx about  $\frac{3}{4}$ -inch in diameter; anther-cells parallel. Fruit broadly obconic,  $\frac{3}{4}$  to 1 inch in diameter; capsule slightly protruding; valves obsolete.

In Eastern Victoria the common form of this tree bears a three-flowered umbel in the axil, the flowers being half the size recorded in the type, and less warted. In Tasmania, where this species and *E. viminalis* are mixed, a form will occasionally be found consisting of odd trees, in which the flowers are in threes, the operculum and fruit quite smooth, and the fruit about  $\frac{1}{3}$  to  $\frac{1}{2}$  inch in diameter, the valves much protruding. This, though very close to the Victorian form, may be a hybrid.

*White, also Manna Gum (Eucalyptus ciminalis, Labillardiere).* - Very variable, rarely exceeding 50 to 70 feet; tending to diffuse branching. Bark usually smooth and deciduous, but sometimes scaly and persistent, even to the upper branches. Leaves oblique, lanceolate,  $2\frac{1}{2}$  to 6 inches, narrow to broad. Flowers usually in threes in the axils, seldom the umbel bearing any flowers. Operculum smooth, about as long as the calyx, dome-shaped to pointed; Calyx smooth, obconic, about 2 to 4 lines long; anther-cells parallel. Fruit, 3 to 5 lines diameter; valves of the capsule protruding.

*Red Gum (Eucalyptus acervula, Hooker not of Sieber).* - A medium-sized tree, with a strong tendency to branch, close to *E. gunnii*, and combined with it by Von Mueller and some Continental botanists. Bark smooth above, coarsely scaly below. Leaves broadly oblong, thin, and rather shining, often undulated, equal, or nearly equal, sided, 2 to 4 inches long. Flowers many, in axillary umbels. Operculum hemispheric, with a well-developed apex. Calyx 2 to 3 lines diameter, hemispheric; anther-cells parallel. Fruit obconic, 3 to 4 lines diameter; capsule slightly sunk. Hooker was wrong in referring this to Sieber's *E. acervula*. R. T. Baker has provided a new name, *E. paludosa*, for it. It is quite sufficiently distinct from Cider Gum to be kept apart, and after so many years' usage there seems little advantage in suppressing Hooker's name. It is not at all related to the Red Gums of Australia.

*Apple-scented Gum (Eucalyptus stuartiana, F. v. Mueller).* - Rather close to the last, only with persistent fibrous bark to the upper branches. Leaves narrower, and flowers and fruit smaller. Our form is referred by Maiden to *E. macarthuri*.



LOADING WAGONS AT BUSH LANDING, *Tasmania.*

*Cider Gum, sometimes also Yellow Gum (Eucalyptus gunnii, J. D. Hooker).*—Usually a small tree of high altitudes and exposed situations, but where due protection is afforded attaining a considerable size. Bark smooth, white. Leaves alternate, stalked, rather thick, veins spreading, oblong to broadly lanceolate, equal-sided, often obtuse, 1 to 3 inches long; juvenile leaves small, nearly round, and pale. Flowers three in the umbel, shortly stalked. Operculum shortly hemispheric to nearly conical. Fruit hemispheric to nearly oblong-truncate, 2 to 3 lines diameter; rim rather thin; capsule sunk. Occasionally in luxuriant clumps young trees may be found with large, opposite, connate leaves until after the flowering age, but, at least in all recorded instances, when attaining a height of 15 feet the mature foliage is assumed. This form appears very close to, if distinct from, *E. cinerea*, F. v. M. Von Mueller once suggested for this form the name *E. perriniana*.

*Brown Gum (Eucalyptus muelleri, T. B. Moore).*—A tall, erect tree, with a preponderating stem, in suitable situations attaining even 200 feet in height. Bark deciduous, smooth from the base, blotched with red-brown. Leaves oblong, nearly or quite equal-sided, thick and shiny, alternate and stalked, 2 to 3 inches long. Flowers three together, in axillary umbels, the stalks all very short. Operculum short, hemispheric, and usually with a blunt central point. Calyx hemispheric, about 4 lines diameter; anther-cells parallel. Fruit turbinate (whip-top like), about  $\frac{1}{2}$ -inch diameter; valves usually protruding. This tree differs but slightly in structure from *E. vernicosa* (Hooker), and may be but a luxuriant form. Wood pale-red when fresh, and of straight grain, tough.

*Heart-leaved Gum (Eucalyptus cordata, Labillardiere).*—A small, erect tree, sometimes flowering when only of shrubby dimensions. In most favoured localities attaining a size of even 200 feet, with an erect, clean bole. Leaves broadly ovate or cordate, opposite, stalkless, but not united across the stem. Flowers three together. Operculum nearly flat, with a central projection. Fruit hemispheric, sometimes constricted at the orifice, a third of an inch or more diameter, rim narrow; capsule much sunk. Wood yellow, very tough.

*Tree Gum (Eucalyptus urnigera, Hooker).*—A tall, erect tree, with a preponderating stem. Bark smooth and deciduous, blotched with brown, but at a low elevation white. Leaves oblong, equal-sided, and about 2 to 3 inches long in sub-Alpine situations, but gradually becoming even linear, and 6 to 9 inches long, at a lower

elevation. Flowers three together, in axillary umbels, the stalks and common stalks long. Operculum from very short and nearly flat to hemispheric and umbonate (centrally projecting), according to elevation. Calyx in sub-Alpine plant narrow ovate, and much constricted below the rim, about  $\frac{1}{2}$ -inch long. Fruit similar in shape, but about  $\frac{3}{4}$ -inch long; the capsule much sunk. In lowland forms the fruit is sub-globose, and about  $\frac{1}{2}$ -inch long, with the capsule slightly sunk; anther-cells parallel. The wood is pale yellow and brittle, but excellent fuel.

*Dwarf Gum (Eucalyptus vernicosa, J. D. Hooker).*—Erect shrub, 4 to 6 feet, rarely 12 to 20. Bark smooth. Leaves thick, shining, equal-sided, broadly oblong, stalked, opposite, rarely alternate,  $\frac{1}{2}$  to 2 inches long. Flowers solitary or three in the umbel. Operculum conical, half as long as the capsule. Fruit hemispheric to semi-ovate,  $\frac{1}{4}$  to  $\frac{1}{3}$  inch diameter, on very short stalk; capsule sunk.

The following description of general appearance in the field may also be of use:

Blue Gum is usually easily recognised in the forest by its erect habit, the stem, even in the branching portion, remaining distinct, and the branches few and erect. This habit is shared by few other species, and from those, except Swamp Gum, it may be distinguished by the character of the bark, which is scaly and never fibrous at the base, and above smooth, green to grey, and stripping off in long ribbons. Stringy-bark, on the other hand, except where close growth compels it, seldom acquires the same erect preponderating stem; the branching is more copious and spreading, and the bark in the typical forms persistent, and fibrous to the upper branches.

Gum-topped Stringy and Swamp Gum have a habit similar to Blue Gum, but in the first the bark is persistent to the branches.

The Peppermints vary greatly, and are primarily distinguished in the open by their small leaves; in critical cases reference will have to be made to the scientific description to avoid error. Black Peppermint has an erect habit, and a persistent, dark, fibrous bark to the upper branches, but forms are constantly met with where the persistent bark is not as copious or is very slight and scaly. Stunted forms of this, which flower when merely shrubs, are very common.

White Peppermint has a much more branching and spreading tendency, the bark white and smooth from the base, where the persistent bark is coarsely scaly, and very narrow leaves and small fruit.

Blue Peppermint has the habit and bark of the last, but the leaves are much larger and broader, and the fruit larger; it is a connecting link with a form often known as Risdon Gum, which again has the same habit and bark, but the leaves are in pairs opposite one another, and joined at the bases.

Mountain Peppermint is very similar to Blue Peppermint, but the leaves are still broader, and the fruit very much larger, and often three together, a feature not found in other Peppermints.

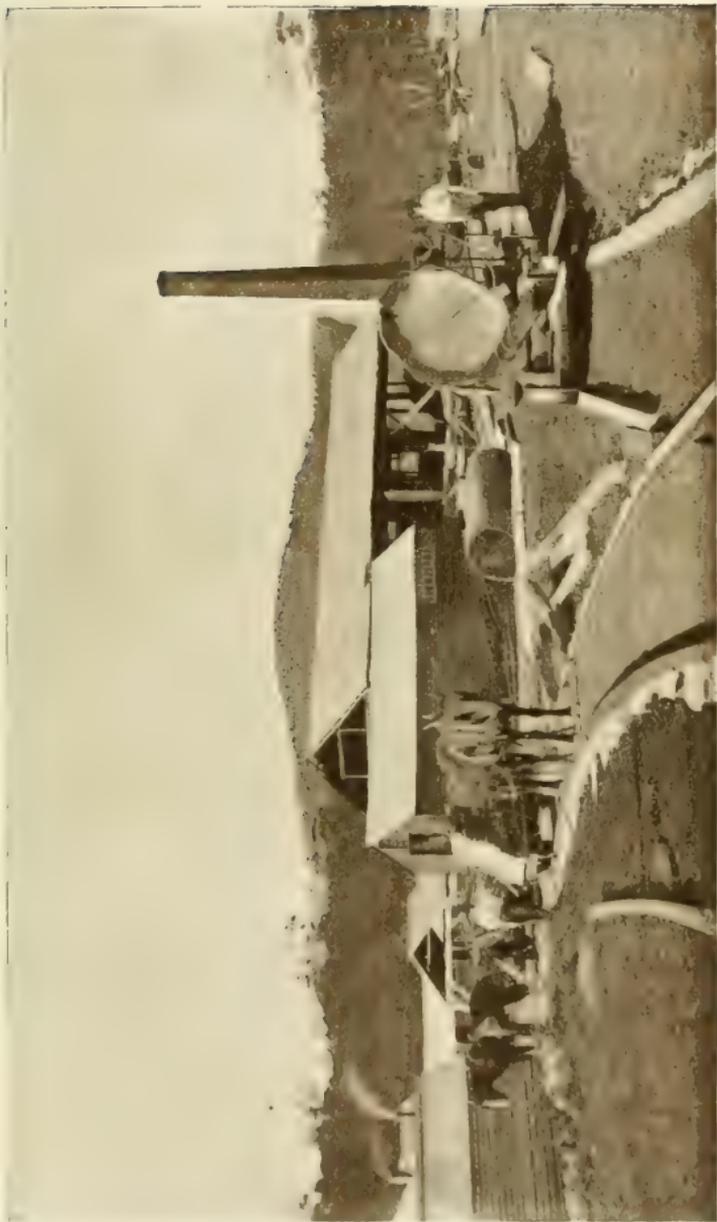
Swamp Gum and Gum-topped Stringy are forms connecting Black Peppermint with Stringy-bark. In the latter the persistent bark, though thin, is fibrous, and continues a considerable distance up the stem. Swamp Gum has the bark deciduous from close to the base, and strips off above in ribbons, as in Blue Gum, leaving only the more critical details for identification from Blue Gum. Ironbark has the habit of Stringy-bark, but the persistent bark is nearly black, very thick, and coarsely furrowed. It occurs mostly in the north-eastern portion of the State.

Weeping Gum varies in habit, being erect, with a preponderating stem, in damp forests, and much branched, spreading, and drooping in the open. The bark is smooth from the base, and green to nearly white in colour. To distinguish it it is very necessary to examine the leaves, the parallel venation of which at once separates it from any form but Ironbark.

White Gum seldom exceeds the dimensions of a small tree, with a much-branched and spreading habit, the main stem soon lost in branches. The bark varies in deciduousness, is sometimes smooth and white from the base, and sometimes persistent to the upper branches. This persistent bark is never fibrous, but more or less scaly. The leaves of this tree are most variable; they run from the shape and size of a typical Blue Gum to a small and narrow linear (as in narrow-leaved Peppermints). Reference is already made in the botanic description of *Eucalyptus globulus* to the probable hybridisation with this species.

The Cider Gum of the Midlands and Lake Country is small, and seldom exceeding 20 feet, except in shaded places (at Uxbridge exceeding 200 feet). The bark is smooth and white from the base. Some forms have, when young, large round leaves opposite in pairs, and joined at the base, but this seldom continues long after the flowering period is reached. The leaves of this gum are not oblique, but equal-sided, and the flowers are always three together.

Red Gum is very closely allied to the last, and in Australia is often considered but a form of it. It is a small to medium-sized tree, much branched and spreading. The bark is persistent, more



A BUSH SAWMILL. *Tasmania.*

or less up the stem, and is coarsely scaly. The leaves are equal-sided, shining, and often undulating towards the margin. The flowers usually six to eight together. The name Red Gum has merely a local significance, as it has no relationship to the various Red Gums of Australia. Apple-scented Gum is readily distinguished from this by its stringy bark and smaller fruit.

Brown Gum has a tendency to a tall central stem, but is much influenced by surroundings, attaining a height of 150 feet in some parts, dwindling down to a mere shrub in others. The bark is smooth from the base, green, and blotched with red-brown. Dwarf Gum is very close to this in form of organs, but appears to maintain a distinct character. It seldom exceeds 3 to 5 feet in height. Leaves are small, nearly round, opposite (not stalked), equal-sided, thick, and shiny. The flowers are solitary or three together. It appears to occur only on the sub-Alpine plains of the west and south-west.

Urn Gum, at an altitude of about 2000 feet, is exactly similar to the Brown Gum in general appearance, in habit, bark, and foliage, but the fruit is shaped like a Grecian urn. Below this altitude the bark becomes ashy-white, the leaves long and narrow, and the fruit approaches the fruit of White Gum. Heart-leaved Gum is generally a small, erect tree, with a smooth bark, the old bark being shed in scales. The leaves are pale and opposite in pairs, but, unlike those of Risdon Gum, are not united by their bases.

## Section V. THE SAWMILLING INDUSTRY.

### HISTORY AND DEVELOPMENT.

From the earliest period of settlement Tasmania has been a timber-producing country. In the early days of production, however, the methods adopted were by means of the pit-saw, worked entirely by manual labour. Sawyers worked in pairs, one man at the end of the saw above, and the other in the pit below. Although primitive in comparison with the fully-equipped sawmill of the present day, a large quantity of splendid timber was produced, more particularly in long planking and frame timbers for ship-building purposes, and long beams for bridge-construction. The cream of the forests, practically at the water's edge, was at the disposal of the sawyers, and the sawing of some exceptionally long timbers is recorded. One piece of Blue Gum measuring 146 feet in length, 18 inches by 6 inches, sawn clear of heart and sap, was cut at Long Bay, D'Entrecasteaux Channel, and forwarded to the first Exhibition in London, in the year 1851. Another, 160 feet, is probably the longest piece produced in one length in Tasmania.

The gold diggings of Victoria in the early fifties gave great impetus to the export trade, and extremely high prices were then realised for sawn timber, a sawyer's weekly earnings in the palmy days being equal to those of the highest salaried officers of the State at the present time. Reckless extravagance was, however, predominant amongst these men, and comparatively few of them derived any material benefit from the large sums earned. With the advent of the sawmill this order of things gradually passed away. The first sawmill erected in Tasmania was that of Mr. Peter Degraives, at the Cascades, near Hobart, in the "Thirties," worked by water-power, followed closely by one at Hospital Bay, belonging to Mr. Richard Hill. These were followed by others, and associated with them the names of Watson and Crowther will be familiar to many. Still fresher probably will be those of Graves, Hay, Chapman, Andrewartha, Judd, Drysdale, Gray, and Geeves, whose portraits are shown in the frontispiece to this publication. Mr. John Geeves is now the only one of these pioneers living. These sawmillers may be said to have founded the industry on the lines which have been carried down to the present day. They were all men of sterling character, thoroughly practical, and good leaders of men. Their milling operations were confined to the southeastern portion of the island, in the locality known as the

Huon; and here they were chiefly instrumental in opening up the southern portion of what is now one of the most flourishing districts of the State.

In the northern portion of the island, the first sawmill erected was that of Messrs. Cummings, Raymond, and Co., River Don, in the year 1852; the next being that of the Ilfracombe Sawmill Co., River Tamar, near Beaconsfield, in the following year, worked by Mr. William Moore (now the Hon. William Moore, and formerly Chief Secretary of the State). These were followed by the mills of Messrs. Grubb and Tyson, Piper's River; Mr. Robert Stewart, River Mersey; and Messrs. Moore and Quiggin's mills, River Mersey and Table Cape. The last-named is still working.

Blue Gum and Stringy-bark grew in abundance close to the water's edge in those days, and the natural facilities provided by splendid deep-water harbours, practically land-locked, enabled the timber to be cut and delivered almost from the mill into the vessel. Although some 40 years have passed, the extent and density of Tasmanian forests may be gauged from the fact that many of the sawmills have been rebuilt, or exist at the present time, on the same sites, and their forest operations do not extend in any case beyond a radius of 8 miles from the coast.

Great expansion has, however, taken place in the Timber Industry since the days above referred to. Whilst some 10 or 12 mills then existed, at present there are over 100 sawmill plants, large and small, extending throughout the island, by far the largest and most important of these being found in the Huon district previously referred to. These mills combined give employment directly to over 1500 men, and have an output of 45,000,000 super. feet of timber annually, of an estimated value of £150,000. As a large majority of the workmen are married, with families dependent on them, the value of the industry as a means of livelihood to a large proportion of the population of Tasmania cannot be overlooked. The expansion of the fruit industry in the Huon has led to the erection of many small mills of the portable type solely for the production of case-material.

#### GENERAL DESCRIPTION OF SAWMILL PLANTS.

The methods adopted by the sawmillers of the present day, and the plant used for converting logs into sawn timber, are practically the same as those in vogue 40 years ago, with the exception, may be, of certain labour-saving details in the way of steam-power winches, feed-rollers, and other gear.

In fully-equipped mills, logs are landed from bogey-wagons, on to the mill-skids, and rolled up by means of a winch on to what is termed the carriage of the breaking-down frame. In this frame a single vertical saw operates, and as the feed-gear drives the carriage forward, the log is cut down the centre. The half-log is then passed over to a similar frame containing several smaller vertical saws, which in turn divide the halves into flitches, the saws being spaced in the frame according to the thickness of the flitch desired. The flitches are then skidded up to within convenient distance of the ripping-bench, and the circular saw, followed by the docking saw where necessary, completes the process of manufacture so far as timber in the rough is concerned. Tramways, constructed chiefly of wood, run from the mill into the forest, branching in several directions as the various areas are cut out. After the bushmen have felled the trees and cut the same into lengths required, they are drawn by means of a powerfully-g geared steam-winding engine, which is fixed alongside the tramway, and a steel-wire rope of from 500 to 600 yards in length, along a roughly-cleared track to the landing or platform. From this landing, the logs are rolled on to wagons by means of a crab-winch, securely fastened with dogs and chocks, and thus carried into the sawmill. On some tramways the grade will allow the wagons to run the greater part of the distance to the mill without traction. Where this is not possible, horses or locomotives are used for the purpose. The method of log-hauling from the forest by means of steam-hauler has been adopted by the larger mills throughout the island, and has altogether superseded the use of bullocks and jinkers as used in the earlier days.

A mill as here described produces from 50,000 to 60,000 super. feet of sawn timber per week with a staff of 25 to 30 men. Mills of more than double this capacity have, however, been erected during the past few years, with extensive plant, railroads, and locomotive haulage, the more recent of these being a band mill at Geeveston, built on the Canadian principle, and the largest of the kind in the Southern Hemisphere.

As previously mentioned, the majority of the mills are situated on the coast, at the several outports south of Hobart, where excellent shipping facilities exist in substantial wharves and deep water, and where vessels of large tonnage may load in perfect safety.

Of recent years sawmillers have availed themselves of the advantages offered by the Government in the system of leasing timber areas for sawmilling purposes, and 96,000 acres are so leased.

## HEWN TIMBER.

In addition to the production of timber by means of sawmill machinery, the use of the broad axe for squaring piles, girders, and sleepers is largely adopted by Tasmanian axemen. The men are very expert with the broad axe, and also the ordinary American axe. The workmanship of most of them is astonishing, being as clean and true as that on the timber cut by machinery.

Hewing received a great fillip in connection with the contracts for the supply of piles to the Admiralty Harbour Works at Dover, England, and Simons Town, South Africa. The illustration "Squaring Blue Gum Piles" shows a party of men at work preparing these piles.

## SEASONING.

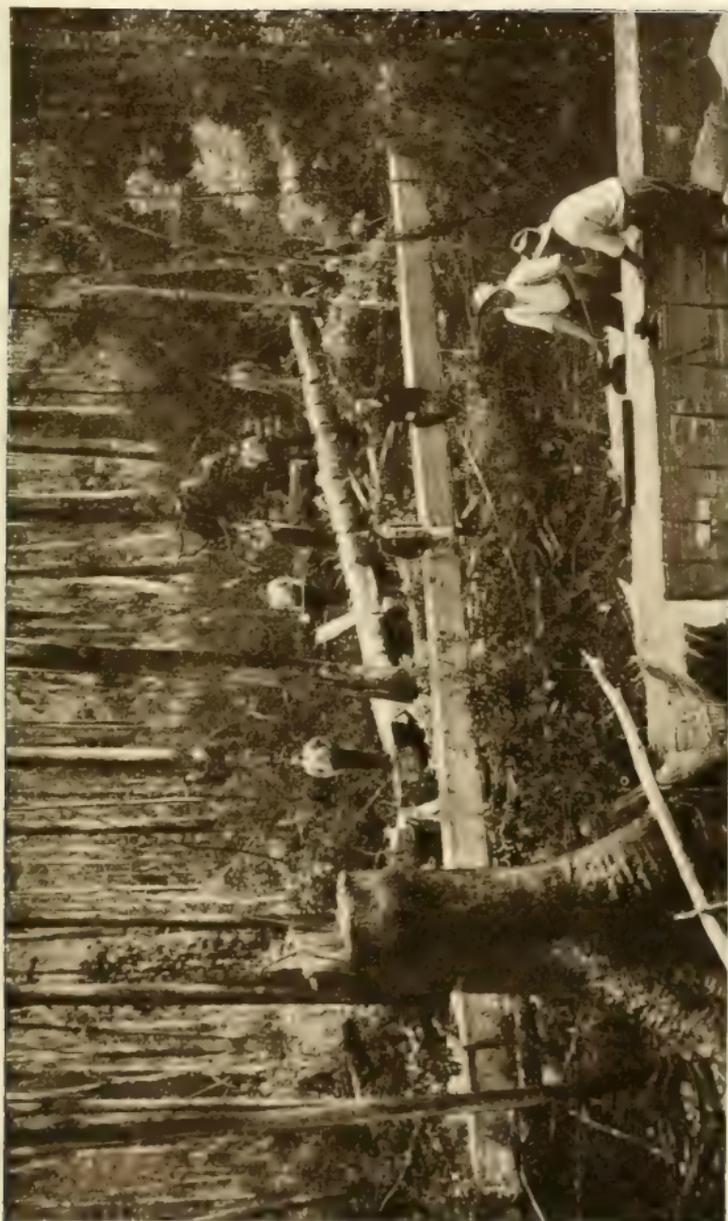
Little, if anything, is done by sawmillers in regard to a systematic seasoning of timber for export, although there is not one of them but will admit that if such a practice were adopted both the appearance of the timber and its value in regard to durability would be considerably enhanced. The time is not far distant when this subject will require serious consideration at the hands of those connected with the Timber Industry.

All authorities are agreed that the natural air-drying process is the best that can be adopted, and the less the operation is hurried at the outset the better. If it be possible for sawmillers to conveniently construct large sheds (say a permanent frame temporarily roofed and enclosed by boards), in which timber, more particularly planking and sleepers, be properly stacked, and the sun and wind thus excluded, there is no doubt that a superior article would be produced. The boards forming the roof and sides could be removed as they season, and sold as a seasoned article.

It is to be hoped that the new conditions under which sleepers and other timbers are to be cut for export under Government certificate will be the means of bringing this matter forcibly to the notice of sawmillers, and cause an effort to be made to adopt some convenient and systematic method of seasoning our timbers before shipment.

## FACILITIES OF SHIPPING AT OUTPORTS.

A brief description of the outports at which the majority of the sawmills are situated, as will be seen by reference to the map appended to this pamphlet, will probably be of value to shipowners and others in foreign countries desirous of loading vessels at any of the Southern Tasmanian outports.



SQUARING BLUE GUM PILES. TASMANIA

**ADVENTURE BAY.**—This port is situated on the east side of Bruny Island, about 35 miles from Hobart, and affords a good anchorage, with deep water, in the southern corner of the bay in all weathers. Large vessels, of deep draught, can be safely loaded there by means of lighters. Smaller vessels, drawing up to 14 feet, are loaded alongside the mill wharf, which is situated in the southern end of the bay, slightly to the north of the anchorage referred to. Winds from N. to S.W. are off the land, and do not affect loading at the wharf. N.E. to S.E. are winds which bring in more or less range, but not to any great extent, except in easterly gales, in which case vessels usually haul off to an anchorage. The point to seaward, at the end of which is Pelican Island, practically shuts in this loading port from the sea, and makes a safe harbour of what otherwise would be an open roadstead.

**RECHERCHE BAY.**—Situated at the south-eastern extremity of the island, about 50 miles south of Hobart. Is rather difficult of approach by vessels of large tonnage, more particularly sailing vessels, the entrance being narrow and difficult of navigation to those not well acquainted with the locality. When once inside, excellent shelter is afforded in the practically land-locked bay. Small trading vessels and interstate coasters trade continually to this port for timber cargoes.

**SOUTHPORT.**—Situated at the southern end of D'Entrecasteaux Channel, about 40 miles from Hobart. Is a perfectly safe loading port. Vessels have no difficulty in entering the port, and find good anchorage and deep water on the southern side of the bay, in what is known as the "Deep Hole." A good wharf is here used by several mills for export loading, and vessels of light to moderate draught can lie alongside. Large vessels are loaded, as a rule, from lighters. Winds from any quarter will not affect the loading or the safety of vessels at Southport.

**PORT ESPERANCE.**—Situated some 8 miles to the north of Southport, in D'Entrecasteaux Channel. This port is easy of access by vessels, and is practically a land-locked harbour, with deep water capable of accommodating the largest sailing vessels or ocean-going steamers in perfect safety. Four of the larger sawmills are in this locality. There are two splendid wharves alongside which vessels of deep draught can load, always in smooth water; whilst at the several anchorages in this well-sheltered bay vessels also lie and take cargo from lighters.

**SHEPWRICHES' POINT (HOSPITAL BAY, OR PORT HUON).**—Situated on the Huon River, about 12 miles from the mouth, and about

40 miles from Hobart. Deep, bold water for the largest vessels afloat is to be found the whole distance up to the loading port, where is provided splendid wharfage accommodation, with over 35 feet of water, and alongside of which several large vessels may load at the same time. No dangers exist here from wind or sea.

**NORFOLK BAY.** This bay is situated on the northern shore of Tasman Peninsula, near the mouth of the Derwent, and is reached by passing from Storm Bay through Frederick Henry Bay. Norfolk bay is an extensive harbour, with deep water. Good anchorage is to be found in many of the smaller inlets which exist in this bay, which is used periodically by the Australian fleet for naval manœuvres and gun practice. Vessels are loaded there chiefly by means of lighters.

**PORT ARTHUR.** About 50 miles from Hobart. For small vessels Port Arthur affords splendid shelter in all weathers. Sailing vessels of large tonnage do not, however, generally use this port, owing to the narrow entrance, and consequent difficulty of navigation.

**TOWAGE.**—Although the majority of these ports can be reached by vessels under sail, the services of many of the small steamers which trade from Hobart outports are often availed of, the towage charges being extremely moderate.

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### GOVERNMENT INSPECTION OF TIMBER FOR EXPORT.

At the request of sawmillers and others interested in the Timber Industry the Government of the State has taken active measures in regard to the conditions under which timber shall be prepared and exported, for which a certificate by the Government inspecting officer is required, and the following conditions are suggested for adoption by persons placing orders:—

#### SPECIFICATION RECOMMENDED FOR RAILWAY SLEEPERS FOR EXPORT WHERE GOVERNMENT CERTIFICATE IS REQUIRED BY PURCHASER.

(1.) The sleepers to consist of either Blue Gum (*Eucalyptus globulus*), Stringybark (*Eucalyptus obliquata*), Peppermint (*Eucalyptus amygdalina*), or Ironbark (*Eucalyptus sideroxylon*), of best description, free from all heart wood, sap wood, shakes, gum veins, large or loose knots, or other defects.

(2.) All sleepers to be cut from matured and sound living or ring-barked trees, the logs of which are not to be less than 2 feet 6 inches in diameter.

(3.) All sleepers to be sawn, to be rectangular in shape, to hold the full specified size, and all sleepers to be protected on the ends and around same by a good coating of antifriction or other grease, approved by the officer appointed by the Government, and be allowed time to season.

(4.) All timber trees and all sleepers to be subject to a special and strict inspection, to be approved and branded as true to name by an officer appointed by the Government.

(5.) All sleepers to be stacked to the satisfaction of the officer appointed by the Government, when a period of seasoning is required, with a one (1) inch batten, placed at each end of the sleepers, between each layer, such batten to be laid flush with the ends of the sleepers, and in stacking a space of one (1) inch to be left between each sleeper, and a space of two (2) feet to be left between each stack.

(6.) The Commissioner of Crown Lands to be furnished by persons requiring a certificate with a certified copy of every specification for the supply of sleepers before commencing to fulfil any contract.

(7.) Brands:

1.▲ TAS. B.G.	2.▲ TAS. S.B.	3.▲ TAS. P.	4.▲ TAS. I.B.
BLUE GUM	STRINGY-BARK	PEPPERMINT	IRONBARK

The above prints are *fac simile* of those employed by the Government in branding the timber as true to name, the impression being made on one end of the sleeper.

1.▲                  2.▲                  3.▲                  4.▲

The addition of these brands indicates that the timber has been finally passed for shipment by the Government Officer.

NOTE.—The numerical number on the above brands is for the purpose of identifying the individual Government Officer who made the inspection.

(8.) The cost of the inspection by the Government Officer shall be 1½d. per 100 feet (super.), with an additional ¼d. when a second inspection is required, and shall be paid to the Commissioner of Crown Lands by the consignor on demand, and the certificate to be given by the Government Officer shall be in the form printed on the back hereof.

NOTE.—The species of Timber named in Section 1 are those recommended by the Government, but attention is drawn to the fact that neither Peppermint nor Ironbark timber is obtainable in large quantities at a reasonable price.



*Scantling as Used for General Building Purposes.*

5. All timber shall be supplied by the shipper to the purchaser in accordance with the terms of the specification and conditions under which an order may be given. Copy of such specification and conditions shall be furnished by the shipper to the Commissioner of Crown Lands before any inspection shall be undertaken by the Officer of the Government.

6. All timber specified as being required of first quality shall be free of heart, sap-wood, gum-veins, shakes, rotten knots, or other defects, or which may exist to such an extent as, in the opinion of the Inspector, would be detrimental to the timber for the purposes for which it may be required.

*Cost of Inspection, and Brands.*

7. The cost of inspection by the Government Officer shall be 2d. per 100 superficial feet for sawn timber, and 3d. per 100 superficial feet for hewn piles, with an additional halfpenny when a second inspection is required, for all timber other than railway sleepers, and such cost shall be paid by the shipper on demand. The Certificate to be given by the Government Officer shall be in the form printed on the back hereof.

8. Brands:—

1.▲ TAS. BG	2.▲ TAS. S.B.	3.▲ TAS. P.	4.▲ TAS. I.B.
BLUE GUM	STRINGY-BARK	PEPPERMINI	IRONBARK

The above prints are *fac simile* of those employed by the Government in branding the timber as true to name, the impression being made on one end.

1.▲                      2.▲                      3.▲                      4.▲

The addition of any one of these brands indicates that the timber has received a second and final inspection by the Government Officer. This will not apply in the case of scantling, where only one inspection will be made.

NOTE.—The number on the above brands is for the purpose of identifying the individual Government Officer who made the inspection.



**Section VI.**  
**REPORTS AND TESTIMONIALS**  
**ON THE**  
**UTILITY OF TASMANIAN HARDWOODS FOR**  
**VARIOUS PURPOSES.**

Marine Board, Hobart, 13th January, 1903.

**REPORT ON THE DURABILITY OF TASMANIAN TIMBER**  
**FOR WHARVES, BRIDGES, AND OTHER BUILDING**  
**PURPOSES.**

SIR,

For upwards of thirty years I have had experience in the use of Tasmanian timbers, particularly Blue Gum and Stringy-bark, for wharf-construction in the Port of Hobart, and have found them to be of a most durable character, being well qualified to withstand exposure to all weathers. I find that piles made of either of the timbers just mentioned, if carefully selected and properly treated before driving, will last for twenty-five years; and that beams, planks, &c., of wharves, of the same description of wood, if carefully selected, cut on the quarter, and properly treated before fixing in position, will last from twenty-five years to thirty years. These periods are fair averages if the work is exposed to the weather; but if the timber is used in works where it would be kept dry, it would last much longer.

I have taken timber from the Hobart wharves, as specified below, and found it to be in good order and still serviceable:—Market Wharf: From a beam after having been in use thirty-five years. New Wharf: From a beam after having been in use thirty-two years. Elizabeth-street Pier: Part of deck-planking after having been in use twenty-six years.

I have not gone outside my personal experience in making this report, and can consequently, with confidence, recommend the timbers referred to.

I have the honour to be,

Sir,

Your obedient Servant,

The Master Warden

J. AINSLIE, Foreman of Works.

Marine Board, Hobart, 22nd May, 1905.

*Re* **STRINGY-BARK AND BLUE GUM FOR HARBOUR**  
**WORKS.**

SIR,

AFTER twenty-six years' experience, I have found Stringy-bark to be admirably adapted for piles, some of which have been in the wharves for thirty years, and are in very fair condition.

With regard to Blue Gum, I do not hesitate to say that it will compare favourably with any timber in the world for beams, walings, and decking. Some of this timber has been in the wharves for thirty years, and is as good now as the day it was put there.

I have the honour to be,

Sir

Your obedient Servant,

W. H. FORSYTH, Foreman of Works.

The Master-Warden

Mr. Charles Geddes, of Port Pirie, South Australia, a well-known wharf contractor and timber merchant, of long experience, writes as follows:

Port Pirie, South Australia, 28th May, 1907.

*Re* TASMANIAN BLUE GUM AND STRINGY-BARK TIMBERS.

DEAR SIR,

THE Tasmanian Blue Gum is a timber that is, in my opinion, preferable to Jarrah for girders, beams, and decking, in both strength and wear. I constructed 500 feet of wharf over nine years ago, and in preference to Jarrah or Karri I chose Tasmanian Blue Gum for cross-heads, girders, waling, sheet-piling, and decking to construct the wharf.

This wharf is adjoining a wharf that I have had constructed some four years ago with all sawn timber from Western Australia, and the Western Australian timber used in the decking is so much worn that it will require to be renewed at once, and I have recommended Blue Gum to replace it. I have also recommended the Broken Hill Proprietary Company here to use Blue Gum in preference to W.A. Jarrah, and they have acted on my advice.

About twenty-five years ago there was a mixed cargo arrived here of Blue Gum and Stringy-bark. It was used for building sheds; and about ten years ago I removed these sheds, and found that the Blue Gum posts were perfectly sound underground, but the Stringy-bark was badly decayed and could not be used again; but the Blue Gum posts were all used again, and are in the building to-day.

The only objection I have to Blue Gum is that the sawmillers do not exercise sufficient care in cutting; it is not evenly cut, neither is the heart cut out in many instances. Some of it is  $\frac{1}{2}$ -inch, and indeed I have noticed it  $\frac{3}{4}$ -inch undersize, and for Government work the Inspector rejects it. W.A. timber is very evenly cut, and always full size.

In conclusion, if care is exercised in cutting, as above described, I would recommend your Blue Gum timber before W.A. timber; and to prove what I say, and to show you the confidence I have in your Blue Gum, I have recommended a friend of mine, who is about to construct a new wharf here, to send the order for all the timber, piles included, to be of Blue Gum.

Yours faithfully,

CHARLES GEDDES.

E. A. COUNSEL, Esq., Secretary for Lands, Hobart.

From Huckson and Hutchison, Civil Engineers and Architects, Architects for the Marine Board of Hobart. Hobart:—

Franklin Chambers, 22nd April, 1902.

*Re* TIMBER FOR WHARF-CONSTRUCTION.

SIR,

WE beg to report as follows:

The Tasmanian timbers most abundant and most suitable for such works are the Stringy-bark and Blue Gum. These woods have been used for wharf-construction at Hobart ever since the settlement of the Colony, with equally good results.

For long piles, beams, walings, braces, &c., &c., we should recommend Stringy-bark; it is of this wood that the recently-finished large pier is constructed.

We have never used Muntz metal on piles, neither have we used any arsenical preparation, or driven any with the bark on them; therefore, we are not in a position to say what the result would be.

Our usual practice here, and one which has given fairly good results, is to coat the piles with coal-tar, then to slightly and evenly char the surface, and while the piles are hot from the fire, to again thoroughly saturate the charred surface with extra-thick coal-tar until no more will soak in.

We have the honour to be,

Your obedient Servants,

HUCKSON & HUTCHISON

The Master Warden, Marine Board of Hobart.

Engineer-in-Chief's Office,  
Department of Public Works,  
Hobart, 25th March, 1905.

DEAR SIR,

IN reply to your enquiry, the Tasmanian Blue Gum and Stringy-bark timbers are the standard timbers for all Government works of every kind; the use of other woods being exceptional, and for special purposes. These hardwoods are both very strong and durable, especially when ordinary care is taken in the selection and felling, and they are treated at all fairly. They may be compared (the Blue Gum especially) to the English Oak.

The Blue Gum is the heavier and stronger, but the Stringy-bark is generally preferred, as being more free in working and more easily obtainable.

I am, dear Sir,  
Yours faithfully,

JAMES FINCHAM, M. Inst. C.E.,  
Engineer-in-Chief.

E. A. COUNSEL, Esq.,  
Surveyor-General and Secretary for Lands, Hobart.

Tasmanian Government Railways,  
Engineer of Existing Lines' Office,  
Hobart, 6th February, 1905.

#### FURTHER NOTES ON TASMANIAN HARDWOOD SLEEPERS.

SIR,

IN reply to the request that I should furnish some further information on the durability and character of our sleepers, it must be understood that all previous reports were based upon the experience gained under the conditions which prevail in this State as regards their use. If, as is now suggested, a more exacting specification as to growth, size of tree, and species of timber can be enforced, then the life of Blue Gum could be increased to at least fifteen years, and Stringy-bark fourteen years; and if, in addition, they are used on lines that do not present the heavy character of sharp curves and severe grades found here, then their life might still further be extended, as here we have numbers of sleepers that have been in use for from twenty to twenty-five years, and are still serviceable.

Bearing or sole-plates have never been in use here, though their use would undoubtedly assist in preserving the sleepers, especially on the sharp curves.

Splits or sun-cracks that arise whilst seasoning are characteristic of the timber, are always present in a more or less degree, and are not detrimental to its use, except in occasional cases in timber cut out of straight-grain and free-grown trees. If they extend through the depth of the sleeper, and in a straight line along a considerable portion of the length, the sleepers are rejected.

The splitting of a sleeper through the driving of dog-spikes is of rare occurrence, and the 9/16-in. spike driven in a ½-in. hole holds very firmly, and seldom becomes loose while the sleeper is in fair condition.

Both sawn and hewn sleepers are equally acceptable. Most of those that have been used on these lines in recent years are of the latter quality, partly on account of there being small beds of good timber within access of the lines at various points, where it would not pay to erect a mill, but which finds employment for a number of occupiers of small holdings. They may be either cut on the quarter or "backed off." The presence of a little wain on the edge, thereby slightly reducing the dimensions, should not be a cause for rejection, as the sleeper, if cut out of a fair-sized log, will be of the best quality. Gum-veins, where they occur in short lengths and broken, are not defects; but when they are the full depth and extend for some distance in an unbroken line along the length, the sleeper should not be accepted as first-class. Gum blotches occasionally occur, but do not affect durability.

As regards covering the ends with grease or other material, it is desirable that the Inspector should see the sleepers as they come from the saw; they might then be covered at the ends with advantage, and stacked so as to permit a current of air through.

Especial care should be taken to reject all sleepers that show any sign of heart, which decays rapidly and so destroys the good surrounding wood.

If sleepers for export are to be cut throughout the year, it is desirable that the trees be ringed about six months before the timber is cut and sent to the mill. The months for cutting sleepers for our lines extend from 1st April to 30th September.

I have the honour to be,

Sir,

Your obedient Servant,

C. C. NAIRN, Engineer of Existing Lines.

To the Hon. ALEC. HEAN,

Minister of Railways, Hobart, Tasmania.

Tasmanian Government Railways,  
Chief Mechanical Engineer's Office,  
Launceston, 22nd May, 1905.

#### TASMANIAN TIMBERS FOR CARRIAGE-BUILDING.

MEMORANDUM for General Manager, Hobart.

THE following native timbers are almost exclusively used in the building and maintenance of rolling-stock, viz.:—Blackwood, Celery-top Pine, King William Pine, Huon Pine, Red and White Myrtle.

*Blackwood.* This is a useful timber for all purposes, but chiefly so for carriage superstructure and internal fittings, and is used for all purposes where Teak and Mahogany were previously used. It requires to be thoroughly seasoned for carriage work.

*Celery-top Pine.*—This timber is used for the under-frames, floors, and sides of wagons, and for carriage foot-boards, and for all purposes where wearing qualities and durability are requisite. It has splendid wearing qualities, and is very durable, and remarkable for the small amount of shrinkage that takes place during seasoning. The shrinkage is so slight that it can be built into wagons direct from the log.

*King William Pine.*—This is a very light and useful timber. It is used for seat and back framing, for upholstering work, and outside panelling of carriage bodies, and for any purposes where a light and durable timber is required.

*Huon Pine.* This pine has a very fine and clear texture and remarkable durability, and is used for internal panelling and roofing of carriages, and for any part of rolling-stock exposed to severe weather conditions, such as clear stories of railway carriages and gutter mouldings round same; it is also largely used in the construction and repair of wagons, but for the latter purpose Celery-top Pine is now being substituted, owing to it being less costly at present market rates.

*Red and White Myrtle (Beech).* These are excellent timbers, and are principally used for all kinds of turnery, such as curtain rings, lamp-rings, &c., also for axle box dust-guard, and for internal fittings of carriages.

WM. R. DEEBLE, M. Inst. Mech. E.,  
Chief Mechanical Engineer.

#### REPORT ON VALUE OF TIMBER FOR MINING PURPOSES.

1 *Blue Gum.* The timber for elasticity, strength and durability, should perhaps occupy the foremost place on the list, but, as it belongs

almost exclusively to the southern portion of the State, it is not readily obtainable for use in the principal mining localities, and is therefore but seldom used, excepting for large shaft-frame timbering, pump-stays, pit-head pulley-beams, &c.

2. *Stringy-bark*.—Of this, the brown-barked variety (the true species of *Eucalyptus obliqua*) is a most durable timber, with a co-efficient of strength next to Blue Gum. Its shrinkage is moderate when being seasoned, but there is a tendency to twist and to camber if care be not taken in the process. I have found it a most suitable timber for mining purposes. The Gum-topped Stringy-bark is good splitting timber, but is softer, shrinks more, and is less durable than the brown-barked variety.

3. *Peppermint*.—This is a timber largely used in the mines of the northern and eastern divisions for props, legs, caps, &c. It is a most durable kind, but has not so high a co-efficient of strength as the two first-named when used in the round or as spar timbers; and where the crushing-weight is not excessive, it can be depended upon to give good service, and seems less liable to be affected by high temperatures or bad ventilation than the other kinds under review.

M. J. GRIFFIN, Inspector of Mines.

Launceston, 3rd April, 1905.

Launceston, 20th June, 1905.

DEAR SIR,

IN compliance with your enquiry of 10th instant *re* utility of Blue Gum and Stringy-bark for general purposes, I have the honour of submitting the following, from my practical knowledge and experience of Colonial timbers generally for the past thirty-five years:—

Stringy-bark for piles has so far proved the greater resister against teredo, although Blue Gum, having more density, is not as liable to burr or split in driving, and is often taken in preference. Their lasting qualities would be difficult to determine with exactness in sea-water, but from actual data may be taken to have a minimum life of from fifteen to twenty years, while a larger portion would stand without need of renewal some five to ten years longer, and can be driven without any protection or covering. If the same were planted away from the effects of teredo, the maximum might safely be taken as the general life.

As to quality and general usefulness of our Blue Gum in beams, railway sleepers, or any other purposes where strength and durability are required, the timber must of necessity be well selected, free from centre of heart to extent of 5 to 6 inches, also without knots, gum-veins, and other blemishes; these conditions complied with would ensure standing any test of breaking-strain, durability, &c., almost beyond all other timbers.

I am at a loss to understand engineers and others in their enquiries from our merchants for quotations, specifying that heart will be accepted; thus showing the necessity of making our timbers better known to foreign enquirers, who are more in touch with deciduous grown timbers where heart-wood is always accepted, and so contrary to the nature of evergreen trees, including Blue Gum and Stringy-bark.

Another important feature in the usefulness of our Stringy-bark, so far not generally known outside of local requirements, is seasoned T. and G. dressed flooring. When "secret nailed" it presents evenness of texture, colour, and durability not equalled by any other known timber for this purpose (flooring); and doubtless, possessing these merits, would prove acceptable to engineers, architects, contractors, and others if broadly circulated and better known.

Your obedient Servant,

CHARLES DEARDON, Govt. Timber Inspector.

E. A. COUNSEL, Esq.,

Surveyor-General and Secretary for Lands, Hobart

## Wood-bending. Nave, and Spoke Works.

Hobart, 17th May, 1905.

SIR,

In compliance with your request, I have pleasure in supplying the following testimony in regard to the use of Tasmanian timbers for bending and general wheelwright purposes, of which I have had experience for over forty years.

*Blue Gum.*—This timber I have always used extensively for felloes, spokes, shafts, and general body-work for coach-building and wheelwright purposes, and have found it unsurpassed for such uses, being very dense, tough, and durable. Especial care, however, must be given to the seasoning of the timber, to prevent it cracking or opening by exposure to the sun or wind when freshly cut. I am a thorough believer in the natural process in seasoning, and immediately I receive my supplies from the sawmill, I at once resaw and store away in closed sheds, where all currents of air are excluded as far as possible. Here, a gradual and gentle seasoning is effected. This, say in the case of felloes, would take about two years, but when once the sap is thoroughly extracted, an ideal wheelwright timber is obtained. I have used many timbers, foreign and otherwise, but find the Blue Gum of Tasmania (more especially that from a young tree) equally as good as any timber I know for my purposes.

*Blackwood.*—This timber is of special value for bending purposes for coach-builders' and wheelwrights' use. We use it for rims, shafts, poles, rails for carts, pagnals, buggies, and for anything that requires to be bent, and it holds its own with any imported timbers. For bank and other office fittings. Blackwood takes a high place, either in the plain or ornamental work. Some of the wood is very beautifully figured.

It does not require such special care in seasoning as some other woods; that is, it will stand more exposure and does not shrink so much.

*Myrtle or Beech.*—This is a specially useful timber. It bends fairly well, making good rims, rails, and buggy sides. It is an extremely dense timber, perhaps the most of any Tasmanian timber, and will hold water even in the end way of the grain. I have used it for years in place of Mahogany for T squares, set squares, and drawing requisites; it makes splendid planes, &c. It requires special care in drying on account of its density, and must not be exposed to wind and weather until properly treated.

I am,

Yours faithfully,

GEO. DUDLEY.

The Secretary for Lands, Hobart.

Extract from an article in the "Scientific American" of 21st January, 1905:

### THE TASMANIAN BLUE GUM AN IDEAL TIMBER FOR HARBOUR-BUILDING.

By HAROLD J. SHEPSTONE.

The erection of the great National Harbour at Dover, on the south coast of England, has called attention to the wonderful properties of the Tasmanian Blue Gum (*Eucalyptus globulus*). It is at once one of the strongest as well as the most durable and densest timber in the world. It is so heavy that it will sink like a piece of lead, while it is also practically immune from the attacks of the seaworm. These facts have only lately been more or less known to timber experts, but the presence of a large number of piles of Tasmanian Blue Gum at Dover, where they were tested together with other timber, has shown in the most striking manner the superiority of this wood for the erection of staging in salt water.

Before dealing further with the wonderful strength and remarkable density of the Blue Gum, it is as well to note that the harbour where this wood is being extensively employed is one of the biggest engineering feats ever undertaken. It is being formed by extending the well-known Admiralty Pier at Dover some 2000 feet, the erection of an eastern arm 3320 feet in length, and the building of a breakwater 4200 feet long. Naturally, the carrying out of such a huge undertaking called for an enormous amount of timber, the minimum quantity required being given as follows:—Hardwoods, principally Greenheart and Rock Elm, 25,000 cubic feet; and softwood, Pitch Pine, Redwood, &c., 75,000 cubic feet for permanent work; and for merely temporary staging, 550,000 cubic feet of Blue Gum and other hardwood; and Pitch Pine, &c., for superstructure, 850,000 cubic feet; or some 1,500,000 cubic feet of timber in all.

It was not necessary, of course, to go to Tasmania for the execution of such an order, so far as quantity was concerned; indeed, some of the timber used for piles at Dover has been imported from Vancouver's Land, and on the whole there has been very little fault to find with it. Then why, one may well ask, did the contractors avail themselves of the services of their timber expert, Mr. W. Heyn, and dispatch him on a journey of 14,000 miles to Tasmania, to bring home piles which could have been purchased cheaper in America or Canada? The reasons were many. To secure Oregon piles 100 feet in length and 18 to 20 inches square (the necessary dimensions) was by no means difficult; but Tasmanian Blue Gum piles were preferable, chiefly on account of their greater specific gravity. In the first place, it was found impossible to get a pile of Oregon 100 feet in length into position for driving into the ground through 47 feet of water at low tide, on account of the strength of the tides and currents, unless it was "weighted" with iron at the end. This at once entailed an extra expense in material and labour of nearly \$50 per log.

But the Blue Gum possessed other advantages over its rival Oregon. The *Teredo navalis*, or seaworm, literally honeycombing its way through the latter, rendered it after some time unfit for further use as a pile. As a rule, the timber was injured through the ravages of this little animal after a period of about eighteen months to two years. Now, it is not difficult to see that as the piles are only employed to carry temporary staging, so as to enable the 40-ton concrete blocks of which the harbour walls are being built to be placed in position, a great saving is effected by using them over and over again as the blocks are laid. That was impossible for any great length of time in the case of Oregon wood, but with Tasmanian Blue Gum it was entirely different. Being immune from the attack of the sea insect, the greater proportion of the Blue Gum piles at Dover have been in constant use for over three years, some having been driven three or four times, and there is no reason why they should not be re-employed in this manner till the whole work is completed. On account of their high gravity it is not necessary to weight them, and should they get carried away by accident they would sink where they fell, and could easily be recovered, instead of floating about as Oregon would do, a menace to the works or to ships or steamers. Some idea of the density of this wood may be the better understood when it is stated that it has a specific gravity of 75 pounds to the cubic foot, whereas water is but 65 pounds. A pile of Blue Gum, therefore, 100 feet long and 20 inches square, would turn the scale at nearly 10 tons, while an Oregon log of similar dimensions, having only a specific gravity of 48 pounds per square foot, would only weigh 6 tons, and consequently float.

The wonderful strength and lasting qualities of the Tasmanian Blue Gum have been more than demonstrated at the Dover Harbour Works, where their employment has given the greatest satisfaction, thus calling attention in the most emphatic manner to the commercial value of Tasmanian timber. Tests very carefully made and at long intervals show that the Tasmanian wood will sustain about double the weight of English Oak before breaking, and will even regain its elasticity after bearing a weight at which Oak breaks, while as to its longevity under water no limit appears so far to have been reached. Many instances could be quoted in confirmation of this statement. An old ferry-boat

built of Blue Gum in 1818, and which for more than fifty years has been lying a wreck between high and low water mark on the banks of the Derwent in Tasmania, shows no signs of decay to-day, and the wood, beyond a few stumps from the iron fastenings, is perfectly sound. A portion of this old vessel is shown at the Hobart Museum, among a collection of Tasmanian timber. In speaking of the commercial value of this particular wood, one must not forget that a good deal of it is to be found growing within six to ten miles of the seashore, thus considerably reducing the difficulties of transportation to the timber ships, which is effected on rudely-formed tramways.

Another Tasmanian tree deserving of mention here is the Stringybark (*Eucalyptus obliqua*). In height and size this tree is quite equal to its brother, the Blue Gum, and when cut it is by no means easy to distinguish it from the Blue Gum. Its specific gravity is usually about five pounds per cubic foot less, but it is often found with knots, which render it less desirable for piles required to carry very heavy loads, besides being more liable to seaworm attacks. It closely resembles English Oak, particularly when used for flooring, for which it is well adapted.

**COMPARATIVE TABLE OF WEIGHTS AND TRANSVERSE STRENGTHS OF EUROPEAN AND TASMANIAN TIMBERS.**

**Section VII.**

**TIMBER TESTS.**

NAME OF TIMBER.	Lbs. weight per cubic foot.			Transverse strength.			EXPERIMENTERS.
	40 in <sup>2</sup>			40 in <sup>2</sup>			
	Min.	Max.	Mean of all Tests.	Min.	Max.	Mean of all Tests.	
Ash, English .....	43	53	47	1471	2445	2130	Barlow, P. W. Barlow, Bouffay, Denison, Ebbells, Peake and Barralier, Tredgold, and Rankin
Beech, English .....	37	50	43	1557	2631	1794	
Yellow Deal (Sylvestris) .....	30	44	36	1183	2058	1690	
Oak, English .....	43	62	54	1092	2872	1788	
Blue Gum, Tasmanian	60	80	73	1957	2100	2019	Mitchell, Green, Mann Mitchell, Laslett, Green
"	52	67	60	1867	3361	2706	
Stringy-bark .....	55	75	69	1377	2046	1874	Kernot, Green Mitchell, Ransome, Green
"	48½	66	57	2514	3661	3273	
Gum-top Stringy-bark .....	48½	51	50	1524	2391	1958	Kernot, Victorian Timber Board, Green
"	...	...	54	1400	3334	2317	
Swamp Gum .....	50	65	50	1599	1646	1623	R. M. Johnston, Green
Peppermint .....	44	48	46	1646	1788	1717	
White Gum .....	39	54	47	2712	2946	2804	Ransome, Green
Myrtle or Beach .....	...	...	67	...	...	2257	
Leatherwood .....	42	49	45	...	...	3258	Green
"	...	...	64	...	...	1378	
Celesty-top Pine .....	...	...	42	2124	2326	2225	Kernot, Green

## TRANSVERSE STRENGTH, DEFLECTION, AND ELASTICITY.

By A. O. GREEN.

*Experiments made in Hobart in May, June, and July, 1902.*

Size of specimens  $30 \times 1 \times 1$  inches, of Tasmanian timbers of the ordinary quality accepted by the Tasmanian Government Railway Department, for maintenance purposes—the Deal and Oregon the best that could be got. The time of each experiment was about an hour. About three-fourths of the load was put on slowly, with 30-pound lead weights; then 14 pounds, then lighter weights, until the breaking load was attained; all at the rate of about 30 pounds in five minutes.

The specimens were supported on fixed wooden supports of 2 feet clear span, and the weights were placed in a scale-pan hung on the centre of the specimen by half-inch shackle. The specimens weighed from half to about a pound each, but this weight is neglected in the deductions.

In all the experiments but two the sap-side was down and the heart up. The deflection was taken by means of a scale divided to fiftieths of an inch, standing on the specimen and against a fixed board, with a vernier, bridging the span.

In the accompanying table the symbols used in the formulæ are as follows:— $W$  = weight in pounds,  $L$  = length in inches,  $b$  = breadth in inches,  $d$  = depth in inches,  $\delta$  = deflection in inches,  $l$  = length in feet.  $S$ ,  $E$ , and  $A$  are constants for transverse breaking “Strength,” modulus of “Elasticity,” and for the stiffness of beams, the deflection of which does not exceed one-four-hundred-and-eightieth of the span. The last,  $A$ , is Tredgold’s formula for the stiffness of beams, which is often quoted in tables for European timbers where depth in inches,

$d = s \sqrt{\frac{l^2 W A}{b}}$  and  $\delta = \frac{l}{480} S^*$  = the breaking-weight of a beam 1

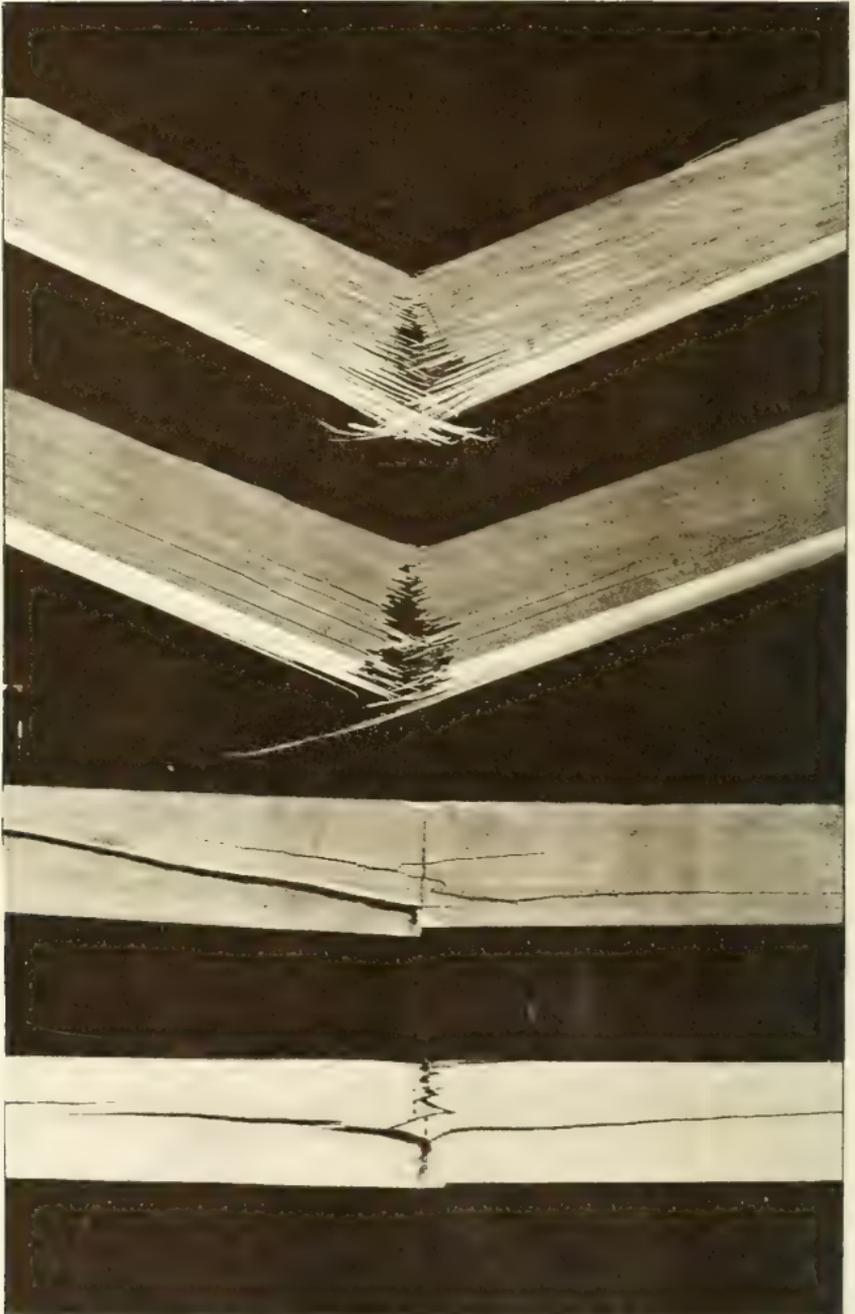
foot  $\times$  1 inch  $\times$  1 inch, supported at the ends and loaded in the centre.

In the dry woods the elasticity was unimpaired to  $\frac{2}{3}$  of breaking strain; in the green ones to about half.

The nature of the fracture in each case will be seen from the illustrations. Tasmanian trees are very large, and may be got quite free from knots and with the grain evenly hard, so that the above may be taken as ultimate breaking-weights of well-selected timber free from shakes and defects.

The results obtained for Deal could not be got in ordinary work, except with small scantlings, chiefly owing to the presence of knots; also, from the trees being small, the hard grain may be at many angles in a single plank. From these causes the timber does not give evenly throughout, and a large plank will not carry so much weight in proportion to its size as a small one, in which these causes of failure are not existent.

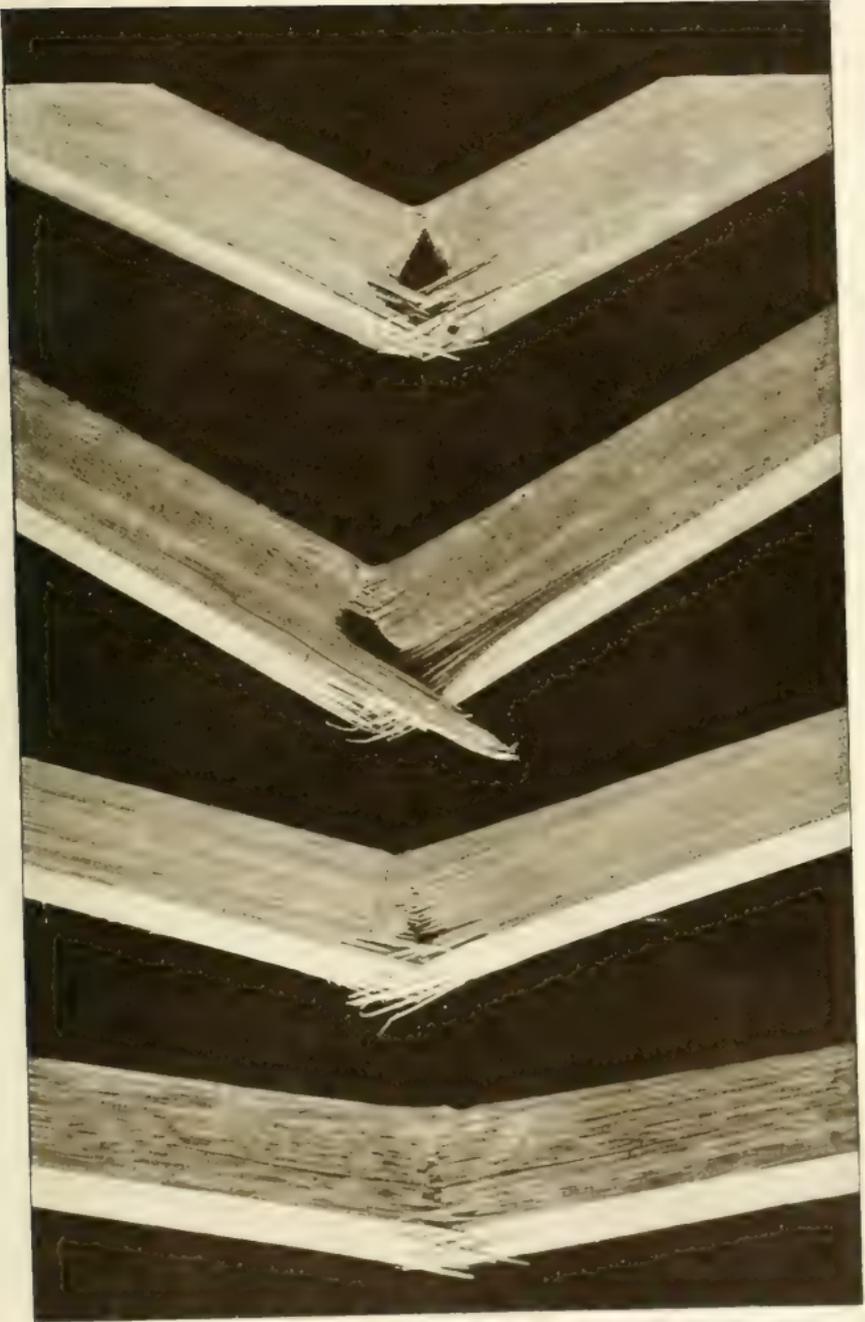
PLATE I.



1. SWAMP GUM.  
2. LEATHERWOOD.

3. MYRTLE.  
4. CELERY-TOP PINE.

PLATE II.



1. STAINLESS STEEL  
2. Balsa Gum

3. STAINLESS STEEL  
4. Balsa Gum

PLATE III.



1. OREGON PINE.

2. YELLOW DEAL (Annual Rings Horizontal)

3. YELLOW DEAL (Annual Rings Vertical)

4. KING WILLIAM PINE.

## TASMANIAN AND OTHER TIMBERS.

By A. O. GREEN.

Arranged in order of stiffness from the deflections of specimens one inch square, supported at ends, span two feet and load one hundred pounds in centre of span.

Name	W 100 lbs. Deflection inches.	Breaking load, lbs.	Deflections at breaking.
Swamp Gum ... .. dry	100	555 $\frac{3}{4}$	1.1
Stringy Bark .. .. "	115	610 $\frac{1}{4}$	1.0
Leatherwood .. .. "	150	543	1.5
Stringy-bark .. .. fresh cut	153	341	1.1
Blue Gum .. .. dry	170	560 $\frac{1}{4}$	1.1
Oregon Pine .. .. "	180	379	1.25
Yellow Deal—annual rings vertical*	188	353	1.0
Yellow Deal—annual rings horizontal*	195	304 $\frac{3}{4}$	1.1
Blue Gum .. .. fresh cut	195	326 $\frac{1}{4}$	1.2
Myrtle or Beech .. .. dry	210	401 $\frac{1}{4}$	1.4
Ash, English .. .. "	211 <sup>†</sup>	—	—
Celery-top Pine .. .. "	238	387 $\frac{3}{4}$	1.1
Oak, English .. .. "	243 <sup>†</sup>	—	—
Beech, English .. .. "	257 <sup>†</sup>	—	—
King William Pine .. .. "	655	182	1.655

\* Cut side by side from one Deal.

† Calculated from the value of E given in Molesworth's Engineering Pocket Book.

EXPERIMENTS MADE IN HOBART, 1902, BY A. O. GREEN.

Date cut.	Name of Timber.	Weight per cubic foot.	$\delta$ WL <sup>3</sup> 4bd <sup>3</sup> E Deflection. Load 100 lbs.	W 4bd <sup>2</sup> S L Breaking Weight.	S LW 4bd <sup>2</sup> Specific Transverse Strength.	E WL <sup>3</sup> 4bd <sup>3</sup> O Mean Modulus of Elasticity.	A 4bd <sup>3</sup> O W <sup>3</sup> Constant for Stiffness.	S x Breaking Weight of beam 1 ft. x 1 in. x 1 in. supported at ends and loaded in middle.
TASMANIAN TIMBERS.								
1892	<i>Eucalyptus obliqua.</i> Stringy-bark, dry .....	60.1	115	610½	3361	2,988,939	.0058	1220
1900	<i>Euc. globulus.</i> Blue Gum, dry .....	59.2	.170	560½	3361	2,048,047	.0085	1120
1894	<i>Euc. regnans.</i> Swamp Gum, dry .....	53.6	.100	555½	3334	3,423,086	.005	1111
1894	<i>Everypitha hillardieri.</i> Leatherwood, dry .....	48.6	.150	543	3258	2,283,927	.0076	1086
1894	<i>Eucops cunninghami.</i> Myrtle or Beech, dry .....	54.0	.210	491	2946	1,626,387	.0106	982
1894	<i>Phyllocladus rhomboidalis.</i> Celery-top Pine, dry .....	40.3	.238	387½	2326	1,447,775	.0121	775
1902	Unseasoned. Stringy-bark .....	58.8	.155	341	2946	2,263,680	.0076	682
1902	Unseasoned. Blue Gum .....	69.7	.195	326½	1957	1,759,963	.0098	652
1904	<i>Athrotaxis selaginoides.</i> King William Pine, dry .....	22.1	.650	182	1092	541,975	.0319	364

IMPORTED PINES.

<i>P. Douglasii</i> , Pin. Oregon Pine, dry	34.4	.180	3783	2273	1,037,728	.0089	758
<i>P. sylvestris</i> , Yellow Deal, Annual Rings vertical*	30.25	.188	353	2118	1,879,417	.0092	706
" Yellow Deal, Annual Rings horizontal*	31.7	.165	3044	1828	1,769,037	.0098	699
ENGLISH TIMBER, †							
<i>Fagus sylvatica</i> , Ash, English, dry	47	.211	333	2000	1,640,000	.01	656
<i>Fagus sylvatica</i> , Beech, English, dry	43	.257	333	2000	1,345,000	.013	636
<i>Quercus robur</i> , Oak, English, dry	58	.243	282	1690	1,420,000	.013	563

\* Both cut from same deal.

† Highest values for English timbers from Mole-worth's Engineering Pocket Book.

The values given in the preceding tables for S, the transverse strength of a beam supported at the ends, and loaded in the centre of the clear span, are for breaking-weights, but the working load should never exceed one-third of this for static loads or one-sixth for moving loads; it is usual practice to take one-fourth for static and one-eighth for moving loads. The practice for railway bridges is one-fifth for static and one-tenth for moving loads.

To find the deflection that any weight in the centre of span will cause in a rectangular beam of any of the woods given in the table,

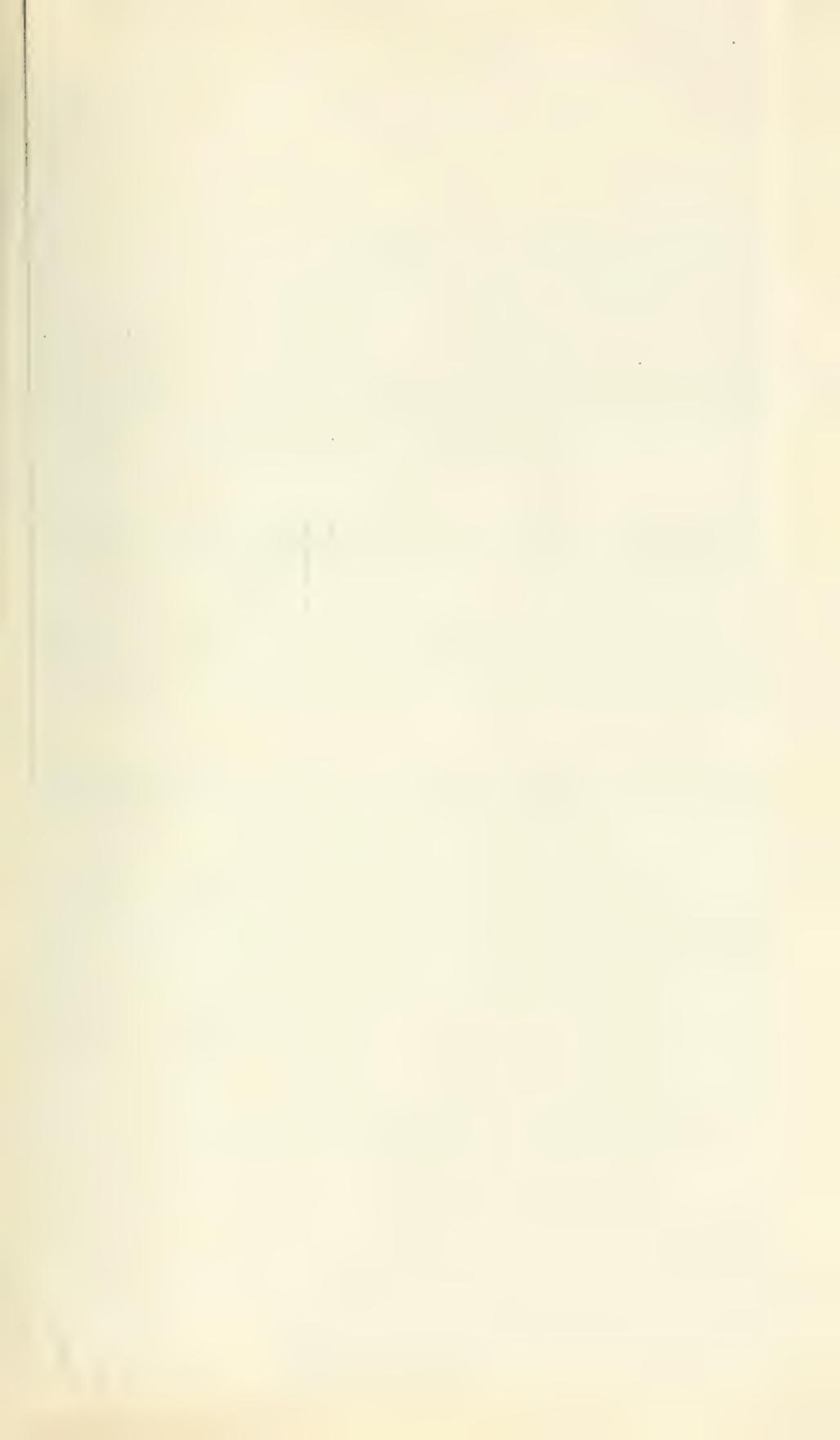
supported at the ends—  $\delta = \frac{W L^3}{4 b d^3 E}$  multiply the weight in pounds by the cube of the length in inches, and divide the product by the product of four times the breadth, by the cube of the depth, and by the value given for E in the table.

To find the breaking-weight in a rectangular beam of any of the woods given, loaded in the same way,  $W = \frac{4 b d^3 S}{L}$  or multiply four times the breadth by the square of the depth by the value given for S, and divide the product by the length in inches. Or, by using the column S +, multiply the breadth by the square of the depth in inches by S +, and divide the product by the length of span in feet; or, by formula  $W = \frac{b d^2 S +}{L}$

Again, given the span in feet, the load in pounds, and the breadth in inches, of a beam, to find the depth in inches, so that the beam shall not bend more than one-fortieth of an inch to a foot, or one

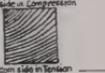
four-hundred-and-eightieth of its span, the formula is  $\sqrt[3]{\frac{12 W A}{b}}$  or multiply the square of the length in feet by the load in pounds by the value given for A, and divide the product by the breadth in inches; this will give the cube of the depth, and the cube-root will be the result required.

It must be remembered to add half the total weight of the beam itself to the load for the total centre load upon the beam in all cases.



RESULTS OF EXPERIMENT TO ASCERTAIN THE RESISTANCE TO DEFLECTION AND RUPTURE UNDER A GRADUALLY INCREASED BENDING STRESS OF ONE LOG OF BLUE GUM, RECEIVED FROM MESSRS. GRAY BROTHERS.

Load applied at centre. Distance between supports, 10' 0".

Test No	Description.	Dimensions, I. D.	Length.	Weight.	Total Stress in Pounds. — Deflection Inch at													Ultimate Stress.		Remarks.		
					12,000	14,000	16,000	18,000	20,000	22,000	24,000	26,000	28,000	30,000	32,000	34,000	36,000	38,000	40,000		lbs.	tons.
H.H. 2175	Received 21 feet long. Blue Gum Log 5' x 8' (approx) ... Sketch showing grain of wood By side in compression  Bottom side in tension	inches. 9-00 x 8-00	10' 0 1/2"	487	.02	.28	.31	.36	.42	.50	.57	.64	.75	.88	.95	1-14	1-39	1-73	...	39,445	17-6	Failed by top side compressing. Cracked at 3 ins. deflection. Bent to 5 ins. Weight removed.

Initial stress, 4000 lbs. (S = 1623. Average E = 2,960,840. — A. O. G.)

RESULTS OF EXPERIMENT TO ASCERTAIN THE RESISTANCE TO DEPRESSION AND RUPTURE UNDER A GRADUALLY INCREASED THRUSTING STRESS.

Length for testing, 120 inches. Ends faced accurately true in lathe.

Test No	Description.	Dimensions.	Area.	Weight.		Total Stress in Pounds. — Depression Inch at													Ultimate Stress.		Remarks.						
				Actual.	Per cub. foot.	40,000	60,000	80,000	100,000	120,000	140,000	160,000	180,000	200,000	220,000	240,000	260,000	280,000	300,000	320,000		340,000	360,000	380,000	400,000	Total.	Per sq. in.
H.H. 2276	As above	inches. 8-08 x 8-90	sq. ins. 70-92	lbs. 397 1/2	71-57	.028	.046	.058	.071	.82	.094	.105	.118	.130	.142	.154	.168	.178	.185	.212	.229	.255	.309	...	380,100	4756	Crushed.

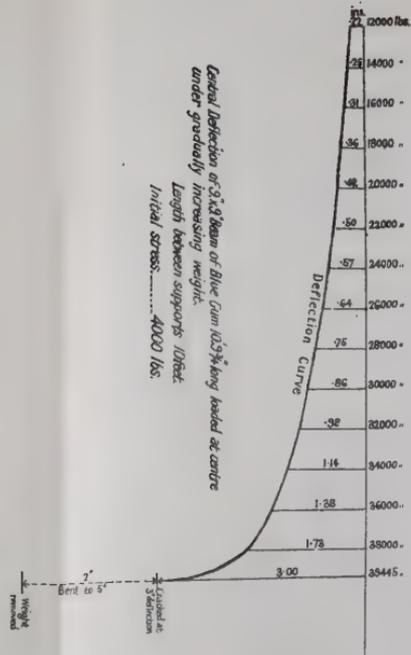
From "Wrought Iron and Steel" by Messrs. Gray Brothers

DAVID KIRKALDY & SON, 99 Southwark-street, London, S.E.

31st July, 1890.

MESSRS. S. PEARSON & SON, 10 Victoria-street.

Central Deflection of 3' x 3" Beam of Blue Gum 103 1/4" long loaded at centre under gradually increasing weights.  
Length between supports 10ft 0".  
Initial stress: 4000 lbs.



## LIST OF TASMANIAN TIMBER TREES.

Local Name.	Family.	Species.	Approximate length and diameter of trunk	Strength. H = L. W 4 b d	Specific Gravity. Well seasoned.	Well seasoned samples. Weight per cubic ft.
BEECH or MYRTLE	Corylaceæ	<i>Fagus cunninghami</i>	40 ft. x 2 ft. to 4 ft.	2712-2804	.62-.85	lbs. 39-54
BIRCH	Sapindaceæ	<i>Betula pumila</i>	3 ft. x 6 in.	..	..	..
BLACK WATTLE	Leguminosæ	<i>Acacia dealbata</i>	12 ft. x 1 ft. 6 in.	2050	.79	56
BLACKWOOD	..	<i>A. melanoxylon</i>	30 ft. x 2 ft. to 4 ft.	2300-2744	.616	37-40
BOOBYALLA	Myoporaceæ	<i>Myoporum laetifolium</i>	3 ft. x 6 in.	..	..	..
BOX, NATIVE	Leguminosæ	<i>Acacia longifolia</i>	4 ft. x 8 in.	..	..	..
DCGWOOD	Pittosporaceæ	<i>Bursaria spinosa</i>	6 ft. x 1 ft. 6 in.	..	.837	52
GUM, BLUE	Rhamnaceæ	<i>Pomadourus asperata</i>	10 ft. x 10 in.	..	.744	46
" CIDER	Myrtaceæ	<i>Eucalyptus globulus</i>	120 ft. x 2 ft. to 6 ft.	2000-3500	.84-1.09	52-68
" IRONBARK	..	<i>" gummi</i>	20 ft. x 2 ft.	2400	.700	44
" MUELLER'S	..	<i>sieberiana</i>	40 ft. x 4 ft.	2400	.896	55 60
" PEPPERMINT	..	<i>musleri</i>	80 ft. x 3 ft.	3200	1.001	63
" RED	..	<i>amygdalina</i>	100 ft. x 3 ft. to 6 ft.	2000	.75-1.03	46 65
" STRINGY-BARK	..	<i>acervula</i>	60 ft. x 3 ft.	2260	1.052	66
" TOPPED STRINGY-BARK	..	<i>obliqua</i>	120 ft. x 3 ft. to 6 ft.	1800-3600	.77-1.05	48-66
" SWAMP	..	<i>hemas-</i>	..	..	..	..
" WEEPING	..	<i>tomia</i>	..	..	..	..
" WHITE	..	<i>anygathina</i>	100 ft. x 3 ft. to 4 ft.	1500-2400	.776-.8	48-51
BULL-OAK	Casuarinaceæ	<i>Casuarina seleriana</i>	100 ft. x 3 ft. to 8 ft.	1400-3000	.776-.85	48-54
HOLLY or COPPEE PLANT	Rubiaceæ	<i>Coprosma hirtella</i>	10 ft. x 2 ft.	..	..	..
HONEYSUCKLE	Proteaceæ	<i>Banksia marginata</i>	6 ft. x 1 ft. to 2 ft.	..	.675	42
HORIZONTAL	Saxifragaceæ	<i>Anodopetalum biglandulosum</i>	12 ft. x 10 in.	..	.700	44
IRONWOOD	Oleaceæ	<i>Notonia ligustrina</i>	12 ft. x 1 ft. 6 in.	3000	.875	58
LABURNUM	Leguminosæ	<i>Geophila latifolia</i>	3 ft. x 6 in.	..	..	..
LARICUM	Rubiaceæ	<i>Eriocaulon salignum</i>	20 ft. x 8 in.	..	.801	50
LAUREL, NATIVE	Saxifragaceæ	<i>Anopeltos glandulosus</i>	3 ft. x 6 in.	..	..	..
LEATHERWOOD	..	<i>Eucalyptus blanda</i>	10 ft. x 1 ft.	3200	.7	42-44
MINT-TREE	Labiata	<i>Prostanthera aslantialis</i>	3 ft. x 6 in.	..	..	..
MUSK	Compositæ	<i>Chamaecrista</i>	6 ft. x 1 ft. 6 in.	..	.675	42
NATIVE CHERRY	Santalaceæ	<i>Eucalyptus compressifolia</i>	6 ft. x 1 ft.	..	.790	49
NATIVE CURRANT	Rubiaceæ	<i>Coprosma macrophylla</i>	3 ft. x 6 in.	..	.739	46
" PRAR	Euphorbiaceæ	<i>Lepidosperma rubra</i>	..	..	..	..
" PEPPER	Santalaceæ	<i>Lepidosperma humifera</i>	..	..	..	..
PINE, CELEBY-TOPPED	Proteaceæ	<i>Banksia serrata</i>	12 ft. x 1 ft. 6 in.	..	..	..
" HOOK	Myrtaceæ	<i>Dracopis australis</i>	6 ft. x 1 ft.	..	..	..
" KING WILLIAM	Myrtaceæ	<i>Phyllocladus thymoides</i>	20 ft. x 1 ft. to 3 ft.	2300	.65-.7	41-44
" OYSTER BAY	..	<i>Daerydium franklinii</i>	30 ft. x 2 ft. to 6 ft.	1218	.529	33
PINKWOOD	..	<i>Athrotaxis selaginoides</i>	30 ft. x 1 ft. to 6 ft.	1019	.326-.385	21-24
PRICKLY MIMOSA	..	<i>Banksia thymoides</i>	10 ft. x 6 in. to 1 ft.	..	.625	39
SASSAPARA	Euphorbiaceæ	<i>Banksia viscosa</i>	12 ft. x 1 ft.	..	.75	47
SCENTWOOD	Leguminosæ	<i>Acacia diffusa</i>	4 ft. x 6 in.	..	..	..
SHE-OAK	Myrtaceæ	<i>Alphitonia mesochata</i>	15 ft. x 1 ft. to 3 ft.	..	.652	41
SILVER WATTLE	Myrtaceæ	<i>Acacia saligna</i>	3 ft. x 6 in. to 8 in.	..	..	..
TEA-TREE	Casuarinaceæ	<i>Casuarina stricta</i>	6 ft. x 1 ft. 6 in.	..	.663	41
"	Leguminosæ	<i>Acacia dealbata</i>	12 ft. x 1 ft. 6 in.	..	.775	48-49
"	Myrtaceæ	<i>Lepidosperma antigerum</i>	10 ft. x 6 in.	..	.801	50
"	..	<i>Kingia cordata</i>	10 ft. x 6 in.	..	..	..
"	..	<i>Melaleuca globosa</i>	10 ft. x 6 in.	..	..	..
"	..	<i>Myrtaceæ</i>	10 ft. x 1 ft.	..	..	..
"	..	<i>Myrtaceæ</i>	20 ft. x 2 ft.	..	.750	47
WARATAH	Proteaceæ	<i>Leopoldium obscurum</i>	3 ft. x 6 in.	..	..	..
WHITE WARATAH	..	<i>Acrostichum obscurum</i>	3 ft. x 6 in.	..	.652	41
WHITEWOOD	Myrtaceæ	<i>Phyllocladus thymoides</i>	6 ft. x 1 ft.	..	.801	50
TALLOWWOOD	..	..	..	..	..	..

TABLE OF EXPERIMENTS MADE BY JAMES

No. of Experiment.	NAME OF WOOD, &c.	Specific Gravity.	Greatest Weight and Deflection while the Elasticity was perfect.		W Breaking Weight. lbs.	Δ Ultimate Deflection. inches.
			Weight lb. Wl	Deflection inches d.		
1. BLUE GUM, 7 ft. long, 2 in square.						
1	Green piece, newly cut .....	1027	349	2·125	755	8·5
2	Ditto .....	1078	299	1·125	800	7·75
3	Piece seasoned about 3 years .....	1003	315	1·875	695	6·75
4	Ditto 8 months .....	1076	294	1·5	819	7·5
5	Ditto .....	1034	503	1·375	867	5·
6	Ditto from 2 to 3 years .....	1054	472	1·375	1029	6·5
7	Ditto 4 to 5 years .....	1078	413	1·375	1043	6·
8	Ditto 2 to 3 years .....	987	567	1·75	1113	7·5
9	Ditto 4 to 5 years .....	1071	434	1·375	1113	6·
10	Ditto 3 years .....	942	496	1·625	1122	5·25
11	Ditto, yellow-coloured .....	1018	623	2·625	1131	7·5
12	Ditto, brown ditto .....	997	679	1·625	1140	5·25
13	Ditto, curly Gum .....	1005	776	1·75	1235	6·
14	Ditto, brown-coloured .....	1008	654	1·625	1282	5·
15	Ditto .....	1089	518	1·625	1330	4·
<i>Separate Experiment.</i>						
16	Piece of keel from a steamer, 5 ft. long, 1½ in. square	1090	...	...	791	3·5
	Weight reduced to 7 ft. long and 2 inches square .....	...	...	...	842	...
2. ASH, OR SWAMP GUM.						
1	Green piece 7 ft. and 2 in. square	967	310	1·5	688	6·25
2	Ditto .....	1003	434	1·75	750	5·5
3	Seasoned piece, ditto .....	954	354	1·25	914	6·
3 STRINGY-BARK.						
1	Green piece, brown-coloured .	919	326	1·25	707	5·
2	Ditto, reversed grain .....	919	314	1·25	736	5·75
3	Ditto, white-coloured .....	798	357	1·75	746	6·5
4	Ditto .....	866	440	1·75	746	5·25
5	Seasoned upwards of 6 years..	925	417	1·625	973	4·25
6	Ditto 16 years .....	864	552	2·5	972	5·25
7	Ditto 18 years .....	947	468	1·25	958	2·75
8	Ditto 20 years .....	847	427	1·625	977	5·75
9	Ditto .....	838	451	1·625	990	5·25

In the Table, l signifies the length.

a the breadth.

d the depth.

Δ the deflection.

S the value of the strength, without considering the deflection.

S' the value of the strength, the deflection considered.

W the weight.

C the cohesion.

D the depth of the neutral axis.

## MITCHELL, D.A.C.G., ON TASMANIAN TIMBERS.

D	U	E	S	S'	C	Direct Cohesion on square inch from experiment
Depth of Neutral Axis.	Value of Ultimate Deflection.	Value of Elasticity. $L = \frac{l^2 w l}{ad^3 d}$	Value of Strength. $S = \frac{lw}{4ad^2}$	Value of Strength. $S' = \frac{lw \sec^2 \lambda}{4ad^2}$	Value of Direct Cohesion. $C = \frac{S' d^2}{(D \cdot d^2)}$	lbs.
1.25	415	6083932	1982	2063	14670	11232
...	457	9845472	2100	2135	...	18480
...	523	6022637	1693	1737	...	...
...	...	7200624	2149	2211	...	13104
1.25	705	13551368	2276	2291	16291	93408
1.25	542	13625285	2731	2766	19660	28784
1.25	588	11126670	2737	2793	19861	27440
1.1875	470	12180827	2921	3015	18268	22064
1.1875	588	11692433	2921	2981	18063	27472
1.125	784	14271872	2945	2996	15652	31088
...	470	8791776	2969	3064	...	20168
1.375	672	15478693	2992	3039	31119	27888
...	588	16426368	3242	3305	...	31024
1.1	705	14908785	3365	3389	16735	35920
...	882	13955485	3491	3522	...	28336
...	587	...	2213	2243	...	26288
...	...	...	2210	...	...	...
...	564	7655760	1806	1846	...	18480
1.25	641	9186912	1968	2022	14378	18496
...	588	10490860	2399	2448	...	16888
...	705	9661075	1856	1882	...	21376
...	613	9305452	1932	1968	...	21376
1.125	542	7556976	1958	2005	10487	20845
...	672	9313920	1958	1995	...	23290
1.	830	9506060	2554	2584	10336	18400
1.125	672	12583561	2551	2599	13578	20168
...	1283	13869273	2514	2525	...	12620
1.1875	613	3627863	2564	2613	15832	18136
...	672	10281134	2598	2647	...	27440

The depth of the neutral axis is not given in many of the experiments, it being found impracticable to ascertain it with nicety, from the irregular nature of the fractures; these, however, always evinced compression and tension clearly enough, whether the pieces were broken short off or rent along the grain, which sometimes, though rarely, occurred.

The direct cohesion, by experiment, is given in each case, as preferable to that shown by the formula, the applicability of which, without reference to the discrepancies between the results is, I think, questionable.

## Section VIII.

### REGULATIONS UNDER "THE CROWN LANDS ACT, 1903."

#### *Timber Licences, &c.*

19. Licences to fell, cut into logs, split, and remove timber for other than saw-milling purposes, from Crown lands not within a Timber Reserve, and Licences to burn charcoal and lime, make bricks, pottery, and earthenware, quarry stone, procure shells, sand, gravel, earth, slack, and guano, upon Crown lands, may be obtained by application at the Crown Lands Office, Hobart, from a Bailiff of Crown Lands, or through the Police, or from any person whom the Commissioner may appoint for that purpose, either on payment of the undermentioned fees for each and every person employed; or, in the case of a Licence to cut under royalty, then in accordance with the rates and under the conditions as hereinafter set forth. The Licence shall be in the form of Schedules Nine or Nine (A) hereto, as the case may be, and shall apply only to the particular locality for which it is issued.

#### SCALE OF FEES.

##### LICENCE TO CUT TIMBER FOR A PERIOD.

Split Timber—	Fee for each Person employed.
Split Fence Posts ... ..	10s. per month.
Split Fence Rails ... ..	10s. per month.
Split Palings ... ..	10s. per month.
Split Shingles ... ..	10s. per month.
Split Staves (Wattle) ... ..	£1 per month.
Split Staves (Blackwood) ... ..	£1 5s. per month.
Cut Firewood ... ..	5s. per month.
Hop-poles ... ..	11s. for 14 days, or £1 per month.
 Timber in the Log (which shall not include Piles, Poles, and Beams)—	
Cut Eucalyptus ... ..	£1 per month.
Cut Blackwood ... ..	£3 per month.
Cut other Ornamental Timber ... ..	£3 per month.
 Miscellaneous—	
Burn Charcoal from ordinary timber ...	2s. 6d. per week.
Quarry Stone, make Bricks, Pottery, and Earthenware ... ..	2s. 6d. per week.
Procure Shells, Sand, Gravel, Earth, Slack, Guano, &c. ... ..	5s. per week.
Cut Brushwood or Scrub ... ..	5s. per month.

##### LICENCE TO CUT UNDER ROYALTY.

*Squared Timber (hewn or pit-sawn)	Rate of Royalty.
Squared Piles, Bridge Beams, Girders	2s. per 1000 sup. feet.
Squared Sleepers ... ..	2s. per 1000 sup. feet.
 Timber cut for use in the round—	
Piles, length, up to 30 feet ...	1d. per lineal foot.
Piles, length, above 30 feet and not exceeding 60 feet ... ..	½d. per lineal foot.
Piles, length, above 60 feet ... ..	1d. per lineal foot.
Telegraph and Scaffold Poles ... ..	½d. per lineal foot.

20. A Licence to cut timber under royalty may be issued for any period not exceeding Three months, upon payment of a fee of Two Shillings and Sixpence.

\* The charges for cutting under royalty under the Regulations have been repealed. See Regulations Nos. 163 and 164, page 95.

21. The holder of such Licence (Schedule Nine (A) hereto) shall notify the Bailiff of Crown Lands issuing such Licence, or any officer authorised in that behalf by the Commissioner of Crown Lands, of his intention to remove any timber so cut; and shall, before removal, pay the royalty in accordance with the scale of fees or rates relating thereto. No timber shall be deemed the property of the Licensee until royalty shall have been paid thereon. In the event of removal without notification as hereinbefore mentioned, all timber cut under such Licence may be seized and disposed of as the property of the Crown. The lessee of a Sawmilling or Logging Area who shall have obtained a Licence to cut timber under royalty, other than that set forth in the terms of his lease, shall not, however, be required to give notification before removal of any timber so cut, but shall supply a monthly return and declaration therefor under Schedule Sixty-two or Sixty-three, as the case may be, giving details of the timber cut and paying royalty thereon.

22. Timber Licences may be issued to any company or firm of contractors in the name of such company or firm for any number of persons upon payment of the aggregate fee therefor.

23. The Commissioner may, by notice to be published in the "Hobart Gazette" (hereinafter called the "Gazette"), withdraw any Crown lands from the operation of Timber Licences, or may prohibit the cutting of any particular kind of timber in any specified locality.

24. Timber Licences will not apply to any land set apart for any public purpose.

25. Lands held under lease from the Crown, lands set apart for towns, and lands surveyed for sale by auction, will be available only by the written authority of the Commissioner.

26. Timber Licences will not be available for use within the boundaries of any Timber Reserve except by the written permission of the Commissioner, and subject to such conditions and such fees as he may consider necessary.

27. The lessee or licensee of any Crown lands occupied for mining or pastoral purposes may notify in writing to the Commissioner any reasonable objections he may have against Timber Licences being granted to any person in respect of the lands held by virtue of such lease or licence, and the Commissioner may, if he sees fit, after investigating such objections, refuse to issue a Timber Licence in respect of such lands.

28. Every person holding a Timber Licence must exhibit it, if called upon to do so, to any officer of the Crown authorised by the Commissioner in that behalf, or to any Bailiff of Crown Lands, or to any Police Constable, or to the lessee of any land on which the holder of the Timber Licence may be cutting, or to the agent of such lessee. Any person refusing to produce his Licence when so called upon as aforesaid will be deemed to be unlicensed.

29. A Bailiff of Crown Lands, or any Police Officer, may seize any timber which there is good reason to believe was cut upon any Crown land without licence, or by a person deemed to be unlicensed under the provisions of the preceding Regulation, and upon the authority of the Commissioner such timber may be sold in such manner as the Commissioner may direct. Provided that Seven days' notice of such intention to sell be published in the "Gazette."

30. Timber cut, split, or sawn under licence upon any Crown lands, and not at once removed, must be stacked, and each stack marked in white paint with the licensee's initials; logs not removed must each be branded and numbered, and the licensee shall furnish the Bailiff of Crown Lands or any Police Officer with particulars of such stacks, or of the number and brands of such logs. Any such logs or timber which remain more than three months upon Crown land may be seized and disposed of as the property of the Crown.

31. The holder of a Timber Licence, on a written notice from the Commissioner, shall desist from cutting or splitting timber upon any Crown land which may have been selected for purchase, in which case the licensee shall, within Three months from the date of such notice, remove from such land all the timber he may have cut under licence during the period previous to such notice being given. All cut timber

remaining upon the land after the expiration of the term of Three months as aforesaid shall be the property of the Crown. The licensee will not be entitled to claim more than Three trees that may be felled but not cut up.

32. No person shall at any time fell any tree into any river or stream, or so as to obstruct any road or Government track.

33. Every holder of a licence to fell, cut, and remove timber in the log for other than sawmill purposes, or to hew or square beams, or cut piles, shall keep a register of the number of logs, beams, or piles cut under such Licence, and shall present the same to the officer issuing the Licence, on expiry of such Licence, and until this register is produced, the officer may refuse to issue a new Licence. The register shall be in the form of Schedule Ten hereto.

34. Licences for the purpose of obtaining and burning limestone, obtaining earth for the purpose of making bricks, pottery, or earthenware of any description, will authorise the holder to enter upon only such Crown lands as the Commissioner may approve of, not exceeding Three acres in extent, and subject to the condition that the same be enclosed with a substantial four-rail or four-log fence not less than 4 ft. 6 in. in height.

#### *Bush Fires.*

35. Any person who shall light or cause to be lighted a bush fire upon Crown land during the months of December, January, February, and March, without the consent in writing of the Commissioner first had and obtained, shall be liable for each offence to a penalty not exceeding Five Pounds.

#### *Cutting Pine.*

92. For the purposes of these Regulations the term "Pine" shall apply to and include—

Huon or Macquarie Pine (*Dacrydium franklinii*).

King William Pine (*Athrotaxis*—all species).

Celery-top Pine (*Phyllocladus rhomboidalis*).

Any Crown lands not within a Timber Reserve upon which pine is growing are available for felling, removing, and selling pine, as provided herein.

93. The term "Licence" shall mean a Licence for felling, cutting, and removing pine. To remove pine shall mean to take to a place of shipment or remove to such place as shall be approved of by the Commissioner (hereinafter called a receiving depôt).

94. Every person engaged in felling, cutting, or removing pine timber from Crown lands not within a Timber Reserve for other than sawmilling purposes, must hold a Licence, which shall be in the form in Schedule Fifty-three hereto, which will be granted only as provided by these Regulations. Licences will be issued at the following Rate—Two Pounds per month—and will expire at the end of each month; but Three months' Licences may be obtained at one time. A licence will apply only to the particular locality for which it is issued.

95. The holder of a Pine Licence may fell, cut, or remove any available pine in the particular locality to which his Licence applies, and may claim and mark two standing trees in addition to any he may have felled and is engaged in cutting up. Any pine tree that may be felled shall be forthwith cut up into logs, and no licensee will be allowed to claim and hold more than two fallen trees not cut up into logs. Provided that no pine logs be cut of a less girth than herein mentioned—

Huon or Macquarie Pine, 5 feet.

King William Pine, 4 feet 6 inches.

Celery-top Pine, 3 feet.

All such measurements to be taken at Three feet from the ground. Provided also, that the Commissioner, or any officer deputed by him, may reserve any trees he may consider necessary, and all such trees will be marked with the broad arrow.

96. Every licensee shall provide himself with a distinctive branding-iron, which must be registered with the officer issuing the Licences, and all logs and stumps must be branded with the licensee's brand and numbered consecutively. The stumps must also show the numbers of

all logs removed from each tree in consecutive order. All brands and numbers must be bold and distinct, and not less than One and a half inches in length.

97. All unbranded logs, or logs marked or branded with any unregistered brand or mark, may be seized by any officer authorised for that purpose, and shall, upon seizure, become forfeited to the Crown.

98. When the term of a Licence has expired, and is not renewed, and the licensee has logs lying in the bush, he shall register with the officer issuing Licences full particulars of the logs or timber he claims, giving numbers, brands, and positions, so that they may be readily identified; and no claim to remove such logs or timber shall be recognised in default of such registration. Such timber to be at licensee's risk.

99. After logs or timber shall have remained in the bush for a period of Twelve months, the interest or ownership of any person therein shall thereupon cease, and the logs or timber shall revert to the Crown; but the Commissioner, or any person authorised by him in that behalf, may, by permission in writing under his hand, allow such further reasonable time for removal as he may think proper. No pine can be registered unless the same be brought to a receiving depôt, which shall not exceed Five acres in extent.

100. When any Crown lands are withdrawn from the operation of these Regulations relating to pine-cutting, all felling must cease as to any land withdrawn, and all pine trees then felled be removed within Twelve months of the date of such notice. Any pine remaining on the ground after the period above named will revert to and become the property of the Crown.

101. Should it appear to the Commissioner or any Crown Lands Bailiff that any licensee is cutting down more pine than is likely to be removed within Six months, or should such officer, from personal inspection, be of the opinion that unnecessary or wanton destruction of growing timber is taking place, the Commissioner may prohibit such licensee from felling any more until the timber already down, or the greater portion of it, has been removed to the satisfaction of the Commissioner or a Crown Lands Bailiff.

102. Every licensee shall keep a register of the number of trees and logs felled by him under his Licence, and shall present the same to the officer issuing the Licences on the expiry of every Licence, and until this register is produced the officer may refuse to issue a new Licence. The particulars of all pine cut under each Licence must be stated on the register, and shall be in accordance with Schedule Fifty-four hereto.

103. A Registration Fee of Two Shillings and Sixpence shall be paid by every licensee for all logs or timber lying in the bush or in any receiving depôt after the expiry of such Licence under which it was cut; and any logs not corresponding with the Registration Certificate, which shall be in the form of Schedule Fifty-five hereto, shall be deemed to be unlawfully cut, and may thereupon be seized by any authorised officer, and all such pine may be dealt with in such manner as may be deemed desirable by the Commissioner.

104. No pine logs shall be taken from any receiving depôt unless proper notice (at least Forty-eight hours) shall have been given to a Crown Lands Bailiff of such intended removal.

#### *Stripping Wattle-bark*

105. The Commissioner may issue, or cause to be issued, Licences to strip wattle-bark on Crown land; provided that such Licences shall be issued only in respect of the period, or any broken part of such period, commencing from the First day of September in every year, and ending on the last day of February in the following year.

106. Applications for Licences to strip wattle-bark upon unoccupied or leased Crown lands are to be made upon printed forms (Schedule Fifty-six hereto), obtainable from any Bailiff of Crown Lands, and from the Lands Branch Office, Launceston, and Department of Lands and Survey, Hobart.

107. The fee to be charged for the right to strip wattle-bark on Crown land, shall be Four Pounds per calendar month, or any portion thereof, for every person so employed; and every application shall be accom-

panied by such fee, and shall be forwarded to the Bailiff of Crown Lands for the District from which the Licences are to be obtained.

NOTE.—Repealed. See Government Notice No. 19, page 97.

108. Licences to strip wattle-bark on Crown land shall be in the form of Schedule Fifty-seven hereto, and are to be obtained from the Bailiff of Crown Lands for the District; and every person stripping wattle-bark on Crown land must be the holder of a Licence. Each Licence shall apply only to the particular locality for which it is issued.

109. Every person holding a Licence must exhibit it, if called upon to do so, to any person authorised by the Commissioner to inspect such Licences, or to any Bailiff of Crown Lands, or to any Police Constable, or to the occupier of any run on which the holder of the Licence may be cutting, or to the agent of such occupier. Any person refusing to produce his Licence when so called upon as aforesaid will be deemed to be unlicensed.

110. A Bailiff of Crown Lands, or any Police Officer, may seize any wattle-bark which there is good reason to believe was cut upon Crown lands without licence, or by a person deemed to be unlicensed under the provisions of the preceding Regulations; and upon the authority of the Commissioner such wattle-bark may be sold in such manner as the Commissioner may direct, provided that Fourteen days' notice of such intention to sell be published in the "Gazette."

111. The licensee shall be entitled to a period of Thirty days from the expiration of the Licence within which to remove all bark stripped by him during the continuance of the Licence. At the expiration of such period all bark which the licensee shall have then failed to remove shall become the absolute property of the Crown.

112. At no time during the period commencing from the First day of September in any year, and ending on the last day of February in the following year, shall any fire be lighted upon any part of the land in respect of which the Licence is granted, unless the ground be cleared for a clear space of at least Twelve feet in every direction around such fire or fires; and no burning of scrub or forest land shall in any case be permitted under pain of immediate cancellation of the Licence and forfeiture of all rights thereunder.

113. No Wattle-tree of the species *Acacia decurrens* (Black Wattle), or *Acacia dealbata* (Silver or White Wattle), shall be stripped or cut upon Crown lands under the following size; that is to say:—Three inches in diameter, or Nine inches in circumference in the widest part, of the trunk for the former species, and Two and a half inches in diameter, or Seven and a half in circumference in the widest part, for the latter. In the event of any breach of this Regulation, it shall be lawful, without prejudice to the right of the Commissioner to cancel the Licence as hereinafter provided, for a Bailiff of Crown Lands, Constable, or other person acting by or under the direction of the Commissioner, to seize or cause to be seized all bark obtained or stripped under or by virtue of such Licence, and which bark shall then be deemed to be property of the Crown, and to sell the same for such price in such manner, and generally upon such terms and conditions, as the Commissioner shall think fit; and after the payment of all costs and expenses incurred in or about such seizure and sale as aforesaid, the Commissioner shall be at liberty to retain out of the proceeds of such sale a sum of Two Shillings for every wattle-tree of the abovementioned species so stripped, cut, destroyed, or damaged by the licensee, and the surplus, if any, shall be paid to the licensee. And the onus of proof that such stripping, destruction, or damage was not committed by the licensee shall lie upon the licensee.

114. A Licence to strip wattle-bark shall in no case confer upon the licensee any right of grazing stock or of camping upon any Crown lands, unless with the written consent of the Commissioner, or any officer authorised in that behalf by him.

115. In the event of entry upon leased land of the Crown the licensee shall bind himself to the following conditions:

- (a) To close and keep closed all gates or places of ingress or egress.
- (b) To refrain from hunting wild or other animals by shooting or by chase whilst on such land.

- (c) To keep no dogs, and allow no dogs on any Crown lands whilst working the same.
- (d) To thoroughly clear all brushwood, ferns, and grass for a space of Twelve feet around every fire, and to thoroughly extinguish every fire before leaving for work during the period commencing from the first day of September in any year, and ending on the last day of February in the following year; and to kindle no fire within One hundred feet of any fence, building, haystack, or other property belonging to the Crown lessee.
- (e) To refrain from all damage of whatever kind as regards fencing, livestock, and property of every description, including timber (except deadwood for firewood); also from the erection of huts or permanent places of residence—tents only being allowed.

116. The penalty for breach of any of these Regulations relating to the stripping of wattle-bark is immediate cancellation by the Commissioner of the Licence, and forfeiture of all rights thereunder.

117. The Commissioner shall have a power of distress in case of and immediately upon any default on the part of the licensee in the performance or non-observance of these Regulations.

*Felling, Sawing, Cutting, Splitting, and obtaining Timber under Lease.*

**Sawmill Areas.**

118. Applications for a lease of Crown land, of an area to be approved by the Commissioner, not exceeding One thousand five hundred acres, for obtaining therefrom timber (other than piles, poles, and beams) for saw-milling purposes for a period not exceeding Twenty-one years must be in the Form set out in Schedule Fifty-eight hereto, and must be accompanied by the fee of One Shilling for the application form. Stamps will not be accepted in payment.

119. The rental shall be at the rate of One Pound for every One hundred acres or part thereof, payable upon demand prior to the issue of the lease, and thereafter by equal yearly payments in advance calculated from the date of the lease. The lessee shall also, in addition to the said rental, pay a royalty on all timber cut in the log in accordance with the rates hereinafter set forth, and such royalty shall be payable on the first day of every calendar month. The form of lease shall be as set forth in Schedule Fifty-nine hereto.

NOTE.—Repealed. See Regulation No. 165, page 96.

120. The lessee shall, within Six months from the date of his lease, complete upon the demised premises, or such other approved site, to the satisfaction of the Commissioner, the erection of, and thereafter shall maintain in good repair and condition to the satisfaction of the Commissioner, good and effectual machinery and plant, and the amount of nominal horse-power of the mill-engine shall be in proportion to the area of the land leased, and in accordance with the following scale:—

20 horse-power	1500 acres.
18 horse-power	1000 acres.
16 horse-power	800 acres.
14 horse-power	600 acres.
12 horse-power	500 acres.
10 horse-power	300 acres.
8 horse-power	200 acres.

**Logging and Splitting Areas.**

121. Applications for a lease of the right to fell, cut, and remove timber in the log, or split timber, as hereinafter provided, on Crown land, shall be in the form set out in Schedule Sixty hereto, and must be accompanied by the fee of One Shilling for the application form. Stamps will not be accepted in payment.

122. The lease, which shall be in the form set forth in Schedule Sixty-one hereto, shall entitle the holder to the exclusive right to fell,

cut, and remove timber in the log, or split timber (other than piles, poles, and beams), of the kind specified in the lease, within the area described therein, but shall operate and take effect only as a licence to the lessee to do all things that may from time to time be necessary to the enjoyment of the rights conferred by the lease and by these Regulations, and shall not affect the right of the Commissioner, or any person claiming under him, to occupy or use the land therein comprised for any purpose consistently with the rights conferred by the lease.

123. The area of the land comprised in the lease, if for logging, shall not at any time exceed Two hundred and fifty acres; if for splitting, shall not at any time exceed fifty acres; and the term of the lease shall not exceed Five years.

124. The minimum rental shall be at the following rate:

For logging—	
100 acres and under .....	£2 per annum;
Above 100 acres, and not exceeding 150 acres .....	£3 per annum;
Above 150 acres, and not exceeding 250 acres .....	£5 per annum;
For Splitting—	
50 acres .....	10s. per annum;

payable upon demand, prior to the issue of the lease, and thereafter by equal yearly payments in advance, calculated from the date of the lease.

The lessee shall also, in addition to the said rental, pay a royalty on all the timber cut in the log, in accordance with the rates hereinafter set forth, and such royalty shall be payable on the First day of every calendar month in respect of the timber cut during the preceding month.

125. No person shall hold at any one time more than One Lease of a Logging or Splitting area under these Regulations.

#### Firewood Areas.

126. Applications for a lease of Crown land, of an area to be approved by the Commissioner, not exceeding One thousand five hundred acres, for obtaining therefrom firewood, for a period not exceeding Twenty-one years, shall be in the form set out in Schedule Sixty hereto, and must be accompanied by the fee of One Shilling for the application form. Stamps will not be accepted in payment.

127. The rental shall be at the rate of One Pound for every One hundred acres or part thereof, payable upon demand prior to the issue of the lease, and thereafter by equal yearly payments in advance calculated from the date of the lease. The lessee shall also, in addition to the said rental, pay a royalty on all firewood cut, in accordance with the rates hereinafter set forth, and such royalty shall be payable on the first day of every calendar month in respect of the firewood cut during the preceding month.

128. The lease, which shall be in the form set forth in Schedule Sixty-one hereto, shall entitle the holder to the exclusive right to fell, cut, and remove firewood only of the kind specified in the lease, within the area described therein, but shall operate and take effect only as a licence to the lessee to do all things that may from time to time be necessary to the enjoyment of the rights conferred by the lease and by these Regulations, and shall not affect the right of the Commissioner, or any person claiming under him, to occupy or use the land therein comprised for any purpose consistently with the rights conferred by the lease.

129. No person shall hold at any one time more than one Lease of a Firewood Area under these Regulations.

130. No pine-tree nor tree of the species known as *Acacia decurrens* (Black Wattle), *Acacia dealbata* (Silver or White Wattle), *Acacia melanoxylon* (Blackwood), shall be cut or removed from any Firewood Area except as hereinafter provided.

131. All timber cut shall be for use as firewood only, and no other timbers of commercial value shall be cut or removed from any Firewood Area, except on payment of a licence fee, in accordance with these Regulations.

*General as to Sawmill, Logging, Splitting, and Firewood Areas.*

132. Surveys shall be effected, if considered necessary, by the Commissioner, at the expense of the applicant, in accordance with the following scale of fees, and shall be payable in advance, and if not paid within Thirty days after demand the application shall be cancelled. The payment of the Survey Fee shall not entitle the applicant, without the consent in writing of the Commissioner, to fell, cut, split, or saw any timber on the land comprised in the application, or to remove any such timber, until the lease is issued.

## Survey Scale.

	£	s.	d.
For any area not exceeding 50 acres ... ..	5	0	0
Above 50 and not exceeding 100 acres ... ..	8	15	0
.. 100 .. .. 150 .. ..	10	0	0
.. 150 .. .. 200 .. ..	11	5	0
.. 200 .. .. 250 .. ..	12	10	0
.. 250 .. .. 350 .. ..	14	0	0
.. 350 .. .. 500 .. ..	15	10	0
.. 500 .. .. 750 .. ..	17	5	0
.. 750 .. .. 1000 .. ..	20	0	0
.. 1000 .. .. 1500 .. ..	23	15	0

133. All boundary-lines shall be run to the cardinal points of the compass.

134. Where two or more applications are received at the same time for the right to fell, cut, and obtain timber from the same land, the Commissioner will call upon the applicants to tender for the rental of the right, and the applicant who tenders the highest rental shall be the successful applicant.

135. The lessee shall keep in a book a true and correct record of the measurement of each log cut or obtained on Sawmill, Logging, and Splitting leases, stating nature or species of timber, length, girth (which shall be measured at the centre, or in such manner as to give the mean girth), and the superficial contents of the log, returned without any reduction whatever; and on Firewood leases, a true and correct record of the number of cords of Eighty cubic feet, cut each day. Such book shall be open for inspection at any time by the Commissioner, or any officer duly authorised by him in that behalf.

136. Upon the issue of the lease the lessee shall proceed within six months from the date of his lease, with the felling, cutting, or splitting, and removing of the timber, in accordance with these Regulations, and shall exercise at all times all due diligence and despatch, and shall employ such number of men as shall appear to the Commissioner to be sufficient, having regard to area, and shall keep such men at all times actively and diligently employed, and shall not employ them for any purpose other than that of assisting him in his operations under the lease.

137. The fees payable as royalty upon timber cut in the log under a Sawmill, Logging, or Splitting lease issued under "The Crown Lands Act, 1903," or any Act repealed thereby, shall be as follows:

## Scale

Eucalyptus (all kinds)	6d per 1000 sup. feet
Pine (all kinds)	7s. 6d
Blackwood	7. 6d
Other ornamental timbers ... ..	7s. 6d.
Firewood (Sheoak or Hoop) ..	
dead Wattle)	4d per cord
Firewood (ordinary)	3d per cord

NOTE—Wattle 2s. 6d per 1000 sup. feet. See Government Notice No. 86 page 98.

138. No tree shall be felled on Sawmilling or Logging Areas of a less size than the undermentioned, measured at Three feet from the ground:—

Eucalyptus ... ..	6 ft. in circumference.
Huon or Macquarie Pine ... ..	5 ft. „
King William Pine ... ..	4 ft. 6 in. „
Celery-top or other Pine ... ..	3 ft. „
Blackwood ... ..	3 ft. „

139. No timber other than that specified in the lease, except firewood necessary for the domestic use of the lessee's establishment upon the land comprised in the lease, or for the construction thereon of necessary tramways or buildings, or in the case of a Sawmill Area, firewood necessary, in the opinion of the Commissioner, for the use of the sawmill, shall be felled, cut, or removed from the said land, except as hereinafter provided.

140. Licences to fell and cut timber for firewood for sale, posts, rails, palings, shingles, staves, sleepers, beams, piles, or poles, may be obtained by the lessee of a Sawmill or Logging Area on his own behalf, and on behalf of all persons employed by him; upon payment of the fees prescribed by the Regulations for the time being in force relating to the obtaining of timber from Crown lands for other than sawmilling purposes, or in the log.

141. The lessee shall have the right to depasture upon the demised premises only such cattle and horses as are actually employed in the haulage or cartage of timber cut upon the demised premises.

142. No tree shall be felled into any river or stream, or so as to obstruct any road or Government track.

143. All timber felled, cut, sawn, or split and all buildings erected by the lessee, and all effects not removed within thirty days from the expiration or sooner determination of the lease, shall become the property of the Crown, and may be taken possession of, and removed without notice to the lessee, by any officer authorised by the Commissioner in that behalf.

144. The lessee shall, not later than the twenty-first day of every calendar month after the issue of the lease, furnish to the Commissioner a return, verified by statutory declaration, stating whether any timber has been cut, and the following particulars in respect of any timber cut during the preceding month; and in default thereof the lease shall become forfeited, as provided by Regulation No. 151.

*Particulars required for Sawmilling, Logging, and Splitting Leases.*

- (a) Nature or species of timber cut.
- (b) Number of logs cut.
- (c) Superficial contents thereof.
- (d) The number of men employed in felling, cutting, and splitting.
- (e) The number of men employed in haulage or cartage of timber.
- (f) Number of men employed at sawmill.
- (g) Number of days at work during the month.

*Particulars required for a Firewood Lease.*

- (a) Nature of timber cut.
- (b) Number of days employed.
- (c) Quantity cut in cords.
- (d) Number of men felling and cutting.
- (e) Number of men hauling and carting.
- (f) Number of days at work during the month.

Such returns to be in the form of Schedules Sixty-two, Sixty-three and Sixty-four hereto respectively, as the case may require.

145. Any Bailiff of Crown Lands, or other officer duly authorised by the Commissioner in that behalf, shall be at liberty at all times to enter upon the land comprised in the lease, and into any building erected by the lessee on the land, and to inspect the manner in which the timber is being operated upon; and if such operations shall be found to be carried on in an improper, unworkmanlike, or dilatory manner, to give notice in writing to the lessee, or his known or reputed

agent, to rectify such improper operations; and if the lessee shall fail to rectify the same accordingly, he shall be deemed to be guilty of a breach of these Regulations.

146. The lessee shall, upon demand, produce the lease and all or any books or papers containing entries relating to timber cut under these Regulations to any Bailiff of Crown Lands, Constable, or other officer authorised by the Commissioner in that behalf.

147. Should it appear to the Commissioner or to any duly authorised officer that the lessee is causing unnecessary or wanton destruction of growing timber, the Commissioner may thereupon notify the lessee to desist from such destruction, and if the lessee shall thereafter continue such offence he shall be deemed to be guilty of a breach of these Regulations.

148. The right is reserved to the Crown of making, constructing, and maintaining across the demised premises (not consisting of buildings, gardens, or yards), such and so many roads, tracks, railways, or tramways as he may deem necessary or expedient without claim to compensation.

149. The lessee shall not be at liberty to assign, underlet, or otherwise part with his rights under the lease, except with the written consent of the Commissioner, and upon payment to the Commissioner of a Transfer Fee of One Pound.

150. If and whenever any part of the rent or royalty shall be in arrear for twenty-one days after the same ought to have been paid, whether the same shall have been demanded or not, the Commissioner, by any officer, agent, or servant, may enter, stop, and hinder the felling, cutting, sawing, splitting, and removing of timber, and also seize and distrain all timber actually gotten and fallen, and all horses, wagons, carts, and other carriages, railways, tramways, plant, machinery, apparatus, tools, and other materials, live and dead stock, goods, chattels, and effects whatsoever for the time being, in and upon the land comprised in the Lease or elsewhere upon any land for the time being in the occupation of the lessee, his executors, administrators, or assigns, and every distress there made may take away, sell, and dispose of as in cases of distress for rent reserved in common leases, and out of the moneys arising thereby retain such moneys as shall be requisite for the purpose of satisfying the arrears.

151. If and whenever any part of the rent or royalty payable under these Regulations shall be in arrear for one calendar month, whether the same shall have been legally demanded or not, or if and whenever there shall be a breach by the lessee of any of these Regulations, or any other Regulations to which the lease shall for the time being be subject, the Commissioner may forthwith, and without the necessity for any notice to the lessee of his intention so to do, cause a notification to be published in the "Gazette," declaring that the lease therein referred to has, by reason of non-payment of rent or royalty, or breach of the Regulation or Regulations therein specified, become forfeited and void; and thereupon such lease and all the powers, rights, authorities, and privileges thereby conferred shall absolutely cease and determine.

#### *Tramways*

152. The following shall be the scale of fees to be charged for the right to construct and maintain tramways upon Crown land under annual licence—

	£	s.	d.
Where Spar Rails are used, one mile or under	2	0	0
Over one mile, per mile	1	0	0
Where Sawn Timber, or Steel, or Iron Rails are used, one mile and under	1	0	0
Over one mile, per mile	0	10	0

#### *Sawmill Site.*

153. The form of lease of Crown land for the erection of a sawmill shall be as set forth in Schedule Sixty-five hereto.

*Reward for Destruction of Native Tigers.*

154. A reward of One Pound shall be payable out of the Consolidated Revenue for the destruction of every full-grown Native Tiger (*Thylacinus cynocephalus*), and the sum of Ten Shillings for every half-grown or young Native Tiger, subject to the following conditions.

155. The person claiming such reward, or person authorised in writing by him, shall produce to the proper officer the skin of the animal complete, with head (or scalp) and paws adhering thereto, and shall satisfy the said officer that the said animal was captured and destroyed.

156. Any one of the following officers is hereby authorised to certify to the destruction of Native Tigers, and upon his certificate the amount of reward shall be paid:—

The Secretary for Lands,  
A Stipendiary Magistrate,  
A Warden of a Municipality,  
A Police Clerk,  
A Council Clerk,  
A Superintendent of Police, and  
A sub-Inspector of Police.

157. Upon the production of a skin so complete as aforesaid to any such officer, he shall make a round hole therein immediately behind the forearm, not less than half an inch in diameter, and the skin so mutilated shall become the property of the person claiming the reward.

158. The officer to whom the claim for reward is made shall declare upon the voucher for payment as follows:—

I hereby certify that ..... has satisfied me that ..... has destroyed \* ..... Native Tiger... the complete skin... of which ha..... been produced to me, and that I have mutilated the same, according to law.

159. On and after the day on which these Regulations shall come into force, no reward shall be paid for the production of a tiger skin unless the same shall be produced in a complete condition, as hereinbefore provided.

160. All claims for rewards for the destruction of Tigers, together with voucher for payment, duly signed and certified to, are to be forwarded to the Secretary for Lands, Hobart.

Regulations 154 to 160 inclusive repealed by departmental notice of 27th April, 1909. See page 98.

*Signing of Documents.*

161. Whenever the Commissioner has reason to suspect that any application for land, contract, lease, or other document has not been signed, as provided by these Regulations, he may require the applicant, purchaser, or lessee, as the case may be, to make a statutory declaration as to such matters or things as may, in the opinion of the Commissioner, be necessary to decide whether or not such application, contract, lease, or other document as aforesaid has been properly signed.

*Offences.*

162. Any person who shall be found guilty of a breach or non-observance of any of these Regulations, for which no other penalty is hereinbefore provided, shall forfeit and pay a penalty not exceeding Five Pounds for every such offence.

\* State number, and whether full-grown, half-grown, or young.

## SCHEDULE NINE.

Tasmania.

G.



R.

No.

Fee—

Date, " 19 .

LICENCE to on Lands of the Crown situated  
 in the County of , Parish (or vicinity) of .  
 Issued to , under the provisions of "The Crown  
 Lands Act, 1903," to be in force for and during the "The Crown  
 day of , 19 , subject to the conditions  
 printed on the back of this Licence, and to the provisions of "The Crown  
 Lands Act, 1903," and all Regulations made thereunder.

Secretary for Lands.

The Fee of  
 day of

was received by me on the  
 , 19 .

Officer authorised to issue Licences.

## SCHEDULE NINE (A).

Tasmania.

G.



R.

## LICENCE TO CUT TIMBER UNDER ROYALTY.

No.

Fee, 2s. 6d.

Date, 19 .

LICENCE to on Crown lands, situated  
 in the Parish (or vicinity) of , in the County  
 of , issued to , under  
 the provisions of "The Crown Lands Act, 1903," to be in force from  
 . 19 , till . 19 , subject to  
 the conditions and provisions of the said Act, or any Statutory Amend-  
 ment thereof, and of all Regulations made thereunder.

Commissioner of Crown Lands.

The Fee of Two Shillings and Sixpence was received by me, this  
 day of , 19 .

Officer authorised to issue Licences.





SCHEDULE FIFTY-FIVE.

REGISTRATION CERTIFICATE.

I, \_\_\_\_\_ hereby give notice that I have \_\_\_\_\_  
 logs of pine, containing \_\_\_\_\_ superficial feet of pine timber  
 now lying in the bush at \_\_\_\_\_, and branded \_\_\_\_\_,  
 and the said logs or timber having been cut under Licences No. \_\_\_\_\_,  
 and particulars specified in Register numbered \_\_\_\_\_, and my  
 licence expiring this \_\_\_\_\_ day of \_\_\_\_\_, 19\_\_\_\_, it is  
 not my intention to renew the same, and I hereby register the said  
 logs or timber with the Forest Officer of the District.

(Signed)

Licensee.

Registered this \_\_\_\_\_  
 which the fee of \_\_\_\_\_

day of \_\_\_\_\_, 19\_\_\_\_, for  
 has been received by me.

Forest Officer.

SCHEDULE FIFTY-SIX.  
 APPLICATION FOR LICENCE TO STRIP WATTLE BARK ON CROWN  
 LANDS.

WB \_\_\_\_\_  
 (Post Town)  
 (Date)

I, \_\_\_\_\_ hereby make application for a Licence to Strip  
 Wattle Bark on the following Crown Land, in accordance with the provisions of the  
 Regulations made under the Crown Lands Act, 1903:—

County.	Parish.	Acres in Lots.	If leased, state name of Lessee.	Description of boundaries of the Crown Land referred to.

(Signature) .....

To the Commissioner of Crown Lands.  
 NOTE.—This Application, together with the prescribed fee, is to be forwarded to the Bailiff of  
 Crown Lands for the District.



## SCHEDULE FIFTY-NINE.

No. ....

THIS INDENTURE made the day of 19 , with the consent of the Governor in Council, BETWEEN THE COMMISSIONER OF CROWN LANDS (hereinafter called the Commissioner) of the one part, and (hereinafter called the Lessee ), of the other part—WITNESSETH that in consideration of the rent and royalty hereinafter reserved, and of the covenants and agreements by the Lessee hereinafter contained the Commissioner, in exercise of the power in that behalf conferred upon him by "The Crown Lands Act, 1903," and "The Crown Lands Act, 1905" (hereinafter referred to as "the said Acts"), and of all other powers (if any) him hereunto enabling DOTH HEREBY grant unto the Lessee full and free right and liberty to fell and remove (other than piles, poles, and beams) for Saw-milling purposes within and from ALL THOSE acres roads perches of land situate in the Parish of County of , in Tasmania, and bounded

Description of timber.

Description of land.

Term.

Rent.

Date of payment of rent.

TO HAVE AND TO HOLD the said premises intended to be hereby demised (subject to the regulations now in force under the said Act, hereinafter called "the said regulations"), and to the provisions herein contained unto the Lessee for the term of years from the day of 19 , but so that these presents shall operate and take effect only as a licence to the Lessee to do all things that may from time to time be necessary to the enjoyment of the rights expressly conferred hereby, or by the said regulations, and shall not confer any right or title to occupy or use any portion of the said land, for any other purpose whatsoever. YIELDING AND PAYING therefor unto the Commissioner during the said term of years the yearly rent of (subject nevertheless to reduction as provided for by the said regulations under the said Act,) the said rent to be paid by equal yearly payments in advance on the day of in every year. AND ALSO YIELDING AND PAYING, in addition to the said rent, a royalty on all timber cut in the log, in accordance with the rates payable under the Regulations for the time being in force under the said Act, but so that such rates shall not at any time during the said term exceed the rate specified in the Schedule hereto. AND the Lessee hereby for heirs, executors, administrators, and assigns, covenant with the Commissioner, his successors and assigns, that the Lessee, executors, administrators, and assigns, will during the said term pay unto the Commissioner, his successors and assigns, the rent hereinbefore reserved on the day and in the manner hereinbefore mentioned and appointed for payment thereof, and the said royalty, clear of all deductions. AND will not assign, underlet, or otherwise part with, rights under this Lease, or any of them, except with the written consent of the Commissioner, and upon payment to the Commissioner of a transfer fee of £1. AND will comply with all the said Regulations. And will, in the event of the lessee, his executors, administrators, or assigns, failing to furnish the monthly returns required by the said Regulations within 30 days from the date upon which such returns should have been furnished, pay to the Commissioner the sum of Five Shillings for every month or fractional part thereof during which such default shall continue, which

sum may be recovered by distress in the manner hereinafter provided with respect to rent and royalty in arrear. PROVIDED ALWAYS, that if and whenever any part of the rent or royalty hereby reserved shall be in arrear for Twenty-one days after the same shall have become due, and whether the same shall have been demanded or not, the Commissioner, by any officer, agent, or servant, may enter, stop, and hinder the felling, sawing, and removing of timber, and also seize and distrain all timber actually gotten and fallen, and all horses, wagons, carts, and other carriages, railways, tramways, plant, machinery, apparatus, tools and other materials, live and dead stock, goods, chattels, and effects whatsoever for the time being in and upon the land hereby demised, or elsewhere upon any land for the time being in the occupation of the Lessee . . . executors, administrators, or assigns, and every distress there made may take away, sell, and dispose of, as in case of distress for rent reserved in common leases, and out of the moneys arising thereby retain such moneys as shall be requisite for the purpose of satisfying the arrears. PROVIDED ALSO, that if and whenever any part of the rent, or any part of the royalty payable hereunder, shall be in arrear for one calendar month, whether the same shall have been legally demanded or not, or, if and whenever there shall be a breach by the Lessee of any of the agreements or conditions contained in these presents or of any of the said regulations, the Commissioner may forthwith, and without the necessity for any notice to the Lessee of his intention so to do, cause a notification to be published in the "Gazette" declaring that these presents have, by reason of non-payment of rent or royalty, or breach of the said agreements or conditions therein specified become forfeited and void, and thereupon these presents, and all the powers, rights, authorities, and privileges hereby conferred, shall absolutely cease and determine.

IN WITNESS whereof the said parties to these presents have hereunto set their hands and seals the day and year firstly hereinbefore written.

Signed, sealed, and delivered by The Commissioner  
of Crown Lands, in the presence of

(L.S.)

The Commissioner of Crown Lands.

Signed, sealed, and delivered by the said  
in the presence of

(L.S.)

*Schedule hereinbefore referred to.*

Scale.

Eucalyptus (all kinds) . . . . .	per 1000 sup. feet.
Pine (all kinds) . . . . .	.. ..
Blackwood . . . . .	.. ..
Other Ornamental timbers . . . . .	.. ..

SCHEDULE SIXTY.

APPLICATION FOR LOGGING, SPLITTING, OR FIREWOOD AREA.

\_\_\_\_\_

(Post Town)

(Date)

I, ....., hereby make application for a Lease to obtain .....  
 from Crown Land hereunder described, in accordance with the Regulations  
 under "The Crown Lands Act, 1903," as endorsed hereon.

County.	Parish.	No. of Acres.	No. of Years Lease.	Nature of Timber to be obtained.	Description of Boundaries of the Crown Land referred to.

To the Commissioner of Crown Lands,  
 Department of Lands and Surveys,  
 Hobart. (Signature) .....

*The fee of One Shilling must be forwarded with this Application. Postage stamps will not be accepted.*

SCHEDULE SIXTY-ONE.

No. ....  
 THIS INDENTURE made the \_\_\_\_\_ day of \_\_\_\_\_ 19\_\_\_\_ BETWEEN THE COMMISSIONER OF CROWN LANDS (hereinafter called the Commissioner), of the one part, and (hereinafter called the Lessee), of the other part— WITNESSETH that in consideration of the rent and royalty hereinafter reserved, and of the covenants and agreements by the Lessee hereinafter contained the Commissioner, in exercise of the power in that behalf conferred upon him by "The Crown Lands Act, 1903," and "The Crown Lands Act, 1905" (hereinafter referred to as "the said Acts"), and of all other powers (if any) him hereunto enabling, DOTH HEREBY grant unto the Lessee full, free, and exclusive right and liberty to \_\_\_\_\_ within and from ALL THOSE \_\_\_\_\_ acres \_\_\_\_\_ roods \_\_\_\_\_ perches of land situate in the Parish of \_\_\_\_\_ County of \_\_\_\_\_ in Tasmania, and

\* Here specify kind of timber.

Description of land.

bounded TO HAVE  
 AND TO HOLD the said premises intended to be hereby  
 demised (subject to the regulations, now in force under  
 the said Act, hereinafter called "the said regulations.")  
 and to the provisions herein contained unto the Lessee  
 for the term of \_\_\_\_\_ years from the  
 day of \_\_\_\_\_ 19\_\_\_\_, but so that these presents  
 shall operate and take effect only as a licence to the  
 Lessee to do all things that may from time to time  
 be necessary to the enjoyment of the rights expressly  
 conferred hereby, or by the said regulations, and shall  
 not confer any right or title to occupy or use any portion  
 of the said land, for any other purpose whatsoever.  
 YIELDING AND PAYING therefor unto the Commissioner,  
 during the said term of \_\_\_\_\_ years, the  
 yearly rent of \_\_\_\_\_ the said rent to be  
 paid by equal yearly payments in advance on the  
 day of \_\_\_\_\_ in every year. AND ALSO  
 YIELDING AND PAYING unto the Commissioner, in addition  
 to the said rental, a royalty on all timber cut, in  
 accordance with the rates payable under the regulations  
 for the time being in force under the said Act, but  
 so that such rates shall not at any time during the said  
 term exceed the rate specified in the Schedule hereto.  
 AND the Lessee \_\_\_\_\_ hereby covenant  
 with the Commissioner, that \_\_\_\_\_ the  
 Lessee \_\_\_\_\_, executors, administrators, and  
 assigns, will during the said term pay unto the Commis-  
 sioner, the rent and royalty hereinbefore reserved, on  
 the days and in the manner hereinbefore mentioned and  
 appointed for payment thereof, clear of all deductions.  
 AND will not assign, underlet, or otherwise part with  
 \_\_\_\_\_ rights under this Lease, or any  
 of them, except with the written consent of the Commis-  
 sioner, and upon payment to the Commissioner of  
 a transfer fee of One Pound. AND will comply with all  
 the said Regulations. AND will, in the event of the  
 lessee, his executors, administrators, or assigns, failing  
 to furnish the monthly returns required by the said  
 Regulations within Thirty days from the date upon  
 which such returns should have been furnished, pay to  
 the Commissioner the sum of Five Shillings for every  
 month or fractional part thereof during which such  
 default shall continue, which sum may be recovered by  
 distress in the manner hereinafter provided with respect  
 to rent and royalty in arrear. PROVIDED ALWAYS, that  
 if and whenever any part of the rent or royalty hereby  
 reserved shall be in arrear for Twenty-one days after  
 the same shall have become due, and whether the same  
 shall have been demanded or not, the Commissioner, by  
 any officer, agent, or servant, may enter, stop, and  
 hinder the felling, cutting, splitting, and removing of  
 timber, and also seize and distrain all timber actually  
 gotten and fallen, and all houses, waggon, carts, and  
 other carriages, railways, tramways, plant, machinery,  
 apparatus, tools, and other materials, live and dead  
 stock, goods, chattels, and effects whatsoever for the  
 time being in and upon the land hereby demised, or  
 elsewhere upon any land for the time being in the  
 occupation of the Lessee \_\_\_\_\_  
 executors, administrators, or assigns, and every distress  
 there made may take away, sell, and dispose of, as in  
 case of distress for rent reserved in common leases, and  
 out of the money arising therefrom retain such money  
 as shall be requisite for the purpose of satisfying the  
 arrears. Provided also, that if and whenever any part  
 of the rent or any part of the royalty payable here-

Term.

Rent.

Date of payment  
of rent.

under, shall be in arrear for one calendar month, whether the same shall have been legally demanded or not, or, if and whenever there shall be a breach by the Lessee of any of the agreements or conditions contained in these presents or of any of the said regulations, the Commissioner may forthwith, and without the necessity for any notice to the Lessee of his intention so to do, cause a notification to be published in the "Gazette" declaring that these presents have, by reason of non-payment of rent or royalty, or breach of any of the agreements, conditions, or regulations therein specified, become forfeited and void, and thereupon these presents, and all the powers, rights, authorities, and privileges hereby conferred, shall absolutely cease and determine.

IN WITNESS whereof the said parties to these presents have hereunto set their hands and seals the day and year firstly hereinbefore written.

Signed, sealed, and delivered by The Commissioner  
of Crown Lands, in the presence of

(L.S.)

The Commissioner of Crown Lands.

Signed, sealed, and delivered by the said  
in the presence of

(L.S.)

*Schedule hereinbefore referred to.*

Scale.

Eucalyptus (all kinds) ... ..	per 1000 sup. feet.
Pine (all kinds) ... ..	" "
Blackwood ... ..	" "
Other ornamental timbers .. ..	" "
Firewood (She-oak, He-oak, or dead Wattle) ... ..	per cord.
Firewood (ordinary) ... ..	" "

SCHEDULE SIXTY-TWO.

T

RETURN of Timber cut in the log and obtained from Sawmill Area, ..... Parish of .....  
 leased to ..... under "The Crown Lands Act, 1903," during the Month of ..... 19

NUMBER OF MEN EMPLOYED, (c) NUMBER OF DAYS AT WORK.

TIMBER CUT IN THE LOG FOR SAWING.	NUMBER OF MEN EMPLOYED.				(c) NUMBER OF DAYS AT WORK.
	(a) No. of Logs.	(b) No. of feet superficial contained therein.	(d) Felling and Cutting.	(e) Haulage and Cartage of Timber.	

Eucaalyptus .....					
Pine .....					
Blackwood .....					
Small pieces of the same .....					

I, ....., of ....., do hereby solemnly and sincerely declare that the above Return is true and correct in every particular; and I make this declaration under the provisions of "The Statutory Declarations Act, 1837."

Taken before me this ..... 19 .....  
 day of .....  
 (Signature of Lessee) ..... J.P.

SCHEDULE SIXTY-THREE.

RETURN of Timber cut in the log and obtained from Logging or Splitting Area..... Parish of .....  
 leased to..... under "The Crown Lands Act, 1903," during the Month of..... 19.....

NATURE OF TIMBER	TIMBER CUT IN THE LOG		NUMBER OF MEN EMPLOYED.		NUMBER OF DAYS AT WORK.
	(b) No. of Logs.	(c) No. of feet superficial contained therein.	(d) Felling, Cutting, and Splitting.	(e) Hoisting and Cartage of Timber.	
Eucalyptus .....					
Pine .....					
Blackwood .....					
[Other Timber to be enumerated.]					

TASMANIA I ..... of..... do hereby solemnly and sincerely declare  
 TO WIT. I that the above Return is true and correct in every particular; and I make this declaration under the provisions of "The  
 Statutory Declarations Act, 1857."

Taken before me this..... day of..... 19.....  
 (Signature of Lessee)..... J.P.



agreements by the Lessee hereinafter contained, the Commissioner, in exercise of the power in that behalf conferred upon him by Section 128 of the said Act, and of all other powers (if any) him thereunto enabling, and with the consent and approval of the Governor in Council as is testified by a certain memorandum or minute bearing date the                    day of                   , 19                   , and endorsed on these presents, DOTH HEREBY grant unto the Lessee                   , executors, administrators, and assigns, ALL THOSE                    acres                    roods and                    perches of land situate in the Parish of                    County of                   , in Tasmania, and bounded TO HAVE AND TO HOLD the premises hereinbefore expressed to be demised and granted unto the Lessee                   , heirs, executors, administrators, and assigns, for the term of                    years from the                    day of                   , 19                   , YIELDING AND PAYING therefor unto the Commissioner, his successors and assigns, during the said term the certain yearly rent of                   , the said rent to be paid by equal yearly payments in advance on the                    day of                    in every year. AND the Lessee                    hereby for heirs, executors, administrators, and assigns,                    covenant with the Commissioner, his successors and assigns, that                    the Lessee                   , executors, administrators, or assigns, will, during the said term, pay unto the Commissioner, his successors or assigns, the said rent hereinbefore reserved, on the day and in the manner herein-after mentioned and appointed for payment thereof, clear of all deductions. AND will not assign, underlet, or part with the possession of the said demised premises, or any part thereof, without the consent in writing of the Commissioner first had and obtained. AND will erect and complete on the said demised premises to the satisfaction of the Commissioner, and within Twelve months from the date of these presents, a good and substantial Saw-mill, with all machinery, plant, and other appliances as are necessary for the effectual working of a Sawmill. AND will at all times during the said term carry on, to the best of                    ability, the business of Sawmill Proprietor. AND will not during the said term use the said demised premises for any other purpose than that of the business of Sawmill Proprietor. AND will at the expiration or sooner determination of the Lessee                    term peaceably deliver up to the Commissioner, his successors or assigns, the said premises hereinbefore expressed to be hereby demised and granted. PROVIDED ALWAYS, and it is hereby agreed, that if and whenever any part of the said rent shall be in arrear for Twenty-one days after the same ought to have been paid, and whether the same shall have been legally demanded or not, it shall be lawful for the Commissioner, his successors or assigns, into and upon the said demised premises, or any part thereof, to enter and distrain, and the distress or distresses then and there found to dispose of in due course of law, and to apply the produce thereof in and towards payment of the said rent so in arrear, and of all costs, charges, and expenses occasioned by the non-payment thereof. PROVIDED ALSO, and these presents are upon the express condition that if and whenever any part of the rent hereinbefore reserved shall be in arrear for One calendar month, and whether the same shall have been legally demanded or not, or if and whenever there shall be a breach of any of the several covenants or agreements by the Lessee                    herein contained, the Commissioner, his successors or assigns, may give to the Lessee                   , executors, administrators, or assigns, or leave at or upon some part of the land comprised in these presents, a notice in writing declaring that the said term of                    years is determined, and thereupon the said term shall absolutely cease and be void. AND it is hereby agreed that the right of renewal conferred upon a Lessee by Section 83 of the said Act shall not apply to this Lease. IN WITNESS whereof the said parties to these presents have hereunto set their hands and seals the day and year first before written.

Signed, sealed, and delivered by The Commissioner  
of Crown Lands, in the presence of                    (L.S.)

The Commissioner of Crown Lands.

Signed, sealed, and delivered by the said  
in the presence of                   

(L.S.)

*"The Crown Lands Act, 1903."*

The Governor in Council has been pleased to make the following Regulation, under the provisions of "The Crown Lands Act, 1903."

By His Excellency's Command,

ALEC. HEAN, Minister of Lands and Works.

REGULATION.

163. That portion of Regulation No. 19 of the Regulations made under "The Crown Lands Act, 1903," dated the thirtieth day of August, one thousand nine hundred and six, commencing "Licence to cut Timber," to the end of the said Regulation, is and shall be deemed, as from the first day of September, one thousand nine hundred and six, to have been hereby repealed, and in lieu thereof the following shall be and shall, as from the said first day of September, one thousand nine hundred and six, be deemed to have been substituted in lieu thereof:—

*Licence to Cut Timber.*

<i>Hours or Square Timber.</i>	<i>Fees for each Person employed.</i>
Hewn or square sleepers ... ..	15s. per month.
Hewn or square beams ... ..	£1 10s. per month.
 <i>Species of Round Timber.</i>	
Cut piles ... ..	£1 2s. for 14 days, or £2 per month.
Cut telegraph poles ... ..	£1 2s. for 14 days, or £2 per month.
Cut scaffold poles ... ..	11s. for 14 days, or £1 per month.

NOTE.—Repealed. See Regulation No. 164.

No. 135

Department of Lands and Surveys,

Hobart, 1st January, 1907.

The Governor in Council has been pleased to make the following Regulation, under the provisions of "The Crown Lands Act, 1903."

By His Excellency's Command,

W. B. PROPSTING, for Minister of Lands and Works.

REGULATION.

164. Regulation No. 163, dated the fifth day of December, one thousand nine hundred and six, is hereby repealed, and in lieu thereof the following shall be and shall be deemed to have been substituted, and shall take effect as from the first day of September, one thousand nine hundred and six:—

*Licence to Cut Timber for a Period.*

<i>Split timber—</i>	<i>Fees for each person employed—</i>
Split telegraph poles ... ..	11s. per month.
Split telegraph poles ... ..	11s. per month.
Split palings ... ..	10s. per month.
Split sleepers ... ..	15s. per month.
Split staves (with ... ..)	£1 per month.
Split staves (blackwood) ... ..	£1 5s. per month.
*Cut firewood ... ..	5s. per month.

\* See Government Notice No. 134 of 1907, Part II, (1907), page 2.

Hewn or squared timber—	
Hew or square sleepers ... ..	15s. per month.
Hew or square beams ... ..	£1 10s. per month.
Spar or round timber—	
Cut piles ... ..	£1 2s. for 14 days, or £2 per month.
Cut telegraph-poles ... ..	£1 2s. for 14 days, or £2 per month.
Cut scaffold-poles ... ..	11s. for 14 days, or £1 per month.
Cut hop-poles ... ..	11s. for 14 days, or £1 per month.
Timber in the log (which shall not include piles, poles, and beams)—	
Cut eucalyptus ... ..	£1 per month.
Cut blackwood ... ..	£3 per month.
Cut other ornamental timber ..	£3 per month.
Miscellaneous—	
Burn charcoal from ordinary tim- ber ... ..	2s. 6d. per week.
Quarry stone, make bricks, pot- tery, and earthenware ... ..	2s. 6d. per week.
Procure shells, sand, gravel, earth, slack, guano, &c. ... ..	5s. per week.
Cut brushwood or scrub ... ..	5s. per month.

*Licence to Cut under Royalty.*

Squared or round piles, bridge- beams, and girders ... ..	Rate of Royalty— 2s. per 1000 sup. feet.
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It shall be at the discretion of the Commissioner to determine whether piles (squared or in the round), bridge-beams, and girders may be cut on payment of royalty or licence fees.

Department of Lands and Surveys,  
Hobart, 26th January, 1910.

The Governor in Council has been pleased to make the following Regulation under "The Crown Lands Act, 1903": to take effect on and from 20th instant.

By His Excellency's Command,

ALEC. HEAN, Commissioner of Crown Lands.

REGULATION.

165. Regulation No. 119 of the Regulations made under "The Crown Lands Act, 1903," on the 30th day of August, 1906, is hereby rescinded, and the following Regulation substituted therefor:—

The rental shall be at the rate of One Pound for every 100 acres or part thereof. The first year's rent shall be paid prior to the issue of lease, and within 30 days from the date of posting a demand for such rent, failing which the application shall be cancelled. The rent which may become due after the issue of the lease shall be payable by equal yearly payments, in advance, calculated from the date of the lease. The lessee shall also, in addition to the said rental, pay a royalty on all timber cut in the log, in accordance with the rates hereinbefore set forth, and such royalty shall be payable not later than the 21st day of every calendar month on timber cut during the preceding month or any part thereof. The form of lease shall be set forth in Schedule Fifty-nine to the said Regulations of the 30th August, 1906.

## GOVERNMENT NOTICES.

No. 135.

Department of Lands and Surveys,  
Hobart, 6th April, 1908.

It is hereby notified that in accordance with the provisions of Section 187 of "The Crown Lands Act, 1903," Regulation No. 164 made by the Governor in Council, and dated the 31st January, 1907, has been altered by the Governor in Council so far as relates to the cutting of firewood in the Municipalities of Beaconsfield, Zeehan, and Waratah, and that the licence fee for cutting firewood in the Districts above-named be 3s. per month: to take effect on and after 1st May, 1908.

By His Excellency's Command,  
ALEC. HEAN, Minister of Lands and Works.

No. 327.

Department of Lands and Surveys,  
24th October, 1908.

The Governor in Council has been pleased to make the following Regulation, under the provisions of "The Crown Lands Act, 1903": to take effect on and from the 1st November, 1908.

By His Excellency's Command,  
ALEC. HEAN, Minister of Lands and Works.

In accordance with the provisions of Section 187 of "The Crown Lands Act, 1903" (3 Edward VII. No. 39), Regulation No. 164, made by the Governor in Council, and dated 31st January, 1907, is altered so far as it relates to the cutting of firewood in the Municipality of Queenstown, and that the licence fee for cutting firewood in the district named be 3s. per month: to take effect on and from the 1st November, 1908.

No. 19.

Department of Lands and Surveys,  
Hobart, 16th January, 1909.

The Governor in Council has been pleased to make the following Regulation under the provisions of "The Crown Lands Act, 1903."

By His Excellency's Command,  
ALEC. HEAN, Minister of Lands and Works.

Regulation No. 107, dated the 5th day of December, 1896 is hereby repealed, and in lieu thereof the following shall be, and shall be deemed to have been substituted, and shall take effect as from the 14th day of January, 1899.

107. The fee to be charged for the right to strip wattle-bark on Crown Land, shall be Four Pounds per month for every person so employed, and every application shall be accompanied by such fee and shall be forwarded to the Bailiff of Crown Lands for the district from whom the license are to be obtained.

No. 86.

Department of Lands and Surveys,  
Hobart, 5th March, 1909.

The Governor in Council has been pleased to make the following Regulation, under "The Crown Lands Act, 1903": to take effect on and from this date.

By His Excellency's Command,

ALEC. HEAN, Commissioner of Crown Lands.

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The fee payable as royalty upon myrtle timber cut in the log under a Sawmill, Logging, or Splitting Lease issued under "The Crown Lands Act, 1903," or any Act repealed thereby, shall be at the rate of Two Shillings and Sixpence (2s. 6d.) per 1000 sup. feet.

## DEPARTMENTAL NOTICE.

Department of Lands and Surveys,  
Hobart, 27th April, 1909.

The Governor in Council has been pleased to repeal Regulations referring to the destruction of native tigers, numbered 154 to 160 inclusive, made under the provisions of "The Crown Lands Acts, 1903 and 1905," and dated the 30th August, 1906: the repeal to date from and after 26th April, 1909.

By His Excellency's Command,

ALEC. HEAN, Minister of Lands and Works.

VICTORIA

C. Deeny

C. Wickham  
KING ISLAND  
Currie Mark

Three Hummock I.

Wharfedale or Barret

Scale of English statute miles

# TASMANIA

SHOWING  
TIMBER AREAS

Scale of English statute miles

ERISBIDE  
KENT GROUP  
SW Isle  
Wright Rock

148

140

40

42

HUNTER ISLANDS  
W. Hunter  
Barrett I.  
P. Sack I.  
Wider I.  
Robbins I.  
C. Grim  
Kulky B.  
Bluff Pt.  
Calm B.  
Green Pt.  
Wheat Pt.  
Bluff Pt.  
Sandown Pt.  
Ordnance Pt.  
Nelson Mill B.  
Sandy C.

WELLINGTON

RUSSELL

MONTAGU

LINCOLN

WESTMORLAND

SOMERSET

GLAMORGAN

FLINDERS IS.

CAPE BARREN IS.

BANK STRAIT

TANGAROOMA BAY

ANDERSON BAY

LAUNCESTON

WESTMORLAND

GLAMORGAN

HUNTER ISLANDS

WELLINGTON

RUSSELL

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BANK STRAIT

TANGAROOMA BAY

ANDERSON BAY

LAUNCESTON

WESTMORLAND

GLAMORGAN



**REFERENCE**

- |   |  |
|---|--|
| PORTIONS WHERE EUCALYPTI PREDOMINATE SHOWN THUS |  |
| PORTIONS WHERE MYRTLES                          |  |
| PINE FORESTS                                    |  |
| SAWMILLING PLANTS                               |  |

PTS#OF#LAND#AND#SURVEY#S#TASMANIAN#H#FORES

AGRICULTURE  
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