

He proposed to give a list of the timbers of New South Wales, which are likely to be of interest to the engineer. They are all more or less plentiful. As a matter of convenience and reference, he had arranged them in alphabetical order of botanical names. It will be observed that they nearly all belong to one Natural Order (Myrtaceæ), and are known generically as "hardwoods." In fact the colony abounds in such timbers, which are eminently suitable for engineering purposes.

He looked upon "gum," the usually red, but sometimes yellowish, exudation from gum-trees, as a pathological product, and where it exudes in abundance, the timber will be found to be inferior, either because of "gum-veins" or of hollowness. Good examples of this will be found in "Bloodwood" *E. corymbosa*, "Apple-trees" *Angophora*, and "Spotted Gum" *E. maculata*.

Speaking more particularly of gum-trees, Sir William Macarthur remarks, "When at full maturity, they are rarely sound at heart, and even when they are so, the immediate heart-wood is of no value on account of its extreme brittleness. In sawing up logs into scantlings or boards, the heart is always rejected. The direction in which the larger species split most freely, is never from the back to the heart (technically speaking, the 'bursting'), but in concentric circles round the latter."

To Mr. Henry Deane, Inspecting Engineer of the Railway Department, whose combined knowledge of the botanical origin and economic value of New South Wales timbers is probably unrivalled, he was indebted for many hints. He (Mr. Deane) has looked over this paper, particularly with the view to favour me with the mature experience of our railway engineers in regard to such timbers.

He had given the localities (New South Wales only, of course), as far as they are known to him, for this is a matter of very great importance. We require much observation in this direction yet.

(Botanical name).

**Blackwood**, *Acacia melanoxylon*. (R. Br., N. O. Leguminosæ).

*Blackwood* (Vernacular names and where current).

Called "Blackwood" on account of the dark colour of the mature wood. This is its almost universal appellation in New South Wales, though in Southern Tasmania it is often called "Lightwood," in allusion to its weight as compared with Eucalyptus timbers. This name and "Hickory" are occasionally used in New South Wales.

(Range in New South Wales).

It is better known as a Tasmanian and Victorian timber, but it grows well in the extreme south of this colony. Its range\* is from the southern boundary, as far north as the Illawarra district.

(Engineering uses).

This is one of the most valuable of Australian timbers. It is hard and close-grained, and is used for bridge-work, railway and other carriages, and to a limited extent in ship-building. It bends well under steam. It warps and twists in boards over twelve inches wide, unless they have been very carefully seasoned. The Victorian Timber Board stated of this timber, "Under test, it presented results superior to any other timber, whether of indigenous or foreign growth. Of all the indigenous timbers, this one may be said to present in a pre-eminent degree every quality desirable for the purpose stated (building of railway stock).

(Experimental determinations).

Victorian Timber Board, Mueller and Luehmann, Campbell, Warren.

**Colonial Pine, *Araucaria Cunninghamii*** (Ait. N. O. Coniferae). "Moreton Bay Pine," "Colonial Pine," found near the northern rivers, from the Richmond to the Tweed.

The pine obtained from the mountains is preferred to that obtained from low ground near the coast. It is becoming scarce. The sap-wood is peculiarly liable to rot. Used largely for flooring and lining boards, and for common purposes. Is durable if kept constantly wet, but not if alternately wet and dry. It is an inferior wood, and its only recommendations are its lowness of price and

\* For some notes on the range of species, particularly of Eucalypts, he was indebted to the Rev. Dr. Woolls' *Plants of New South Wales*.

its lightness. It is used for doors, window-frames, &c. Exp : Mint, 1860, Warren.

**Red Cedar, *Cedrela Australis*.** (F. v. M., Syn: *C. Toona*, Roxb., N. O. Meliaceæ). The well-known "Cedar" or "Red Cedar" found in the rich scrubs of the Illawarra district, also in rich brush country near all the northern rivers. It extends as far south as Ulladulla, but for economic purposes, the timber cannot be said to be found further south than the northern bank of the Shoalhaven River. It would be superfluous to speak to Sydney engineers about this well-known timber, so highly prized where lightness, durability and appearance are required. The engineer is chiefly interested in it by reason of its use for pattern-making, and for ship-fittings. By some botanists it is considered to be the same species as the "Moulmein Cedar" or "Indian Mahogany" of India and Burmah. Of Gamble's "Manual of Indian Timbers" for information in regard to the Indian timber which, from the samples now submitted, is hardly to be distinguished (if at all) from our Cedar. Exp : Campbell, Victorian Timber Board, Gamble (*op. cit.*).

**Peppermint, Mountain Ash, *Eucalyptus amygdalina*,** Labill., N. O. Myrtaceæ.

This is a very variable species. It is more Victorian and Tasmanian, but in the extreme southern portion of our colony it is by no means scarce. Speaking generally, when it attains gigantic proportions it is called "Mountain Ash;" when it is of smaller size, it is a "Peppermint." A variety growing about Braidwood has very narrow leaves, and very thin, ribbon-like bark; it is hence known as "Ribbon Gum." \* Another variety, with a straight bole 200 feet high, and six to eight feet in diameter, is known as "Cut tail," for what reason he knew not. Because it is allied to, or associated with, "Stringybark" it is sometimes known as "Messmate," particularly on the Mittagong range. A light timber, floating on water, very fissile. Mountain Ash "which

\* Some authors consider that this variety should be restored to specific rank as *E. radiata*, Sieb.

grows so fine as to be considered a separate species (*regnans*) by some, is one of four colonial timbers recommended by the Victorian Carriage Board for the manufacture of carriages. The Board stated, "it should be felled during the winter months, when it has attained maturity, and is at stump height, say, between four and five feet diameter. For six months it might remain so before being broken down into planks for seasoning." This "Mountain Ash" also goes by the name of "White Ironbark" about Braidwood, and you see before you part of the spoke of a mill-wheel made of it, which was in use for twenty years, and afterwards it lay exposed to the weather for a year, but it shows no sign of decay.\* But timber of this species is not very durable as compared with that of some other Eucalypts, particularly when exposed to the weather, and most of the timbers at present included under this species name are viewed with some suspicion by engineers in consequence. The fact of the matter is, *E. amygdalina* is the name given to a group of timbers, and fresh specific names will have to be found, or old ones revived, for a number of them. Difference of soil and climate cannot account for all the differences amongst the timbers now classed as *E. amygdalina*. Exp.: Mueller and Luehmann, Victorian Timber Board.

**Bastard Mahogany, *Eucalyptus Cotryoides*, Smith.**

Often called "Bangalay" by Sydney workmen, as this was the name used by the Port Jackson natives. Owing to its red wood, and to its growing in marshy country, it is known as "Bastard" or "Swamp Mahogany." It occurs in sandy places near the coast, and is not found west of the Dividing Range. It extends from the Victorian to the Queensland boundary. It is rarely of any size,† and is frequently gnarled, but because it is hard, tough and durable, it is much valued for shipbuilding, chiefly for knees. It appears to grow freer in Gippsland (there is some very fair timber, however, near Bombala), and it is one of the four

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\* This timber was attributed to *E. amygdalina* by very high authority. But further examination of the structure of the wood may cause it to be assigned to *E. Sieberiana*.

† Mr. Deane says it is a fine timber tree at a locality near Clifton, Illawarra Line.

timbers recommended by the Victorian Timber Board for the construction of railway carriages. Exp.: Victorian Timber Board.

**Bloodwood**, (*Eucalyptus corymbosa*, Smith). Called "Bloodwood" owing to its so freely exuding a blood-like liquid (Kino) in great abundance. Near the coast, it is rather a small tree, but towards and upon the mountains it attains a great size. It frequents open forests from the Bega district to the Tweed, but at no very great distance from the sea. On account of being subject to gum-veins, it is not a favourite as sawn timber. It is, in fact, the most liable of all gum-trees to veins; the timber shells concentrically, and the cavities are often filled with "gum" (Kino). "Apple trees" (*Angophora*) have a similar fault. Bloodwood timber is, however, said to be very durable; it does not readily catch fire, nor suffer from white ants nor damp. It is said to be used for piles and sleepers.\* Baron Mueller observes that it is less known than it deserves. Exp: Sydney Mint (1850).

**Grey Ironbark**, *Eucalyptus crebra*, F. v. M.

This is known as "Grey Ironbark," "White Ironbark," or "Narrow-leaved Ironbark." It is found on the eastern slopes of the Dividing Range. It prefers ridges and ranges, and also a better soil than some of the other Ironbarks. The wood is red and durable, though not so strong as that of *E. siderophloia* or *E. paniculata*" (Woolls). Mr. Duff gives the range as "open forests, Northern and Southern coast districts, extending a considerable distance inland." It does not, however, extend as far south as the Illawarra. An excellent timber; hard, tough, of inlocked fibre, durable and useful for many building purposes. It is much in use for fence-posts, railway sleepers, bridge material, piles, waggon-building, etc., including spokes of wheels. It finishes well. Exp: Sydney Mint (1860), Byerley, Warren.

**Swamp Gum**, *Eucalyptus Gunnii*, Hook. f.

Called "Swamp Gum" or "White Gum," but it is not confined to low ground, as it is frequently found in the ranges, (e.g., about Braidwood). About Bombala, it is known occasionally as "Sugar

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\* Not on New South Wales railways, apparently.

Gum" or "Cider Gum" (owing to its sweetish sap), though these names are commonly applied in Tasmania.

It is found in the southern part of the colony, from the boundary to Bombala, and over to Kiandra and the Snowy Mountains. It is more or less plentiful, even as far north as the Mittagong Range.

Near Bombala, a variety called "Flooded Gum" or "Bastard Gum" has a timber which is considered brittle, and is not used. The variety called "Red Gum" is, however, considered by most people in the neighbourhood to be the very best for standing underground, and is therefore preferred to any other for posts and piles, and especially for house-blocks. This timber is rather hard to cut, and has a reddish colour. The "Flooded Gum" occurs near creeks and swampy places, and the trunk is apt to branch out at no great altitude from the ground; the "Red Gum" grows in higher and drier situations, and runs up to a pretty high straight trunk. Exp: Mueller & Luehmann.

**Box**, *Eucalyptus hemiphloia*, F. v. M.

The common "Box" of Sydney people, and east of the Dividing Range. It extends throughout the whole of the coastal districts of the colony.

Mr. Hill calls it an excellent timber, famous for its hardness, toughness and durability. It is remarkably heavy, yellow-white in colour, of great lateral strength, and is used for such purposes as railway sleepers, naves, felloes, scantlings, jetty and bridge piles, plankings, mining slabs and fence-posts. (J. E. Brown). It is largely used by coachmakers and wheelwrights for the naves of wheels and heavy framing; and by millwrights for the cogs of wheels. It is employed in ship-building, and forms one of the best materials for treenails, and for working into large screws. It is also useful for such articles as mauls and handles, which need toughness of wood for their manufacture. Exp: Sydney Mint, 1858, Victorian Timber Board.

**Spotted Gum**, *Eucalyptus maculata*, Hook:

Called "Spotted Gum" on account of the blotched appearance of the smooth bark.

It extends from the Bodalla district, Dromedary Mountain, north, chiefly on coast land, as far as the Queensland border.

There is great demand for this timber, which is used for ship-building,\* and occasionally for bridges, girders, naves of wheels, shafts for vehicles, cubes for street paving, and general building purposes where tenacity of fibre is required. It is the coarsest grained timber of the Eucalypts, so far as my experience goes, and is readily recognised. It often has a pretty wavy appearance when dressed. This tree is frequently hollow when it attains a great size, although apparently quite sound, as far as external appearance goes. It splits well. Its sap-wood readily rots, and it does not stand in the ground. This accounts for the Rev. J. E. Tenison-Woods' observation that the Queensland Government will not permit its use for telegraph poles. Exp: Sydney Mint, 1858, Warren.

**Yellow Box, *Eucalyptus mellisdora*, A. Cunn :**

"Box," or "Yellow Box," because of its yellowish bark.

It is found throughout the coastal districts from the Victorian border to the Macleay, and perhaps beyond. Dr. Woolls gives the following localities :—"Near Bathurst and Mudgee, as well as in New England and on the Darling."

This is a hard, tough, durable, and close-grained timber. It is used for fences, and is utilised for rollers, heavy frame-work, and for naves, cogs and tree-nails, but its weight and toughness (rendering it difficult to work) are against it. It is said to be durable both in water and under the ground. The opinion of some Candelo people differs, however, on this point. A correspondent says: "It is here considered the best timber all round, but does not, as far as I can learn, last long in the ground." There are many instances of such contradictory statements in regard to our native timbers, showing how much room there is for independent enquiry. Exp: Mueller & Luehmann.

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\* At the London Exhibition of 1862, a piece of timber from the hull of the steamer "William IV." was exhibited. With the exception of some slight charring of the timber in the immediate vicinity of the boilers, the entire fabric of the vessel was as substantial and as sound as when she was built in the year 1830.

**Tallow Wood, *Eucalyptus microcorys*, F. v. M.**

This timber is usually known as "Tallow Wood" in allusion to its greasy nature, but it also goes by the name of "Turpentine Tree."

It is found from the Hastings to the Tweed.

The following Report, in connection with the Sydney Exhibition of 1879, was made in regard to this timber:—"Timber strong and durable, under or above ground. Used for flooring, e.g., in ball-rooms; for this latter purpose it is selected on account of its greasy nature. This greasiness is most marked when it is fresh cut." It should be useful for cogs. It is used for the decking of bridges, and is one of the most valuable woods the colony produces. Exp: Victoria Timber Board, Warren.

**Stringybark, *Eucalyptus obliqua*, L'Kér.**

A "Stringybark." It is also called "Messmate."

This tree is found in the coast districts, and comes as far north as Braidwood.

Like *E. amygdalina* this is better known in Tasmania and Victoria, but trees of fine size are found in this colony. It is an excellent timber for splitting. It is used for scantlings, posts and scaffolding poles, but it has some tendency to warp or twist. It is rather open-grained. Exp.: Mitchell, Mueller and Luehmann, Campbell.

**She Ironbark, *Eucalyptus paniculata*, Smith.**

An "Ironbark," and called "White" or "She Ironbark" because it is paler than the others.

It is found throughout the coast districts, and to a limited extent in the interior.

It is in good repute for durability. It is much used for posts for fencing, also for railway work, such as bridges, sleepers, etc. It is useful for large beams in buildings, stores for heavy goods, and for other purposes where great strength is required. This is worthy of note as being the best kind of Ironbark.

The author knows of no tests of this timber, at all events any that can with certainty be referred to this species.

**Blackbutt, *Eucalyptus pilularis*, Sm.**

This is the common "Blackbutt" of Sydney and much of the coast country. It extends from the Victorian to the Queensland border.

It is a light coloured wood, which furnishes excellent timber for house carpentry, or any purpose where strength and durability are required, e.g., bridge-planking, ships' decks, piles, paving cubes, etc. Dr. Woolls says it can be used for railway sleepers. Captain Ward (Sydney Mint Expts., 1860), spoke of it as a very strong timber, but warping and twisting when exposed to the sun, and requiring gradual seasoning off the ground, which the author can confirm, having felled some of these trees last year. Exp.: Sydney Mint (1860), Warren.

**Peppermint, *Eucalyptus piperita*, Sm.**

This is the common "Peppermint" of Sydney and neighbourhood. It may be confused with the preceding species as they both have a sub-fibrous bark on the trunk, with bare branches. Perhaps on account of the confusion, the present species is also sometimes known as "Blackbutt." A variety growing in the Braidwood district goes by the name of "Messmate" and "Almond-leaved Stringybark."

It is found throughout the whole of the coast districts, and also on the Dividing Range.

Very little appears to be known about this timber. It is durable, having kept sound for forty years in damp soil, but it is chiefly used by builders.

This is a timber which requires further investigation, both botanically and economically. The variety from the high tableland appears to be different to that from the coast districts. Exp.: Sydney Mint (1860), Victorian Timber Board, Warren.

**Forest Mahogany, *Eucalyptus resinifera*, Sm.**

The "Red" or "Forest Mahogany" of the neighbourhood of Sydney. This must not be confused with the *E. resinifera* of A. Cunn: which is now called *E. siderophloia*, and is an "Ironbark."

It is found from the Illawarra to Queensland, and on, but not beyond the Blue Mountains. Its southernmost limit in New South Wales appears to be the Shoalhaven River.

This timber is much prized for strength and durability, and Mr. Hill says it is used for piles, as it is said to resist the action of cobra. It is used for ships' knees. It lasts well under or above ground. The rafters of St. John's Church, Parramatta, were of this wood. They were put up in 1798, taken down in 1852, and were then perfect. Although we have reason to believe this is one of the most durable of our timbers, we must not lose sight of the fact that no extended tests of their use have yet been possible, even if instituted immediately after the foundation of the colony. Exp: Warren.

**Swamp Mahogany, *Eucalyptus robusta*, Sm.**

This is commonly known as "Swamp Mahogany," from the dampness of the places in which it flourishes.

It is a coast districts species, and extends from the Clyde River in the south to Queensland in the north.

This timber is valuable for ship-building, and building purposes generally. It is reddish, of great strength, difficult to split, but rather brittle. It is, however, used for posts, joists, and sleepers. It is very little liable to attacks by insects. Nevertheless Dr. Woolls speaks of it as not being considered a durable wood. Exp.: Warren.

**Red Gum, *Eucalyptus rostrata*, Schlecht.**

This is the well-known "Red Gum," better known, however, to Melbourne than to Sydney people.

Beyond the Dividing Range it has a very wide range, being found on the banks of the Cudgegong, Castlereagh, Darling, &c. It is usually found near rivers, and is also sparingly found in the coast country, except from the Victorian boundary to the Bega district.

This timber is highly valued for toughness (when it can be cut in the direction of its fibre) and durability, especially for piles and posts in damp ground; it is also used for ship-building, railway-sleepers, bridges, wharves, and numerous other purposes. It is one of the most durable of *Eucalyptus* timbers. When properly seasoned, it is well adapted for heavy deck-framing, the beams and knees of vessels, and for planking above high-water mark.

It should be steamed before it is worked for curving. In Southern New South Wales it is invariably chosen for house-blocks, wherever it can be obtained. A drawback to this valuable timber is its liability to shell off. Exp.: Campbell, Mueller & Luehmann, Warren.

**Blue Gum, *Eucalyptus saligna*, Smith.**

“Flooded” or “Blue Gum” are the commonest names about Sydney, although it is also called “White” or “Grey Gum.” Mr. Deane states that what is considered to be a variety of this species possesses the names, at Tenterfield, of “White or Silky Gum,” owing to the satiny sheen of the bark; but it is a very poor timber, unlike that obtainable in the neighbourhood of Sydney.

It is found on the banks of creeks, or gullies, or in good alluvial soil, from the Clyde (about Nelligen) to the Tweed; but it apparently does not cross the Dividing Range.

Dr. Woolls says this timber is used for ships' planks, amongst other uses. Mr. Hill mentions that it is in good repute for building purposes, as it does not readily take fire. It is excellent for railway sleepers. Nevertheless it is a timber about whose value contrary opinions are expressed, and we must look to engineers for enlightenment on the matter. It is a superb timber for working. Exp.: Victorian Timber Board, Warren.

**Broad-leaved Ironbark, *Eucalyptus siderophloia*, Beath.**

The “Broad-leaved or Red Ironbark.”

It extends from the Clyde Mountains in the south, along the coast ranges to Queensland. Westward, it is found as far as Mudgee and Wellington.

This timber bears the highest reputation for strength and durability, and is used for large beams in stores for heavy goods, railway-sleepers, and other purposes where great strength is required. An account of this timber by Laslett, will be found in his “Timber and Timber trees” under the heading of *E. resinifera*. Exp.: Laslett (*op. cit.*), Campbell, Victorian Timber Board, Mueller & Luehmann.

**Red Ironbark, *Eucalyptus sideroxylon*,**\* A. Cunn: Commonly called "Ironbark," "Red Ironbark," or "Red Flowering Ironbark." It also bears the absurd name of "Fat cake." It has the darkest wood of the Ironbarks. "It occurs in the bush between Parramatta and Liverpool, in paddocks at South Creek, and in the neighbourhood of Richmond, and again beyond the Blue Mountains, near Mudgee and Wellington, and elsewhere, being widely diffused over the auriferous districts of the western interior." (Woolls).

It is rare in the southern part of the colony, becoming more plentiful on the ranges near Moruya, getting more plentiful further north. It is usually found on poor, sterile ranges.

This tree has a straight even bole; the timber is of the highest reputation for strength and durability, and is very much used for large beams in stores for heavy goods, poles for bullock drays, railway sleepers, girders and piles for bridges, and other purposes where great strength is required. It appears to be all but imperishable. Exp.: Mueller & Luehmann, Victorian Timber Board, Sydney Mint, 1860, Warren (under *E. leucoxylon*).

**Mountain Ash, *Eucalyptus Sieberiana*,** F. v. M., Syn.: *E. virgata* Sieb :

This tree is usually known as "Mountain Ash," and occasionally, from the appearance of the trunk bark "Ironbark," but the bark is not hard enough for it to deserve that name. Because the branches are white and smooth, it is sometimes known as "Gum top."

From the Victorian boundary to the Shoalhaven River. In and over the Mittagong Range and the Blue Mountains.

This is a fissile timber, useful for a variety of purposes. It interests the engineer because it is used for timbering mines. But the author brings it under your notice because of the conflicting evidence in regard both to its durability and strength. One authority says it is "very durable underground;" another, it "will not endure underground." One says that a variety growing in the Monaro district is "so soft and perishable for ordinary purposes.

\* A synonym of *E. leucoxylon* F. v. M., but the trees are very different.

that it is called 'Cabbage gum,' while the general opinion is that it is light, tough and elastic. The general opinion is that it should only be used for inside work. Cf. *E. amygdalina*. Exp.: Victorian Timber Board, Warren (under *E. virgata*).

**Apple-scented Gum, *Eucalyptus Stuartiana*, F. v. M.**

In the southern part of this colony this tree is usually known as "Apple-scented Gum" or "Apple-tree," owing to the perfume of its flowers. It is called "Peppermint" and "Stringybark," and occasionally "Woolly Butt" in the County of Camden. In the New England district there are two varieties, one called "Red Peppermint" whose timber is used, while the other is called "Bastard Box" and is considered a worthless timber.

Dr. Woolls gives as localities the Mittagong Range, the hills near Mudgee, and parts of New England. The author may add that it extends from the Victorian boundary along the high tableland to the Braidwood district and to Mittagong.

Mr. Hill (speaking of Queensland timber) states that it is considered excellent for ships' planks; it is hard, and said to be exceedingly durable under ground, and difficult to burn. It is also said to be used for sleepers. It is certainly not put to the latter use in New South Wales, where it is considered a most inferior wood, and it shrinks seriously. Exp.: Mueller and Luehmann.

**Grey Gum, *Eucalyptus tereticornis*, Smith.**

This is usually either called "Grey Gum" owing to the colour of its bark, or "Red Gum" owing to that of its wood.

It is found in all parts of the coast districts, chiefly in forest country.

It is used in house and ship building, for railway-sleepers, telegraph poles, for girders, &c. It is a heavy, close-grained, interlocked, red wood. Exp.: Fowke.

It has been a matter of surprise to find that this valuable timber has been all but neglected in the testing-room.

**Manna Gum, *Eucalyptus viminalis*, Labill.**

This is called "Manna Gum" in many places because a white saccharine exudation is often found on the twigs. In the

Orange district, at least, it is known as "Red Gum," while the names "Blue" and "Grey Gum" are often applied to it. In the most southern part of the colony it bears the name of "Ribbon Gum."

It is to be found in the coast, mountain, and interior districts, but not much north of Sydney. From the southern boundary it is found chiefly on the high table-land; in the south it is rare near the coast.

It is better known as a Tasmanian and Victorian wood. It is exceedingly fissile, and useful for building purposes. It is very durable underground. In this colony this timber has a bad reputation, but the name *viminalis* undoubtedly includes more than one species. Exp.: Mitchell, Mueller and Luehmann.

**Cypress Pine**, *Frenela Endlicheri*, Parlat: and *F. robusta*, A. Cunn: N. O. Coniferae.

"Pine," "Cypress Pine," they are both sometimes called "Black Pine," and the latter often also "White Pine."

Both species are pretty widely distributed, especially in the interior districts. The latter forms the dense "Pine scrub" which overruns land, and at the same time affords refuge to vermin. It is also found in the Clyde and Shoalhaven ranges, and there are also some trees on the lower Shoalhaven. The range of the former may be briefly given as from the Snowy River, along the Western Monaro to the Murrumbidgee and Murray, and across the Darling to the outliers of the Stanley Ranges.

This timber is of great importance. It is in the highest degree ornamental, being figured with black and all shades of brown, but it is of interest to the engineer, chiefly on account of its resistance to white ants on land, and to the teredo in salt water. On this account it is largely sought after as a constructive material in the dry interior, and for piles in wharves. The wood of the latter species was used, under the authority of the South Australian Government, in building the railway residences and stations on the Transcontinental railway between Port Darwin and Adelaide. It is straight-grained, easy to work, and shrinks and warps but little. Its drawback is its brittleness. The author is not aware that it has

been subjected by engineers to specific tests of its strength and elasticity.

**Beech**, *Gmelina Leichhardtii*, F. v. M., N. O. Verbenaceæ.

The well-known "Beech," or "White Beech."

It is found in the whole of the coast districts of New South Wales, in the brush, from the north bank of the Shoalhaven, through the Illawarra northwards.

It is a fine timber tree, and in parts of the Illawarra it goes by the name of "Long Jack," owing to its size. It is a strong, white, durable, and easily worked timber, very little liable to be affected by the weather, if only moderately seasoned, hence it is much prized for the flooring of verandahs and the decks of vessels. It is not readily attacked by white ants. It weighs about 40 lbs. per cubic foot when seasoned. It is somewhat singular that no results of engineering experiments with this valuable wood have been published.

**Turpentine**, *Syncarpia laurifolia*, Ten. : Syn. : *Metrosideros glomalifera*, Smith, N. O. Myrtaceæ.

The well known "Turpentine Tree," so called because it exudes an oleo-resin from the fruits and also from the trunk when wounded or ringed, or better still sawn into logs.

It extends throughout the coast districts from the Tweed to the Ulladulla district, arriving at its greatest luxuriance in deep gullies containing good soil, in which situations it is also found well into the mountains.

It grows straight, with a magnificent bole, if the circumstances be favourable. Probably owing to the oleo-resin contained in it, it is both durable underground, and invaluable for piles in sea-water, as the teredo rarely attacks it. Most of the piles in Port Jackson are of this timber, and for wharves along the coast it has been brought largely into requisition. It is also used for shipbuilding. When employed for uprights in buildings it is said to be liable to warp, if much exposed. It is an excellent wood for railway sleepers, rails, &c., and posts of it have stood for twenty years and more. A recommendation of this timber is the difficulty of burning it. Exp. : Warren.