NOTES ON TASMANIAN EUCALYPTS.

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(With 1 plate and 2 figures).

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A visit to Tasmania in February-March of the present year, has enabled me to look into some doubtful points, and also to consult Mr. Rodway, to whom I am very grateful, although he is not responsible for my statements. The notes are in alphabetical order of species' names. C.R. means my "Critical Revision of the Genus Eucalyptus."

1. *E. aggregata* Deane and Maiden. *Journ. Roy. Soc. N.S.W.* xlvii., 230.

See C.R. xxv., 85, also this Journ. 1914, p. 30.

Rodway, this Journ. 1917, p. 20, refers to the Tasmanian tree as Black Gum (a name it shares with the typical New South Wales form). His reference to *E. Stuartiana* is to one of the three trees successively named *E. Stuartiana*, and the Tasmanian tree is the one that I have distinguished under the name *Stuartiana prima* (see C.R. xxi., p. 4). Seedlings from seeds sent to me by Mr. Rodway from Tasmania in December, 1917, precisely match those of typical *aggregata*.

I gave some attention to this species on my recent visit to Tasmania. Juvenile leaves vary from narrowish to broadish. There are minor differences in the Tasmanian as compared with the New South Wales specimens, but nothing that seems important to me, nor not easily explained by an environment a thousand miles away from the type.

I collected it 15 miles from the Ouse (Victoria Valley P.O.), on the Dee road. Here I got buds, flowers, and fruits of a flaky barked gum, the tree being of small size.

At the Dee this grows into shapely trees of good size. They have a fibrous bark on the butt, with smooth branches; small fruits. A local resident called it Black Peppermint, but I think this name should be reserved for *E. amygdalina*. My informant had probably heard it called Black Gum and corrupted the name.

2. *E. cordata* Labill.

C.R. Part xix., Plate 84.

Rodway, this Journ. p. 19 (1917), has drawn attention to the juvenile condition of the leaves being maintained throughout the life of the tree. In view of the fact that *E. cordata* is one of the few remaining species with homoblastic leaves (and investigation is gradually reducing their number), I would invite the further attention of collectors to this tree, in order that they may search, especially near the tops, both cultivated specimens, and trees in their native habitats, for pedicellate, lanceolate leaves. The nearest I have got to this state is in a specimen (2c of Plate 84 C.R.) collected by Labillardière himself.

3. *E. coriacea* A. Cunn. (*E. pauciflora* Sieb.)

White Gums, with more or less flaky bark. Spreading out in a number of stems on the rocky surface, and occasionally in single stems.

At the Dee, erect rather than pendulous. It is desirable to collect specimens, and make notes on the spot, in regard to this species, in order to ascertain the extent of its variation. Rodway, *op. cit.*, p. 15, concurs that it is variable in habit.

4. *E. linearis* Dehnhardt.

Following is an extract from my February, 1906, note-book, written in front of the trees at Adventure Bay.

"Trees of medium size, say up to 100 feet, with smooth, slightly ribbony bark (the smooth portion of a yellowish cast) and very little scaly bark except perhaps a little at the lowest portion of the butt.

"Clean looking trees, with clean looking branches and light tops of narrow leaves. The foliage rather erect, certainly not pendulous, although occasionally slightly so.

"This is White Peppermint according to the Adventure Bay people and also Mr. Rodway.

"These trees differ from *E. amygdalina* as we know it, in two important points.

1. An erect, smooth-barked (not rough-barked) tree.
2. Foliage erect, not pendulous."

One need, however, not go as far as Adventure Bay to see good specimens, for there are plenty in the Domain, Hobart, of fair size. Trunks of 1-2 feet. They are gums with more or less flaky bark. The linear juvenile foliage is very evident (Feb., 1918).

5. *E. nitida* Hook. f. *Fl. Tas.*, i., 137, t. 29.

Bentham (B. Fl. iii., 203) reduced this to a variety (*nitida*) of *E. amygdalina*.

In B. Fl. iii., 203, we have the observation: "In the dried specimens the variety (*nitida*) appears to pass into the variety *elata* of *Risdoni*." This remark is interesting in view of the fact that a seedling of *E. nitida* from Blackheath, N.S.W., about 9 inches high, cannot be distinguished by me from a seedling of the same size raised by Rodway named by him *E. Risdoni* var. *hypericifolia*. This is additional evidence of the interrelations between members of this group, which, from this aspect, I propose to go fully into when I deal comprehensively with the seedlings of the genus.

I followed Bentham's example as to the status of *E. nitida* in C.R. Part vi., p. 158. At p. 163 of the same work, I announced the discovery of this (variety) species at Mt. Victoria, N.S.W.

Mr. Cambage and I (*Proc. Linn. Soc. N.S.W.*, xxx., 192, 1905), in recording it from Blackheath, a few miles from Mount Victoria (both in the Blue Mountains), said, "We now raise the question that *E. nitida* Hook. f., may be a valid species after all."

We (*Proc. Roy. Soc. N.S.W.*, xlviii., 415, 416, 1914) definitely expressed the opinion that *E. nitida* is a good species, and we record a specimen from Kydra, via Nimitybelle, in the extreme south of New South Wales, as connecting the Blue Mountains, N.S.W., specimens with the Tasmanian (home of the type).

Let me also draw attention to Mr. Cambage's Tasmanian specimens referred to in the last four lines of p. 416. They have juvenile (sucker) leaves, which have neither been described nor figured before, although collected in February, 1911, and it will be observed that their width alone sharply separates them from those of *E. amygdalina*.

Opposite or slightly alternate, sessile, orbicular, ovate to elliptical lanceolate, interspersed with spreading veins on both sides, somewhat rough, branches angular or compressed, red brown, tuberculate with prominent oil glands, internodes distinctly dilated at the base of the leaves, caused by the fusion of the petioles. (See Plate XII).

Mr. L. C. Irby collected this species near Devonport, 17.6.12, and I am indebted to Mr. Rodway for a sight of the specimen, and of Mr. Irby's note:—

"A shrub or stunted tree. Bark scaly, and, I think, like any young Black Peppermint (*amygdalina*). Leaves

very variable, frequently over 1 inch wide and with the diverging venation and general appearance of *E. viminalis*. The other leaves on the same tree are normal *amygdalina*. Rather rigid. Fruits as in *E. amygdalina* or *E. linearis*." It would appear that typical *amygdalina* has longer pedicels to the fruits, but the species are close to each other.

Rodway, *this Journ.* p. 14 (1917), concurs in restoring *E. nitida* to specific rank, though with some doubt, refers to it as "Broad-leaved Peppermint," and says it has the habit and white bark of *E. linearis*. He describes (with some reservation) the juvenile leaves of a specimen collected by Mr. Irby at Guildford Junction as "broad, oblong," and the bark "scaly or semi-fibrous." He has kindly shown me the specimen, and it is *E. nitida*. It has the broadish juvenile leaves of the species and hemispherical fruits, the rim of which is remarkably truncate or horizontal, i.e., in a plane at right angles to the axis.

To recapitulate, some of the Blue Mountains, N.S.W., specimens seem to be in no way different from the Tasmanian type. The Kydra specimens although not altogether typical are very close; the buds are a little more clavate, and the fruits slightly more pedicellate, otherwise this form is identical with the type. It is of course always to be borne in mind that we have limitations arising out of the imperfection of the material presented by the type and of the specimens compared with it, and a certain amount of change is to be expected in the case of specimens far away from the environment of the type.

Some Blackheath specimens (marked B in the Maiden-Cambage paper of 1914) vary from the type in that the leaves are narrower and more rigid; buds very long (or longer than the type); fruit sub-globose or barrel-shaped, with a convex rim, all apparently 3-celled. The fruits of the type are hemispherical, truncate, with a prominent red rim.

6. *E. obliqua* L'Her. (Stringy-bark.)

Very abundant in the Dee Scrub. The young trees have whitewashed tops or branchlets, and in this respect are strongly reminiscent of *E. Sieberiana* as seen in New South Wales.

I also noticed, around the Dee Scrub in particular, that the young stringy-bark trees have more or less red (bleeding heart) leaves, which, in transmitted light, look

very beautiful. I did not see these leaves on other local trees, and they are therefore, in this district at least, characteristic.

7. *E. ovata* Labill.

At the Ouse are very large trees, mainly on the flats, but also on the sides of the rises. They have rough butts, with flattish ribs of fibrous bark, reminiscent of *Syncarpia laurifolia* Ten. (the Turpentine of New South Wales).

Branches smooth, but they are rough-barked trees on the whole.

8. *E. Perriniana* F.v.M.

A planted tree at Ellislea, on the Dee, was (March, 1918) bearing fruit in an extraordinary quantity rarely seen in the genus. It is semi-pendulous, and the branches brittle; the timber is, therefore, inferior in value. Purplish glaucous branchlets, diameter 2 feet 6 inches; height 50 feet. On the Strickland it grows on poor sandy soil and is scrubby, rarely attaining the size of the Ellislea tree.

There is a cultivated tree in the garden of Dr. Clarke, Macquarie Street, Hobart. It is only (February, 1918) about 10 feet high. As growth proceeds, the rhachises increase in diameter and stretch the bases of the perfoliate leaves. The leaves are persistent for a long time, and leave circular scars on the branches, and even on the main trunk. This phenomenon is rare in Eucalyptus.

9. *E. Risdoni* Hook. f. (in *Hook. Lond. Journ. Bot.* vi., 477, including 1. *E. hypericifolia* R. Br., Herb. which = 2. *E. amygdalina* Labill. var. (?) *hypericifolia* Benth. in B. Fl. iii., 203).

Through the kindness of Dr. A. B. Rendle, F.R.S., of the British Museum (Natural History), London, I have received a specimen of the type, labelled "*Eucalyptus hypericifolia* R. Br., in coll. saxos prope Risdon Cove, R. Brown." This was subsequently given the number 4789.

E. Risdoni was figured by Hooker fil. himself in *Fl. Tas.* i., t. 24, so we know what it is. I also figured it in C.R., Plate 32.

The name *hypericifolia*, either as species or variety, has been a good deal referred to by botanists. See pp. 173, 174, Part vi., C.R.. But, so far as I am aware, it has never been figured, and I figure the type. (See Plate XII).

In his paper "Notes on *Eucalyptus Risdoni* Hooker," by L. Rodway, this Journal, 1910, p. 367, the species or variety *hypericifolia* is dealt with. Mr. Rodway provisionally refers 4 forms (a, b, c, d,) to it, and figures form c (upper portion of Plate xi.) and form d (lower portion of Plate xii.) together with first year seedling of for d (upper portion of Plate xii.) second year seedling of form d (lower portion of Plate x.), third year seedling of form d (upper portion of Plate x.).

In his 1917 paper on "Tasmanian Eucalypts," p. 13, he states that *E. hypericifolia* is "Cabbage Gum," and that the juvenile leaves differ from those of *E. Risdoni* in being more lanceolate and long.

At one time I thought that the narrow leaved forms of *E. Risdoni* (var. *elata* and var. *hypericifolia*) could be combined as one narrow-leaved form, but Rodway, at p. 368 of his 1910 paper, shows that this cannot be safely done in the present state of our knowledge. Some day a leisured Tasmanian botanist, with adequate field and horticultural opportunities, may collect large series of specimens, connect them with their seedlings in all stages, and work out the phylogeny of this interesting little group.

10. *E. rubida* Deane and Maiden.

See C.R. Part xxvi., the Tasmanian references at p. 120.

From the Ouse to the Dee I frequently came across this species, closely approximating to the type.

11. *E. unialata* Baker and Smith, this *Journ* 176, with a Plate (1912). Syn. 1. *E. viminalis* Labill., var. *macrocarpa* Rodway; 2. *E. antipolitensis* Trabut, *Bull. de la Stat. de Rech. Forest du N. de l'Afr.* i., 151, with pl. xv. *bis* (1917).

This is referred to as *E. viminalis* var. *macrocarpa* by Rodway in "The Tasmanian Flora," p. 57 (1903), where it is first suggested as a cross between *E. globulus* and *E. viminalis*.

In this *Journ.* p. 29 (1914) I suspended my judgment as to its systematic position until I could see the trees growing naturally. Rodway, this *Journ.* p. 17 (1917), again refers to the tree.

In February, 1918, under Mr. Rodway's guidance, I observed a number of the trees in the Domain at Hobart. I may say that I had long been satisfied that the trees were different from *E. viminalis* and *E. globulus*, but I had understood that they had only been found in a plantation,

and were not spontaneous; I desired to see them before I wrote again. I am quite satisfied that they are spontaneous, and that they are natural hybrids, and that it is expedient that they should have a distinctive name. I therefore concur in Messrs. Baker and Smith's action.

The Domain trees are large, and there are many of them. They also occur at Nelson's Range, near Sandy Bay, and Mr. Rodway informs me that they are not uncommon at Colebrook (late Jerusalem), on the Main Line, 25 miles from Hobart. In all cases *E. unialata* occurs intermixed with *E. globulus* and *E. viminalis*. Doubtless they will be found in many other localities.

Mr. Rodway's observation that it is a hybrid between these two species (first recorded in 1905) is quite obvious, and it is one of the simplest cases of natural hybridisation in the genus known to me. The cross is seen in the tree generally, in juvenile leaves, buds and fruits.

12. *E. viminalis* Labill.

C.R. Part xxviii.

The Dee, near Ellislea house. A "White Gum." An erect tree of 80 feet, 3 feet in diameter. Covered with thinnish lenticular, flaky, deciduous bark. On a gentle slope in the grass and far from any water,. Fruit rather large and with a conical top to the capsule. This is an example of large fruited *viminalis* which led me at first sight to think I had a different species.

In C.R. Part xxviii., p. 168, I draw special attention to the width of the juvenile leaves in this species. As regards Tasmania, I did not do justice to the breadth of them; I had put some broad specimens aside, and inadvertently they were not figured. They include:—

1. Near to Chimney Pot Hill, 4½ miles from Hobart, (L. Rodway, May, 1910). Several of these cordate leaves are over 3 cm. broad and 4 cm. long.

2. Sheffield, growing on basalt (R. H. Cambage, No. 4098, 1st February, 1911). Here we have even broader juvenile leaves, for they are as broad as they can be, for some are 5 cm. long and 5 cm. broad and others 6 cm. long and 6 cm. broad. The fruits are large in this form.

It would be absurd to speak of such specimens having narrow juvenile leaves, and we must therefore say that in *E. viminalis* the juvenile leaves may be narrow to broad, with many intervening forms, although they are rather narrow in the type.

ERRATUM SLIP.

The whole of the passage from page 89, from line 6, "It is testimony . . ." to page 90, line 6, . . . "to ensure propagation," should be inserted just before No. 12. *E. viminalis*, at page 88.

In a few cases it has been possible to demarcate narrow and broad-leaved forms, placing them under different species, but, so far as I can see, the leaves of varying width in *E. viminalis* form a quite uninterrupted series.

It is testimony to the sound judgment of the late M. Naudin of the Villa Thuret, Antibes, in the south of France, that he detected it as something different from *E. viminalis*, and only last year M. Trabut described it as new, under the name *E. antipolitensis*, and I append a translation of his description. This is not the first occasion I have had the pleasure of drawing attention to the excellent Eucalyptus work of these French botanists.

"At the Villa Thuret at Antibes where there is a collection of Eucalypts made by Naudin, I have especially observed a very fine subject worthy of propagation. Naudin had provisionally labelled it *E. viminalis* var. *longifolia*. The examination of the organs of reproduction as of vegetation leave no doubt as to the parentage of this form with *E. globulus*. I propose to call it the Antibes Eucalyptus.

"*E. antipolitensis*, n. sp. (Plate xv. *bis*).

"A tall tree, trunk covered with fissured bark; branches smooth by reason of the falling of the old bark; young leaves sessile, alternate, opposite, often in threes on the same branch, broad and obtuse at the base of the branch, then oval, glaucescent with the odour of *E. globulus*; adult leaves thick, long-lanceolate, falciform, dark green, dotted with large essential oil dots, umbels axillary with three flowers and short peduncle, buds sessile, verrucose, hoary, calyx-tube angular, operculum slightly longer than the calyx-tube, hemispherical, mucronate, fruit from 12 mm. in diameter, with 3-4 valves not erect or very slightly so; fertile seeds black, angular, without appendages. Villa Thuret, Antibes.

"This Eucalyptus was shown by Naudin very probably as *E. viminalis*; he called it var. *longifolia*.

"At first sight it is distinguished from *E. viminalis* by its habit, its stem, its foliage reminding one of *E. globulus*. The buds and the fruits are much larger than those of *E. viminalis* and strongly resemble those of *E. globulus*; the fruits are much smaller than in this species, always in threes; they are slightly verrucose, and show a slightly different mode of dehiscence. The young leaves resemble those of *E. globulus* and have the same odour, but they are distinguished from it, however, in not being stem-clasp-

ing; the branches which bear it are angular, but not nearly so quadricular as in *E. globulus*

"*E. antipolitensis* is a very fine tree which has not yet been propagated; it has numerous capsules in which the number of the fertile seeds is restricted, but quite sufficient to ensure propagation."

13. *E. viminalis* var. *racemosa* F.v.M.

Mr. Rodway drew my attention to a straggly, scrambling tree of medium size, rough bark to branches, inflorescence racemose, in the Reserve in front of the University, Hobart. The tree is supposed to have been planted.

This is Mueller's var. *racemosa*, and I have figured it at fig. 9b., Plate 118, Part 28, C.R., from Port Phillip, Victoria. It is identical with R. Gunn's No. 1090 (*op. cit.* p. 174) from the Circular Head sand-hills, Tas., a portion only of the inflorescence of which was figured at fig. 6b., Plate 117. I do not look upon it as a useful variety without further information. The Circular Head sand-hills and the localities across Bass's Straits should be further searched for *E. viminalis* with rough bark and *racemose* inflorescence, when the matter can be reconsidered.

Reference to Plate XII:—

1. Type of *E. hypericifolia* R. Br., from Risdon Cove, Hobart, collected by Robert Brown in 1802. One fruit shown.

2. Broad juvenile leaves of *E. nitida* Hook. f., Guildford Junction, Tas. (collected by R. H. Cambage). *E. nitida* is of course figured in Hooker's Fl., Tas.

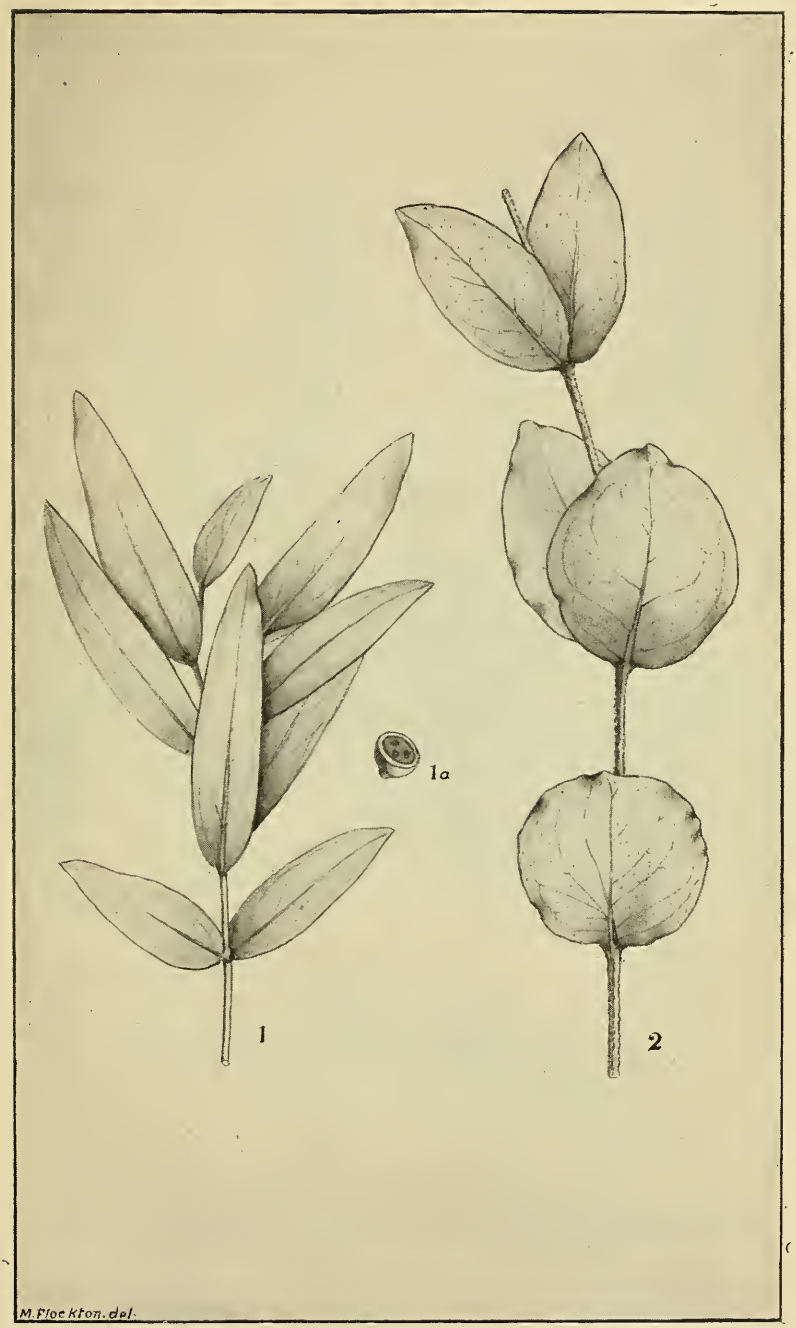

Figure 1—Type of *Eucalyptus hypericifolia* R. Br.
Figure 2—Broad juvenile leaves of *E. nitida* Hook. f.