

OBSERVATIONS ON SOME REPUTED NATURAL  
EUCALYPTUS HYBRIDS,

TOGETHER WITH DESCRIPTIONS OF TWO NEW SPECIES.

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WE desire to invite attention to three interesting plants described by us some years ago<sup>1</sup> as suggestive of hybridism, and we offer some notes upon them. The direct evidence of hybridism in *Eucalyptus* is usually a matter of inference and not of direct experiment; it seems to us that in two of the plants referred to, it is desirable to attach names to them.

A. (*op. cit.*, p. 199). We have no further evidence to offer in this case, and consider that it is one for further investigation. We have since found a few additional trees belonging to this form, but they were only about a quarter of a mile from the original tree.

B. (*op. cit.*, p. 200). Many small mallee-like forms are very puzzling, partly because they are so small that certain characters are not obvious as in the case of large trees, and partly because the *Renantheræ*, to which class this particular plant belongs, present many points of resemblance.

As regards B. it appears to be identical with *E. hæmastoma*, Sm. var. *montana*, Deane and Maiden,<sup>2</sup> from Mount Victoria about four miles from Blackheath.

Since then, one of us has suggested<sup>3</sup> the close resemblance of the Mount Victorian specimens to *E. amygdalina*, Labill. var. *nitida*, Benth. (*E. nitida*, Hook. f.) of Tasmania.

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<sup>1</sup> Proc. Linn. Soc. N.S.W., xxx, 199 (1905).

<sup>2</sup> Proc. Linn. Soc. N.S.W., xxvi, 125, (1901).

<sup>3</sup> "Critical Revision of the Genus *Eucalyptus*," i, 163.



The type of *E. nitida* is figured at Plate xxix of Hooker's Fl. Tas. (Botany of Tasmania). What Hooker says about it has been quoted at p. 158 of the "Critical Revision." Compare with p. 163.

We are of opinion that *B.* is conspecific with *E. nitida*, Hook. f., and that that species is sufficiently distinct from *E. amygdalina*, Labill. Thus *E. nitida* should be added to the flora of New South Wales (it will probably be found in Victoria); it is not exclusively a Tasmanian species.

Bentham, as already indicated, combined *E. amygdalina* and *E. nitida*, and Rodway<sup>1</sup> agreed with him. Messrs. Baker and Smith dissent,<sup>2</sup> but do not publish their evidence.

Mr. Cambage's No. 2004 from Kydra Trig. Station, Kybean, (4,030 feet), north-east by east of Nimitybelle, New South Wales, is from a locality connecting Blackheath with Tasmania. Here the plant is mallee-like and 6–8 feet high.

*Tasmanian specimens.*—Certain specimens quoted by Hooker are referred to in the "Critical Revision," p. 163, together with a specimen by Milligan, and the notes need not be reprinted. Comparing these specimens, and Hooker's figure, the leaves of the Tasmanian forms are longer and narrower than those of New South Wales, but we find the character not constant, since there are transition forms both in Tasmania and New South Wales.

Ten to fifteen feet high. Towards summit of Mount Bischoff, Waratah, West Tasmania (R. H. Cambage 4103).

Small stunted trees near summit of Mount Roland (3,700 feet) near Sheffield (R. H. Cambage Nos. 4097 and 4099).

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<sup>1</sup> The Tasmanian Flora, p. 56.

<sup>2</sup> Research on the Eucalypts, p. 169.



C. (*op. cit*, p. 201).

EUCALYPTUS KYBEANENSIS, nov. sp.

Arbor Mallee similis, 6 – 10' alta, caulibus lævibus viridibus, ligno pallido. Folia juvena lanceolata circiter 6 cm. longa, 1 cm. alta, non-glaucæ, subtus pallidiore-virentia, margine crassata, costa media prominente, venis lateralibus prominentibus et fere pinnatis. Folia matura coriacea, lanceolata, circiter 6 – 8 cm. longa, 1·5 cm. alta. Alabastra operculis hemisphericis diametro circiter conoideo calycis tubo dimidio equilongis. Flores renantheri. Fructus sessiles, ad 7 in capito, fere hemispherici, diametro fere 1 cm., orificio leniter rotundati, valvarum apicibus orificio æquis.

Species cum *E. stricta* affinitate trahitur, fructibus autem maxime diversis et *E. capitellatæ*, Sm. similibus, qua magna "Stringybark" est.

Of mallee-like growth, six to ten feet high, with smooth, greenish stems one and a half inches in diameter. Timber pale coloured.

*Seedling leaves.* Lanceolate, about 6 cm. long by 1 cm. broad as the alternate stage is reached, very shortly petiolate, non-glaucous, of a brighter green on the underside. Margin thickened. Midrib prominent and raised, showing a depression on the upper page of the leaf, the lateral veins prominent and roughly pinnate, intramarginal vein well removed from the edge.

*Mature leaves* rather coriaceous, lanceolate, about 6 – 8 cm. long by 1·5 cm. broad, erect, shortly petiolate, equally green on both sides. Veins fairly prominent and spreading from the base; intramarginal vein a considerable distance from the edge.

*Buds.* Externally rough in texture, operculum hemispherical, the diameter about half the length of the conoid calyx-tube.

*Flowers.* Renantherous.



*Fruits.* Sessile, up to seven in the head. Nearly hemispherical, nearly 1 cm. in diameter, rim broad and reddish-brown, gently domed, tips of valves flush with the orifice.

The type grew on sandy conglomerate formation at Kybean, amongst *Casuarina nana*, Sieber, near the Kydra Trigonometrical Station, on the Great Dividing Range, 4,000 feet above sea-level, sixteen miles easterly from Nimitybelle. (Coll. R. H. Cambage, 4th November, 1908).<sup>1</sup>

We are of opinion that it is not to be specifically separated from the plant we have indicated as C.<sup>2</sup> in another paper.

The seedling shows its close relationship with *E. virgata* Sieb. var. *stricta* (*E. stricta*, Sieb.), but the domed fruits of hemispherical shape separate them sharply from that species. They are reminiscent of those of *E. capitellata*, Sm., though not quite similar to those of that species, which is a tall Stringybark tree.

#### EUCALYPTUS BENTHAMII, nov. sp.

Arbor magna erecta, "White" vel "Flooded Gum" vocata, cortice basi plusve minusve secendente 3 – 4 ft. diametro, 60 – 100 ft. alta, ligno pallido et non duro, foliis juvenibus tenuissimis glaucis infra pallidioribus lanceolatis ad ovato-lanceolatis cordatis, foliis maturis sub-glaucis lanceolatis, alabastris ad 7 in imbella leniter urceolata, operculo acuminato, pedicellibus brevibus, umbella in pedunculo gracile circiter .5 cm. longo, fructibus immaturis urceolatusculis ad fere hemisphericis, margine distincto, fructibus maturis fere hemisphericis circiter .5 cm. diametro, valvarum apicibus leniter exsertis.

A large conspicuous White or Flooded Gum, rather erect in habit, with more or less rough-flaky bark at the butt; such bark may be almost wholly absent, or sometimes

<sup>1</sup> The plant referred to as No. 1980 in Proc. Linn. Soc. N.S.W., xxxiv, 327, (1909) is this species.

<sup>2</sup> Proc. Linn. Soc. N.S.W., xxx, 201, (1905).



extending to the first fork. The rough bark rather hard, but rarely almost fibrous, and terminating in short ribbons. Commonly three to four feet but sometimes six feet in diameter, and sixty to a hundred feet high. Timber pale pink when fresh and of medium hardness and fissility.

*Juvenile leaves* very thin, very glaucous when young, but drying nearly glabrous, paler on the underside, showing a profusion of oil-dots and distinct veins. Lanceolate to ovate-lanceolate, and cordate, amplexicaul, bluntly pointed or acute, up to 10 cm. long, by 4 cm. in greatest width.

*Mature leaves* slightly glaucous, lanceolate, petiolate, somewhat falcate. Midrib prominent, (sometimes pinkish), the lateral veins, which are irregularly pinnate, prominent, the intramarginal vein distinctly removed from the edge. Common dimensions are 14 cm. long, 1.5–2 cm. broad, with a petiole of 2 cm.

*Buds* usually glaucous, up to seven in the head, slightly urceolate, operculum pointed, about half the length of the calyx-tube, which gently tapers into a short pedicel, the umbel being supported by a slender peduncle of about .5 cm.

Expanded flowers not seen.

*Fruits.* In the half grown state glaucous, somewhat urceolate to nearly hemispherical, and with a well-defined raised rim. When ripe, nearly hemispherical, about .5 cm. in diameter, slightly domed; tips of the valves slightly exsert.

It is the "Flooded Gum of Camden," No. 108 of the New South Wales timbers contributed by Sir William Macarthur to the Paris Exhibition of 1855 and No. 28 of those of the London Exhibition of 1862).

Under 108, Sir William Macarthur notes in the Catalogue, "Flooded Gum of Camden, diameter 36–48 inches, 80–120 feet high. A fine-looking tree, with elegant pendant foli-



age; the timber not valued, being weak and perishable in comparison with many other of the common hardwoods."

Under No. 28 it is described by the same writer as "A fine looking but comparatively worthless sort; the timber weak and not durable." The diameter is given as the same, but the height is reduced to from 80 – 100 feet high.

It will be observed that under 108 the tree is described as of "elegant pendant foliage." Speaking generally, this is not a good description, although we have seen an odd tree to which it would apply. In the great majority of cases the trees and foliage are rather erect in habit.

In the "Flora Australiensis" (iii, 240) the specimen just mentioned (bearing the No. 108) is placed under *E. viminalis* and the record has always been accepted, e.g., Woolls' "Plants indigenous in the neighbourhood of Sydney" (1st and 2nd editions).

The Nepean River trees are quite close to Camden Park and it would be impossible for Sir William Macarthur not to be familiar with them, and no other local tree could be mistaken for them. We are of opinion that *E. viminalis*, Labill. should be removed from the flora of the County of Cumberland.

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In the Kew herbarium is a specimen labelled "No. 16. Southern district New South Wales, Macarthur and others. 'Flooded Gum.' From the London Exhibition of 1862," which appears to be referable to *E. Benthami*.

No. 16 in the official catalogue has the entry "Collected by Edward Hill, Esq., aboriginal name at Brisbane Water 'Thurambai,' vernacular name 'Flooded Gum,' a famous timber for ship-building and for house carpentry." This description can only apply to *E. saligna*, Sm., but the herbarium specimens are not of that species. It is proper to refer to a numbered specimen in the principal herbarium



of the world, but one cannot explain the label. To begin with, Brisbane Water is in the north, and not in the southern districts. The specimen may have been received as "Flooded Gum," and the description of a second Flooded Gum (*saligna*) other than *Benthami*, tacked on to it. The specimen was not exhibited in the previous or Paris Exhibition.

### *Affinities.*

1. With *E. viminalis*, Labill. The new species has by most observers been confused with *E. viminalis* and being a White Gum with rough bark at butt, and growing on river flats and banks of rivers explain why this view has been so prevalent. But it is more erect in habit, *E. viminalis* having more pendulous branches and more distinctly ribbony bark.

The new species has broader juvenile leaves, the foliage is sub-glaucous, the flowers are smaller and never in threes, the fruits are of a different shape, with the valves never as exsert as those of *E. viminalis*.

2. With *E. Macarthuri*, Deane and Maiden. *E. Benthami* is a tall, rather erect tree with a somewhat thin canopy; *E. Macarthuri* is a smaller tree with a rather umbrageous head. The bark of *E. Macarthuri* is rough, somewhat box-like, but very woolly; that of *E. Benthami* being smooth in the upper portion (a White Gum) and flaky at the base. Sometimes it is wholly smooth.

The juvenile foliage and buds are sub-glaucous in *E. Benthami*; the buds of *E. Macarthuri* are often shining and slightly smaller than those of *E. Benthami*.

The trees referred to as *E. Macarthuri* at Werriberri Creek in Proc. Linn. Soc. N.S.W., xxxvi, 553, (1911) are *E. Benthami*.



Type from the banks of the Nepean River near Cobbitty, N. S. Wales (Camden district). J. H. Maiden and R. H. Cambage, June, 1913.

The following specimens are either referable to the present species or are closely related thereto:—

- (1) Seven miles east of Walcha, J. H. Maiden, Nov., 1897.

A tree with box-scaly or rough apple-like (*Angophora intermedia*) bark, rough, except the ultimate branchlets; suckers ovate-lanceolate, not glaucous, except the very young tips of the branchlets of the suckers.

- (2) Guy Fawkes, Armidale district, J. L. Boorman, December, 1909.

A tall tree with a fibrous bark, and claret coloured tips to branches. Reputed locally to be a useful timber for building and fencing purposes.

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