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PAPERS READ.

BOTANICAL NOTES ON QUEENSLAND.—No. IV.

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MYRTACEÆ.

Eucalyptus tereticornis, Sm. This is called the red gum in Queensland, and is similar in habit to *E. rostrata* of which it may only be a variety. It grows near running water or in the beds of streams. It is found on both sides of the Dividing Range, and even on the very borders of mangrove swamps. In well watered open forests it may be said to be the prevailing gum tree. In the tropics, where the soil is rich, the banks of the streams are so thickly clothed with scrub, that one begins to lose sight of it, especially north of Cardwell. I remember seeing

it on the Herbert River and on the Barron. But at Herberton and on the tableland it is not uncommon.

E. platyphylla, F.v.M. This gum tree begins to appear about Rockhampton and soon is the prevailing tree, on the poor dry sandy land of the tropics. Its distinguishing character is the great width of the leaves and the conspicuous cream-coloured, smooth bark. Unlike most of the gum trees the bark of which does not split, the deciduous portions soon fall off, so that there are none of those strips and ribbons or dark crests of bark which are so characteristic of the Australian bush. The bark is smooth or slightly wrinkled and of bright colour. Thus the tree is always conspicuous, and when the open forest is composed of it as it is between Townsville and the tableland, the effect of the masses of white trunks is very striking. It is never a tall tree, nor is the trunk thick; the branches are usually straggling and not stained with exudations of gum. The size of the young leaves is astonishing, I have measured on young shoots leaves 18 inches long and 15 across. Most Eucalypts have some peculiarity in the young state. In this case the leaves are not placed at right angles to the stem, but are very much larger than in any other Eucalypt of the east coast. It grows on the poorest sandy soil and does not seem to require much moisture, though doubtless, being in the tropics it gets a good deal more than it would be likely to receive in more temperate portions of Australia. The wood is very inferior, and not much used even for burning. As it grows well on very poor soil it would be worth while to try it in cooler colonies for the sake of its shade.

E. hæmastoma, Sm. I do not know whether I am right in my determination of this tree, and I have been exceedingly unfortunate with my specimens, not one of which were preserved for comparison. I wish to specify it, because next to *E. platyphylla* it is the most common in all open forests and poor soils from Moreton Bay to Cape Flattery. It may occur to the south of Moreton Bay, but I have not had an opportunity of examining,

It is a poor tree, seldom 30 feet high, wood of no value, bark very white but always rather thickly spotted with deciduous dark brown scales, covering a spotted or variegated trunk. One peculiarity in the species is that the bark does not split so much longitudinally as transversely, so that there are many segments in every scale which remains on the branches.

E. corymbosa, Sm. This tree which is generally known as the Blood-wood, has been observed by me in all the open forests as far as the waters of the Mitchell, and I have little doubt that it is found round the coasts of Carpentaria. One never sees these gum trees growing in a cluster, they are always scattered. The brilliant red colour of the gum which is like fresh blood is perhaps the origin of the local name. The gum occupies the interstices of the wood to such an extent that the timber can always be distinguished by this peculiarity.

E. terminalis, F. v. Muell. Very like the Bloodwood in habit but it is never so fine a tree. The bark is more scaly and of a pale red color and the trees cluster together more. It is, as the bushmen call it, more "patchy." Sometimes you may journey for a day or so without seeing it, and then you may have it in sight all round for many miles. It has a very wide range; I think I first noticed it on the edges of "Brigalow scrubs" near the Comet River, north of that I think I have seen it in places all through Eastern Australia. The natives about the Dawson call it "a-rang-mill." The wood would be of some value were it not always so small.

E. tessellaris, F. v. Muell. This is the Moreton Bay Ash of the colonists. To look at the species it is certainly a graceful ornament to the forest scenery. It grows tall and straight with graceful, pendulous, bright green leaves. The stem for about half-way up the trunk has a rough scaly bark, which splits into small squares like tessellated or mosaic work. Above this the tree is smooth with grey or green bark. This half-barked

character is very constant and peculiar, by it the trees can always be known. It grows in open forest and swampy land; around Moreton Bay, Gympie, &c., the wood is not valued for any purpose whatever; about Rockhampton, Mr. O'Shannessy says that the heart-wood is good enough, but the sap-wood soon decays; about Townsville, Charters Towers, the timber is highly esteemed and used for all useful purposes. The only way to account for this is by supposing that the warmer climate is its proper habitat. I have seen this tree in nearly all the open lands of north-east Australia, but more prevalent about Moreton Bay and Maryborough than anywhere.

E. raveretiana, F. v. Mueller. This tree was first described by the eminent Baron von Mueller in 1877, in the tenth volume of the "Fragmenta Phytographiæ Australiæ," (p. 99) and again more fully in the First Decade of the "Eucalyptographia." It escaped the observation of botanists for so long because its habit and appearance is somewhat like *E. tereticornis*. For my own part I had very often passed it by without notice, although, certainly, it is one of the finest of our tropical Australian Eucalypts. My first acquaintance with it was on the Comet River, in Queensland, between Cometville and Springsure. Standing one day at the foot of one of the lofty trees, on what are called the flooded banks of the river, my attention was called to the very small seed vessels which were plentifully strewn on the ground. These were very much smaller than any gum tree with which I was familiar. I soon perceived that the flowers were also small, and the operculum though prolonged is different from either *E. tereticornis* or its congener or variety *E. rostrata*. A little research revealed that it was the Baron's new species, which he named after M. Raveret-Wattel, distinguished by his important essay "l'Eucalyptus, son introduction sa culture &c." After that I became familiar with the species. It is truly a noble tree, towering above every other gum tree on the banks and even in the bed of rivers. I think it is best seen in the bed

of the Nogoa River, not far from the town of Emerald. I have never seen it except in the beds or on the banks of important streams. Baron von Mueller has given such a complete description of its characters, that I need add nothing here except the new habitats in which I have observed it. On the Dawson River it is common, and also on the Medway at the foot of the Drummond Range; I saw it also on the Pioneer River under the main range near Mackay. Again, on the Herbert it appears, on the Ross, Haughton, and more rarely on the Burdekin Rivers. I do not remember ever having noticed it on the west side of the Dividing Range. It goes by the local names of Grey Gum, Iron Gum, and Woolly-but, (far removed however, from the New South Wales tree of that name) and it is highly esteemed as a timber tree. It was much valued for sleepers on the central railway, but the plate layers told me that it was so hard that it destroyed their tools. The wood is a dark brown and takes a beautiful polish, besides being close-grained without any interstices filled with gum. It is altogether one of the most valuable timber trees of the tropics, in respect to size and the quality of the wood, only it is not very plentiful.

E. melanophloia, F. v. Muell. On all the barren stony ranges right up to the Mitchell River, and even perhaps beyond, the traveller cannot help noticing a stunted gum tree with deeply furrowed black bark and pale grey-green leaves with a whitish bloom upon them. These leaves are nearly round, opposite, without leaf-stalks and stem clasping, a peculiarity which all observers will have noticed belongs to the young state of many gum trees. But however old the tree, the leaves always have this form. Another peculiarity about it is that the rough deeply furrowed black bark extends to the very small branches. Now in most Eucalypts the bark however rough on the stem becomes smooth on the smaller branches, but it is not so here. The bark is always rough and always black and coarse looking. I used to think that this was a stunted variety of *E. crebra* or the Iron

Bark, to be noticed presently, and I am still not very clear on the subject as the trees are in many respects so very much alike. But they grow side by side, and the opposite leaved character of the present species is always maintained. Still the appearance is that of a Eucalypt not fully developed, especially in that whitish bloom on the leaves, and it never is seen of the size or appearance of a fully grown tree. The only way to settle this will be to sow the seeds of both and watch their growth. The wood of *E. melanophloia* is not valued for any purpose, but mainly because it is so small and stunted. It never grows in good soil and mostly prefers rocky ground. I have seen it abundantly inland as far north as the waters of Carpentaria and it extends into New South Wales. It generally goes by the name of the silver leaved Ironbark, from the whitish bloom on the leaves.

E. crebra, F. v. Muell. No one who travels in the interior of tropical Australia can help being familiar with this tree. It is the prevailing feature of all the open gum forests, and as a rule is to be found on all poor level ground. It has a hard persistent deeply furrowed black bark, and like the last species this character is maintained on the very small branches. It is a good timber tree and attains a fair height in favourable situations. I have seen it everywhere in the interior, and I believe it is common in the northern parts of New South Wales as in Queensland. I should say it is one of the most common gum trees in Eastern Australia, and a very large vocabulary might be made of its numerous local names. On the Peak Downs about Clermont and Copperfield it is especially plentiful, and all around the Hodgkinson diggings. I mention this fact just to show that whatever febrifuge qualities the Eucalypts may possess, the mere presence of some species will not be enough to dissipate malaria. In the places I have mentioned fever and ague were common enough, yet the prevailing winds used to blow through hundreds of miles of these gum trees ere they reached the infected localities.

E. crebra, is a most valuable tree because it will grow almost anywhere, and the wood is much esteemed for nearly every purpose. I am not at all sure that an attentive observation would not show that this species is no more than a slight variety of the Victorian Iron Bark, *E. leucoxylon*. It would be very hard indeed to draw any clear line of distinction between them, except in the anthers, which in *E. crebra* are all fertile, and in the Victorian Iron Bark have the outer row of filaments destitute of anthers. As far as the habits of the two trees are concerned, nothing could be more similar. An attentive study of *E. leucoxylon* has shown that it varies in a most remarkable degree, and especially in that which is usually regarded as a good and permanent specific distinction, that is, the bark. Baron von Mueller in the "Eucalyptographia," mentions that the Victorian Iron Bark is the same as the White Gum of South Australia. From Western Victoria, that is west of the Grampian and Victorian Ranges, such a thing as an Iron Bark tree is not known, but instead we have, in all the poor soils a miserable tree, useless in its wood and with a ragged deciduous bark, which comes off in long strips. This tree is also found on the clay pans and wet ground of the Murray scrubs, and more or less abundantly it is found throughout the colony of South Australia for at least 100 miles north of Adelaide, that is over about 40,000 square miles of country. Climate and soil we may say are the causes which make the two strongly marked varieties, for as soon as we get into stony quartzose ridges, somewhat above 700 feet over the sea level, at once the white gum becomes Iron Bark; the wood is excellent, nay, one of the best, and the trees could not be more unlike White Gum. This remarkable fact is surely worthy of study and shows how much we have still to learn about the variability of our Eucalypts.

E. gracilis, F. v. Muell. This Eucalypt affords a good instance of the local distribution of some of the species. It is nowhere abundant, but it is found in desert portions of the colonies from

West Australia to Queensland. Mr. O'Shannessy in his "Contributions to the Flora of Queensland" was the first to chronicle the prevalence of this species in the tropics of North-east Australia, and he states, that Mr. Thozet discovered it on Expedition Range. Travellers by the Central Railway may notice a small patch of this tree in the desert scrub about half-way between the Comet River and Emerald. When once identified the tree can hardly be mistaken for any other. It is of graceful habit, so that its name is really well applied. The white bark, slender stem, widely spreading branches with small narrow leaves, make it always an elegant, but never a large tree. The stem, says Mr. O'Shannessy, is generally fluted so as to resemble the pipes of an organ, and this is a peculiarity that I have noticed as well. The farthest north that I have observed this tree is on the dry sandy scrubs on the Burdekin River, not far from Charters Towers.

E. maculata, Hook., "Spotted Gum." This tree which is so very common on the east side of the coast range in New South Wales was thought at no very distant date to be almost confined to this colony. But it changes its character, and under another name, *E. citriodora* or Lemon Scented Gum extends right up to the waters of Carpentaria. It is always a fine tree and loves the warm sheltered eastern slopes of the ranges. But in tropical Queensland it becomes a very much finer tree. The peculiar spotted appearance of the stem is exchanged for a uniform greyish blue tint. The tree is tall and stately, with a large sound trunk and in fact there are no Eucalypts which can at all compete with it in size except *E. raveretiana*, and its leaves now send forth a strong perfume which is most grateful at a distance and like roses, but close it is most powerful and pungent and exactly like essential oil of lemon. This most extraordinary change of characters deserves an attentive study, because it shows that there is scarcely any limit to which variation in these trees may not go. In the "Flora," Dr. Bentham thought that *E. citriodora* was

very closely allied to *E. corymbosa*, which was clearly an error, but he also saw its resemblance to the Spotted Gum of New South Wales. I have tried to fix the southern limit of the *citriodora* variety. Between Maryborough and the Burnett is the first place where the peculiar smell of rose leaves becomes apparent in the open forests. Mr. C. Moore is quoted as having found it in Wide Bay. On the road between Gympie and Maryborough, or about 120 miles north of Brisbane, the spotted variety of *E. maculata* is very abundant on stony ridges. The spotted character has disappeared somewhat and the trunks of the trees have a uniform reddish hue which is very remarkable. Here too, one notices that the trees exude great quantities of a dark brown resin that ought to be of some commercial value. The strong rose scent in the woods which is indicative of this tree begins about the Burrum River on the overland road between Maryborough and Bundaberg. The tree is however, nowhere abundant and I think places may be found where the two varieties grow side by side on the Burnett. After this the spotted variety disappears and the scented kinds are confined to a few stony spots of the most elevated ridges as one journeys north. The farthest north I have seen it was on the summit of the Slate Range, 2,100 feet above the sea, on Carpentarian waters, in about Lat. 16° S. It extends no great distance inland. Fifty miles from the coast is the farthest I remember to have seen it: The wood is esteemed for dray poles, but the Government will not allow it to be used in the telegraph line. In the young state the shoots are often hispid from an abundance of coarse glandular hairs of red colour. This variety has more the odour of balm than of lemon, and hence was described as a different species. This is *E. mellisiodora*, Lindley, of the Flora which was found by Mitchell and described in "Tropical Australia." The appearance for a young Eucalypt is very remarkable. The foliage is short and rough and quite rusty looking, from the glands which become bristly on the small branches. Altogether *E. maculata* is one of

the most interesting as well as the most valuable of the Eucalypts. The oil from the leaves has a most powerful odour of lemons and may be used yet as a substitute for the essential oil. The leaves retain their scent long after they are dry, though it gradually becomes faint. When freshly gathered and bruised it is quite pungent, slightly stinging the eyes and nose. It is said by Mr. O'Shanessy, that a pillow of the dried leaves is a remedy for fever and ague. They are certainly a specific against the cockroach and "silver fish" insects, which are the great domestic pests of northern Queensland.

E. populifolia, Hooker. About the validity of this species there was some doubt. Bentham regarded it as the same as *E. polyanthema*, Schaur. However, Baron v. Mueller has given very sufficient reasons for regarding them as distinct.* The tree is very abundant about Rockhampton, where it goes by the name of box. The blacks called it Egolla. But for the large leaves which are very much like those of the Poplar, it is exactly similar to the tree which goes by the name of Bastard Box through so large an extent of Victoria and New South Wales. The bark is grey and persistent, not exactly furrowed but finely split so as to show a very fibrous character. It is very much used by settlers to make not only the roofs but also the walls of huts. It strips off easily in sheets and is very suitable for buildings when it has been pressed flat. A remarkable character in this tree is the tendency to enlarge about the root, which often spreads so as to form literally sheets of wood, or rises in huge tumefactions or swellings on the roots and stems. This is also the character of *E. polyanthema* (Bastard Box). As one is hurried across the Liverpool Plains in the railway, it is worth while to notice the number of trees which have these swellings upon their roots or sides. Scarcely one will be found to be exempt. I attribute the cause of this to the compact character of the bark which

* See Eucalyptographiæ, 3rd Decade.

prevents the shoots from emerging. But the subject needs examination and is worth attention.

E. exserta, F. v. Mueller, which Bentham regards as a variety of *E. rostrata*, (which is again perhaps only a variety of *E. tereticornis*,) was noticed by me on the basaltic ridges between Port Mackay and Clermont. This is the most northerly habitat hitherto recorded. It is a fine tree and the wood is excellent. I saw it also at Springsure, and again it has been pointed out by Mr. O'Shanessy as flourishing near Rockhampton in one small patch.

I find in my note book many other remarks about the Eucalypts but unfortunately the specimens which corresponded with these notes, were either lost in an accident which occurred to my pack-horses near Trinity Bay, or the plants are too incomplete for identification. I especially regret this as I had some remarks, which I think were of importance, with reference to the Eucalypts of Herberton and the Hodgkinson ranges.

Tristania exiliflora, F.v.M. I found this species on the summit of Castle Hill or Mount Cutheringa, immediately behind Townsville, at an elevation of nearly 1,000 feet above the sea, Bentham says that the only distinction which can be made between this and *T. laurina*, is that the flowers are small and the seeds not winged. *T. conferta* and *T. suaveolens*, are the prevailing trees in almost all open forests from Moreton Bay right up to the Gulf of Carpentaria. The dense coriaceous foliage of *T. conferta* makes it look like a fig-tree, but for the bark. It is a most agreeable addition to the forest vegetation of all Queensland and gives a refreshing shade.

Backhousia citriodora, F. v. Muell. From this plant, which smells even more strongly of lemon thyme than the Eucalypt already mentioned, Mr. Staiger the Government Analytical Chemist, extracted a powerful essential oil. I noticed the tree on the River Burrum, but nowhere further north.

Lysicarpus ternifolius, F. v. Muell. This is what generally goes by the name of "Stringy Bark" in this part of the continent and as far as the bark is concerned it is very like the tree of that name elsewhere or *Eucalyptus obliqua*. But the leaves are very different and so I need hardly say, are the flowers. It is only quoted from one or two places in the "Flora," but I have found it forming the principal ingredient of some of the scrubs between the Comet, Nogoa, and Belyando Rivers. The fibre is of such a superior quality that it has been sought for by rope and paper makers, but hitherto the price offered has not been sufficient inducement for its collection.

Metrosideros chrysanthus, F. v. Mueller, which Bentham regarded as a distinct genus (*Xanthostemon*) was seen by me in many forests around Trinity Bay, on the Barron and Mulgrave Rivers.

Myrtus gonoclada, F. v. Muell. This tree is found in the sub-tropical forests as far at least as the Burnett River. The wood is called ironwood by the settlers, and is of extraordinary hardness. It would be superior to box for wood engraving. It is seldom above 25 feet in height and the stem is consequently small. Cedar-getters do not like to use their axes upon it. It is very common in shady places.
