

## BOTANICAL DESCRIPTIONS OF EUCALYPTI.

BY L. RODWAY.

*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. Mature foliage alternate, stalked, lanceolate, acute, oblique, 6 to 12 inches long, 1 to 2 inches wide. Flowers solitary in the 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,  $\frac{2}{3}$  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.

*Eucalyptus viminalis* (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 many 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, hemispheric; valves of the capsule protruding.

*Eucalyptus coriacea* (A. Cunningham), *E. pauciflora* (Sieber).—Attaining in favourable situations 60 to 70 feet; 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 lines diameter; anther-cells diverging; stamens all or nearly all complete. Fruit pear-shaped, about 4 to 5 lines long; capsule sunk.

*Eucalyptus sieberiana* (F. v. Mueller).—A tree often attaining a considerable size, the main stem tending to predominate, but not as much so as in *E. globulus*. Bark persistent, thick, and furrowed to the branches. Leaves alternate, oblique, lanceolate, rather broad, 4-6 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 lines diameter.

*Eucalyptus hæmastoma* (Smith).—A tall, erect tree, the main stem preponderating; branches few and sub-erect. Bark smooth, deciduous, except fibrous towards the base. Leaves lanceolate, oblique, about 6 inches, veins few, obtuse, obscure, netting freely. Flowers many, in axillary axils, the common stalk rather long and flat. Operculum short, hemispheric; calyx hemispheric, about 2 lines diameter, on a relatively-long stalk. Outer stamens barren; anthers with divergent cells. Fruit broadly pear-shaped, 3 to 4 lines diameter, the rim broad and red, capsule nearly level; the valves usually protruding.

*Eucalyptus obliqua* (L'Heritier).—In shady situations, with a tall, preponderating stem, branches sub-erect; in the open, a medium-sized tree with spreading branches, and an undefined stem in the branching portion. Bark normally persistent, thick and fibrous to the upper branches; at an altitude the bark tends to become thinner and more deciduous, even to the base. Leaves 4 to 5 inches long, ovate, acute, oblique, very unequal-sided; veins few, 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.

*Eucalyptus regnans* (F. v. Mueller).—A tree attaining very large proportions, with a preponderating stem, except where grown in open lowlands. Bark thin; fibrous at the base, deciduous above. Leaves in the typical tree ovate-lanceolate, oblique, about 2 inches long, rather thick; veins few, obscure; in aberrant forms, the leaves are broad and very oblique. Flowers many, in axillary umbels. Operculum short and convex. Calyx obconic, about 2 lines diameter. Stamens all perfect; anther-cells diverging. Fruit turbinate, or sometimes approaching a pear-shape, about  $2\frac{1}{2}$  to 3 lines diameter.

*Eucalyptus amygdalina* (Labillardiere).—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, persistent, and fibrous in the typical form, deciduous and smooth from the base in some narrow-leaved forms, but not in others (*E. linearis*, Denh.). Leaves very variable, narrow lanceolate in the type, but varying from narrow linear to ovate; nearly equal-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 diameter; capsule level with the rim, or slightly sunk.

*Eucalyptus müelleri* (T. B. Moore).—A tall, erect tree, with a preponderating stem, in suitable situations attaining even 200 feet height. Bark deciduous, smooth from the base. 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 (whiptop-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.

*Eucalyptus urnigera* (Hooker).—A tall, erect tree, with a preponderating stem. Bark smooth and deciduous. 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.

*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 Müller 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.

*Eucalyptus risdoni* (Hooker.)—A small to medium-sized tree, with a branching, often drooping, tendency. Leaves in the typical form apposite 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. Closely allied to *E. amygdalina* (Labillardiere), and combined with it by von Müller.

This completes the list of *Eucalypts* that attain size enough to yield timber.

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## LOCAL NAMES AND GENERAL APPEARANCE OF GUM TREES.

### LOCAL NAMES.

BLUE-GUM.—*E. globulus* (Labillardiere).

WHITE-GUM.—*E. viminalis* (Labillardiere).—This is also called Manna-gum and Swamp-gum.

WEeping-GUM.—*E. coriacea* (A. Cunningham).

IRON-BARK.—*E. sieberiana* (F. v. Müller).

GUM-TOPPED STRINGY.—*E. hamastoma* (Smith). Also called White-topped Stringy.

STRINGY-BARK.—*E. obliqua* (L'Heritier).

SWAMP-GUM.—*E. regnans* (F. v. Müller). Also known as Mountain Ash, Gum-topped Stringy, Peppermint-topped Stringy, &c.

BLACK PEPPERMINT.—*E. amygdalina* (Labillardiere). This usually includes all Peppermints with stringy-bark.

WHITE PEPPERMINT.—*E. linearis* (Dehnhart). Peppermints with narrow leaves and smooth white bark, the persistent portion at the base scaly.

BLUE PEPPERMINT.—*E. risdoni* var *elata*. Also known as White-gum and Cabbage-gum.

RED-GUM.—*E. acervula* (Hooker).

MOUNTAIN RED-GUM.—*E. Mülleri* (Moore).

DROOPING-GUM.—*E. risdoni* (Hooker).

CIDER-GUM.—*E. gunnii* (Hooker).

MOUNTAIN PEPPERMINT.—*E. coccifera*.

*E. urnigera* (Hooker), *E. cordata* (Labillardiere), and *E. vernicosa* (Hooker), have not yet received generally-accepted popular names, and will be referred to here as the *Urn-bearing*, *Heart-leaved*, and *Dwarf-gum* respectively.

*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 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. In trees at a considerable elevation the bark is less persistent, and in many cases is shed from close to the base, but the base is still fibrous. 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 the 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. Stunted forms of this, which flower when merely shrubs, have a tendency for the bark to turn scaly. *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. *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 *Drooping-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* is the name given to a perfect series of forms connecting *Black Peppermint* with *Stringy-bark*. In the typical form the habit is that of *Blue-gum*, but the persistent bark, though thin, is fibrous, and continues a considerable distance up the stem; but in parts, however, the bark is deciduous from close to the base, and strips off above in ribbons, as in *Blue-gum*, leaving besides the more critical details merely the basal bark for identification. *Iron-bark* has the habit of a large *Stringy-bark*, but the persistent bark is nearly black, very thick, and coarsely furrowed. It occurs only on the North-Eastern portion of the State. *Gum-topped Stringy* is very similar to the latter, but tends to be more erect in habit, and the bark is less coarse and less persistent. It also is confined to the same locality. The name, when applied in other parts, refers to other species. *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 *Iron-bark*.

*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, 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 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 *Uider-gum* of the Midlands and Lake Country is more of the character of a large bush, seldom exceeding 20 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 or less up the stem, and is coarsely scaly. The leaves are equal-sided, shining, and often undulated on 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.

*Mountain Red-gum* is a different tree altogether; it 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, 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 but 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.

The *Urn-bearing gum*, at an altitude of about 2000 feet, is exactly similar to the *Mountain Red-gum* in general appearance, both of 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*. The *Heart-leaved gum* is 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 *Drooping-gum*, are not united by their bases.

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