

NOTES ON EUCALYPTUS, (WITH DESCRIPTIONS
OF NEW SPECIES) No. I.

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An old confusion between *E. tessellaris*, F.v.M., and *E. clavigera*, A. Cunn., with a proposed new variety of the latter.

A. *E. TESSELARIS*, F.v.M.

This species was described by Mueller, as in the case of so many of his species, from a territory, and not from a specific locality. In *Journ. Linn. Soc.*, iii, 88, he says its habitat is from the south eastern coast of the Gulf of Carpentaria to Moreton Bay, a distance of nearly a thousand miles as the crow flies.

It is a species well defined. It is the so called Moreton Bay Ash, with the lower part of the bark fissured into small, nearly cubical black pieces, like tesserae.

In B. Fl. iii, 251, Bentham constituted a variety *Dallachiana*, recorded it from Rockhampton, and gave various localities for the normal species. From the localities quoted by him, Careening and Vansittart's Bays, N.W. Coast, A. Cunningham, I have seen a specimen, and it is not different from his var. *Dallachiana*. I have not seen Robert Brown's nor Mueller's specimens from the Gulf of Carpentaria. Turning to the "Eucalyptographia," I have seen the specimen from the Finke River, and it is the variety *Dallachiana*.

I have also seen several specimens of var. *Dallachiana* from different localities adjacent to the N.W. Coast (in Western Australian territory) and they are all var. *Dallachiana*.

I have many specimens of *E. tessellaris* (the Carbeen of New South Wales, and the Moreton Bay Ash of Queensland) from northern or rather north western New South Wales to northern Queensland, but I have, so far, not seen an authentic specimen from any other State, and I would suggest that botanists re-examine their material attributed to *E. tessellaris*, as the confusion has caused a good deal of inconvenience as I shall presently show.

B. E. CLAVIGERA, A. Cunn.

This angophoroid species was described from Careening Bay, N. W. Australia, just south of York Sound. The original description says the leaves are petiolate, obtuse and glaucescent.

Bentham (B. Fl. iii, 250) says they are sessile or nearly so, while Mueller ("Eucalyptographia") says much the same, but in greater detail.

As a matter of fact, it is a variable species, and this has given rise to a number of names more or less synonymous, and which I will refer in detail in my "Critical Revision of the genus Eucalyptus."

In its typical form the leaves have a hispid or scabrous surface, but they vary a good deal in length of petiole, width and length of leaf and vestiture.

C. E. CLAVIGERA, A. Cunn., var. DALLACHIANA, var. nov.

The placing of the tree called by Bentham *E. tessellaris*, F.v.M. var. *Dallachiana* under *E. tessellaris* was acquiesced in by Mueller and Bailey, but it has from time to time raised protests. For example,

"The variety *Dallachiana* although described only as such, has certainly all the claims to a separate species, inasmuch as that it totally differs from *E. tessellaris*, at least in bark, leaves and wood. It is the "White Gum" of the settlers, and the "Dangallboora" of the aborigines, and is a middle-sized spreading tree, with a white smooth bark which is entirely deciduous. The adult foliage is

much larger and of a paler hue than that of *E. tessellaris*, and the leaves from adventitious shoots are generally six to thirteen inches long and three to four inches wide. The seedling plants are hispid, with the leaves opposite, broadly ovate and shortly petiolate, but not peltately attached; the seedlings of *E. tessellaris* are also hispid, but the leaves are much smaller and nearly sessile.”¹

In the following passage *E. tessellaris* is the inferior timber, while the durable timber refers to the so-called variety *Dallachiana*.

“Accounts of this timber are conflicting. The Rev. J. E. Tenison-Woods states that about Moreton Bay, Gympie, etc., the wood is not valued for any purpose whatever; about Rockhampton, Mr. O’Shanesy says that the heart-wood is good enough but the sap-wood soon decays; about Townsville and Charters Towers the wood is highly esteemed, and employed for all useful purposes. Mr. Woods says the only way to account for these various statements is by supposing the warmer climate is its proper habitat. This is by no means the only Eucalyptus timber in regard to which statements from different localities are conflicting.”²

The late Dr. Joseph Bancroft, a keen observer of our flora, wrote as follows, whether in print or in a letter to me, I cannot at this moment say:—

“The wood is heavy and not much used in Brisbane (Moreton Bay Ash, *E. tessellaris*, J.H.M.) for economic purposes, but in the northern part of the colony (the tree under discussion, J.H.M.) it is found valuable, leading to the supposition of the northern tree being of another species. It is very combustible, and dead trees will burn away entirely, root and branch, often without assistance.”

The same discordant remarks on the wood are seen in the catalogue of the Queensland Forestry Museum, 1904, under *E. tessellaris*, where we have

¹ O’Shanesy, *Contrib. to Fl. Q’land*, p. 40, 1880.

² *Proc. Linn. Soc. N.S.W.*, VII, 334, 1883, quoted in my “Useful Native Plants of Australia.”

"Not often used in southern Queensland, but extensively for buildings, fences, etc., in the north, where this kind of timber is better, being very tough and durable."

Dr. Joseph's son, Dr. T. L. Bancroft, wrote me as follows in July 1909, from Stannary Hills, North Queensland :

"Bentham's *E. tessellaris* var. *Dallachiana* is not at present in flower; I found it hard to preserve the flowers; they shake to pieces so readily.

"*E. tessellaris* I know well; it occurs here also, but the species under consideration is a totally different species. The leaves are very large and twisted, in the saplings more especially; some few leaves are enormous. The largest trees are about fifty feet high and one foot in diameter. The bark is white or greyish, very like *E. tereticornis*, our Blue Gum. There is no rough bark as in *E. tessellaris*."

The tree is common in northern Queensland, where it is called "Desert Gum," "Cabbage Gum" or "Pudding wood."

There is no doubt that it is an error to keep it under *E. tessellaris*, but I am not satisfied that it is a distinct species. It is, in my opinion, an extreme form or variety of *E. clavigera*, A. Cunn., with narrow lanceolate leaves. I take Bentham's description of *E. tessellaris* var. *Dallachiana* as typical for my *E. clavigera* var. *Dallachiana*:

"Veins of the leaves more oblique, the intramarginal one not so close to the edge, the cluster of umbels so dense as to be reduced almost to a sessile head." (B. Fl. iii, 251.)

It seems very different at first sight to *E. clavigera*, A. Cunn., of north western Australia, but I have specimens which seem to absolutely connect the two forms. The timber of *E. clavigera* is deep brown and abhorrent to white ants at Darwin; the timber of our "Cabbage Gum" or "Pudding wood" is similarly durable, much more so than that of the Moreton Bay Ash (*E. tessellaris*).

E. leptophleba, F.v.M., *E. drepanophylla*, F.v.M., and *E. siderophloia*, Benth., forma *decorticans*, Bailey.

In the *Queensland Agric. Journ.*, xxvi, 127 (1911) Mr. F. M. Bailey gave the name *E. siderophloia*, Benth., forma *decorticans* to a supposed new Eucalypt from Eidsvold on the Upper Burnett River, Queensland, collected by Dr. T. L. Bancroft.

Ample material of this form and ample material of *E. leptophleba*, F.v.M. have enabled me not only to investigate the Eidsvold tree, but also to throw further light on the imperfectly known *E. drepanophylla*, F.v.M.

This form is known as "Mountain Ironbark," "Naked Top Ironbark," or "Gum Top." It is found in rocky mountainous country on the Upper Burnett, associated with *E. siderophloia*, Benth. To begin with it will be best to formally describe it.

Timber.—Inferior in quality, colour red.

Bark.—On the butt blackish, hard, furrowed, with flattish ridges after the fashion of *E. siderophloia*, but with bare branches as described by Dr. T. L. Bancroft in the following extract from a letter:—

"A remarkably fine tree, like a large Grey Ironbark, but the branches of the top, up to the size of a man's arm or even thicker, are white in colour; covered with a thin smooth bark; the bark is always peeling off these thin branches, and the ground below is strewn with it after the style of *E. hemiphloia*."

Juvenile leaves.—Extremely narrow, linear lanceolate, some specimens having an average length of 5 or 6 dm. and a diameter of 8 cm., oil dots abundant, marginal vein distinctly removed from the edge. (These sharply separate this form from any species with which it is likely to be confused. I have no evidence that Mueller ever saw juvenile leaves of this form or of his *E. drepanophylla*, but, if he did, they would afford some explanation of his suggestion that *E. drepanophylla* is a form of *E. crebra*, F.v.M.).

Mature leaves.—Lanceolate, slightly curved, acuminate, equally green on both sides, drying to a pale green, venation (except the midrib) inconspicuous, the lateral veins very fine and somewhat spreading, the marginal vein close to or very near the edge.

Flowers.—Umbels 3 to 6 flowered, usually 3 or 4 together in short axillary or terminal panicles, the peduncles angular. Calyx-tube obconical with one or two angles, tapering into a short pedicel. Operculum blunt pointed, about as long as the calyx-tube. Stamens inflected in the bud, anthers broad, white, opening at the sides, filament at the base, small gland at the top.

Fruit.—Ovoid cylindrical, and 7 mm. in diameter, often with one or two angles, with a darker coloured rim hardly constricted at the orifice, the tips of the valves slightly protruding.

In my *Critical Revision of the Genus Eucalyptus*, Part X, p. 332, I have, following Mueller and Luehmann, combined *E. leptophleba*, F.v.M. and *E. drepanophylla*, Benth. Following are some notes on the bark:—

A. *E. LEPTOPHLEBA*, F.v.M.

1. Bark dirty grey, rugose, fissured on trunk and persistent on the branches.¹ This is the original description, and appears perfectly clear.

2. "An ironbark," (B.Fl. iii, 221, under *E. drepanophylla*). On what authority it is stated to be an ironbark I know not.

3. Dark persistent rugged bark (*ib.* under *E. leptophleba*). Perhaps this is intended for a free translation of the original description.

4. "Breaking up into numerous small angular pieces in the manner of *E. tessellaris* ("Eucalyptographia" under *E. crebra*, probably following O'Shanesy, as quoted by me in *Critical Revision* X, p. 332, but apparently wrongly, O'Shanesy adopting the name given by Mueller for a tree which, below, I have named *E. Cambageana*).

¹ *Journ. Linn. Soc.*, iii, p. 86, 1859.

5. "A box, hardly to be distinguished from *E. populi-folia*." (Dr. T. L. Bancroft, in a letter to me.)

The tree now described (forma *decorticans*) is very different from *E. leptophleba*. Further material received from Dr. T. L. Bancroft enables me to say that the barks are different; also the juvenile and mature leaves are larger, while the panicles are looser, and the fruit is also larger, as a rule.

E. leptophleba, F.v.M. has *E. Stoneana*, Bailey,¹ as a synonym.

B. E. DREPANOPHYLLA, F.v.M.

1. Bark "Dark grey and ribbed" (B. Fl. iii, 221) original description, quoting Dallachy. This may or may not be a description of an ironbark.

2. "An Ironbark" (B. Fl. iii, 221), quoting Fitzalan, Dallachy, and Bowman.

3. "Perhaps different bark" (to *E. crebra*). ('Eucalyptographia' under *E. crebra*.)

4. "Belongs to the series of ironbark trees, with therefore furrowed and dark coloured bark, ('Eucalyptographia' under *E. hemiphloia*).

There seems no doubt that the true *E. drepanophylla* is an ironbark.

Dr. T. L. Bancroft's Eidsvold specimens and field notes are quite complete, while there is no evidence in the Melbourne Herbarium that Mueller ever saw completely matched specimens of either *E. leptophleba*, F.v.M. or *E. drepanophylla*, F.v.M.²

That is why he threw doubt upon his own two species on several occasions, and systematists will always be liable to

¹ *Queensland Agric. Journ.*, XIII, p. 259, 1909.

² I suggest that Bentham (B. Fl. iii, 221) on Mueller's behalf, compiled the description from specimens from different localities.

make mistakes when they have to deal with incomplete material, and, through attempting to match material from different sources are led to make inferences. Even with complete material from a specific locality, the question of variation must also be borne in mind.

I also received complete material and field notes of *E. leptophleba* from Dr. T. L. Bancroft from Stannary Hills, North Queensland, and I am now led to submit the following propositions:—

1. *E. leptophleba* F.v.M. and *E. drepanophylla*, F.v.M. are distinct species, the former being a Box and the latter an Ironbark.

2. The following specimens are correctly referable to *E. drepanophylla*, F.v.M.

(a) Port Denison ; also Burdekin Expedition, *Fitzalan* (evidently the type).

(b) Cleveland Bay (*S. Johnson*). Both specimens in bud and flower only.

(c) Ravenswood, Burdekin River (*Johnson*). In fruit only, labelled both *drepanophylla* and *crebra* by Mueller.

3. *E. siderophloia*, Benth. forma *decorticans* Bailey is referable to *E. drepanophylla*, F.v.M.

E. siderophloia, Benth. and its relation to *E. paniculata*, Sm. in Queensland.

The form (*decorticans*) above referred to, cannot belong to *E. siderophloia* because of the bark and timber, while the juvenile leaves are wholly dissimilar, to mention no other difference. Investigation of the relations of *E. drepanophylla*, F.v.M. with *E. siderophloia*, Benth., has caused me to submit the following brief notes in regard to the latter species and *E. paniculata*, Sm. in Queensland.

A. In Part X, p. 325 of my *Critical Revision*, I have stated that, in my opinion, *E. siderophloia*, Benth. is always rostrate-budded, and that the attempted establishment of a rostrate variety is founded on misapprehension. So far I have seen no evidence that this view is an erroneous one.

B. There is a good deal of a Grey Ironbark in Queensland which has a conical operculum and a paler timber than the rostrate-budded Eucalypt above referred to, which has always a deep red timber.

Bailey deals with these two ironbarks in his *Queensland Flora* in the following manner :—

C. *E. siderophloia*, Benth. var. *rostrata*. “*Large leaved Iron Bark.*” Wood *red*, (the italics are mine). About Taylor’s Range near Brisbane, (p. 621).

I look upon this as *E. siderophloia*, normal form.

D. *E. siderophloia*, Benth. “*Black Ironbark.*” Common in the southern portions of the Colony. Wood of a *grey* colour (the italics are mine) (p. 621).

I submit that this tree is *E. paniculata*, Sm.

E. Then under *E. paniculata*, Sm., he says “In southern inland localities,” (p. 616). This seems to me correct as far as it goes.

F. Incidentally I may say that *E. paniculata*, Sm., is referred to as Red Ironbark by Mueller in “*Eucalyptographia*” by a mistake on the alleged authority of the late Rev. Dr. Woolls who, in his own copy of that work (in my possession) cancelled the word “red” and inserted “white.” The student of New South Wales Eucalypts knows that to the vast majority of people *E. paniculata* goes under the name of White or Grey Ironbark, while some people, noting its pink or pale red colour (sometimes deeper in tint, but never as deep a red as *E. siderophloia*), use the name Red Ironbark, but, compared with a true Red Ironbark the term is very misleading.

My suites of specimens of the Grey Ironbark of Queensland are neither as numerous nor as complete as I would like, and in some of them the anthers vary somewhat from those of the anthers of the typical form of *E. paniculata*, Sm., as found at Port Jackson, but the present state of our knowledge causes me to submit that the Grey Ironbark of Queensland is not specifically different from the Grey Ironbark of New South Wales, and that it is usually *E. paniculata*, Sm. At the same time, the term "grey" is sometimes given with reference to the prevailing colour of the bark, and it is more or less appropriate when applied to other species also.

I desire to remark that the "egg-in-eggcup" character of the operculum sometimes occurs in *E. paniculata* as well as in *E. siderophloia*.

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The following are suggested as new species :—

1. *E. HYBRIDA*, n. sp.

Type from Concord, Sydney, N.S.W. (Rev. Dr. Woolls, 1890 ; R. H. Cambage, 10th February 1901).

Arbor erecta, altitudine circiter 50 pedes. Cortex cinerea, lævis, corrugata. Lignum pallidum, durum. Folia matura lanceolata vel late lanceolata, pallida virentia, tenuiora, circiter 8 – 12 cm. longa, vena peripherica margini approximata, venis lateralibus patentibus. Flores in breve panicula corymbosa, quaque plerumque 3 – 6 flora. Calycis tubus conoideus. Operculum acuminatum, calcis tubo æquilongum. Fructus cylindrico-conoidei, circiter 6 mm, lati, in orificium leniter contracti, margine tenui. Valvarum apices plusve minusve depressi, orificium rare tangentes.

Mr. Henry Deane¹ and I drew attention to a Eucalypt which we had received from Mr. R. H. Cambage, and which

¹ *Proc. Linn. Soc. N.S.W.* xxvi, p. 340, (1901).

we thought presented an instance of hybridism. Later on¹ I stated that I had no doubt as to its hybrid nature. I have had the tree under observation ever since, and am of opinion that it is a form sufficiently distinct to receive a name, and suggest the above, which is appropriate, since the evidence is remarkably conclusive that *E. paniculata*, Sm. and *E. hemiphloia*, F.v.M. are its parents.

It was originally found in Bray's Paddock, Concord, near Sydney, where I knew of six trees until recently, but building operations may soon exterminate these particular specimens.

Dr. J. B. Cleland has drawn my attention to a tree on Milson Island, Hawkesbury River, (a short distance west of the Railway Bridge) which appears to be identical with that from Concord. *E. paniculata*, Sm. is common on the Island, but there is no *E. hemiphloia*; this suggests that the hybrid originated elsewhere than on Milson Island.

E. hybrida may be described as follows :—

An erect tree of about 50 feet high, the tips of the branches smooth, the butt with a sub-fibrous (peppermint-like) or flaky-fibrous and more or less flat-corrugated bark, greyish or blackish externally, hence some trees have been described as "Black Box."

Timber pale-coloured, hard, interlocked, and probably valuable.

Juvenile foliage not seen in the strictly opposite state, but as seen, not different from the mature foliage except in width.

Mature foliage. Lanceolate or broadly lanceolate, slightly falcate, acuminate, commonly 8 to 12 cm. long. Dull green, the same colour on both sides, rather thin and tough, lateral veins spreading, fine, the intramarginal vein not far removed from the edge of the leaf, oil dots not numerous.

Flowers. Peduncles of moderate length, angular, usually in a short corymbose panicle, each with about 3 to 6 or sometimes more

¹ *Op. cit.*, xxx, p. 498, (1905).

flowers. Calyx-tube conoid, 5 cm. diameter, often angular, tapering into a short pedicel. Operculum pointed and as long as the calyx-tube. Stamens inflected in the bud, anthers small, yellow, opening in small slits near the top, filament at base, and small gland at back, indubitably showing intermediate characters between the anthers of *E. paniculata* and *E. hemiphloia*.

Fruit. When immature cylindrical, with a rim round the orifice; when ripe cylindrical to almost conoid, about 6 mm. in diameter, hardly constricted at the orifice, rim thin, tips of valves more or less sunk and rarely flush with the orifice.

The *Affinities* of this species are almost intermediate between *E. paniculata*, Sm., the Grey Ironbark, and *E. hemiphloia*, F.v.M., the Grey Box.

This is the first species of this genus which has been named with especial reference to its hybrid character. I have a large number of instances of apparently indubitable hybrids, but in most cases a pictorial illustration is necessary to make the hybridism clear, and therefore I propose to describe them in my "Critical Revision" of the genus.

2. *E. BAKERI*, n. sp.

Local Name "Mallee Box."

Type from Ticketty Well, Wallangra, N.S.W. (E. H. F. Swain, July 1911). Collected also by Mr. J. L. Boorman, December 1912.

Frutex altus similis Mallee, vel arbor parva 30–50' alta. Trunci cortex dura et squamosa. Ramuli læves. Lignum durum, grave, rubrum. Folia juvena obscuro-virentia, concoloria, linearo-lanceolata, vix acuminata, 9 cm. longa, 1 cm. lata, oleosa, indistincte venosa, penniveniis, vena peripherica a margine remota. Umbellæ plerumque axillares, multifloræ, sæpe 10–13 floræ. Operculum elongatum calycis tubo multo longiore, cujus diameter leniter latior est. Fructus diametro circiter 5 mm., truncato-spheroidi. Valvarum apices subulati, 2 mm. exserti.

A large shrub or small pendulous Willow-like tree attaining a height of 30 – 50 feet, forming a single stem, or stooling from the ground.

Bark dark box-like, or hard and scaly up to its branches, falling away in long flakes, rough at the butt, branches clean, bluish-green or pale-yellow to white right up to the tips.

Wood hard and heavy, of a deep red when freshly cut, becoming browner with age, the grain of the timber fibrous, very tough, reputed to be an excellent timber for wheel-wrights' work.

Juvenile leaves dull green on both sides, linear-lanceolate, hardly acuminate, about 6 or 7 cm. long, the venation not distinct, the intramarginal vein close to the edge, the lateral veins penniveined, plentifully besprinkled with oil-dots and the branchlets angular and glandular.

Mature leaves linear-lanceolate, petiolate, acuminate or with a hooked tip, bright green, dull-shiny, richly covered with oil-dots, venation indistinct, the intramarginal vein distinct from the edge, the lateral veins penniveined. Average dimensions 9×1 cm.

(If this species were gregarious, it would probably be found to be a valuable oil-yielding species).

Flowers. Umbels mostly axillary and flowers numerous, often 10 – 13 in an umbel, which sometimes takes on a stellulate appearance. Operculum elongated, very much longer than the calyx-tube, which is of slightly increased diameter, and which tapers, somewhat abruptly, into the short pedicel. The common peduncle about 1 cm.

Anthers small, renantheroid, but the two cells more united than in the *Renantheræ*; spherical gland at top and back.

Fruits. Small, about 5 mm. in diameter, truncate-spheroid, the tips of the valves awl-shaped and protruding 2 mm. from the orifice.

Enclosing the valves and torn by the tips of them as the fruit ripens is a thin white membrane, which gives the rim

and orifice a whitish appearance, and which, if present in all, is only obvious in a few species of this genus.

Affinities. It is a remarkable narrow-leaved species, with narrow juvenile foliage, buds with long opercula of less diameter than the calyx-tube, and small fruits with well exerted awl-like tips.

It is not easy to indicate its closest affinity.

It would appear to have affinity to *E. uncinata*, Turcz., but Mr. Boorman, an experienced collector, is emphatic that the two species are very different in habit. *E. Bakeri* is a tree of 50 feet and even more, reminding one of a Willow; indeed it was first sent in as "Willowy Eucalypt". The foliage is narrow and somewhat dull in appearance; the anthers are very similar, but not identical, while there is no kink in the filament in the stamens of *E. Bakeri*.

It approaches *E. odorata* in its mode of growth; it seems closest to the var. *Woollsiana* of that species, but its buds and fruits are quite different. The same observations may be made in regard to *E. acacioides*, A. Cunn., (*E. viridis*, R. T. Baker).

Its fruits remind one of those of the Western Australian *E. salmonophloia*, F.v.M., but those of the latter species are smaller, more shiny, have thinner and more marked pedicels.

E. Seeana, Maiden, is another species with small fruits (which are, however, domed), and a long operculum (more tapering into the calyx-tube in *E. Seeana*), leaves different and the bark of *E. Seeana* is smooth.

E. redunca, Schauer var. *angustifolia*, Benth. is another narrow-leaved, long operculumed form. It is from South-western Australia and has no close affinity to the present species.

Other narrow-leaved species are *E. angustissima*, F.v.M. and *E. apiculata*, Baker and Smith, but they have no special affinity to this species.

E. oleosa, F.v.M. bears an obvious resemblance as far as the fruits are concerned, but those of the new species are smaller, and in leaves, and in most other respects the affinities are not obvious.

This is a specially interesting species, rich in oil, which I name in honour of Mr. Richard Thomas Baker, who has done valuable work in connection with this genus.

E. SIMILIS, nov. sp.

Type from "Desert Country west of Emerald, Queensland (G. H. Carr, March 1908).

Arbor mediocris. Folia juvena tenua, glabra, pedunculata, ovato-acuminata. Folia matura angusto-lanceolata, flavo-virentia, concoloria, circiter 12 cm. longa, 2 cm. lata. Venæ laterales pinnatæ, distinctæ, vena peripherica distincta et a margine remota. Umbellæ confertæ, multifloræ plerumque in panicula terminale corymbosaque. Calycis tubus irregulariter costatus. Operculum hemisphæricum vel umbonatum. Fructus vix 1 cm. longi, truncato-ovoidei, in orificium sensim contracti.

A tree of medium size; notes on bark and timber uncertain.

Juvenile foliage. Thin, parchment-like, perfectly glabrous, not seen strictly opposite, pedunculate, ovate-acuminate. Size of a specimen 6 × 3 cm.

Mature foliage. Narrow lanceolate or slightly falcate, petiolate, the petioles flattened and twisted, length of blade up to 12 cm. and more with a greatest width of about 2 cm. Equally yellowish-green on both sides, rather shiny, venation distinct, and nearly as prominent on the upper as on the lower side. Midrib very prominent, lateral veins pinnate and very distinct, the intra-marginal vein distinct and removed from the edge.

Buds and flowers. Inflorescence profuse, in a loose umbel, several flowered, mostly in a terminal corymbose panicle, the peduncles slightly compressed or angular, calyx-tube irregularly ribbed, shiny; opercula hemispherical or umbonate, shiny. Filaments yellow, anthers with long narrow adnate cells with a moderately large gland at the back, and the filament attached half way up.

Fruits. Sharply separated from the short pedicel, on a slightly flattened common peduncle of about 1.5 cm. Truncate-ovoid, gradually constricted towards the orifice, barely 1 cm. long and about 6 mm. at the orifice. Three-valved, the valves blunt and these capsule teeth not adherent to the calyx-tube.

Habitat. Desert country west of Emerald, Queensland.

Affinity. Its closest affinity, so far as is known, is *E. Baileyana*, F.v.M. (see description amended by me in *Forest Flora N.S.W.*, iv, 71). Like that species it is a member of the section *Eudesmiae*, and appears to differ from *E. Baileyana* in the following characters:—

1. *E. similis* is said to be a “Yellow Gum,” or “Yellow Jacket,” while *E. Baileyana* is a “Black Stringybark.”

2. The mature leaves of *E. similis* have the same colour on both sides, and have shorter peduncles, while the juvenile leaves are glabrous, those of *E. Baileyana* being covered with stellate hairs.

3. The fruits of *E. similis* are, in comparison with those of *E. Baileyana*, cylindroid, those of *E. Baileyana* being almost spherical, darker and much larger.

The specific name is given in view of the affinity of this species to *E. Baileyana*, F.v.M.

4. *E. CAMBAGEANA*, n. sp.

Local Name “Blackbutt.”

Type from Mirtna Station, Charters Towers, Queensland (Miss Zara Clark, January and December 1912.)

Arbor alta Blackbutt vocata, ramis longis pendulisque. Trunci, cortice cinerea et squamosa altitudini 3 – 4 pedes, a caule laeve et albo ramisque distincte disjuncta. Lignum rubrum. Folia juvena 15 cm. longa, 2.5 cm. lata, pallido-virentia utrinque, concoloria, ovata vel pyriforma, vena peripherica patente et a margine distincte remota. Umbellæ 3 – 8 in capite, paniculas plerumque terminales formantes. Alabastri clavati. Operculum ovoideum et calycis tubo circiter dimidio superante. Fructus parvi, conoidei, diametro circiter 7 mm. orificio.

“The young trees grow tall and fairly straight, but with age they become pipy and eventually simply a shell. Very liable to be attacked by white ants.” (Miss Zara Clark).

“The trees range from 50–80 feet high, having long pendulous branches.

“They have scaly bark permanent up to 3 – 4 feet from the ground; this is hard and of an ironbark nature, jet black in colour, the remainder of the stem being milky-white, approaching bluish-white (glaucous); it is clear of any sign of ribbony bark beyond the butt. There is a distinct line of demarcation between the rough black and the white clean stem.

“The sapwood is exceptionally thin, the heart wood deep red or chocolate in colour, hard, heavy, long and tough in the grain, much resembling that of the Red Box (*polyanthemos*) of New South Wales.

“It is the most important timber in the Emerald district for all purposes, being sound, and yielding long, clean stems of many feet in length, hence exceptionally suitable for milling purposes.” (J. L. Boorman.)

Juvenile leaves. Pale-coloured, equally green on both sides, rhomboid-ovate to pyriform and broadly lanceolate, petiolate, apex blunt, venation prominent, marginal vein at a considerable distance from the edge, the lateral veins spreading. Oil dots not obvious. Average size say 9 to 12 cm. × 5 or 6 broad.

Mature leaves. Lanceolate, slightly curved, petiolate, thickish, shiny, pale-coloured, equally green on both sides, venation prominent, the intramarginal vein distinctly removed from the edge, the lateral veins spreading. Average length of mature leaves 15×2.5 cm.

Flowers. Umbels three to eight in the head, forming usually terminal panicles, buds clavate, the calyx-tube forming a defined raised border at its junction with the operculum, the calyx-tube tapering gradually into the pedicel, the operculum ovoid and about half the length of the calyx-tube.

Anthers belonging to the Porantheræ, pores small, opening at the side, the filament always at the base, and the small gland always at the top.

Fruits. Small, conoid, the calyx-tube tapering with but slight abruptness into the pedicel; when young, with a well defined grooved rim, which almost disappears on ripening, leaving a dark brown rim, tips of the valves sunk or rarely flush with the orifice. Size about 7 mm. diameter at the orifice and length the same.

Habitat. "Grows on hard clay soil, often stony, and always some distance from water. Generally in clumps and often in company of Gidgee and Brigalow in the Charters Towers district." (Miss Zara Clark).

Reid River, a few miles south of Townsville (N. Daley).

"The principal timber of the Emerald district, noted for its hardness and size and for the good quality of its timber. Apparently local from Gin Gin to within 10 – 12 miles east of Alpha." (J. L. Boorman).

Some poor fruits collected by O'Shanesy from the Dawson and Mackenzie Rivers, labelled *E. leptophleba* by Mueller, are the present species. These were referred to by me in *Crit. Rev. Gen. Eucalyptus*, x, 333, where I doubted the naming of the specimen. It might be neglected altogether but for the reason that (*op. cit.*, p. 333), it evidently formed

the basis of the name *E. leptophleba* attached by O'Shanesy to a Blackbutt whose timber and bark he describes. He says, "dispersed through the scrubby country westward from Goganjo."

It is therefore widely diffused in the warmer parts of Queensland, but we do not know its precise range yet.

Affinity. It would appear to take the place, in Queensland, of the more southern *E. polyanthemos*, Schauers, or rather of its narrow-leaved forms. The anthers, however, sharply separate them.

The leaves also are different both in shape and venation. The rough bark is more scaly than that of *E. polyanthemos*, and the line of demarcation more clearly defined.

It is named in honor of Mr. Richard Hind Cambage, who has done valuable work in connection with this genus. *E. Cambagei*, Deane and Maiden, is conspecific with *E. elæophora*, F.v.M.

E. PILULARIS, Sm. var. *PYRIFORMIS*, nov. var.

Bucca Creek, near Coff's Harbour, N. S. Wales. (A. H. Lawrence, J. L. Boorman).

Type, J. L. Boorman, June, 1911.

A tall, sound "Blackbutt" 4 to 7 feet in diameter, bark ribbony up to or beyond the third or fourth branches. Bark on the butt similar to that of the normal species. Branchlets often glaucous and double opercula common.

Fruit large, often pyriform, commonly 1.5 cm. long $\times$ 1 cm. broad in the dried state.



Maiden, J. H. 1913. "Notes on Eucalyptus, (with descriptions of new species) No. I." *Journal and proceedings of the Royal Society of New South Wales* 47, 76–94. <https://doi.org/10.5962/p.359628>.

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