

# THE FLORA OF A SINGLE TREE.

BY H. A. LONGMAN AND C. T. WHITE.

(Read before the Royal Society of Queensland, 27th August, 1917.)

Whilst collecting in the sub-tropical rain-forest of Tambourine Mountain in February last, the writers had many opportunities of obtaining ferns, creepers and epiphytal orchids from large trees which had recently been cut down. The idea then occurred that it would be of interest to select a certain tree and collect representatives of the entire plant population, so far as possible, and tabulate a list. After some discrimination in the area in which the axe had been recently employed, a Lauraceous tree, *Litsea reticulata* (Meiss) Benth., a "Bolly Gum,"\* was selected. This tree was chosen for its comparative wealth of accompanying specimens, and also because it had fallen in such a way as to separate its essential or partial dependents from its neighbours in the surrounding rain-forest. It is not suggested, however, that this list represents a probable maximum for a single tree, as under certain circumstances a far larger tree whose foliage was still more interlaced might be selected with more remarkable results. So far as actual specimens, not species, are concerned, Frederick Turner has noted that more than two hundred epiphytal orchids have been observed on one gigantic fig tree, *Ficus macrophylla*,† and H. Tisdall‡ notes

\*J. H. Maiden, who gives an excellent illustration in his Forest Flora, V. pl. 170, uses the spelling: "Bolly Gum." This is how it is generally pronounced by timber getters. J. F. Bailey (Qld. Agric. Journ., V, 1899, p. 396), and K. Domin (Pr. Roy. Soc. Qld., XXIII, 1911, p. 62, associate the term "Bally Gum" in North Queensland with *Blepharocarya involucrigeria*.

†Rep. Brit. Assn., 1914, p. 589.

‡Vic. Nat. Vol. 4, 1887, p. 69.



that in a Gippsland gully he counted "over twenty different kinds of mosses, ferns, and lichens and fungi growing on the same trunk."

In designating the area we have used the term sub-tropical rain-forest for the following reasons. Although the word scrub is almost indispensable in local usage, in strict botanical parlance it can only be applied to dwarf growths, such as shrubs growing in thickets or to alpine trees. Kerner and Oliver thus speak of scrubs as being "repetitions of woods or forests in little."\* In the other parts of Australia the popular term "scrub" agrees with the correct botanical designation; for example, Prof. T. G. B. Osborn† speaks of the wide-spread occurrence of scrub, typical of hundred of square miles of South Australia, composed of bushes of from 2 metres to 4 metres high. J. H. Maiden refers to "rich coastal vine brushes (scrubs), tropical and sub-tropical" in his useful study of Australian vegetation published in the Federal Handbook of Australia, 1914, making brush correspond with what in India is called jungle. Karel Domin, in his paper on Queensland Plant Associations,‡ makes use of the word "vine-scrub," but in a later publication\*\* he substitutes "regen wäldern."

The various terms used in distinguishing plant communities have been so clearly set forth in Warming's valuable work, "Oecology of Plants" (1909), which was prepared for publication in English by Prof. Percy Groom, that we have no hesitation in following these well-known authorities and using the term sub-tropical rain-forest.

At Tambourine Mountain the "Bolly Gum" is now used for building purposes. The older timber is said to be borer proof; it does not split, it takes polish and shows a good grain. Mr. David Lahey informs us that the timber is suitable for broom-heads.

General description:—the main trunk measured 60 feet to its first division, whilst with its highest ramifications it totalled fully 110 feet. The base was sub-quadrangular in section, the four angles being formed by strong but-

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\*Nat. Hist. Plants, II, 1902, p. 892.

†Hbk. Sth. Aus., Brit. Assn. Visit, 1914.

‡Pr. Roy. Soc. Qld., XXIII, 1911, p. 59.

\*\*Prodromus Einer Farnflora, Queensland.



tresses. The maximum diameter across these buttresses on the ground was 12 feet, and the circumference of the trunk above them was 11 feet. The tree was curiously hollow at the base, the sides averaging only six inches in thickness. The hollow gradually narrowed, but extended for about twenty feet. A common fig, *Ficus watkinsiana* Bail., formed a complete lattice work of slender strands about the trunk. As is well known, this fig commences growth in a fork and then sends down a network of aerial roots until the ground is reached. On the days of our collecting, the fig was still flourishing in contrast with the foliage of the "Bolly Gum," only a few leaves of which were still green.

The outstanding features of this plant community were the large Bird's nest ferns, *Asplenium nidus*, in company with the Elk-horn and Stag-horn ferns, *Platyserium bifurcatum* and *grande*, the Hare's-foot fern, *Davallia pyxidata*, and the so-called Rock Lily, *Dendrobium speciosum*. Masses of *Loranthus celastroides* were still flowering, and on this a young plant of the hyper-parasite, *Notothixos cornifolius*, var. *subaureus*, the "Golden Mistletoe," was sending out new shoots. Entwined amongst the foliage of the host-tree were the two Apocynaceous creepers: *Chilocarpus australis* and *Parsonsia velutina*, the long follicles of the latter being much in evidence. Another interlaced creeper proved to be *Rhipogonum elseyanum* (*Liliaceæ*). The leaves of the common *Legnephora Moorei* were plentifully scattered around, but this creeper, as well as the prevailing Lawyer vine, *Calamus Muelleri*, could not be positively associated with the tree.

Somewhat to our surprise a thriving specimen of *Pithecolobium grandiflorum* was found growing in the humus deposited in a fork cavity. This tree, of course, would have soon died under natural conditions. Probably the seed was carried aloft by a bird.

In all seven species of orchids were obtained. With the exception of *Cleisostoma tridentatum* (which was seen characteristically growing on slender branchlets), these were all on the main trunk, or main branches. The list shows nine ferns.



Comparatively few mosses and hepatics were found, the smooth flakey bark of the "Bolly Gum," which is covered with small nodules, lending itself more to the growth of lichens, although the actual species were but few. Considerable quantities of the Horse-hair fungus, *Marasmius equicrinus*, were present.

On the third and last occasion of our visit, new fungi were found in the hollow base, but these have not been included.

Our thanks are due to the Rev. W. W. Watts, Wycheproof, Vic., and Mr. E. Cheel, Botanic Gardens, Sydney, for determination of the Mosses and Hepatics and Lichens respectively.

Tabulated List of 50 Plants Associated with a single Tree of the Bolly Gum, *Litsea reticulata* (Meissn.) Benth.

#### PHANEROGAMÆ.

Leguminosæ,—*Pithecolobium grandiflorum* Benth.

Apocynaceæ,—*Chilocarpus australis* F. v. M.

*Parsonsia velutina* R. Br.

Loranthaceæ,—*Loranthus celastroides* Sieb.

*Notothixos cornifolius* Oliv. var. *subaureus*.

Urticaceæ,—*Ficus Watkinsiana* Bail.

Liliaceæ,—*Rhipogonum elseyanum* F. v. M.\*

Orchideæ,—*Dendrobium speciosum* Sm. ; *D. tetragonum* A. Cunn. ; *D. teretifolium* R. Br. ; *D. gracili-caule* F. v. M.

*Sarcochilus divitiflorus* F. v. M. ; *S. falcatus* R. Br.

*Cleisostoma tridentatum* Lindl.

#### FILICES (Ferns.)

Polypodiaceæ,—*Arthropteris tenella* J. Sm. (*Polypodium tenellum* Forst.)

*Davallia pyxidata* Cav.

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\*Bentham in *Flora Australiensis* VII, 10, and Bailey in *Queensland Flora*, p. 1621, give the size of the leaf 3-6 lines—a slip of the pen for inches. A good figure of the plant is given in Hook, Ic., Pl. tab. 1369.



Polypodiaceæ,—*Asplenium adiantoides* C. Chr. (*A. falcatum* Lam.) ; *A. nidus* L.

*Vittaria elongata* Sw.

*Polypodium pustulatum* Forst. (*P. scandens* Forst. non Labill.)

*Cyclophorus serpens* C. Chr. var. *rupestris*.

*Platynerium bifurcatum* C. Chr. (*P. alpicorne* Gaud.)

*Platynerium grande* J. Sm.

MUSCI (Mosses.) Determined by Rev. W. W. Watts.

Calymperaceæ,—*Syrrhopodon platynerii* Mitt. Mr. Watts writes: "A new record for Australia; it belongs to Lord Howe Island and is very, very rare even there."

Fissidentaceæ,—*Fissidens* sp.

Orthotrichaceæ,—*Macromitrium platyphyllaceum* C.M.

Neckeraceæ,—*Papillaria kermadicense* (C.M.) Jacq.; *P. flexicaulis* (Tayl.) Jacq.

*Camptochæte brisbanica* C.M.; *C. Leichhardtii* (Hpe.) Broth.

*Thamnum eflagellare* Angstr.

Rhacopilaceæ,—*Rhacopilum convolutaceum* Hpe.

Leskeaceæ,—*Thuidium* (?) *suberectum* Hpe.

Hypnodendraceæ,—*Braithwaitea sulcata* (Hook) Lindl.

Mr. Watts writes: "and a few bits of a little moss that puzzles me. It is in a young stage and belongs to the *Hypnaceæ* or perhaps even to the *Hypnodendraceæ*."

HEPATICÆ (determined by Rev. W. W. Watts).

*Frullania* sp.; *Plagiochila* sp.; ?*Brachiolejeunea* sp.

LICHENES (determined by Mr. E. Cheel).

Usneaceæ,—*Usnea strigosa* Ach.

Parmeliaceæ,—*Parmelia tinctoria* Despr.; *P. trichotera* Hue.

Mr. Cheel writes "No apothecia present but seems to be this species, which is frequently confused with *P. perlata*, a European and American species."

Lecanoraceæ,—*Lecanora subfusca* Ach.?

*Lecania*<sup>n</sup> *punicea* Ach.

*Pertusaria* sp.

Graphidaceæ,—*Opegrapha* sp.

*Phæographis australiensis* Mull. Arg.!

Chiodectonaceæ,—*Glyphis cribrosa* Fee.

Astrotheliaceæ,—*Parmentaria gregalis* C. Kn.

Imperfectæ,—*Lepraria*.

#### FUNGI.

Agaricaceæ,—*Marasmius equicrinus* Muell

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