

From Dr. R. B. Read—Figures of Molluscos Animals selected from various authors by Maria E. Gray, 4 vols. 8vo, 1842—1859.

PAPERS READ.

BOTANICAL NOTES ON QUEENSLAND.—No. II., THE TROPICS.

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These notes are meant to give something more than a mere list of names and the habitats of plants, but to supply, as far as my observations have extended what has not been included in any of our published floras. This is to point out the range, and where I know them, the economical uses of any of the Northern Queensland plants. It must be observed however that in so incomplete and desultory a series of observations, that any systematic order cannot be followed.

DILLENACE.

Wormia alata, R. Br. This splendid tree becomes first visible on the coast about Cairns. I did not see it at Townsville or on any part of the more southerly tropical shores. From Cairns right up to Cape York it is the constant and abundant ornament of the sea coast. It grows very close to the waters edge and sometimes in places where it must be occasionally inundated by the sea. The leaves are of very large size, often over a foot in length and four or five inches wide, bright green, and shining above, with prominent midrib and side veins. This is the only Australian representative of the true tropical Dilleniads, which however are closely allied to the peculiarly Australian tribe *Hibbertia*. A more showy or valuable tree for its shade, with its large handsome yellow flowers could not be imagined. It has a light brown scaly bark on which grows a new and pretty fungus which is peculiar to Australia (*Laschia Thwaitesii*). There is a prejudice amongst the northern settlers against this tree which is supposed to be the cause of fever, but I think that the blame should rather be laid upon the places where it grows. No

peculiar properties either medicinal or otherwise are attributed to this species, which is endemic and therefore little known, but the order is generally astringent and the timber good. The usual *Hibbertiæ* of southern regions are not seen on the coasts within the tropics.

MALVACEÆ.

Bombax malabaricum, De Cand. I have noticed this tree in all the thick jungle forests on the coast side of the range from Cairns to Cooktown. In the flora it is only recorded as from Careening Bay on the North Coast. It is a very conspicuous tree when in flower as the blossoms are of a brilliant crimson, of large size, and during the time of their appearance the tree is quite denuded of foliage. This is the first recorded habitat on the north-east. It is called the cotton tree from the beautiful mass of long silk-like hairs surrounding the seed. No use is made of this but its extremely fine silky character must give it some value. The species has a considerable range in India, where the fibre is used for stuffing cushions &c. It is said that the want of adherence between the hairs prevents its use as a cotton.

Thespesia populnea, Corr. This wide-spread species which we share with all the tropical coasts of Eastern Africa, Asia, and the Pacific Islands is extremely common on all the tropical coast. It should be of much use as a shade tree on sandy places, for it will grow on the very poorest sand and salt is its nourishment. In consequence of this peculiarity I suppose it is that the wood will not decay in water and therefore is in much request in India for the under portions of boats. The rich yellow gum in the seed vessels is like gamboge and ought to be valuable. I wish most emphatically to draw attention to this tree. Its abundance on the coasts where it forms a handsome object should point out to the colonists how easily it is propagated. The inhabitants of Townsville for instance are fond of getting their houses as near

the beach as possible where they try in vain to raise a shade and shelter around them by planting trees that never can grow in such places. If the *Thespesia* were used we should see the villas on the beach soon surrounded by an agreeable shade of healthy vegetation.

Urena lobata, L. This hardy shrub with rather pretty small flowers is found on the coast right through the tropics. It forms a thick undergrowth like *Sida rhombifolium*.

Abroma fastuosa, R. Br. I noticed this plant all through the the forests on the rivers Mossman, Daintree, Endeavour, Mowbray and Barron. My attention was directed to it by Mr. Stuart on the Daintree as being a plant of great value for the length and strength of its fibre. It is widely distributed over the Indian Archipelago, though only hitherto recorded from the Endeavour River in Australia.

MELIACEÆ.

Turraea pubescens, Hellen. Very common on all the tropical coasts where its white sweet-scented flowers make it a conspicuous object.

Carapa moluccensis, Lam. The traveller can scarcely fail to be struck with the appearance of this tree when covered with its conspicuous fruits. They are like immense green apples, eight or ten inches in diameter. I noticed it on all the north-eastern rivers from Port Denison northwards. The nuts are also scattered very abundantly on all the coral islets. In India an abundant and valuable oil is obtained from these nuts.

RHAMNEÆ.

Colubrina asiatica, Brogn. Common on all the north-eastern coast where it occupies the place in forming thickets, which *Pomaderris* does in Victoria and Tasmania and *Alphitonia* in the interior of Queensland. These closely allied genera are both found within the tropics.

Alphitonia excelsa, Reissek. A very widely spread and handsome tree, equally abundant on the coast and in the interior. It is one of the very characteristic trees of the "Brigalow" scrubs.

Pomaderris elliptica, Labill. This tree which forms dense scrubs and thickets in Tasmanian and Victorian sub-alpine regions and also in some portions of Southern New South Wales, was found by me on the Herberton Ranges at a height of about 3,600 feet above the sea. This is certainly its first discovery within the tropics, and adds an interesting fact to the peculiarities of our alpine flora. Baron von Mueller is of opinion that *P. lanigera*, *ferruginea* and *phillyreoides* are only varieties of this species, to which Mr. Bentham thought *P. grandis* should be added. As far as my observations go, I may say that I know of no characteristic feature of any one of these so called species which does not by insensible gradations merge into the others.

Ventilago viminalis, Hook. On the dry plains and ridges about the banks of the Mitchell, Hodgkinson, and Walsh Rivers. I did not see it on the east side of the range.

LEGUMINOSÆ.

Mucuna gigantea, De Cand. I have noticed this peculiar climber all through the coast jungle as far as the Endeavour River. The rusty-brown hairs on the pod have the irritating properties of cow-itch, under the microscope they are seen to consist of twisted spindle-shaped slender spines, very sharp at both ends and very hard. The least touch sends them into the skin, but they are not barbed like the thorns of the *Opuntia*.

Entada scandens, Benth. In all the coast jungle from Port Mackay to Endeavour River. The seeds also are abundantly strewn on the coral islets. In the Flora it is only recorded as from Cape York. This is the well known "Queensland Bean," the large seeds of which are made into match boxes. It is not peculiar to Queensland, but is found in the tropical countries of

the whole world. The long distances to which the seeds can be carried without losing their germinating power will account for this. The same is true of the two next species to be mentioned.

Abrus precatorius, L. Another world-wide tropical species found in all the jungle close to the sea from Rockhampton to Cape York. Every one must be familiar with the brilliant scarlet and black seeds which are so often bought as curiosities from the East and West Indies, and used as beads, ornaments for boxes, &c.

Guilandina bonducella, L. Another world-wide tropical plant with remarkable grey or bluish grey seeds about half-an-inch in diameter and extremely hard. Found close to the sea shore all along the tropical coast and on the coral islets. The pods are covered with thorns and the recurved spines on the branches make it a most troublesome bush to fall in with. The seeds are prized as ornaments. The kernel is intensely bitter, valued as a tonic in cases of fever. Specimens have been known to be cast upon the south coast of Ireland by the Gulf Stream.

Pithecolobium priunosum, Benth. Common in the coast jungle from Port Mackay to the Gulf. The seed pods are a most brilliant crimson within when open and curled up with the attached black seeds they are like handsome flowers at a little distance.

Pithecolobium moniliferum, Benth. This very elegant tree which is one of the floral beauties of the Indian Archipelago is rather common on the banks of the Mulgrave River. This is the first recorded habitat on the eastern side of the watershed. When in flower the tree is one mass of globular heads of yellow or pale orange silk-like stamens. It is also very fragrant.

Castanospermum australe, A. Cunn. This truly handsome tree was first recorded from the Endeavour River, where it was found by Sir Joseph Banks in Cook's Expedition. Nevertheless it is

not nearly so abundant within the tropics as between Moreton Bay and the eastern rivers as far north as the Fitzroy.

Canavallia obtusifolia, DeC. This is a South American, African and Asiatic species (tropics) and is known all along our eastern coast, tropical or not. From Cairns to the Endeavour River it is more constantly met with. Its trailing habit and pretty pink flowers making it an attractive object.

Gastrolobium grandiflorum. F. von. Muell. This is the well known poison plant which is so fatal to cattle and horses. Unfortunately, it is rather common on the range between Herberton and the Great Western Tin Fields, where in the dry season cattle often die from its effects. It is also found on the Walsh River.

Acacias. I have found it extremely difficult to identify some of the numerous species of *Acacia* for the various kinds graduate into one another by such insensible degrees. The genus requires a thorough revision, and then it is not too much to say that one third of the present species will have to be rejected. The coasts are much overgrown with thickets of *A. julifera* or *A. Solandri*, *A. leptostachya*, or *A. glaucescens*, which seem to me to be all varieties of one. A very broad leaved *Acacia* with phyllodia from four to six inches long is found everywhere along the coasts from the Burnett River to Cape Flattery. It is the *Acacia* of the North Queensland Coast. I believed it to be *A. dimidiata*, but was equally inclined to consider it *A. polystachya*. It was very commonly associated with *A. aulococarpa* which occurs all along the coast from Moreton Bay to Cape Tribulation, if not further. *Acacia Bidwilli* is an unmistakable species, which is found on all the open tablelands. It is particularly common near Charters Towers, further south its place on the tableland appears to be taken by *Albizza basaltica* which in habit it somewhat resembles. The latter though a small tree yields a valuable wood which is prized for stock whip handles. Even when cut

very thin and light the wood is so tough that it will bear an enormous strain. The tree goes by the grotesque name of "Dead Finish." *A. salicina* and *A. excelsa*, are occasionally seen north of the Burdekin, but the home of these species is the basaltic tablelands, as I shall show when I come to speak of the Queensland scrubs.

Hovea longifolia, R. B. Not uncommon on the high lands about Herberton. It is found everywhere in Australia and its pretty blue flowers render it an agreeable addition to the dry vegetation.

Tephrosia purpurea, Pers., var. *sericea*. Almost as widely distributed as the last. Herberton Ranges.

Flemingia lineata. Roxb. An East Indian species common on the banks of the Mulgrave, Barron, Daintree, Mossman, and Endeavour Rivers.

Vignea lutea, A. Gray. All along the coast. Found throughout the maritime sands of the tropics throughout the world.

Cæsalpinia nuga, Ait. Barron, Daintree, and Endeavour Rivers. An East Indian and Chinese species.

Derris uliginosa, Benth. Fitzroy Island, and other islands northward, also at the mouth of the Daintree River. It had not hitherto been recorded south of Cape York. Common in East Indies.

Crotalaria Mitchelli, Benth. Burdekin River, *C. verrucosa*, an East Indian species which is found on the lowlands of the eastern rivers as far south as the Mulgrave, and strangely enough on the Wilde River, 3,000 feet above the sea where the flora is sub-alpine. *C. crispata*, F. v. Muell.—Hitherto only found around Carpentaria, Endeavour River. *C. trifoliatum* from Moreton Bay to Endeavour River, and very common.

Cassia concinna, Benth. Mitchell River.

Tribulus cistoides, L. (*Zygophylleæ*). This covers the shore on Fitzroy Island, and is common on all the coral islets. It is widely distributed through the tropics all over the world, though rare in Asia and Africa. I may mention that this plant is one of the most annoying little pests on the sea coast. The prickles which cover the dry carpels adhere to everything and penetrate the flesh most painfully. It is especially dreaded by the beche-de-mer fishers, as their avocation obliges them to go about barefooted. The sharp points get between the toes and cause great pain and lameness. When on Green Island fishing, our party had to leave several camps because of the proximity of this weed. It would be difficult to give an idea of the various modes in which its seeds tormented us. There was no such thing as trying to penetrate the scrubs on the islet where it grew.

Vitis trifolia, L., (*Ampelidæ*). This very fleshy-leaved vine produces a grape which the settlers value. It was found by me at Port Douglas, Cairns, and Endeavour River. It was never previously recorded from the east coast. Common in India and the Archipelago.

RUTACEÆ.

Geigera salicifolia, Schott. This tree was seen by me on the Mulgrave River, and also on the table lands of the Hodgkinson and Mitchell Rivers. It belongs more properly to the Brigalow Scrubs of Central Queensland where with *G. parviflora* it is a very common tree. The latter is found all over Australia. The first named extends from Queensland only into the northern portions of New South Wales.

Acronychia Baueri, Schott. It is already known that this species extends all along the East coast from Wollongong to Port Mackay, in dense river forests; I have traced it to the Endeavour River.

Boronia ledifolia, J. Gray. A doubtful species of this genus was submitted to Baron v. Mueller who referred it to the variety

triphylla, (Sieb. in Spreng. Syst. Cur. Post. 148). The flowers were exceedingly small. It was found on the banks of the Wilde River at Herberton. The genus is peculiarly Australian, and therefore not a common one in North-east Australia, but if ever Australian species do manifest themselves in this part of the continent it is only on the very high lands.

Eriostemon Banksii, A. Cunn. Barron and Daintree River mouths; sandy places also on the loose sandy country between Cape Bedford and M'Ivor River.

Philotheca ? australis, Rudge. A species which I took to be the above was found by me on the basaltic tablelands of Emerald Downs. The specimen has been subsequently mislaid.

Zanthoxylon brachyacanthum, F. v. Muell. In the scrubs near Mackay.

Glycosmis pentaphylla, Corr. Daintree River, Range near Port Douglas. An Asiatic species of wide tropical range.

Clausena brevistyla, Oliv. Port Douglas, Coral Islets off Cape Flattery.

Atlanta glauca, Hook. On all the volcanic table lands of the interior, within the tropics as far as the Burdekin River. I did not notice it further north. It is a constant ingredient in the "Brigalow Scrubs."

Citrus australasica, F. v. Muell. The common Queensland wild orange which in spite of its intensely acid flavour is readily eaten by children. I have seen it on all the eastern river jungles as far north as the Barron River.

Before I leave the *Rutaceæ* I should mention that I collected some species on the Wilde River which I thought at the time were *Zieria Smithii*. This plant forms dense thickets in the sub-alpine regions of Tasmania and it would be in keeping with the other alpine species to find it at Herberton, rendering the flora of that locality still more interesting. A good many specimens

of my herbarium were lost on my return to Cairns. One of my pack horses bolted and ran into the scrub, where some of his burden was irrevocably lost. Amongst the packages missing were many of the alpine species of Herberton.

GERANIACEÆ.

Oxalis corniculata, L. Burdekin River. High tablelands about the Hodgkinson.

MELIACEÆ.

Owenia acidula, F. v. Muell. All through the Brigalow Scrubs as far as the Burdekin. The fruit is acid and astringent, but grateful to the taste of a thirsty traveller in these hot arid regions. With this species I think *O. venosa*, F.v.M., should be united.

Owenia cerasifera, F. v. Muell. This is the well known Queensland plum which bears a fine juicy red fruit with a large stone. When fresh-gathered it is very acid, but on keeping or better still, burying for a day or two in sand, it is both palatable and refreshing.

Cedrela toona, Roxb. This common Asiatic species extends through all the jungles and forests whether on the coast or tablelands, all through the tropics. It is especially abundant on the high lands about Herberton, where the houses are all built of red cedar; the peculiarity of the tree here is that it is confined to rich alluvial or volcanic soil. Granite or sand stops its spread, thus the edges of the tropical forests are as clearly defined as if cut with a knife.

Flindersia maculosa, F. v. Muell. A common accompaniment of the vegetation of the high tablelands. The most northerly station seen by me was the Hodgkinson and Mitchell Rivers. *F. Oxleyana*, F. v. Muell., is a splendid tree extending into the tropics on the coast-tropical forests. The Pioneer River (Mackay) is the most northerly habitat known to me.

CELASTRINÆ.

Celastrus australis, Harv. and Muell. In the Brigalow Scrubs.

C. Cunninghamii, F. v. Muell. Seen occasionally on the river scrubs on all the east coast as far north as M'Ivor River, Cape Bedford.

Elæodendron australe, Vent. One of the common trees in tropical Brigalow Scrubs.

Stackhousia viminea, Sm., (*Stakhousiæ*). Not a common member of the tropical flora, but yet occasionally met with in poor open lands as far north as Herberton.

SAPINDACEÆ.

Cupania anacardiodes, A. Rich. In the dense jungle of the Baron, Mulgrave, Daintree, and Mowbray Rivers.

Atalaya hemiglauca, F. v. Muell. This is a constant ingredient of the Brigalow Scrubs and desert floras right through Australia (tropical and sub-tropical) When in flower it attracts a multitude of insects by its fragrance. Flowers white, abundant in all October. Five specimens on open sandy plains of Burdekin River at the railway bridge, Charter's Towers Road. The samaræ or seed vessels with which it is covered in November and December make it very interesting.

Nephelium connatum, F. v. Muell. In all the river forests on the east coast as far as Endeavour River.

Heterodendron oleæfolium, Desf. Much the same station as *Atalaya hemiglauca*, with which I have constantly found it associated.

Dodonæa lanceolata, F. v. Muell. Occasionally met with on the more open banks of the eastern rivers and on the low lands, with *D. viscosa* and *D. vestita* as far north as Endeavour River.

Spondias Solandri, Benth. Daintree and Mulgrave Rivers.

Drosera indica, L., (*Droseraceæ*). This common member of the Indian and Chinese flora was found by me in all low swampy places on the north-east coast. *D. Burmanni*, Vall. the same.

HALORAGÆ.

Haloragis ceratophylla, Endl. Herberton. I have also seen it on other tropical table lands, where open sandy soil supported a heath-like vegetation.

Myriophyllum verrucosum, Lindl. In all the almost stagnant fresh water holes of the tropics.

Ceratophyllum demersum, L., Barron River.

RHIZOPHOREÆ.

Rhizophora mucronata, Lam. Mangrove thickets but not the commonest species in the tropics.

Ceriops Candolleana, Arn. Mangrove thickets, but not the commonest species in the tropics.

Bruguiera Rheedii, Blume. This is the most common constituent of all the mangrove swamps. Its rich, dense foliage redeem the otherwise desolate character of the mud flats of the tropics. *B. gymnorrhiza* is sometimes mixed with it.

Terminalia melanocarpa, F. v. Muell (*Combretaceæ*). This is a very common tree between Cairns and Cooktown. It grows quite close to the sea and on the coral islets, where the pigeons (*Carpophaga spilorhoa*) greedily devour its fruits. These are about an inch long with a very large hard stone, in fact there is scarcely any sarcocarp, so that one wonders how the birds find any nourishment in it. The taste is bitter and unpleasant. *T. oblongata*, F. v. Muell., is rather common in the Brigalow Scrubs of the tropics.

Addenda to *Malvaceæ*.

Abutilon graveolens, Willd, Mulgrave River, where it forms thickets. *A. muticum*, Don., Fitzroy Island *Hibiscus manehot*, L., Mulgrave River.



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