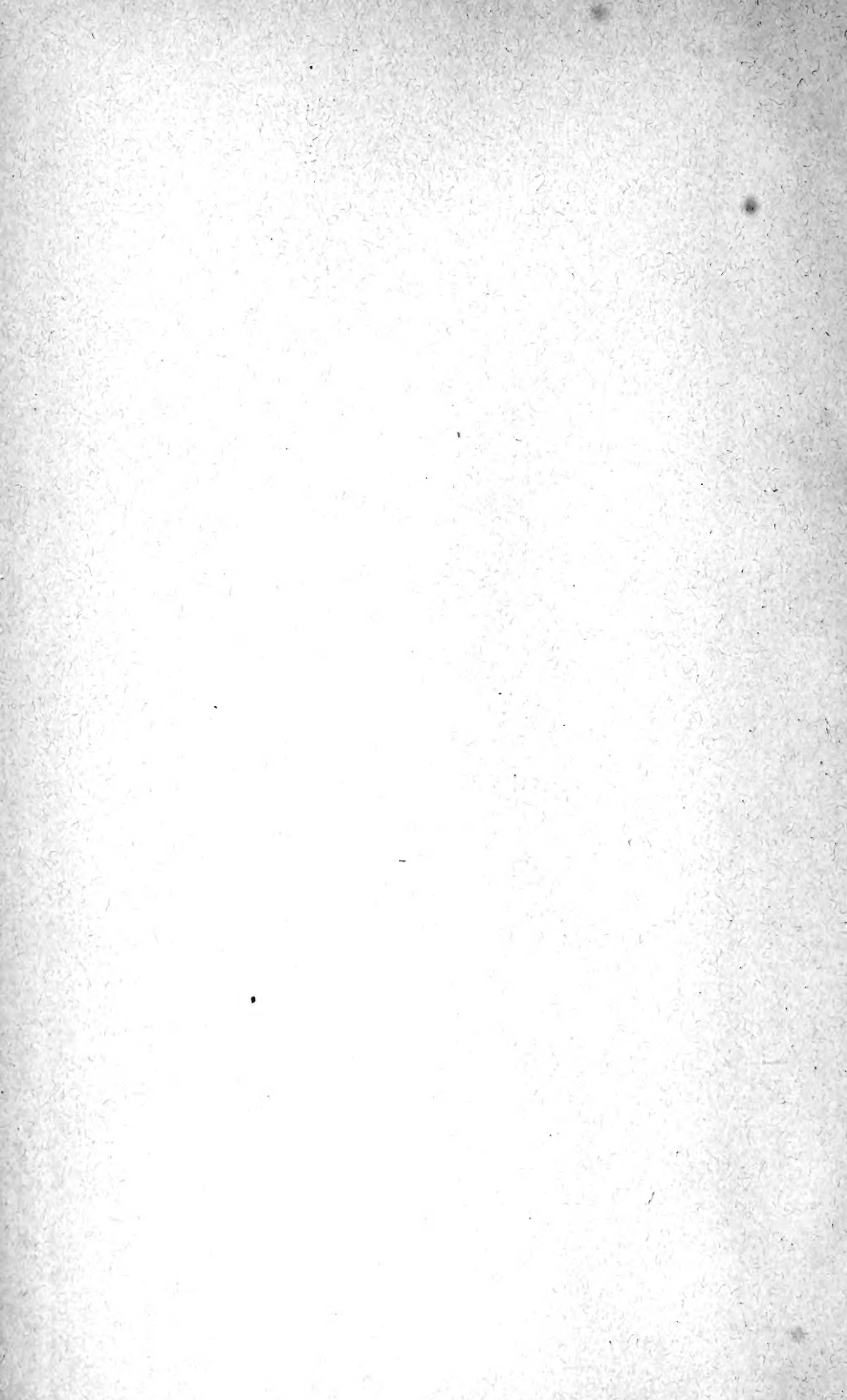


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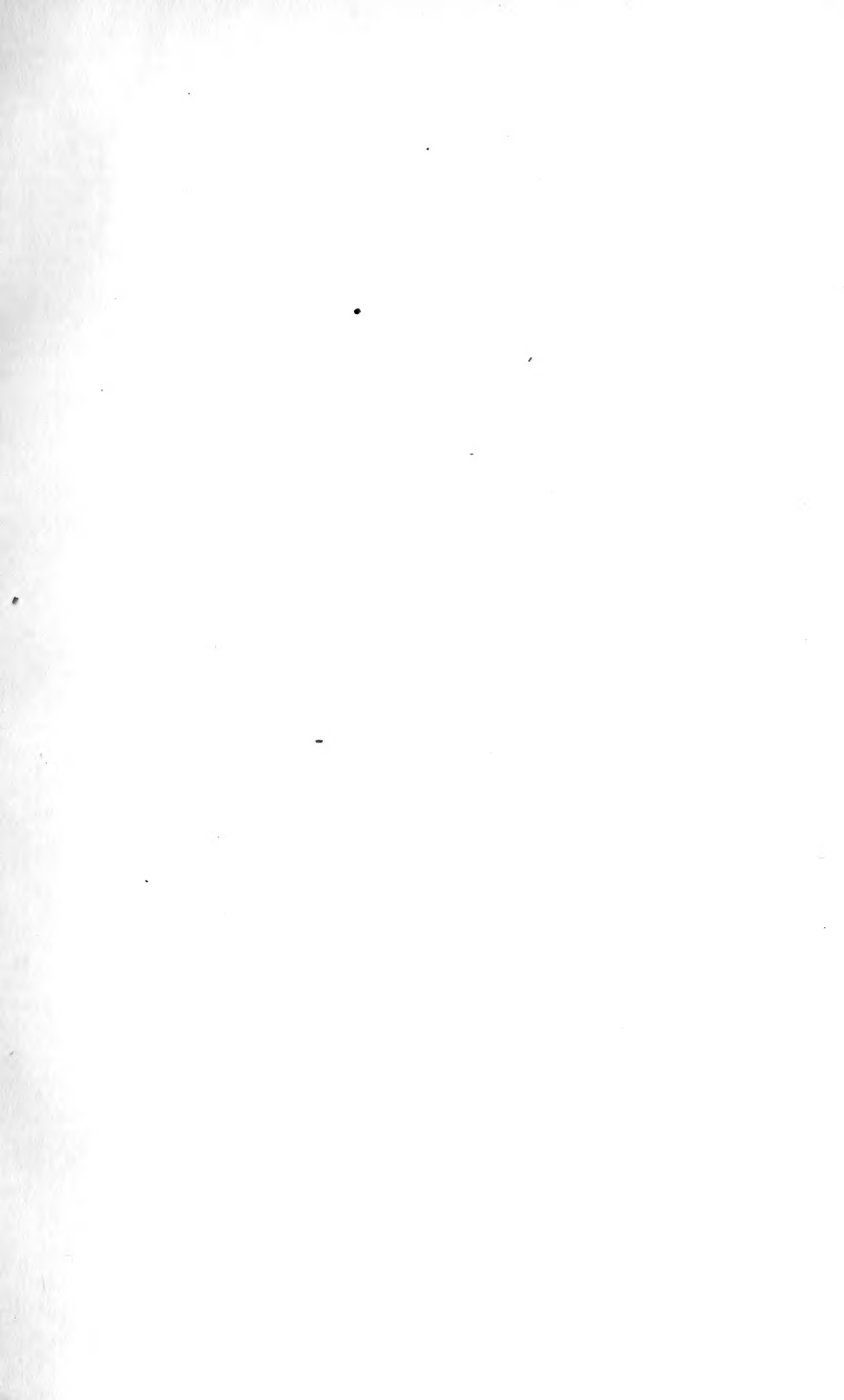
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## The Flora of Singapore.

BY H. N. RIDLEY.

*Introduction.* The island of Singapore with the small islands of Pulau Ubin and Pulau Tekong in the Johore strait and a few smaller ones lying within English waters form the area the flora of which is enumerated in this paper. The whole is little more than 200 square miles in extent and consists of undulating country, the highest hill being Bukit Timah with an altitude of 500 feet above sea level. The Geology of the island was the subject of a paper by Mr. J. R. Logan (*Journ. As. Soc. Beng.* xvi. p. 519, published in 1846), but unfortunately he much misunderstood it, mistaking sedimentary rocks for volcanic ones. The bigger hills, Bukit Timah, Bukit Mandai, and Tanjong Gol, are composed of a grey granite, which crops out again near Bajau, Changi and Pulau Ubin. The rest of the island is covered with sedimentary deposits of clays, gravels, and sands, often very ferruginous and permeated with bands of clay-ironstone, very much resembling that of some of the Wealden beds in Kent. This clay iron-stone has unfortunately received the name of Laterite here, a name properly applied to soils baked by a lava-flow, or other volcanic heat. These sedimentary rocks have never produced any fossils except some obscure traces of vegetable remains. They appear to have been derived from disintegrated and decomposed granite, the ironstone bands being formed in many cases at a much later date. No borings of any depth having been made it is impossible to say how deep these strata are, but it is probable that they are of very great thickness and comparatively modern, as appears to be the case in Selangor and elsewhere. In the south of the island in some spots the strata are very strongly upheaved.

Originally the island appears to have been covered with a dense forest, except along the mangrove edged rivers and the sandy tract of country lying between Tanjong Ru and Changi point. But soon after it was acquired, a great deal of this forest

was felled, partly for the value of the timber and partly for cultivation. Later a very large proportion of the cleared ground was abandoned, and became covered with secondary growth, or lalang, and every year still sees the disappearance of some woodland, so that in several of the localities quoted for certain plants in this list, such as Ang Mo Kio, few traces of any native plants can now be found. The names of many villages and districts are taken from trees which doubtless plentiful fifty years ago are now either very scarce or quite extinct. Such are Kranji (*Dialium*.) Changi (*Balanocarpus*), Tampenis (*Sloetia sideroxyton*), Tanjong Ru, the Cape of Casuarinas, Kampong Gelam, the village of *Melaleuca*. Extensively as the indigenous flora has been destroyed in this way, I have succeeded in finding most of the plants collected here by Wallich in 1822; and of those mentioned in his Catalogue which I have not recovered, some at least were evidently wrongly localised, having been probably collected in Penang. Many of the trees, however, which were probably formerly more abundant, are represented now by single specimens.

A few fairly large and representative tracts of jungle remain, and though in most cases much of the more valuable timber has been removed, these contain the most varied and interesting portions of the flora. Among the biggest trees therein are the *Dipterocarpea*, *Dyera*, *Dichopsis*, *Irvingia*, *Kumpassia*, species of *Mangifera*, *Artocarpus* and *Tarrietia*. Mixed with these are numerous smaller trees and shrubs of all orders, with rattans, and other palms, and especially in rocky spots and damp water-courses, are ground orchids, Scitamineae, aroids, ferns, *Ebermaiera*, *Pentaphragma*, *Cyrtandra* and many other smaller plants. Here too grow the curious little saprophytes *Thismia*, *Sciaphila*, *Aphylloorchis*, *Burmannia*, etc. Many climbing plants such as *Uncaria*, *Willughbeia*, *Bauhinia*, *Strychnos* and *Gnetum* form huge lianes climbing to the tops of the trees and covering them with a mat of foliage. On the branches of the loftiest trees grow many epiphytes not met with elsewhere, orchids, ferns, such as the rare *Davallia triphylla*, *Rhododendron*, *Vaccinium* and *Dischidia*, and it is interesting to note that many of these plants, which in the low country grow only on this elevated position, are to be met with as terrestrial or rock plants at greater elevations in the peninsula. The banks of the larger streams and rivers and a

good portion of the coast line where mud is deposited are edged with a thick mangrove jungle composed of *Rhizophoraceæ* (*Rhizophora*, *Bruguiera*, *Ceriops*) *Carapa*, *Lumnitzera*, *Avicennia* and *Heritiera* on the branches of which grow abundance of small orchids, ferns, *Lycopodium*, *Psilotum*, *Heptapleurum*, *Pachycentria*, *Medinilla* and other epiphytes, while in the mud on suitable spots grow such herbaceous plants as *Acanthus*, *Cryptocoryne ciliata*, *Tristellateia*, *Ochtocharis* and some *Cyperaceæ* and grasses. Inland just behind the mangroves the ground is often sandy and covered with woods of comparatively small trees, *Eugenia*, *Podocarpus*, *Gelonium*, *Arytera*, *Azalia*, etc., with clumps of the Nibung palm (*Oncosperma tigillaria*), and on these and on the ground grow many orchids, *Cirrhopetalum*, *Bulbophyllum*, *Coelogyne*, *Plocoglottis*, *Platyclinis*, and *Eria*.

The coast line from Tanjong Ru to Changi is also very sandy, and here is a very distinct flora much resembling that which borders the Pahang river near its mouth. It is rich in grasses and sedges, *Xyris*, *Cyanotis*, and other herbaceous plants, with bushes of *Rhodomyrtus*, *Vaccinium*, *Leucopogon*, *Capparis*, *Eugenia*, etc. Unfortunately a great portion of this district has been put under coconut cultivation, and the greater part of the flora has disappeared, except at Changi point where it still remains.

As a very large portion of the island has been cleared and cultivated, and often abandoned, there are very large tracts covered either with Lalang (*Imperata cylindrica*) or fern either *Gleichenia Linearis* or bracken, *Pteris aquilina* or in swampy spots with *Scleria* to the exclusion of almost everything else. In many places however secondary growth has sprung up (Belukar). This consists of small trees or shrubs of *Macaranga javanica* and *M. hypoleuca*, *Rhodamnia trinervia*, *Adinandra dumosa*, *Vitex pubescens*, *Melastoma polyanthum*, *Archytea Vahlia*, *Arthrophyllum diversifolium* and a few others.

In waste ground near villages and in cultivated spots are a number of weeds, many of which are well known as very widely distributed plants, and most of which have probably been introduced accidentally or intentionally at no very great distance of time. These weeds include most of the *Compositæ*, Grasses, *Labiatae* and probably all the *Umbelliferae* and *Solana-*

*ceæ*. It is perhaps worth noting that very few of these are to be found in Wallich's collection made in 1822, showing that in all probability they were introduced at a later date. Among these weeds one or two are interesting as not occurring in India, such are *Clitoria cajanifolia*, and *Cleome aculeata*, both South American plants, which also occur as weeds in Java, whence probably they were carried accidentally to Singapore.

The flora geographically speaking is typically Malayan, and resembles as might be expected that of Johore, and to a certain extent that of the neighbouring coast of Sumatra. A few plants occurring here are as far as is known endemic, but it is probable that most will be re-discovered in the neighbouring countries, when they are more thoroughly explored. These endemic plants not known to occur elsewhere are marked with a \*. The absence of certain plants common in the peninsula is somewhat remarkable, such are *Eurya acuminata* and *Grewia umbellata*, and there are several striking plants to be found on the neighbouring islands, and on the coast of Johore, especially near Tanjong Kupang, which are quite absent from our flora. Of the native flora it will be noticed that the greater number of plants are either trees or shrubs, herbaceous plants being comparatively scarce in the forests, and chiefly to be found in the open country in the sandy district of the coast. Those of the forest region being usually epiphytes, orchids, Piperaceæ, or Scitamineæ, aroids, grasses and sedges, with a few saprophytes.

The most extensively represented orders here are those of the *Euphobiaceæ*, *Urticaceæ*, *Rubiaceæ* and *Orchideæ*. The variety of the latter will surprise many residents who have probably seen not more than one or two species growing wild here, but the fact that these plants are very local and frequently occur on the upper branches of the loftiest trees, where they are difficult to see and to obtain, accounts for their being so often overlooked. The largest genera are those of the Figs (*Ficus*) and nutmeg (*Myristica*).

As in most equatorial regions, the number of species in proportion to the number of individuals is very large. A Malay jungle consists of innumerable trees, shrubs and climbers, all apparently distinct, and individuals of any one species occurring singly here and there, often very far apart, so that these forests

have a very different appearance from those of the more temperate zones, which frequently consist of but one or two kinds. The contrast is well seen in comparing the English flora with that of Singapore. In Singapore with an area of 200 square miles we have over 1,900 species of flowering plants, while the flora of the British Isles with an area of 121,115 square miles produces but 1,200 species, while of ferns we have here over 130 species, nearly double the number in Europe, and more than three times the number in the British Isles.

*Seasons.* There is no great amount of difference in the rainfall throughout the year, although as a rule heavier falls occur in December and January than at other times, so that plants here have no definite resting periods and are nearly all truly evergreen. Certain plants, however, such as *Cratogeomys formosum* and *Ficus Miquelii* shed all their leaves at tolerably regular intervals, remaining quite bare for one or two days, when the young shoots begin to unfold, and in a few days they are quite leafy again. This change is often but not always followed immediately by the appearance of the flowers, and often the young leaves thus produced are of a brighter green, or brilliant red, orange, white or blue. This change takes place usually three or four times a year, and every tree of the kind in the district undergoes the change on the same day. It is not till we get north of Penang that we find a definite period of rest in which all or almost all plants shed their leaves altogether and become quite bare. A good series of observations on these phænological phenomena would probably throw light on the causes of these irregular seasons.

Very few plants have a definite flowering month. A large number flower more or less steadily throughout the year. Others flower at regular periods three or four times a year, almost every plant of a given kind flowering simultaneously in the district. This is best known in the case of the Pigeon orchid, *Dendrobium crumenatum*. In this plant the flowers are produced at periods of a little over a month, or two months. The exact day differs in different parts of the peninsula, but in each district they all appear in the same day, and it is remarkable that plants brought to Singapore even from as far north as Siam open their flowers on the day for Singapore, and not on that for Siam. It

is not rare however to find certain plants of Pigeon orchid which do not flower on the regular day, but have a distinct day which they appear to keep to with equal regularity. A curious fact is that another species of *Dendrobium* (*D. criniferum*) invariably flowers in Singapore on the day preceding that of *D. crumenatum*, whenever that happens to be. It might be thought that the weather in the district in which the plant was growing was the influencing agent, but this appears to have but little effect on the orchids. On one occasion (Dec. 5, 1893) the pigeon orchids developed their flowers so far that they were obviously ready to open them on that day, but an extraordinarily heavy rain retarded them, and the flowers opened the next day, but except in cases like this the weather previous to the flowering does not seem to make any difference to the date of flowering. Some few plants have a regular annual flowering season, such are *Calanthe curculigoides* in September, and *Grammatophyllum*, July and August. A certain number of trees flower only every fifth year, notably the *Dipterocarpeæ*. Every fifth year there appears to be an average higher temperature, and a period of greater dryness in May or June than in other years, and then and only then is it possible to obtain flowers of these trees. Such trees are most of the *Dipterocarpeæ*, *xanthophyllum Kunstleri*, *Careya* sp. In this case also all the plants in a given district flower simultaneously. It can easily be understood that it is very important to a plant that all should flower on the same day in order that they may be cross-fertilized by the insects that visit them, and this is especially the case in plants in which the flowers last but a single day, as in the case of the Pigeon orchid, but it is difficult to see how this is brought about. A good many trees seem to flower even less often than this and there are not a few which though apparently full grown healthy trees have not given flowers once in ten years.

#### *Colors of flowers.*

As is well known the colors of flowers depend to a large extent on the kind of insect fertilizer for which they are destined to prove attractive. The most abundant insects in the thick jungle are the flies (*Diptera*) and these appear often in enormous abundance when certain trees are in bloom. The Oaks and



Chestnuts, *Sindora* and *Kurrimia* are particularly attractive to them and the roar of their wings can be heard often at some distance from the tree. The chief of these flies is a black *Musca* with red eyes. The flowers of fly-fertilized plants are usually small and green or whitish, generally possessing an unpleasant odor. Smaller herbaceous plants growing in dark shady woods often have deep brownish purple flowers sometimes with an odor of carrion, at others sweet and aromatic, such are *Amorphophallus*, *Thottea*, *Tacca* and many orchids. These are also fly-fertilized. Many trees produce masses of white flowers in large panicles or corymbs. These are very attractive to butterflies and bees, such are many of the *Eugenias*, *Evodia*, *Rhodamnia*, and *Melanorrhœa*. I have noticed as showing the bearing of the color of the flowers on insect visitors, that while *Eugenia lineata* with corymbs of white flowers attracts innumerable butterflies and bees and the pollen-eating flies (*Syrpha*), another species of *Eugenia* with apple-green flowers, which is growing close by was not visited either by butterflies or bees, but by flies similar to those which visit the oaks. Pink flowers are not so common, and are usually visited by bees, as are the deep red blossoms of *Cratogeomys arborescens*, *Gomphia Hookeri*, and *Eurycoma*. Scarlet and bright reds are rare in Singapore except in introduced plants, but we have also the beautiful *Aeschynanthus*, *Rhododendron*, some *Loranthi*, and some species of *Hornstedtia*. The red flowers are most attractive to the Sun-birds, and to butterflies. Bright yellow flowers are chiefly to be met with in open country especially near the sea; such are *Wedelia*, *Xyris*, *Philydrum*, *Urticularia* (most), *Wormia*, *Timonius*, and *Gomphia sumatrana*. The rarest color of all is blue, which is also to be met with almost exclusively in open spots. *Burmannia coelestis*, *Commelina*, *Cyanotis*, *Urticularia affinis*, *Evolvulus*, *Monochoria*, *Desmodium heterophyllum*, are almost the only native blue flowers here.

Visitors to the tropics are often surprised by the apparent paucity and inconspicuousness of the flowers. This is partly due to the enormous proportion of foliage, which conceals the flowers, but the fact that the greater number of our flowers are adapted for fertilization by Diptera and small Hymenoptera, the most abundant insects in the forests, and are consequently small and green or whitish, accounts to a large extent for the small

amount of show that the blossoms make in the great masses of foliage.

*Botanists.* The number of botanists who have collected or studied the flora of Singapore is even more limited than that of Penang. The first of them was naturally *Sir Stamford Raffles* who aided by *William Jack* made extensive collections, all or almost all of which were destroyed in the burning of the "Fame." (For an account of Jack and some others of the Singapore botanists, see *Journal* 25, p. 163). Shortly after the founding of Singapore *Nathaniel Wallich* came to Singapore to recuperate after his great Nepaul expedition. He remained here about five months and established the first Botanic Garden, Nov. 1822, being Superintendent of it. This Garden, consisting of 48 acres, included the Government Garden on what is now known as Fort Canning Hill. After he returned to Calcutta, Jan. 1823, Dr. Montgomerie took charge of the Garden till 1827. Wallich seems to have promised to send an assistant from Calcutta Gardens, but did not do so. The Garden, which chiefly contained Nutmegs and Cloves, was abolished later, and no trace of it remains. Dr. Wallich seems to have taken some interest in the development of Singapore, and was one of a committee of three to fix on the site of the town. He built a house, Botany Hall, to stay in during his residence here.

His collection of dried plants was an extensive one, and was eventually distributed with the rest of the East India Company's herbarium. The greater number of species which he discovered here I have been able to find still in Singapore, but some appear to have quite vanished. This is not surprising when it is remembered that at that time the district in which he was collecting, *viz.* the neighbourhood of the town, was thick jungle, of which nearly every trace has now disappeared under cultivation. In his Catalogue many of the plants are localised "Singapore et Penang," and as I note that many of these are strictly hill plants occurring at a higher elevation than there is in Singapore, I take it that these plants were in a collection of which the exact locality was lost, and that the label perhaps should have been rather "Singapore or Penang." Some few however of the specimens labelled as from this region have never since been found in the peninsula, e. g. *Xylocarpus dolabriformis*, a

well known Indian tree, and it is probable that the locality is quite wrong.

*Col. Farquhar*, the first Resident of Singapore, and *John Prince*, Resident Councillor in 1827, who took a little interest in the botany of the island, are commemorated in the names of some plants, e. g. *Myristica Farquhariana*, and *Erycibe Princei*, but little was done in botanical research for many years. In or about 1839, *Hugh Cuming* well known for his immense botanical and conchological collections in the Philippines, visited Singapore and also ascended Mount Ophir. While in the Straits he seems to have chiefly devoted himself to collecting orchids, and to have sent home a number of live ones, among which were *Coelogyne Cumingi*, and *Dendrobium longicolle*. *William Lobb*, orchid collector for Messrs Veitch, visited Penang and Singapore in 1845, but as mentioned in *Journal* 25, p. 166, his specimens from the Straits Settlements, Java and India were all mixed up in distribution, so that his localities as quoted in books are quite doubtful. Surgeon-General *Maingay* during his residence in Singapore made extensive collections, but many of these again were irregularly labelled, and some mentioned in the Flora of British India as from Singapore were probably either collected in Malacca or Penang.

*Mr. Marston* the first head of the present Botanic Gardens, 1875 to 1880, collected a number of plants, of which a few were sent to Kew, and a few, chiefly ferns, are still in the Botanic Gardens Herbarium. *N. Cantley*, who succeeded him, employed collectors and obtained a very large number of specimens, but unfortunately hardly any were strictly localised, and many labelled from Singapore in the herbarium, are either cultivated plants or from some part of the peninsula, so that in most cases I have been unable to quote safely from his herbarium.

Among other collectors whose names appear in books, associated to a small extent with Singapore plants, should be mentioned, *Dr. Thomas Oxley*, who wrote some papers in *Logan's Journal*, one of which dealt with the Flora of Singapore, but chiefly with Economic plants, while other papers treat of Nutmegs and Gutta percha. He seems to have collected plants, saying that he had collected between 40 and 50 orchids, but what became of his collections and manuscripts, I cannot find

out. He died in or about 1858.

*Sir Robert Schomburgk*, well known for his explorations in Guiana, where he discovered the *Victoria regia*, was appointed British Consul in Siam in 1857. He visited Singapore and collected a few plants there, which he sent to Kew, and which were described in the Flora of British India. Some of them, however, were evidently obtained from gardens.

*Dr. T. Anderson*, 1832 to 1870, was Director of Calcutta Botanic Gardens. He appears to have visited Singapore at some time, and obtained several plants of interest. He devoted himself to the *Acanthaceae*, and *Eranthemum Andersoni* Mast, a common garden plant here was named after him.

*Mr. R. W. Hullett* made some years ago an excellent herbarium of Singapore plants, which he eventually presented to the Botanic Gardens. Duplicate specimens were sent to Kew and to Calcutta, where they were named, and several new species bear his name.

In the following list all plants with no collector's name were obtained by myself or by native collectors employed at the Gardens, and the numbers attached are those of my distribution-series. Endemic species, not yet known from elsewhere are marked with an asterisk and introduced plants, which have not properly established themselves but which occur in waste ground and the like, are included in brackets. The Mosses, Lichens, Fungi and Algae, are deferred. Collections of these have been made and submitted to experts, and I hope to publish an account of them at a later date.

## DICOTYLEDONS.

## DILLENIACEÆ.

*Tetracera Assa* Dec. A scrambling shrub often forming thickets, flowers white or pinkish. Common in open country, Balestier plain, Sepoy lines, Fort Canning, Changi.

*T. Assa* var. Garden Jungle. A very different looking plant, but Dr. King considers it only a large form.

*T. euryandra* Vah. Climber not rare, Cluny Road, Kranji.

*T. macrophylla* Wall. Climber common in woods, but seldom to be found in flower. Tanglin, etc.

*T. fagifolia* Bl. Not common. Woods, Garden Jungle, Selitar.

*Wormia*. Large shrubs or trees with showy yellow or white flowers.

*W. suffruticosa* Griff. A large bush in damp open country. The flowers are about 3 inches across bright yellow. The fruits when ripe split open like a star and are rosy pink inside, with small black seeds covered with a scarlet aril. The leaves are rather curious from the way in which the winged petioles are closed over the buds. It flowers constantly all the year. Tanglin, Jurong, Pulau Ubin, Pulau Tekong.

*W. pulchella* Jack. A small bushy tree with oval deep green leaves and pale yellow flowers. It grows in wet places, Tanglin, Bukit Timah Road.

*W. tomentella* Bl. A tall stout tree. Garden jungle, Selitar, Bukit Timah.

*W. Scortechinü* King. A small tree with inconspicuous apetalous flowers. Rare, Garden Jungle.

*W. sp* near *W. oblongifolia*, but having anthers hairy all over and white flowers. Bukit Mandai.

*Dillenia indica* L. This grand tree with its huge white flowers is doubtfully wild here. It occurs near the Reservoir, Bukit Panjang.

## MAGNOLIACEÆ.

This order, chiefly of trees of the hill districts, is not unrepresented here.

*Talauma lanigera* Hook. fil. A large bush rather than a tree with large white flowers and stiff dark green leaves. Damp woods, near Chan Chu Kang, Ang Mo Kio, Kranji, Choa Chu Kang.

*T. elegans* Miq. *Aromadendron elegans* Bl. A tall tree with grey bark about 40 feet tall and a foot through. Flowers white sweet-scented. Rare. Garden Jungle.

*Kadsura cauliflora* Bl. A climber with rough corky bark and rosy flowers growing on the stem. Garden jungle, Bukit Timah, Kranji.

*K. scandens* Bl. "Akar Dama Dama." Forests, Bukit Timah, Bajau.

To this order also belong the Champaks *Michelia Champaka*, and *M. longifolia* Bl. often cultivated for their sweet flowers.

## ANONACEÆ.

*Stelechocarpus Burahol* Hook. fil. "Singapore Lobb." This Javanese plant has never again been collected in the peninsula and is probably wrongly localised.

*Cyathostemma Scortechinii* King. A big climber bearing small green flowers on the stem, and rather large orange fruits. Common Garden jungle, Bidadari, Bukit Timah, Jurong, Pulau Ubin.

*C. Hookeri* King. Not common. Flowers yellow. Garden jungle.

*U varia*. Climbers with purple rarely yellow flowers.

*U. dulcis* Dunal. Rare, Bukit Timah.

- U. Lobbiana* Hook. fil. Garden jungle,
- U. Ridleyi* King. Bukit Mandai.
- U. macrophylla* Roxb. Common all over Singapore.
- U. hirsuta* Jack. Very hairy, flowers bright red. Garden jungle, Changi, etc. Common.
- U. subrepanda* Wall.\* Singapore (Wallich No. 6483). A very little known species, only collected by Wallich.
- Ellipeia cuneifolia* Hook. fil. A lofty climber with yellow flowers. Common. Garden Jungle, Reservoir Woods.
- Cyathocalyx virgatus* King. A small tree with green flowers. Rare, Bukit Timah (Hullett).
- C. Maingayi* Hook. fil. (Cantley's collection.) Perhaps wrongly localised.
- Artabotrys*. Climbers with white or green flowers, and very curious woody hooks by which the plant climbs.
- A. Wrayi* King. Flowers large. Cluny Road, Bukit Mandai.
- A. suaveolens* Bl. Flowers small. Common all over Singapore.
- A. Maingayi* Hook. fil. Tanglin.
- Drepananthus pruniiferus* Maing. "Antoi hitam." A tall straight tree. Garden jungle, Kranji.
- Unona discolor* Vahl. "Akar Darah." Garden jungle.
- U. dumosa* Roxb. Cluny Road.
- U. longiflora* Roxb. Common, Kranji, Bukit Timah, Jurong, Garden jungle.
- U. dasymaschala* Bl. Common, Bukit Mandai. Chan Chu Kang Garden jungle.
- U. desmantha* Hook. f. A small tree with yellow flowers, Common, Garden jungle, Changi, Chan Chu Kang.

- U. stenopetala* var. A small tree with buff-colored flowers. Garden jungle, Changi, Bukit Timah.
- Polyalthia*. Small to medium-sized trees.
- P. sumatrana* King. Flowers green, fruit pink with darker blotches, rare. Chan Chu Kang.
- P. Scortechinii* King. "Kenanga hutan." A fairly large tree, with large yellow flowers like those of Cananga. Not common, Garden jungle.
- P. macropoda* King. A tree with large orange fruits very showy. Bukit Timah.
- P. Teysmanni* King. Common, Chan Chu Kang, Garden jungle.
- P. bullata* King. Stated in King's Materials to have been collected by me in Singapore, was collected by Cantley and perhaps wrongly localised. It occurs in Selangor and Perak.
- P. cinnamomea* Hook. fil. is from the same collection, and was also collected by Wallich in Singapore. I have never found it here.
- Goniothalamus*. Small or medium sized trees or shrubs.
- G. malayanus* Hook. fil. Bukit Timah, Pulau Damar.
- G. Tapis* Miq. Selitar, Jurong.
- G. Ridleyi* King. A medium-sized tree with large tufts of dull purplish flowers on the stem, chiefly at the base. Sungei Morai, Bukit Timah.
- Orophea hastata* King. Bukit Timah.
- Popowia tomentosa* Maing. A small tree. Not common, Garden jungle, Bajau.
- P. ramosissima* Hook. fil. Bukit Timah.
- Ocymitra calycina* King. Dense woods, Garden jungle.
- O. affinis* King. Sumbawang, Bukit Timah.



- Melodorum*. Climbers with yellow flowers usually sweet-scented.
- M. fulgens* Hook. fil. Common in thickets, Bukit Mandai, Toa Payoh, Tengeh, Chan Chu Kang.
- M. manubriatum* Hook. fil. Changi, Bedoh.
- M. latifolium* Hook. fil. Garden jungle, Toas, Selitar.
- M. cylindricum* Maingay. Common, Bukit Timah, Bukit Mandai, Chan Chu Kang, Loyang.
- M. lanuginosum* Hook. fil. Fairly common, Bukit Timah, Sumbawang, Jurong.
- M. prismaticum* Hook. fil. Garden jungle, Changi, Kranji.
- M. elegans* Hook. fil. Garden jungle, Selitar.
- M. pisocarpum* Hook. fil. Bukit Timah, Bukit Mandai, Toas.
- Xylopia oxyantha* Hook. fil. Singapore (Wallich 6478). Not seen.
- X. dicarpa* Hook. fil. \* Singapore (Maingay). Not seen.
- X. malayana* Hook. fil. Not common, Bukit Arang, Chan Chu Kang.
- X. caulata* Hook. fil. Singapore (Wallich 6452) Maingay. Not seen.
- X. magna* Maingay. "Singapore Ridley" in Materials; was not collected in Singapore.
- X. ferruginea* Hook. fil. "Jangkang." A tall tree, flowers green, fruit long cylindrical red. Common, Bukit Timah, Selitar, Changi, Sungei Morai.
- X. Ridleyi* King. \* Rare, Changi, Bukit Timah.
- Phoranthus nutans* Hook. fil. A shrub with green flowers. Common, Garden Jungle, Bukit Timah.
- Ph. lucidus* Oliver. Common. A bush. Bukit Timah, Garden Jungle, Tanjong Gol.

*Mezzettia leptopoda* Oliver. A very large tree with green flowers, and large globose fruit containing two very hard seeds, "Poko Prab." Garden Jungle.

## MENISPERMACEÆ.

Climbing plants with very small dioecious flowers and drupaceous carpels with the seeds usually curved.

*Tinospora cordifolia* Miers. Probably introduced. Macpherson Road, Balestier plain, Pulau Übin.

*Tinomiæcium petiolare* Miers. "Akar Lankap." A stout climber with milky juice, flowers white, fruit green with white spots. A decoction of the roots is used for rheumatism. Common in open woods, Garden Jungle, Siglap, Jurong, Bukit Mandai.

*Fibraurea chloroleuca* Miers. "Akar Kuning." A big woody climber with yellow juice formerly used in dyeing. The male flowers are white in large panicles on the stem. The females green. The fruit is about an inch long, orange-colored. Common all over Singapore.

*Coccoloba fenestratum* Colebr. "Akar Kunyit, Kunyit Babi." A stout woody climber with large round leaves white beneath and large globular fruits. Common in woods. Chan Chu Kang, Changi, etc.

*Hypserpa triflora* Miers. A slender climber with narrow deep green leaves and small green flowers. Not common. Hedges, Tanglin, Selitar, Jurong, Chua Chu Kang.

*Limacia velutina* Miers. A low rather slender climber, the leaves covered with a velvety golden olive fur. Common in open country. Tanglin, Bukit Timah, Changi, etc.

*L. Kunstleri* King. A pretty little slender climber with white flowers and yellow stamens. Rare, on bushes by the sea. Changi beach.

*Stephania hernandiifolia* Wall. A slender climber with peltate

leaves, white flowers and red fruits. Edges of jungle, not rare. Chan Chu Kang, Bukit Mandai, Jurong.

*Cycla peltata* Hook. fil. var. *Arnotti*. Miers. A slender climber with orbicular ovate hairy leaves, small hanging panicles of green flowers and white flat fruits. The natives boil the leaves with sugar and make a kind of jelly not remarkably delicious. Common in hedges, Tanglin, Chua Chu Kang, Pulau Ubin.

#### NYPHÆACEÆ.

*Burc'aya Motleyi* Hook. var. *Kunstleri*, "Daun Kalapa." This grows in shallow muddy streams in thick jungle. It has round dark-colored leaves, and inconspicuous dull colored flowers, greenish or brown outside and yellow and pink within. Capsule pink. Local, Bukit Timah, Ang Mo Kio.

(*Nelumbium speciosum* Willd. The Lotus is often cultivated by the Chinese, but not wild here.)

#### CAPPARIDÆÆ.

*Cleomé aculeatum* Jacq. (*C. Hullettii*. King. An introduced thorny weed with white flowers, native of the West Indies, occurs round Tanglin and Kallang.

*Cl. viscosa* L. A sticky weed about a foot tall, with yellow flowers, occurs near the town casually.

*Capparis Finlaysonian* Wall. A thorny climber with large white flowers with a yellow spot in the throat, and a sausage-shaped red fruit. Rare. In sandy spots near Changi.

#### VIOLACEÆ.

The only genus represented here is the shrubby *alsodeia* with small yellow and white flowers.

*Alsodeia echinocarpa* Korth. "Sebilek." A shrub or treelet with ovate serrate leaves, small white flowers, and cap-

sules covered with mossy hairs. The seeds are used as a purgative. Common in dry woods. Reservoir, Chan Chu Kang, Chua Chu Kang.

- A. floribunda* King. Woods near Ang Mo Kio.  
*A. membranacea* King. Ang Mo Kio, Changi.  
*A. Kunstleriana* King. Singapore (Wallich). Not seen.

## BIXINEÆ.

- Scolopia rhinantha* Clos. A shrub or small tree, thorny with white flowers and black berries. Sandy spots near the sea. Changi, Serangoon River.  
*Flacourtia Rukam* Zoll. A thorny tree, with small yellowish flowers and globose dull red berries, with a taste of gooseberries. Common in woods and even in thick jungle, and evidently truly wild, but also planted. Bukit Timah. Chan Chu Kang.  
*Fl. cataphracta* Roxb. "Rukam." A similar tree with smaller leaves. I do not think it is wild though often cultivated and established here and there. It a much better eating fruit than the last.  
*Fl. inermis* Cl. A larger tree, quite unarmed, with thinner narrower leaves. Jurong and Tanjong Karong.  
*Ryparosa Hullettii* King. A small tree with slender spikes of green flowers. Rare in forests, Bukit Timah, Sungei Buloh.

## PITTOSPOREÆ.

- Pittosporum ferrugineum* Ait. "Giramong." A small tree with yellowish white flowers. Sea shores, Kranji, Changi, Selitar.

## POLYGALÆÆ.

- Polygala brachystachya* Bl. A little prostrate herb with yellow flowers, growing in turf or sandy spots. Not common, Gardens, Macpherson Road.

- Silomonina cantoniensis* Lour. A small branched weed about 3 inches tall with pink flowers. Common in waste ground.
- S. oblongifolia* Dec. Rare, sandy spots, Changi.
- S. aphylla* Griff. A very small buff colored saprophytic plant with minute flowers. Rare, in dense wet woods. Chua Chu Kang.
- Trigoniasstrum hypoleucum* Miq. Small tree, flowers white. Bukit Timah.
- Xanthophyllum*. Large or small trees, with white or pink flowers and globose one or several seeded fruits. "Lima Beruk."
- X. palembanicum* Miq. A small tree, with white flowers. Woods, Garden jungle, Selitar.
- X. obscurum* Benn. A large tree with dark green shining leaves, flowers white tinted with rose. Fruit as large as a cricket ball, greyish green with a very thick woody rind orange color inside, and numerous seeds. Woods, Tanglin.
- X. ellipticum* Korth. A medium sized tree with deep green leaves. Flowers at first white then yellow, with a red calyx. Drupe globular orange turning dark red, with a sweet but rather soapy taste. Tanglin, Changi.
- X. affine* Korth. A small to medium sized tree, flowers white. The commonest species in the peninsula, but not common in Singapore. Woods, Bukit Mandai, Jurong, Bukit Timah.
- X. Kunstleri* King. A fair sized tree with dark green leaves, and golden buds, flowers white, fertilized by bees. Not common. Tanglin.

## PORTULACACEÆ.

- Portulaca oleracea* L. Purslane. A common succulent prostrate weed with yellow flowers. Waste ground.

*P. quadrifida* L. A much smaller plant with tufts of white hair on the joints of the stem. Common in and round the town, on the wharfs, etc.

## HYPERICINEÆ.

*Hypericum japonicum* L. Small herb with yellow flowers. Pepper plantations, Bukit Mandai, Chua Chu Kang.

*Cratoxylon polyanthum* Korth. Tree with loose red bark, flowers pink. Woods, Bukit Timah, Changi, Chan Chu Kang.

*C. formosum* Benth. A beautiful tree flowering twice a year. The flowers rose-pink, appear abundantly when the tree sheds its leaves. The leaves are red when just open, gradually becoming green. Common in open country, Tanglin, Bukit Mandai, Chua Chu Kang, Bukit Timah.

*C. arborescens* Bl. "Geronggang." A big tree 50 to 60 feet, flowers in panicles deep crimson. Woods, Garden jungle, Bukit Timah, Selitar.

## GUTTIFERÆ.

*Garcinia eugeniaefolia* Wall. Tree, flowers white, sweet. Woods, Sungei Tengeh, Changi, Chan Chu Kang, Pulau Ubin, Tanjong Gol.

*G. rostrata* Benth. Flowers white or pink. Woods, Sungei Morai, Chan Chu Kang, Changi.

*G. cuspidata* King. Rare, Kranji.

*G. Hombroniana* Pierre. The peach-flavoured mangosteen. The tree resembles the common mangosteen, but the flowers are cream colored, the fruit smaller crimson, with a short beak on which is an entire dotted stigma, the rind is thin and scented like an apple, the pulp acid and scanty but peach-flavoured. Seashores, more rarely inland, Blakang Mati, Chan Chu Kang, Changi, Pulau Ubin.

(*G. mangostana* L. The mangosteen cultivated everywhere. A wild or reverted form with smaller more acid fruits, occurs near villages.)

- G. atroviridis* Griff. "Asam Gelugur." A beautiful tree, leaves bright red when young, deep green when old. Flowers large red. Fruit large succulent, flattened at both ends, and grooved all round, orange color stigma and persistent sepals red. It is dried in the sun and used in curries. It makes excellent preserves and pies. Doubtfully wild here. Tanglin, Tanjong Penjuru.
- G. Griffithii* T. Anders. "Kandis Gajah." Tree with large leaves. Flowers hardly opening greenish yellow. Fruit resembling an apple in form and color, acid, but eatable when cooked. Common in woods, Tanglin, Bukit Timah, Blakang Mati, Chan Chu Kang.
- G. Bancana* Miq. Tidal rivers, Kranji, Selitar.
- G. nigrolineata* Pierre "Kandis." Tree, unisexual, flowers small yellow, fruits small globose orange, eatable. Common, Woods and open country, Changi, Tengeh, Sungei Morai.
- G. parvifolium* Miq. Garden jungle.
- G. Forbesii* King. Small tree, flowers cream or pink, fruits small crimson, eatable. Not very common, Garden jungle, Bukit Mandai, Chua Chu Kang.
- G. nervosa* Miq. Rare, Pulau Ubin, Serangoon Road.
- G. dulcis* Kurz. "Mundu." Probably not wild here. Gardens and villages.
- Calophyllum.* Trees with white flowers and green or purplish drupes.
- C. pulcherrimum* Wall. Common, Garden jungle, Changi, Kranji.
- C. spectabile* Willd. "Bintangor Bunut." Garden jungle, Bukit Timah, Selitar
- C. retusum* Wall. Singapore, (Wallich).
- C. canum* Hook. fil. Not common, Tanglin, Bukit Mandai.

- C. inophyllum* L. "Penaga." Common on the sea shore. Bajau, Pulau Selitar, Pulau Ubin.
- C. inophylloide* King. Rare, Garden jungle, Changi.
- C. Wallichianum* Planch. "Bintangor Merah." Bukit Timah Chua Chu Kang.
- C. Griffithii* T. Anders. Rare, Sungei Morai.
- C. macrocarpum* Hook. fil. Changi.

## TERNSTREMIACEÆ.

Trees with white or pink flowers usually rather small with many stamens.

- Adinandra dumosa* Jack. "Tiup-Tiup." A very common tree about 20 feet tall, with white flowers, which are fertilized by bees and wasps, and the pulpy fruit eaten by bats. Open country everywhere.
- A. Hulletti* King. Not common, Garden Jungle, Selitar.
- A. acuminata* Korth. Woods, Garden jungle, Sembawang, Chan Chu Kang.
- A. maculosa* T. Anders. Rare, North Selitar.
- A. niquelii* King. "Kwak." A very different looking tree with thick leaves and larger white flowers, and fruits of a *Terustroemia*. Edges of Mangrove swamps, local, North Selitar, Changi, Sungei Morai, also woods, Bukit Timah.
- A. sp.* "Mongol." Rare, Bajau (4004).
- A.* near *integerrima* but less hairy. A big tree, Changi.
- Ternstroemia penangiana* Choisy. A big dense tree with dark green leaves and white flowers. Fruit egg-shaped about  $1\frac{1}{2}$  inch long orange, splitting and showing 3 or 4 seeds enclosed in a red pulp. Dry woods near the sea. Bajau, Toas, Batu Putih, Changi, Pulau Tekong.
- Saranja tristyla* Miq. Fern valley, Bukit Timah.



*Pyrenaria acuminata* Planch. A small tree with inconspicuous white flowers and small globular apple-like green fruits. Thick woods. Common, Bukit Timah, Tanglin.

*P. Kunstleri* King? Rare, Selitar.

*Gordonia excelsa* Bl. A tall tree with flowers like those of the tea plant but larger. Fruit a long woody capsule containing thin winged seeds. Rare, Selitar.

Var. with much larger coriaceous leaves, larger flowers and fruits. A very different looking tree, but referred by Dr. King to the same species. Common, Tanglin, Holland Road, Jurong, Changi.

*Archytea Vahlîi* Choisy. "Riang-Riang." A bush or tall slender tree with pretty pink or white flowers. Common in secondary jungle. Tanglin, Jurong, Changi, Blakang Mati.

## DIPTEROCARPEE.

Tall, often vast trees, with straight bare stems. Flowers large or small pink white or yellow, very sweetly scented. Fruit usually with two to four of the calyx lobes developed into long wings, by which the fruit drifts away from the tree in the jungle. The trees usually flower only once in five years. Very few flower annually. They supply good and useful timber, and the resin known as dammar and used for torches, and varnish, &c. Some also produce wood oil.

*Dipterocarpus cornutus* Dyer. "Minyak Keruing." One of the best wood-oil trees, even the fruits are often full of oil. Woods, Changi, Bukit Timah.

*D. Hasselti* Bl. Bukit Timah.

*D. grandiflorus* Blanco. This has very large winged fruits, 6 inches or more long, red. Bukit Timah.

*Anisoptera glabra* Kurz. "Mersawa." Garden jungle.

*A. costata* Korth. A gigantic tree with coppery looking leaves. Garden jungle, Dalvey, Bidadari.

- Hopea Pierrei* Hance. "Merawan." A tall straight tree with very small deep crimson flowers. Bukit Arang.
- H. Griffithii* Kurz. Garden jungle (No. 4738).
- H. micrantha* Hook. fil. Singapore (Cantley).
- H. Mengarawan* Miq. A gigantic tree measuring as much as 18 feet in circumference. Common, Bukit Timah, Chan Chu Kang.
- Shorea gratissima* Dyer.\* Flowers white. Common, Garden jungle, Kranji, Chan Chu Kang.
- S. macroptera* Dyer. "Kepong." The bark is used for building houses. Common, Garden jungle, Chan Chu Kang.
- S. parvifolia* Dyer. "Meranti daun Kechil." Bukit Timah, Garden jungle.
- S. gibbosa* Brandis. Flowers pink, Garden Jungle.
- S. leprosula* Miq. "Serayah batu." very common, Garden Jungle, Bukit Timah.
- S. rigida* Brandis.\* Flowers white. Rare, Garden Jungle.
- S. pauciflora* King. Flowers yellow, Garden Jungle.
- S. bracteolata* King. Dalvey Road (No. 1827).
- Cotylelolium flavum* Pierre. Rare, Sungei Morai.
- Vatica Ridleyana* Brandis. Common, Garden Jungle, Bukit Mandai, Changi.
- Pachynocarpus Wallichii* King. "Damar Mata Kuching." Common, Garden Jungle, Kranji, Changi, Toas.

## MALVACEÆ.

Herbs shrubs or trees with showy flowers.

- Sida*. Small shrubby plants with yellow flowers.
- S. carpinifolia* L. Common everywhere in waste ground.

- S. rhombifolia* L. "Silaguri Padang." A common weed used in native medicine for tooth-ache. Sepoy lines, Chan Chu Kang.
- Abutilon indicum* Don. Weed in waste ground. Alexandra Road, Pulau Ubin.
- Urena lobata* L. "Pulut-pulut." A very common weed with pink flowers opening in the early morning. The leaves are used for adulterating Patchouli, and it is cultivated for its fibre in America, where it is called Cesar-weed. Common in open dry spots; the variety *sinuata* with deeply lobed leaves occurs more usually near the sea.
- Hibiscus*, several species are cultivated, including *H. rosa-sinensis* L. the Shoe-flower, "Bunga Rayah," the flowers of which are used for blackening leather, and for coloring sweetmeats red. *H. abelmoschus* L. the Musk seed, "Kapas hantu," with large yellow flowers with a maroon centre, occurs cultivated and half wild. *H. Sabdariffa*, "Rosella," used as a vegetable or preserve. *H. esculentus* L. "Lady's fingers."
- H. surattensis* L. A prickly climbing or creeping plant, with yellow flowers and a maroon eye. Tanglin, Changi, Pulau Ubin.
- H. tiliaceus* L. "Baru." A common sea-coast tree with large yellow flowers with a maroon eye, turning pink soon after opening. All round the coast.
- Thespesia populnea* Corr. Tree very similar to the last. Sea coasts, common, Toas, Chan Chu Kang, Pulau Ubin.
- (*Eriodendron anfractuosum* De C. The tree Cotton, "Kapok." Cultivated.)
- (*Durio zibethicus* L. The Durian. Cultivated.)
- D. oblongus* Mast. A wild Durian, with green uneatable fruits. Woods, scarce, Bukit Timah, Bukit Mandai.
- Neesia synandra* Mast. The woody Durian. A big tree, with rather small flowers and large wooden blue-grey fruits,

which partly open, the walls inside are covered with yellow stinging hairs. The seeds are black with a yellow waxy aril. Rare, Bukit Timah, Chan Chu Kang, Kranji, Chua Chu Kang.

*Coclostegia Griffithii* Benth. "Punggai." A very big tree with small flowers on the old wood and large round woody fruits, the outside, covered with thorns, is black, the inside brilliant orange. The bark is used in tanning. Rare, Bukit Timah, Garden Jungle.

*Boschia Griffithii* Mast. "Durian-Durian." A medium sized tree with small white flowers and little scarlet durians. Rare, Garden Jungle, Bukit Timah.

#### STERCULIACEÆ.

*Sterculia macrophylla* Vent. A big tree with large red pods. Rare, Reservoir Woods, Chan Chu Kang.

*S. levis* Wall. A shrub or small tree with green flowers and scarlet pods which split open into 3 to 5 lobes in the form of a star, and show the oblong blue-black seeds suspended all round the margin. Woods, common, Tanglin, Bukit Timah, Pulau Ubin, etc.

Var with very narrow leaves. Chan Chu Kang, Bukit Mandai, Bukit Timah.

*S. rubiginosa* Vent. A small or medium sized tree very showy in fruit, flowers pink. Common, Tanglin, Bukit Timah, etc.

*S. parviflora* Vent. Big tree, Garden Jungle.

*S. scaphigera* Wall. "Kembang Samangko." A very large tree, often over 100 feet tall. The fruit in the form of a long green boat containing an oblong seed at one end. When the seeds are put into water the outer coat swells up and becomes mucilaginous, and this mucilage is eaten with sugar in the morning to cool the blood. Rare, Bukit Mandai.

- Tarrietia simplicifolia* Mast. A vast tree. Not common, Dalvey Road, Bukit Timah.
- Heritiera littoralis* Dryand, "Dungun." Sea shores, common, Bajau, Kranji, Pulau Tekong.
- H.* sp. Lofty tree in jungles. Garden jungle. Apparently undescribed.
- H. fomes* Buch. Ham. Mangrove swamps. Kranji.
- Pterospermum diversifolium* Bl. A gigantic tree, Pulau Ubin.
- Pt. Blumeanum* Korth. "Bayur." A big tree, dense woods, common, Bukit Timah, Sungei Buluh.
- Melochia corchorifolia* L. A common weed with small pink flowers. Waste ground everywhere.
- [*Pentapetes phoenicea* L. A tall herb with deep red flowers. Waste ground, Tanglin, Blakang Mati.]
- Buttneria Maingayi* Mast. "Akar Kachubong." A big woody climber with curious little white and pink flowers and round prickly capsules. Common, Garden Jungle, Changi, Bukit Mandai, etc.
- B. Jackiana* Wall. Singapore, King's Materials. Not seen, probably an error.
- Commersonia platyphylla* Andr. "Durian Tupai." A common tree with white flowers, in large cymes and bristly capsules. Open country Tanglin, Jurong, etc.

## TILIACEÆ.

- Brownlowia lanceolata* Benth. Rare, "Mangroves, Kranji.
- Pentace triptera* Mast. "Sepa Petri." Medang Serai." A gigantic tree with white flowers. Woods, common, Bukit Timah, Ang Mo Kio, Chua Chu Kang.
- Grewia umbellata* Roxb. A stout climber with white flowers. Common, Tanglin, Galang, etc.

*G. fibrocarpa* Mast. Small tree with orange fruits. Rare, Cluny Road

*G. latifolia* Mast. A large shrub with orange pear-shaped fruits about an inch long, and pleasantly flavoured. Flowers yellow. Tanglin, Bukit Timah, Chan Chu Kang.

The absence of the common peninsular shrub *G. paniculata* Roxb. is very remarkable.

*Triumfetta rhomboidea* Jacq. A common weed with small yellow flowers and prickly fruit. Waste ground, Tanglin, Changi, etc.

*T. pilosa* Roth. Singapore (King) not seen.

(*Corchorus capsularis* L. "Jute." Bukit Timah (Dr. King).

*C. acutangulus* Lam. Weed with yellow flowers, rare. Chan Chu Kang.

*Echinocarpus* sp. Tree with white flowers in axillary panicles. Very rare, Kranji (No. 6174).

*Elaeocarpus*. Trees with white flowers, often showy, and blue or green drupes. "Mendong."

*E. ganitrus* Roxb. Cultivated only. The globose oily blue fruits contain a hard tubercled seed much in request by Tamils as a bead. It is usually 5 grooved, but very rarely a 6 grooved one is found, which commands as high a price as 5 dollars.

*E. parvifolius* Wall. Common, Tanglin, Changi, etc.

*E. stipularis* Bl. Very common, Tanglin, etc.

*E. salicifolius* King. "Juruong Padi." Not common, Bukit Timah, Selitar.

*E. paniculatus* Wall. Common, Kranji, Bukit Mandai, Selitar.

*E. petiolatus* Wall. Common, Tanglin, Selitar, Changi.

*E. Griffithii* Mast. Common, Tanglin, Selitar.

- E. Hullettii* King. Not common, Bukit Timah, Bukit Mandai.  
*E. pedunculatus* Wall. Sea shores, Loyang, Toas, Jurong, Pulau Tekong.  
*E. apiculatus* Mast. Rare. Bukit Timah Road.  
*E. polystachyus* Wall. "Jurunong Babi." Flowers buff, common in woods, Bukit Timah, Jurong, Teban, Changi.  
*E. Jackianus* Wall. Not rare, Tanglin, Selitar, Bukit Mandai.  
*E. Masterii* King. Common, Tanglin, Bukit Timah, Kranji, Changi.  
*E. sp. near E. polystachyus.* Rare, Bukit Timah (1919, 3611)

## LINEE.

- Roucheria Griffithiana* Planch. Climber, with yellow flowers, and small red drupes. Common in thickets and woods. Tanglin, etc.  
*Erythroxylon burmanicum* Griff. A tree. Common near the sea.  
*Ixonanthes icosandra* Jack. "Pagar Anak." Tree. Common, Tanglin, etc.  
*I. reticulata* Jack. Less common, Woods, Garden Jungle, Bukit Timah, Bajau, Jurong.

## MALPIGHIACEE.

- Tristellateia australasica* Rich. A slender climber, flowers yellow. Common by tidal rivers, and often cultivated. Toas, Kranji, Changi, Pulau Ubin.  
*Hiptage sericea* Hook. fil. Scandent, but forming bushes in open sandy spots. Flowers pink and white. Rare, Changi, Bukit Mandai road.  
*Aspidopterys concava* Juss. Climber, Forests, Bukit Mandai, Chan Chu Kang.

## GERANIACEÆ.

- (*Ovalis corniculata* L. A garden weed, common.)  
 (*Acerrhoa Bilimbi* L. the Blimbing, and *A. Carambola* L. "Kembola," are cultivated.)  
*Commersonia macrophylla* King. Tree, flowers crimson. Not common, Selitar

## RUTACEÆ.

A number of these are cultivated, among which are Rue (*Ruta graveolens*) the Kamuning (*Murraya exotica*) of the ornamental wood of which the sheaths and handles of Krises are made, the Lime berry, "Limau Keah" (*Triphasia trifoliolata*), the pumelo (*Citrus decumanus* L), orange (*Citrus aurantium*), various Limes (*Citrus medica* L.)

- Erodia Roxburghiana* Benth. "Stenga burong." A shrub with white flowers. Common in open country, Tanglin, Bedoh, Kranji, Jurong, Bukit Timah.  
*E. glabra* Bl. A fine tree. Local, but not rare, Tanglin, Bukit Timah, Chan Chu Kang.  
*E. robusta* Hook. fil. A tall tree, very conspicuous in flower. Not rare, Reservoir, Toas, Bukit Mandai.  
*E. pedunculosa* Hook. fil.\* A very little known plant, said to have been collected in Singapore by Lobb.  
*Zanthoxylum ovalifolium* Wight. Wallich No. 7469, not seen.  
*Aeronychia Porteri* Hook. fil. A tree, usually small. Flowers and fruits green. Woods, common, Garden jungle, Bukit Timah, Changi, Jurong, Chan Chu Kang.  
*Glycosmis pentaphylla* Corr. Common in woods and forests, a large shrub, flowers and fruits white. Garden jungle, Bukit Timah, Kranji, Selitar, etc; a broad leaved form. A narrow leaved one occurs at Changi.  
*Micromelum hirsutum* Oliv. Wallich (No. 8156 c.) Not seen.  
*Clausena excavata* Burm. A small tree with white flowers,



strongly scented foliage and semitransparent pink fruits. Doubtfully wild. Open country, Tanglin, Pulau Ubin.

*Lurunga cleutheranthera* Dalz. Climber, very rarely flowering. Changi, Bukit Timah.

*Paramignya grandiflora* Oliver. Very rare, Changi (Hullett); also collected by Lobb.

*P. longispina* Hook. fil. "Liman Lelang." A thorny shrub with curious pear-shaped orange aromatic fruits used in native medicine. Near mangrove swamps, Kranji, Jurong.

## SIMARUBEÆ.

*Brucea sumatrana* Roxb. A shrub with aromatic foliage small purple flowers and black berries. Wallich (No. 8482). I have never seen this here, but on introducing some plants from Pahang, it established itself all about Tanglin, the seeds being borne about by birds.

*Eurycoma longifolia* Jack. "Bidara Pahit." An elegant shrub with a very bitter bark used in medicine against fever. Common in dry woods, especially near the sea. Tanglin, Changi, Bukit Timah, Blakang Mati, etc.

*Irringia Malayana* Oliver. "Pauh Kijang." A gigantic tree over 100 feet tall, with small green flowers, and fruit like mangoes, green with an orange pulp. Tanglin, Reservoir woods, Bajau, etc.

## OCHINACEÆ.

*Gomphia sumatrana* Jack. Tree, flowers yellow. Common, Bukit Timah, Kalang, Toas, Changi, Pulau Ubin.

*G. Hookeri* Planch. Flowers deep red. Less common, near the sea. Changi, Tanjong Gol, Bukit Timah.

*Tetramerista glabra* Miq. Wallich (No. 1055). Not seen.

*Euthemis leucocarpa* Jack. An under shrub, very elegant with white flowers, and rosy, scarlet or white berries. Common in sandy woods. Kranji, Changi.

*E. minor* Jack. Singapore, according to Jack. I have only found it at Pulau Battam, south of Singapore.

BI RSERACEÆ.

*Triomma malaccensis* Griff. A big tree exuding a very aromatic turpentine, fruit green three-winged, containing three oval flat-winged seeds. Not common, Garden Jungle, Bukit Timah.

*Canarium Planchoni* King. Not common, Bukit Mandai.

*C. grandiflorum* Benn. Flowers orange. Rare. Changi (Hullett), Bukit Mandai.

*C. pilosum* Benn. "Kedondon Krut." Not common, Changi.

*C. rufum* Benn. "Kedondon Bulan." A medium sized tree with creamy yellow flowers and large hard glaucous green fruits tasting of turpentine, with a triquetrous seed. Not rare, Tanglin, Selitar.

*C. purpurascens* Benn. Not common, Bukit Timah, Changi, Chan Chu Kang.

*C. Kadondon* Benn. "Tinou." Big tree, fruit erect pink. Garden jungle, Bukit Timah, Changi.

*C. secundum* Benn. Not common, Changi Road, Tanglin, Selitar.

*C. nitidum* Benn. Open woods, common, Changi Reservoir woods, Bukit Timah.

*Trigonochlamys Griffithii* Hook. fil. "Kumpas Ruman." Tanjong Gol. Kranji, Selitar.

*Santiria laxa* King. A large tree with a spreading head. Flowers in lax hanging hairy panicles deep red. Drupes plum-like rosy. A beautiful tree when in fruit. Garden jungle, Bukit Timah.

*S. laevigata* Bl. "Kerantei." A large tree, flowers green. Not rare, Selitar, Garden jungle, Bukit Mandai.

- S. apiculata* Benn. Flowers greenish white, fruits rosy. Bajau, Bukit Timah.
- S. multiflora* Benn. Not common, Selitar.

## MELIACEÆ.

- Sandoricum radiatum* King. "Kechapi." Cultivated for its fruit. Wild on Pulau Ubin in thick woods.
- S. indicum* Lam. "Sentol." Cultivated commonly.
- Chisocheton pauciflorus* King. Thick woods, not common, Bukit Timah.
- Ch. erythrocarpus* Hiern. Not common, Pulau Ubin.
- Ch. macrophyllus* King. Rare. A big tree, Pulau Ubin.
- Ch. patens* Bl. A big tree with long racemes of white flowers, very fœtid. Common, Garden jungle, Bidadari, Changi, Selitar.
- Dysoxylum acutangulum* Miq. A tree with large orange-colored pear-shaped fruits. Changi.
- D. costulatum* Miq. A large tree, flowers white. Not rare, Changi, Chan Chu Kang, Bukit Timah.
- D. macrothyrsum* Miq. Selitar.
- D. cauliflorum* Hiern. A medium sized tree with white flowers on the stem, scented of almonds, and red capsules, containing black seed with a red aril. Common in thick woods, Changi, Chan Chu Kang, Bukit Timah, Pulau Ubin.
- D. turbinatum* King. Rare, Bukit Timah (8108).
- Amoora Aphananivis* Schultes. Not rare, Toas, Bukit Mandai, Selitar.
- A. rubiginosa* Hiern. A superb tree, over 100 feet high, the leaves of a copper color beneath, flowers rose. Jungles, Chan Chu Kang.

- A. cucullata* Roxb. Tree, flowers yellow. Selitar (3778, 4575).  
*A. rubescens* Hiern. Singapore (Maingay), Selitar.  
 (*Aglia odorata* Lour. Cultivated for its sweet flowers.)  
*A. oligophylla* Miq. Singapore. Wallich (No. 4887). Not seen.  
*A. glabriflora* Hiern. Small tree, leaves deep shining green,  
 flowers and fruits white. Local. Garden Jungle, Changi.  
*A. odoratissima* Bl. Tree, flowers yellow. Not rare, Bukit Mandai.  
 Chan Chu Kang, Bukit Timah, Reservoir Woods.  
*A. cordata* Hiern. Rare, Selitar.  
*A. tenuiculis* Hiern. Singapore (Lobb), perhaps an error.  
*A. trichostemon* Dec. Rare. Garden Jungle.

(*Lansium domesticum* Jack. The Duku ; cultivated.)

*Carapa obovata* Bl. "Nireh." A big tree, with sweet white  
 flowers and large globular fruits, with corky seeds. The  
 bark is used in medicine for dysentery. Mangrove  
 swamps, very common, Kranji, Serangoon, etc.

#### CHAILETIACEÆ.

*Chailetia deflexifolia* Turcz. A climbing or scrambling shrub,  
 flowers white. Rare, Bajau.

#### OLACINEÆ.

*Ochanostachys amentacea* Oliver. "Petaling." A well known  
 timber tree with leaves like those of a beech-tree, small  
 spikes of green flowers, and green fruit with much white  
 milk. Common, Garden Jungle, Changi, Reservoir  
 woods.

*Strombosia rotundifolia* King. Woods, Bukit Timah, Garden  
 jungle, Bukit Mandai.

*Lepionurus sylvestris* Bl. A small shrub, Garden jungle, Bidadari.

*Ctenolophon parvifolius* Oliver. Rare, Garden jungle.

- Ximenia americana* L. "Bidara Laut." A spiny shrub with white flowers and orange eatable drupes. The wood is scented. Sea coasts, Changi, Pulau Selitar, Jurong, Pasir Panjang.
- Scorodocarpus borneensis* Becc. "Kulim" A large timber tree with white flowers, all parts having a strong smell of onions. Common, Garden jungle, Bukit Timah.
- Gomphandra penangiana* Wall. A shrub common in woods. Bukit Timah, Garden jungle, Tanjong Katong, Selitar.
- G. lanceolata* Kurz. Not common, Bukit Timah.
- Lasianthera secundiflora* Miq. A large tree, flowers white. Rare, Bukit Mandai, Selitar.
- Gonocaryum longeracemosum* King. "Toioh." A large straggling shrub, with pendulous racemes of purplish green flowers; fruits green. Woods, not rare. Tanglin, Changi.
- Phytocrene oblonga* Wall. A large woody climber with dense racemes of small grey flowers growing on the stem, fruit wedge-shaped brown covered with brown bristles and forming a ball as big as a man's head. The seeds are cuneate oblong and curiously reticulated. Rare, Bukit Timah.
- Ph. bracteata* Wall. Common, open woods, Tanglin, Tanjong Katong, Bukit Panjang.
- Iodes velutina* King. Climber. Rare, Bukit Timah Road.
- I. oblonga* Planch. Not rare, Bidadari, Chau Chu Kang, Garden jungle.
- Erythropalum scandens* Bl. A slender climber with inconspicuous green flowers, and very curious and ornamental fruit, which at first is an oval drupe, but when ripe the husk becomes bright red and splits into 4 lobes, which recurve and expose a deep blue seed in the centre. Not common, woods, Bukit Mandai, Reservoir woods, Garden jungle.
- Pteleocarpa malaccensis* Oliver. A fair sized tree, flowers yellow, fruit round thin, winged. Rare, Changi woods.

## ILICINEÆ.

- Il. cymosa* Bl. A small or medium sized tree with very white bark, more rarely a bush. Flowers very small and green. "Timah-Timah" or "Titimah." Common in open country, Tanglin, Changi, Chan Chu Kang.
- I. macrophylla* Wall. Usually a smaller plant with larger leaves. Common, Garden jungle, Ang Mo Kio, Changi, Kranji.

## CELASTRINEÆ.

- Euonymus javanicus* Bl. A large shrub. Woods, rare, Kranji, Sumbawang.
- Glyptopetalum quadrangulare* Prain. Not common, Changi beach, Chan Chu Kang.
- Kokoona littoralis* Laws. Singapore (Lobb). Not seen.
- Lophopetalum fimbriatum* Wight. "Krabu." A tree with yellow petals and the central disc purple. Rare, Bukit Mandai, Changi.
- L. Curtisii* King. A gigantic tree, rare. Bukit Mandai, Chua Chu Kang.
- L. fuscescens* Kurz.\* Singapore. (Anderson.) Not seen.
- Kurrimia pulcherrima* Wall. A tall tree with small red flowers. Not common, Bukit Mandai, Gardens.
- K. paniculata* Wall. A large handsome tree with dark green leaves and panicles of small green flowers, with an unpleasant smell. Much frequented by flies. Fruit a heart-shaped red capsule. Common in dry woods, Tanglin, Chan Chu Kang, Bukit Mandai, etc.
- Hippocratea indica* L. A climber with very small white flowers. Local in sandy spots, Changi, Pulau Ubin.
- II. Cumingi* Laws. "Akar Bintang." Climber, flowers yellow. Sea coasts, Sungei Pandan, Kranji, Selitar.

*Salacia grandiflora* Kurz. "Ampedal Ayam." A shrub half scandent, gnarled, with black stems, small pearly flowers, and eatable orange coloured fruits. Woods and open country, Bukit Timah, Pulau Ubin, Changi, Toas.

Var. *longifolia*, Changi.

*S. latifolia* Wall. Singapore (Wallich No. 4222). Not seen.

*S. prinoides* De C. A slender climber (a large straggling shrub according to King), with very small brown flowers and small globular orange fruits. Not common. Garden jungle, Bukit Timah Road, Pulau Ubin.

*S. flavescens* Kurz. A climber with yellow or reddish flowers. Not common, Bukit Timah, Tanglin, Changi.

*S. longiflora* Hook. Half scandent shrub with buff flowers. Changi, rare.

*S. sp. near flavescens.* Rare, Changi (4785).

*S. Lobbii* Laws.\* "Singapore Lobb." Not seen, very imperfectly known.

*Celastrus Championi* Benth. var? Sungei Loyang.

## RHAMN.E.E.

*Ventilago leiocarpa* Benth. A slender much branched climber with small green flowers, and small round fruit with a long narrow wing. Common, Garden jungle, Bukit Timah, Pulau Ubin.

*V. madraspatana* Gaertn. Rare. Bukit Mandai.

*Zizyphus ornoplia* Mill. A scandent thorny bush. Not common. Orchard Road.

*Z. elegans* Wall. (Wallich No. 4233). Not seen.

*Z. calophylla* Wall. A large climber very thorny dark green polished leaves, small white flowers and orange globose eatable fruit. Very common, Garden jungle, Bukit Timah, Selitar, etc.

Var. with small leaves, and smaller fruits. Selitar.

*Z. Horsfieldi* Miq. Rare, Bukit Timah.

*Colubrina asiatica* Brongn. A shrub with green flowers. Sea coasts, Galang.

*Smythea reticulata* King. Climber. Not common, near the sea. Toas, Serangoon.

AMPELIDEÆ.

*Vitis macrostachya* Miq. Hedges, common, Tanglin, Bukit Timah, Jurong.

*V. gracilis* Wall. Very common, Changi, Reservoir, Tanglin, Selitar, etc.

*V. cinnamomea* Wall. Not very common, Chan Chu Kang, Reservoir, Bukit Mandai.

*V. polythyrsa* Miq. Rare, Changi.

*V. elegans* Kurz. Hedges and borders of woods. Very common, Tanglin, Jurong, etc.

*V. Lawsoni* King. A big climber with large yellow grapes quite eatable. Woods, Bukit Timah, Garden jungle.

(*V. quadrangularis* Wall. An odd four-angled stemmed vine, with very few leaves; not native, but cultivated here and there.)

*V. furcata* Laws. A long vine with flat stems 4 angled green with thick bands of brown cork along the edge, grapes black. Common in dense woods, Bukit Timah, Bukit Mandai, Tanglin, etc.

*V. repens* W. and Arn. Hedges, Fort Canning, Chan Chu Kang.

*V. cerasiformis* Teysm. Bukit Timah.

*V. glaberrima* Wall. A succulent vine with grey four angled stems and red tendrils, berries black. Very common in hedges. "Asam Riang". Tanglin, Changi, etc.



- V. mollissima* Wall. "Lakom Gajah." A hairy vine with trifoliolate leaves and large dirty white grapes. Common, Chuny Road, Sungei Buluh, Reservoir woods.
- V. trifolia* L. Very common, hedges, Reservoir, Race Course, Kalang Puding.
- V. Japonica* Thunb. "Singapore." Not recognised.
- V. novemfolia* Wall. A slender vine with large semitransparent pink grapes, quite uneatable. Common, Tanglin, Chua Chu Kang.
- V. sp.* Leaves simple, flowers very small green in axillary panicles, crowded at the ends of the branches. Rare, Selitar.
- Pterisanthes coriacea* Korth. A very slender vine remarkable for its long flattened crimson flower spikes 3 or 4 inches long one or 2 wide; female flowers small sunk in the spike, males on stalks along the edge, grapes black. Local in thick woods, Chan Chu Kang, Bukit Mandai, etc.
- Leea*. Large shrubs with green or red flowers in corymbs. "Malli-malli".
- L. sambucina* Willd. Six to ten feet tall, flowers greenish white. Very common in damp spots. Tanglin, Bukit Timah, Selitar.  
Var. *biserrata*. Chua Chu Kang.
- L. robusta* Roxb. Rare, Blakang Mati.
- L. rubra* Bl. A smaller plant with red flowers, very pretty. Tanglin, perhaps introduced.
- L. Javanica* Bl. Singapore (Schomburgk). Not seen.
- L. angulata* Korth. "Malli biduri." Passir Panjang.

## SAPINDACEÆ.

- Cardiospermum Halicacabum* L. the Balloon vine, is cultivated by the Chinese as a vegetable, and occurs in waste ground. Pulau Ubin, Rochore.

- Allophy'us Cobbe* L. A sea shore shrub with white flowers and red berries. The var. *racemosa* is the only one here. Common, Kranji, Selitar, Jurong, Alexandra Road.
- Erioflossum edule* Bl. "Mertajam." A tree, with small black un pleasantly flavoured fruits. Common, especially near town. Government Hill, Pulau Ubin.
- Xerospermum muricatum* Radlk. "Rambutan Pachat." A small tree, flowers white; fruit yellow roughened outside, seed enclosed in eatable pulp. Common, Tanglin, Bukit Mandai, Bukit Arang.
- X. Wallichii* King. Singapore, Wallich (not seen).
- Nephelium lappaceum* L. "Rambutan." *N. Longana* Camb.; "Mata Kuching;" *N. chryseum* Bl. "Pulassan," are cultivated.
- N. glabrum* Noronha. "Redan." Fruits warted red, acid. Tanglin, Chan Chu Kang, Toas.
- N. rufescens* Hiern. Chan Chu Kang.
- N. eriopetalum* Miq. A beautiful tree with white flowers in hanging spikes, and scarlet fruit like rambutans. "Sunggol Lotong." Bukit Timah, Garden Jungle.
- Pometia gracilis* King. Woods, Bukit Timah.
- P. alnifolia* Radlk. Chan Chu Kang, Bukit Mandai.
- Guioa pleuropteris* Radl. Tree, flowers white. "Simpayan Ular." Common, Bentley's hill (Hullett), Bukit Timah, Selitar.
- G. squamosa* Radl. Bukit Timah, Selitar.
- G. pubescens* Radl. Very common everywhere.
- Trigonachras acuta* Radl. Rare, Bukit Timah.
- Argyrea littoralis* Bl. var. *Major*. A shrub or small tree. Sea-coasts, Chua Chu Kang.

- Mischocarpus fuscescens* Bl. Bukit Panjang, Pulau Ubin.  
*M. sundanicus* Bl. Tampenis, Serangoon, Changi.  
*Paranephelium macrophyllum* King. Very large tree, with pink flowers, fruit woody covered with processes, brown dehiscent. Bukit Timah.  
*Turpinia pomifera* De C. "Geritta." Medium sized tree, flowers and fruits green. Woods, Bukit Timah, Tanglin, Bukit Mandai.

## SABIACEÆ.

- Meliosma elliptica* Hook. fil. Tree, rare. Chan Chu Kang.  
*M. lanceolata* Bl. Small tree, not rare. Chan Chu Kang, Jurong, Bukit Mandai  
*M. Ridleyi* King. Common, Garden jungle, Bukit Timah. It also occurs in Johore, near Castlewood.

## ANACARDIACEÆ.

- Buchanania florida* Schauwer var. *lucida*. "Otak Hudang." Tree with white flowers. Common in open country and low woods, Tanglin, Changi, Kranji. Var. *petiolaris* not common, Selitar.  
*B. sessilifolia* Bl. Common, Chan Chu Kang, Jurong, Tampenis  
*Bouea burmanica* Griff. "Ruminiya." A big tree with small acid orange mangos, common, wild and cultivated.  
(*B. macrophylla* Griff. "Kedondong." Cultivated as a fruit tree.)  
*Mangifera sclerophylla* Hook. fil. A gigantic tree. Rare, Bukit Timah, Changi.  
*M. odorata* Griff. "Kohini." Bukit Timah, Toas; perhaps only cultivated.  
(*M. foetida* Lour. "Bachang." Cultivated.)  
*M. lagenifera* Griff. "Lanjoot." A magnificent tree, with purple

flowers and large grey pear shaped mangoes, very unpleasant to eat. Jurong, Blakang Mati, etc. Cultivated.

*M. kemanga* Bl. "Kemang." Probably only cultivated, rare.

*M. indica* L. "Mango." Cultivated.

*Anacardium occidentale* L. Cashew. "Gajus." Cultivated and often established. Common near the sea.

*Melanorrhœa Maingayi* Hook. fil. "Rengas Manau." A big tree with white flowers, and red 5-winged fruit. A well known timber. Common, Bukit Timah, Changi, Kranji, Selitar.

*Parishia pubescens* Hook. fil. A lofty tree, 150 feet tall, flowering before the leaves come out, flowers white. Very rare, Dalvey Road.

*P. paucijuga* Engler. Rare, Bukit Timah.

*P. Maingayi* Hook. fil. Garden jungle.

*Camposperma Grijithii* Hook. fil. "Teruntang." A large tree, with big leaves especially when young. Common, Bukit Timah.

*C. auriculata* Hook. fil. Common in woods. Tanglin, Bukit Timah, Selitar, Teban.

*C. Wallichii* King. Dalvey Road, Bukit Mandai, Toas.

*Melanochyla auriculata* Hook. fil. A big tree, with very large stiff leaves and panicles of green flowers fertilized in the evening by brown cockchafers. Wet jungles, Chan Chu Kang.

*Dracontomelum mangiferum* Bl. Rare, Chua Chu Kang.

#### CONNARACEÆ.

*Connarus ferrugineus* Jack. A scandent shrub. Not common, Bukit Mandai.

- C. semidecandrus* Jack. A half scandent bush with lilac flowers, and red pods containing one black seed with a red aril. Dry open country, Toas, Changi, Selitar, Bukit Mandai.
- C. oligophyllus* Wall. Bukit Mandai, Changi.
- C. grandis* Jack. Local. Changi, Pulau Ubin.
- C. ellipticus* King. Bukit Mandai.
- Ellipanthus Griffithii* Hook. fil. A tree with small white flowers. Garden jungle.
- Rourea acuminata* Hook. fil. Singapore, Wallich (8533). Not seen.
- R. pulchella* Planch. Lofty climber. Garden jungle, Changi.
- R. rugosa* Planch. "Semilat putih." Common, Changi Road, Selitar.
- R. parallela* Planch. Sungei Buluh, Changi, Kranji.
- R. fulgens* Planch. "Semilat." A tall slender climber with pink and white flowers. The young leaves of a beautiful pink, whence the specific name. A very beautiful plant. The bark is used by natives for colic. Very common, Tanglin, Bukit Timah, Teban.
- R. concolor* Bl. Not rare. Teban, Reservoir Woods, Chan Chu Kang.
- Agelæa vestita* Hook. fil. "Akar Kachang-kachang." A climber with small pinkish flowers and red velvety pods. Common in forests, Tanglin, Sumbawang, Bukit Timah, Changi.
- A. Wallichii* Hook. fil. "Akar Kachang jantan." Changi.
- A. Hullettii* King. Local, Changi.
- Cnestis ramiflora* Griff. A climber with brilliant pink shoots, white flowers, and large pear-shaped red fruits. Common in dry woods and open country. Tanglin, Changi, Tanjong Penjuru.

## LEGUMINOSÆ.

- Abrus precatorius* L. A slender climber with pale lilac flowers and red and black seeds. A variety with white seeds occurs and is highly prized by the natives as a medicine. Sea shores, Changi.
- Crotalaria alata* Ham. "Kachang Hantu Darat." A herb with yellow flowers. Local waste ground, Tanglin, Changi, Jurong, Ang Mo Kio.
- C. retusa* L. A glaucous herb with showy orange yellow flowers. Sandy shores, Changi.
- C. Saltiana* And. A common weed in waste ground, and sandy places, yellow flowers. Changi, Galang, etc.
- C. quinquefolia* L. Rare, Kranji.
- C. incana* L. Flowers yellow. Sea shore, Tanah Merah.
- Flemingia strobilifera* Br. A shrub. Sea shores, not common, Changi, Blakang Mati.
- Vigna retusa* Walp. A small yellow vetch. Sea shores, Changi, Blakang Mati.
- (*V. Catiang* End. "Kachang Perut Ayam." Cultivated.)
- (*Pachyrrhizus angulatus* Rich. "Bengkuang." "Sengkuang." The yam bean is cultivated.)
- (*Dolichos Lablab* L. "Karkaras". Flowers blue or white, cultivated.)
- Psophocarpus tetragonolobus* De C. "Kachang Botor." Cultivated.)
- (*Clitorea Ternatea* L. Cultivated.)
- C. cajanifolia* Benth. A shrub with large lilac white flowers, naturalised from Brazil, round Tanglin, etc. Very common.
- Centrosema Plumieri* Benth. The "Butterfly pea," climber, flowers white with dark crimson centre. Naturalised in hedges near town.

(*Canavalia ensiformis* De C. "Kachang Parang." Cultivated.)

*C. lineata* De C. A creeping bean with pink flowers sweet-scented, beans eatable. Sea shores, common, Changi, Blakang Mati.

*C. obtusifolia* De C. A climber on bushes, flowers pink. Beans said to be poisonous. Sea shores, Toas, Changi.

*Mucuna gigantea* De C. Climber, flowers greenish white. Not common, Blakang Mati.

*M. biplicata* Teysm. Flowers purple. Chan Chu Kang.

(*Erythrina stricta* and *E. lithosperma* Miq. are planted here and there, but not wild.)

*Spatholobus ferrugineus* Benth. "Akar Sejangat." A big liana, one of the best of the water vines, climbing to the tops of the highest trees, flowers deep purplish small. Common, Tanglin, Chan Chu Kang, etc.

*S. Maingayi* Prain. Flowers rosy. Woods, Bukit Timah, Garden jungle.

*S. Ridleyi* Prain. \* Big climber, flowers white. Gardens, Chan Chu Kang.

*Indigofera hirsuta* L. Sea shore, Teluk Kurau.

*Sesbania paludosa* Roxb. Rare, Marsh near Kranji.

(*S. grandiflora* Pers. Tree with large white or pink flowers. Cultivated for its flowers, and for the leaves eaten as a vegetable.)

(*Tephrosia candida* De C. given for Singapore in the "Materials," is only a garden plant.)

*T. Hookeriana* W. & A. Waste ground, Bidadari, probably an escape.

*Millettia eriantha* Benth. A lofty climber with coppery red flowers with a greenish yellow centre to the standard, outside covered with golden fur. Not very common, Bukit Mandai, Garden jungle.

- M. Maingayi* Bak. A big climber with large hanging panicles of pink flowers deliciously scented. Pods oblong woody, about 4 inches long, one seeded, wrinkled and covered with fine grey fur. Not common, Tanglin, Chan Chu Kang, Reservoir woods.
- M. atropurpurea* Benth, is probably not wild here. A fine tree occurs in a garden in Paterson Road.
- Pongamia glabra* Vent. "Malapari." A tree with pink flowers. Common on the sea coasts. Changi, Siglap, Jurong, Pulau Ubin.
- Derris sinuata* Thw. Woody climber, flowers green and white. Tidal rivers, Pulau Ubin.
- D. thyrsiflora* Benth. Scandent bush, flowers in dense erect panicles, white, pods long and thin, reddish when white. Very common in open country, Tanglin, Changi, etc.
- D. uliginosa* Benth. "Akar Ketuil". Scandent shrub, flowers pink. Common on sea coasts and by tidal rivers Rivers Valley Road, Changi, Pulau Ubin, Kranji, Bajau.
- D. scandens* Benth. Flowers white. Pulau Merambong.
- D. amœna* Benth. Climber, flowers pink. Not common, Garden Jungle.
- (*D. elliptica* Benth. "Tuba." Often cultivated for killing insects on vegetables, and catching fish).
- D. Malaccensis* Prain. Flowers pink. Jurong, Selitar.
- D. oblonga*. Benth. Flowers dark pink. Changi (No. 6086).
- D. sp.* with very velvety leaves. Rare, Chan Chu Kang, Changi (6087).
- Kunstleria Ridleyi* Prain.\* Big climber, flowers small purple almost black. Woods, common but rarely flowering. Garden jungle, Selitar.
- Dalbergia Junghuhnii*. Benth. A woody climber with small



greenish white flowers. Woods common, Tanglin, Changi, Pulau Ubin, Sumbawang.

Var. *Scortechinii*. Bukit Timah (6406).

*D. velutina* Benth. Rare, Changi.

*D. pseudosissoo* Miq. Climber, flowers white. Common, Garden jungle, Bukit Mandai, Changi, Selitar, Bajau.

*D. Hullettii* Prain. Flowers white produced when the leaves are fallen. Rare, Thomson Road, Selitar.

*D. torta* Grah. Climber, flowers white. Mangroves and sea shores. Common, Pulau Ubin, Krauji, Pulau Damar.

*Pterocarpus indicus* Willd. The Angsana, or Sena, planted only.

*Zornia diphylla* Pers. Prostrate herb, flowers yellow. Sandy places, Galang, Changi.

*Uraria crinita* Desv. Small shrubby plant with a tall spike of blue flowers, very beautiful; on banks sporadically. Orchard Road, Scott's Road.

*Alysicarpus vaginalis* Miq. A slender herb, flowers black purple. Changi, Teluk Kurau.

Var. *nummularifolia* Pulau Ubin (Kunstler).

*Æschynomene indica* L. Shrubby weed, Galang.

*Desmodium triflorum* De C. Prostrate herb in grass, flowers pink. Common, Tanglin, Changi.

*D. heterophyllum* De C. Common over the whole island.

*D. umbellatum* De C. A big shrub, flowers white. Sea coasts all round the island.

*D. polycarpum* De C. A shrubby plant with erect racemes of deep crimson, or rarely white flowers. Common in open country, Tanglin, Changi, Selitar, etc.

Var. *ovalifolia*. Rare, Ang Mo Kio.

- Ormosia macrolysea* Bak. A big tree, flowers pink, pod round and flat reddish pink with a large scarlet and black seed. Rare, one tree in Cluny Road.
- O. parvifolia* Bak. Not a very large tree, leaves small deep green, flowers white, pod round, seed red. Not rare. Blakang Mati, Changi, Pasir Panjang, Reservoir.
- O. microsperma* Bak. Var. *Ridleyi*. Tree about 50 feet tall, flowers white. Rare, Selitar, Tanglin.
- Cassia obtusifolia* L. A common weed with yellow flowers. Waste ground, Tanglin, Galang.
- C. hirsuta* L. A hairy weed with yellow flowers. Common, Tanglin, etc.
- C. occidentalis* L. A common weed.
- C. alata* L. "Gelenggang, Daun Kurap." Shrub with showy yellow flowers. Common round villages.
- C. siamea* Lam. Tree, yellow flowers. Occurs near Tanglin, but doubtfully wild in Singapore.
- C. Leschenaultiana* De C. A pretty shrublet with yellow flowers. Common round Tanglin, Bukit Mandai.
- Kumpassia malaccensis* Maing. "Kumpas." A gigantic tree with hard red wood. Common all over Singapore.
- Dialium laurinum* Bak. Kranji, Bukit Timah.
- D. Maingayi* Bak. Bukit Timah.
- D. Wallichii* Prain. Common, Garden jungle, etc.
- The *Dialiums* are big trees, which supply the well known timber "Kranji." The fruit, a velvety black pod filled with a sweet pith enclosing a single seed, is eaten by natives and sold in the shops.
- Bauhinia purpurea* L. is quoted in books for Singapore, but is only in cultivation.

- B. semibifida* Roxb. Climber with white flowers. Common, Bukit Timah, Bukit Mandai, etc.
- Cynometra cauliflora* L. "Nam-nam." Cultivated
- C. ramiflora* L. var *heterophylla*. Shrub. Rare, river banks, Sungei Jurong.
- Sindora Wallichiana* Benth. "Saputi." A very fine tree, with green flowers. The calyx is covered with soft processes, not firm prickles as has been described. The flowers are fertilized by flies, which visit them in such quantity that I have heard the roar of their wings from the base of a very lofty tree, when in flower. The pods are flat, usually one seeded and covered with prickles which exude a gum. Garden jungle, Changi, Dalvey Road.
- S. intermedia* Bak. Changi, Blakang Mati.
- Azelia retusa* Kurz. A small tree, flowers white; sea coasts, common, Bajau, Changi, Pulau Ubin. Selitar, Serangoon.
- Peltophorum ferrugineum* Benth. "Batai." A handsome tree with yellow flowers. Rare, Changi.
- Cesalpinia nuga* Ait. Thorny climber, flowers yellow. Sea shores Changi, Selitar.
- C. tortuosa* Roxb. Rare, Selitar.
- Mezoneuron sumatranum* W. and Arn. A very thorny climber with erect racemes of tubular flame-coloured flowers and thin flat pods bright red. Either in fruit or flower, this is a most beautiful plant. Not very common. Along the Bukit Timah Road. Sungei Jurong.
- Parkia speciosa* Hassk. "Petai." A tree with pear-shaped heads of small yellowish flowers on long hanging peduncles, and flat green pods, eaten by the Malays. Common wild and also planted. Bukit Timah, Bajau, Changi, Selitar, etc.
- Entada spiralis* Ridl. Woody climber with curious curled pods and very large brown subtriangular seeds. Common all over Singapore.

- Adenanthera pavonina* L. "Saga." Commonly planted and perhaps wild.
- A. bicolor* Moon. A more compact tree than "Saga," the seeds half red and half black. Bukit Timah, Bukit Mandai, Bedoh, Pasir Panjang, etc.
- Neptunia oleracea* Lour. The water-sensitive plant, a floating plant with bright yellow flowers. Cultivated as a vegetable and formerly very abundant in Singapore, now rather uncommon.
- Xylia dolabriformis* Benth. "Singapore Wallich No. 5279." This has never again been found in the peninsula, and is probably wrongly localised.
- Leucerna glauca* Benth. Occurs near villages, doubtless planted.
- Mimosa pudica* L. The sensitive plant, is a well known pest over the whole island.
- M. sepium* Benth. An introduced shrub very common along the Bukit Timah Road, Dalvey Road, and near the Reservoir.
- Aecia pseudo-intsia* Miq. A scrambling thorny shrub. Not rare, Bukit Mandai, Changi, Toas, Chan Chu Kang.
- A. pennata* Willd. A thorny climber, climbing very high. Tanglin, hedges and thickets.
- Serianthes grandiflora* Benth. Singapore (Wallich). Not seen.
- Albizia littoralis* Teysm. A tree with pink heads of flowers. Rare, Pulau Ubin.
- A. pedicellata* Bak. Rare, Kranji Road.
- A. lucida* Benth. Singapore *file* Baker, possibly from a cultivated specimen.
- A. odoratissima* Benth. *A. Lebbeek* Benth. *A. moluccana*, some-

times planted, establish themselves in many places.

- Pithecolobium dulce* Benth. Cultivated only.
- P. confertum* Benth. A tree, rare, Bedoh, Selitar.
- P. bubalinum* Benth. Rather rare, Tanglin.
- P. lobatum* Benth. "Jering." Tree with foetid pods, very popular with Malays. Common over the whole island.
- P. microcarpum* Benth. A common little tree with white flowers and bright orange curly pods, very pretty when in fruit. Tanglin, Chan Chu Kang, Bukit Timah, etc.
- P. ellipticum* Hassk. "Jering hutan." A large tree with big curled orange pods from which when ripe hang black seeds covered with a grey bloom. Not rare, Selitar, Pulau Ubin.
- P. contortum* Mart. Common, Tanglin, Changi, Selitar, etc.
- P. clypearia* Benth. Common, Selitar, etc.
- P. angulatum* Benth. Very common in open country, woods, etc. Tanglin, Changi, Chan Chu Kang, etc.

## ROSACEÆ.

- Parinarium costatum* Bl. A big tree with white flowers and hard brown drupes with white dots. Rare, Chan Chu Kang.
- P. oblongifolium* Hook. fil. "Balau." A well known timber tree of great size with large leaves white beneath. Rare, Bukit Timah, Bukit Mandai.
- P. Griffithianum* Benth. A big tree with deep green leaves, corymbs of white flowers and yellow plum-like fruits. Local, Fort Canning, Changi.
- P. nitidum* Hook. fil. "Kelat Layu hutan." A medium sized tree with very small red eatable plums. Bukit Mandai, Chan Chu Kang.

*Parastemon urophyllum* De C. Sandy places near the sea, Changi, Chan Chu Kang.

*Pygeum Maingayi* Hook. fil. Tree with white flowers clustered on the branches. Not common, Cluny Road.

*P. lanceolatum* Hook. fil. "Singapore Lobb." Doubtless an error for Penang.

*P. polystachyum* Hook. fil. A fair sized tree, flowers whitish, scent of almonds. Common, Tanglin, Bukit Timah.

*P. persimile* Kurz. Rare, Kranji Road.

*Rubus Moluccanus* L. The common wild raspberry, fruit red small and very poor. Thickets over the whole island, very common.

*R. glomeratus* Bl. I doubt this than a variety, it has a longer terminal panicle and more entire leaves, and usually replaces typical *R. Moluccanus* in the hills; I have gathered it however in Jurong.

## SAXIFRAGACEÆ.

*Polyosma fragrans* Benn. Wallich No. 8472. Not seen.

*P. Ridleyi* King. \* Tree with white flowers. Rare, Selitar.

## RHIZOPHOREÆ.

*Rhizophora mucronata* Lam. "Belukup." A common mangrove used for firewood. All mangrove swamps. Jurong, Bajau, Changi.

*R. conjugata* L. "Akit." Common, Bajau, Jurong, Selitar.

*Ceriops Candolleana* Arn. "Tengah." Common. Bark used in dyeing either a red brown when used alone, or purple or black in combination with Indigo.

*Bruquiera eriopetala* W. and A. Common, Bakau, Kranji, Jurong.

*B. gymnorhiza* Lam. Common, Jurong, Changi, Sungei Miora.

- B. curyophylloides* Bl. "Bakau Putih." Very common, River Valley Road, Selitar, Serangoon, Jurong, Pulau Ubin.
- B. parviflora* W. & A. "Lenggadi." Common, Serangoon, Jurong.
- Carallia Scortechinii* King. Tree, rare, Changi.
- Pellacalyx axillaris* Korth. Tree, common in secondary growth. Bukit Timah, Tanglin, Chan Chu Kang.
- P. Saccardianus* Scort. Tree. Common in woods, Bukit Timah.
- Gynotroches axillaris* Miq. "Mata Keli." Tree with whorls of small greenish flowers, and very small red or black berries; very common in secondary jungle and woods, all over the whole island.
- Anisophyllea disticha* Baill. An elegant shrub with pendulous branches and distichous leaves. Common in woods, Tanglin, Changi, Selitar, etc.
- A. Griffithii* Oliver. Rare, Chan Chu Kang.

## COMBRETACEÆ.

- Terminalia phellocarpa* King. "Mampelam Babi." A tree with small white flowers and large green fruit. Not rare in damp spots in woods, Bukit Mandai, Holland road, Bukit Panjang, Chan Chu Kang.
- T. Catappa* L. "Ketapang." Common along the coasts, and often planted along road sides.
- T. subspatulata* King. A very large tree with winged fruits. Near the Garden jungle, Bukit Timah Road.
- Calycopteris floribunda* Lam. "Singapore Lobb." Doubtless an error for Penang.
- Lumnitzera coccinea* W. & A. Tree with panicles of scarlet flowers. Common near the sea. Bajau, Serangoon, etc.
- L. racemosa* Willd. Flowers white, Jurong.

*Combretum trifoliatum* Vent. I have found fruits of this floating in the sea near Singapore.

*C. sundaicum* Miq. Climber, flowers green, Changi, Chan Chu Kang.

*Illigera appendiculata* Bl. Climber, rare, Bukit Timah.

#### MYRTACEÆ.

*Melaleuca leucadendron* L. "Gelam." Wild at Tanah Merah, near Changi. Kampong Gelam may perhaps take its name from trees formerly growing here.

*Tristania Whitiana* Griff. in Cantor's Plants. Journ. As. Soc. Bengal xxiii. p. 623. *T. Wightiana* Griff. Mss according to Flor. Brit. India, but Griffith named it after a clergyman of the name of White. "Pulawan." A tree 40 feet tall with red bark which flakes off and lies in piles at the foot of the tree: flowers white, fœtid. Sandy spots near the sea, Bajau, Pulau Ubin.

*T.* sp. flowers small white, leaves more coriaceous. Woods, Bukit Timah, Bukit Mandai.

*T. Merguensis* Griff. Sungei Morai.

(*T. rufescens* Pierre. A shrub much resembling *Sideroxylon ferrugineum*, apparently this Cochin Chinese plant occurs on cliffs of the island Pulau Battam, South of Singapore.)

*Rhodamnia trinerva* Bl. A medium-sized tree with white flowers, often as white as Hawthorn when in flower; berries red turning black. Very common all over Singapore. The var. *concolor* with leaves green on both surfaces grows in shady places; var. *spectabilis* with the backs of the leaves silvery is common in open country, but the two varieties pass into each other and are often indistinguishable.

*Rhodomyrtus tomentosa* Wight. "Kamunting." A bush with rosy or white flowers, fruits plum-colored, eatable. Abundant in sandy spots. Mt. Faber, Blakang Mati, Changi.



*Decaspermum paniculatum* Kurz. A shrub or small tree, flowers white. Common in thickets and woods. Bukit Timah, Bukit Mandai, Jurong, Chan Chu Kang.

*Eugenia*. This genus of trees, probably the largest one known, is a very difficult one, and the identification of many of the species in this list must be somewhat doubtful at present. All in Singapore are trees of no very great size, with white, pink or rarely green flowers. Those with large flowers and fruits are usually known as Jambu, by the Malays, those with smaller flowers, as Kelat.

(*E.* (Sect. *Jambosa*) *Malaccensis* L. "Jambu Bol." Flowers large brilliant pink, fruit large white or pink, eatable. Cultivated.)

(*E. aquea* Burm. "Jambu Ayer Mawar." Flowers white, fruit semitransparent rose or white, eaten. Cultivated.)

(*E. Jambos* L. Flowers white. Cultivated.)

*E. densiflora* De C. Flowers pink, fruit globular pinkish, not rare, Changi, Siglap, Bukit Mandai, Bukit Timah road.

*E. grandis* Wight. "Jambu Ayer Laut." "Krian." Common on the sea coast and planted along the roads. A big tree flowers white. Wild, at Bajau, Changi.

*E. lepidocarpa* Wight. "Samak Tebrau." Big tree, flowers white; bark used for tanning nets. Common on the sea coast and inland. Tanglin, Bajau, Kranji, Changi.

*E. filiformis* Wall. "Kelat Lapis." Small tree with small white flowers on long pedicels, common in woods. Garden Jungle, Changi, Selitar, Tanjong Gol.

*E. inophylla* Roxb. "Samak Paya." Chan Chu Kang.

*E. pendens* Duthie. Dense woods, Bukit Timah.

*E. Helferi* Duthie. "Singapore Lobb." Not seen; probably from Penang.

*E. (Syzgium) cymosa* Lam. "Kelat Merah." Small tree, flowers

- white. Bentley's Hill (Hullett), Changi, Teban, Pulau Tekong.
- E. myrtifolia* Roxb. River banks and near the sea. Sungei Morai, Selitar, Sungei Jurong.
- E. acuminatissima* Kurz. A big tree, flowers white, fruit purple. Garden Jungle, Jurong.
- E. claviflora* Roxb. and *E. leptantha* Wight. "Singapore and Penang, Wallich." Not seen; probably both from Penang.
- E. zeylanica* Wight. "Kelat Nasi-Nasi." Small tree, flowers and fruits white. Dry sandy spots, usually near the sea. Common, Tanglin, Changi, Toas, Kranji.
- E. chlorantha* Duthie. A very handsome tree with bright pink flowers. The name is a very unfortunate one, the petals are greenish white but very inconspicuous beside the brilliant red stamens. Cluny road, Bukit Timah, Tanjong Gol.
- E. lineata* Bl. One of our commonest trees in open country, flowers and fruits copious white. Tanglin, etc. whole island.
- E. pyriformis* Wall. Cluny road, Changi.
- E. Thurra* Roxb. Garden Jungle.
- E. scoparia* Wall. Singapore (Wallich 2594, not identified).
- E. venulosa* Wall. Not common, Tampenis, Bukit Mandai.
- E. oblongifolia* Duthie. Garden Jungle, Chan Chu Kang.
- E. subdecussata* Wall. "Samak Pulut." Garden jungle, Changi. Toas.
- E. oblata* Roxb. Chan Chu Kang.
- E. papillosa* Duthie. Big tree with red flaky bark. Wet jungles common, Cluny road, Bukit Timah, Bukit Mandai.
- E. bracteolata*. Garden Jungle.
- E. laevicaulis* Duthie. Pulau Ubin.

- E. anisosepala* Duthie. Shrub near sea shore. Pulau Ubin (Hullett).
- E. microcalyx* Duthie. Bukit Timah.
- E. Griffithii* Duthie. Woods, Changi, Selitar, Garden Jungle, Bukit Timah.
- E. nitida* Duthie. Small tree, flowers pink. Ang Mo Kio, Bukit Mandai, Bukit Timah.
- E. conglomerata* Duthie. Big tree. Garden Jungle.
- (*E. Jambolana* Lam. "Jiwat." Planted here and there )  
And a considerable number of undetermined species.
- Barringtonia speciosa* Forst. Sea coasts, Changi, Pulau Tekong, Beach road.
- B. incliyta* (Miers). "Putat." Sea shores, Kranji, Blakang Mati, Galang. This is certainly distinct from *B. racemosa* of the Bot. Mag. t. 3831, to which it is referred in the Flora of British India.
- B. conoidea* Griff. A large shrub, tidal rivers, Selitar.
- B. cylindrostachya* Griff. Shrub with very long racemes of pink on white flowers. Sandy woods. Toas, Changi, Pulau Tekong, Macpherson Road.
- B. pendulum* (Miers). Rare, Bajau.
- Careya* n. sp. A huge tree with large flowers, petals white, stamens white with pink bases. Leaves oblong obtuse coriaceous. Fruit like an apple with grey brown seeds and a strong coarse odour. Rare and seldom flowering. Garden Jungle.

## MELASTOMACEÆ.

- Melastoma polyanthum* Bl. "Senduduk." Singapore Rhododendron. A very common shrub, open country everywhere.
- M. molle* Wall. Singapore Wallich, No. 4046; otherwise only known from the Philippines.

- M. decemfidum* Jack. Singapore, Wallich. (Evidently an error for Penang.)
- Ochthocharis javanica* Bl. Shrub with pinkish flowers. Common in mangrove swamps. Kranji, Chan Chu Kang, Jurong, Pulau Ubin.
- O. borneensis* Cogn. Rare, tidal rivers, Selitar.
- O. paniculata* Korth. Singapore, Wallich, 4088. (Not seen).
- Sonerila heterophylla* Herb. Dense woods, Chan Chu Kang, Bukit Timah.
- S. moluccana* Roxb. Dense woods, Chan Chu Kang.
- S. obliqua* Korth. Herb, leaves dark green spotted with white when young, flowers rosy. Rocks and dead trees in forests. Common, Bukit Timah.
- Marumia rhodocarpa* Jack. A climber with large handsome flowers white with a purple eye. Common, Tanglin, Jurong, Bukit Timah, Choa Chu Kang, Selitar.
- Dissocharta punctulata* Hook. fil. Climber. Bukit Timah, Bukit Mandai, Selitar.
- D. pallida* Bl. Climber, flowers rose colored. Not common, Reservoir woods, Bukit Mandai.
- D. annulata* Hook. fil. Woods, Bukit Timah, Bukit Mandai, Selitar.
- D. gracilis* Bl. Slender climber, flowers white. Bukit Mandai, Bukit Timah, Pulau Ubin.
- D. celebica* Bl. Common, Bukit Timah, Reservoir woods, Selitar, Chan Chu Kang.
- D. intermedia* Bl. Rare, Bukit Mandai.
- Anplectrum glaucum* Triana. A fine climber with rosy flowers. Woods. Garden jungle, Bukit Timah, Reservoir, Selitar.
- A. annulata* Triana. Rare, Pulau Ubin.

*Medinilla Hasseltii* Bl. Epiphyte with pink flowers and scarlet berries. Common in mangroves and damp woods, Kranji, Bajau, Bukit Mandai, Choa Chu Kang.

*M. macrocarpa* Bl. Rare, Bukit Mandai.

*Medinillopsis sessiliflora* Cogn. Epiphyte, with waxy pink flowers. Mangrove swamps, common, Toas, Selitar, Kranji, Sungei Buloh.

*Pachycentria macrorrhiza* Becc. Epiphyte with swollen stem, flowers pink. Not rare, Selitar, Sungei Morai.

*P. glauca* Triana. Epiphytic, forming large tufts on trees in woods. Common, Bukit Timah road, Bukit Mandai, Kranji, Sungei Buloh, Choa, Chu Kang.

These two *Pachycentrias* are classed by Beccari as ant-plants (*Piante hospitatrici*), but the ants do not live in the swollen stems as suggested by him, the swollen portions being quite solid.

*Pogonantha reflexa* Bl. Epiphyte, more rarely terrestrial, usually near the sea, Kranji, Changi, Selitar, Toas, Bukit Timah.

(*Clidemia hirta* Don. A coarse weed, native of South America, has established itself in Tanglin, near Fort Canning and elsewhere.)

*Pternandra capitellata* Jack. Tree, flowers blue, not common, Toas, Selitar.

*Pt. corulescens* Jack. Common, Tanglin, Changi, Chan Chu Kang.

*Pt. paniculata* Benth. Rare, Chan Chu Kang.

*Kibessa echinata* Jack. "Sial Munahon." A common tree with pale violet fugacious flowers. Dry woods, whole island.

*K. acuminata* Dcne. Collected here by Walker and Maingay; not seen.

*Memecylon*. Trees with small blue or white flowers; a very difficult genus, as the species appear to run into each other.

- M. myrsinoides* Bl. Bukit Mandai.
- M. pauciflorum* Bl. "Singapore, Lobb." Not seen.
- M. levigatum* Bl. "Dulek." Common on the coasts, Kranji, Sungei Buluh, Bukit Mandai, Pulau Tekong.
- M. acuminatum* Bl. Thick woods, Bajau, Bukit Timah.
- M. grande* Retz. A very handsome plant, with panicles of blue flowers. Selitar, Garden jungle, Serapong, Pulau Merawan.
- M. heteropleurum* Bl. "Nipis Kulit." Garden Jungle, Changi, Bukit Mandai.
- M. amplexicaule* Roxb. Rare, Chan Chu Kang.
- M. sp.* Garden jungle (4436).
- M. sp.* Bukit Timah (6788).
- M. sp.* Leaves very narrow. Garden jungle (5753).
- M. sp.* Sungei Morai (3840).

## LYTHRACEÆ.

- Pemphis acidula* Forst. A bush with white flowers. Sea coasts, not common, Changi, Selitar.
- Lagerstroemia Flos-Reginæ* Retz. Given for Singapore in King's "Materials," is not wild here.
- Sonneratia*. Large sea-shore trees, often growing in the sea itself.
- S. acida* Linn. Leaves narrow, stamens red. Rare. Balestier plains, by streams.
- S. alba* Smith. "Berombong." Big tree, common, stamens white. Jurong, Changi.
- S. Griffithii* Kurz "Pedada." Toas, Changi, Jurong.

## ONAGRACEÆ.

Herbs or shrubs.

- Jussiaea repens* L. Floating in streams with swollen pithy floats  
Flowers white with a yellow centre. Tanglin.
- J. suffruticosa* L. Shrubby, about 5 feet tall with yellow flowers.  
Common, Serangoon, Kallang, Thomson Road.
- J. angustifolia* Lam. Herbaceous, about 2 feet tall, nearly glabrous.  
Common in wet spots.
- Ludwigia prostrata* Roxb. A small herb with small yellow  
flowers. Common in wet spots, Tanglin, etc.

## SAMYDACEÆ.

Trees or shrubs with usually very small inconspicuous flowers.

- Casearia Lobbiana* Turcz. A small shrub, not a tree as in  
King's "Materials," usually about 3 feet tall. Flowers  
minute green, capsule orange with red seeds. Common  
in woods all over Singapore.
- C. escu'enta* Roxb. Woods, Sembawang, Selitar.
- C. Clarkei* King. Rare, Chua Chu Kang.
- Osmelia Maingayi* King. Tree, not rare, Bukit Timah, Kranji,  
Bukit Mandai, Toas.
- Homalium grandiflorum* Benth. Tree, rare, Kranji.

## PASSIFLOREÆ.

- Modecca Singaporeana* Mast. Climber, flowers green, capsule  
red with black seeds in a white aril. Common, Tanglin,  
Bukit Timah, Bukit Mandai, Selitar, Pulau Tekong.
- M. populifolia* Bl. Less common, Bajau.
- Passiflora fetida* has established itself in waste ground near  
Tanglin and elsewhere, as have to a smaller extent *P.*  
*suberosa*, *P. minima*, and *P. quadrangularis*.

## CUCURBITACEÆ.

A good many of these are cultivated by the Chinese here, but very few are wild.

*Trichosanthes*. Slender climbing pumpkins with white fimbriate tubular flowers, opening about ten o'clock at night, and egg shaped crimson fruit yellow inside the flat seeds enclosed in a dark green slimy pulp. They are said to be poisonous, but are used by the natives in medicine, the pumpkin being squashed on the head to cure headache.

*T. Wallichiana* Wight. Very common in woods and hedges, all over Singapore.

*T. Wauraci* Cogn. Not rare, Tanglin.

*T. celebica* Cogn. Leaves deep green rather stiff and shining trifoliolate. The fruit much larger and cylindrical oblong. Tanglin, Choa Chu Kang.

Commonly cultivated and sometimes occurring in waste ground are *Lagenaria vulgaris* Ser. Bottlegourd; *Luffa ægyptiaca* Mill. "Petola;" *Momordica charantia* L; *Cucumis sativa* "Timon," cucumber: *Citrullus vulgaris* Schrad. Water melon; *Cucurbita moschata* Duch. *C. pepo* De C. "Labu," and *Benincasa cerifera* Savi. "Kundur."

## FICOIDEÆ.

*Sesuvium portulacastrum* L. Herb, flowers pink. Tidal mud, Changi, Tampenis road.

*Mollugo stricta* L. "Tapak Burong." A small weed with white flowers. Common, Tanglin, Changi.

## UMBELLIFERÆ.

This order, as elsewhere in the tropics, is very scantily represented. I have doubts as to any of the species being native.

*Hydrocotyle asiatica* L. "Pegaga." A very variable creeping herb, much in request as a salad and as medicine, it is regularly collected and sold in the herb shops. Very common over the whole island in grassy spots.



- H. rotundifolia* Roxb. A very small-leaved species. Occurs in flower beds in the botanic gardens as a weed.
- Eryngium fetidum* Jacq. A prickly herb with a nauseous odour. Eaten by Chinese. About villages, Changi, Choa Chu Kang, etc. A native of the West Indies.

## ARALIACEÆ.

- Aralidium pinnatifidum* Miq. "Tinggal Balai." A shrub or small tree with lobed or entire leaves, panicles of small green flowers and large drupes, at first white, when ripe black with an unpleasant soapy taste. Common, Bukit Timah, Jurong, Kranji.
- Heptapleurum arene* Seem. Epiphyte usually in mangrove swamps, the lower leaves are trifoliolate, the upper ones simple. Not common, Kranji, Selitar, Pulau Ubin.
- H. cephalotes* Clarke. A tree. On rocks, Bajau, Kranji, Pulau Ubin.
- H. subulatum* Seem. Epiphyte on trees in woods, not common, Chua Chu Kang.
- H. ellipticum* Seem. Epiphyte. Bukit Timah, Kranji.
- H. Ridleyi* King\* An epiphyte, or a shrub on rocks near the sea. Flowers yellow. Not rare, Kranji, Sungai Morai.
- H. Hullettii* King. A beautiful plant, with handsome foliage, digitate and deep green. Flowers pure white in long axillary panicles, fruit small purple. A tree, often epiphytic at first. Woods, Chan Chu Kang and Chua Chu Kang.
- Arthrophyllum diversifolium* Bl. "Jolok Hantu." A tree about 20 feet tall with green flowers and black fruit, very common all over Singapore in open country.

## CORNACEÆ.

- Marlea nobilis* C. B. Clarke. "Sutubal." Big tree. Rare, Bukit Timah.
- M. ebenacea* C. B. Clarke. "Lidah Kerbau" (Buffalo tongue.)

A very fine and large tree with white flowers. A good timber; the fruit is large and deep purple. Garden jungle.

*M. Griffithii* C. B. Clarke. Rare, Sungei Buluh.

*M.* sp. "Kayu Tas." Rare, Ponggol.

This tree is supposed to have remarkable powers in driving away tigers, and the Malays often wear bits of its wood to protect them from these animals.

*Mustiria Junghuhniana* C. B. Clarke. Garden jungle.

#### CAPRIFOLIACEÆ.

*Viburnum sambucinum* Reinw. A large bush with white flowers and red drupes. Rare, Road to Kranji near Bukit Mandai.

#### RUBIACEÆ.

*Sarcocephalus Junghuhni* Miq. "Chermin Ayer." A medium sized tree with balls of small yellowish white flowers and hard brown compact heads of fruits. The timber is of fair quality and used for posts. Woods, Tanglin, Siglap, Changi, Selitar.

*S. subditus* Miq. Rarer, Kranji.

*S. Maingayi* Hav. Bukit Timah Road.

*S.* sp. A big tree. Chan Chu Kang (6831).

*Adina rubescens* Hemst. "Berambong." A tall tree with good yellow timber, remarkable for the curious natural holes or depressions in the trunk. Common Tanglin, Bukit Timah.

*Uncaria*. "Akar Kait-Kait." There are a number of kinds of wild gambiers, all are climbers, and often climb very high by the aid of short hook-shaped branches, whence the native name (Kait, a hook). Some attain a great size, as thick as a mau's leg, and these can be safely depended on

as water-vines, supplying an excellent clear water, to obtain which it is only necessary to cut the stem through at one blow of a parang, as high as can be reached and then cut through it again about three feet below, when the water will drip rapidly from the cut portion. A piece 3 feet long cut like this will give about half a pint of water. The flowers are produced in balls two inches or more through, and are usually green and reddish. The fruits are capsules, with very fine winged seeds.

- U. pedicellata* Roxb. "Akar Sulumbah." One of the biggest species, with very large flowers covered with white silky hairs. Common on edges of woods, etc. Tanglin, Bukit Timah, Toas, Chan Chu Kang.
- U. pteropoda* Miq. "Akar Kait-Kait Darat." A very large plant, with broad leaves, stem 4 or 5 inches through. Common in woods, Garden jungle, Bukit Timah, Selitar.
- U. attenuata* Korth. "Akar Kait-Kait Merah." A smaller plant, the leaves covered with red wool on the back. Not common, Bukit Mandai, Bukit Timah Road.
- U. ovata* Hook. fil. Rare, Tanglin near the Gardens.
- (*U. gambir* Roxb. The gambier plant is cultivated and often persists long after cultivation has been abandoned. It is probably not a native.)
- U. jasminiflora* Wall. Flowers greenish white. Not common, Dalvey Road, Jurong, Selitar.
- U. glabrata* De C. Not very common. Bukit Timah, Bukit Mandai, Pulau Ubin.
- U. ferrea* De C. Chan Chu Kang, Chua Chu Kang.
- U. Roxburghiana* Korth. Chua Chu Kang, Bukit Mandai.
- U. dasyoneura* Korth. was said to have been collected here by Lobb. Probably an error for Penang.
- Coptosapelta flavescens* Korth. A climber with sweet greenish white flowers. Rare, Chua Chu Kang.

- Dentella repens* Forst. "Bunga Karang." A little creeping weed with white flowers. Common in waste ground, Tanglin, Galang, etc.
- Argostemma parvifolium* Benn. *A. elatostemma* Hook, and *A. spinulosum* C. B. C., collected by Lobb and labelled Singapore, were doubtless mislabelled. The *Argostemmas* are all hill plants.
- Hedyotis capitellata* Wall. A climbing plant with greenish heads of flowers. Common in thickets, Bukit Timah, Chan Chu Kang, Bukit Mandai, Chua Chu Kang.
- H. vestita* Br. "Tokong Bulu." A rough branching herb with whorls of lilac flowers. Waste ground, Bukit Panjang, Changi.
- H. auricularia* L. Somewhat resembling the last, but less hairy, and with white flowers. Common, Tanglin, Chan Chu Kang, Toas.
- H. pinifolia* Wall. A common weed in sandy spots with narrow linear leaves and white flowers. Changi, Teluk Kurau, var. *coespitosa*. A much more tufted form, grows in the same places.
- H. congesta* Br. "Rumput Lidah Jin." A stiff erect coarse herb with white flowers, common in woods, Tanglin, Bukit Timah, Jurong, Blakang Mati.
- Oldenlandia corymbosa* L. A common little annual weed in waste ground with white flowers. Very variable, the variety *alsinifolia* is as common as any form. Tanglin, Changi, etc.
- O. diffusa* L. Common in sandy spots. Tanglin, Changi, Jurong.
- O. Heynei* Br. Tanglin in grass plots.
- O. trinervia* Retz Sandy places, Galang, Tanglin.
- O. dichotoma* Retz? Flowers violet. Teluk Kurau.

- Ophiorrhiza Harrisiana* Heyne. var. A small herb with white flowers. It differs from the type in being very much more pubescent, and having pubescent capsules, and is perhaps a distinct species. Damp rocks in jungles. Common, Chan Chu Kang, Bukit Timah, Bukit Mandai, Chua Chu Kang, Pulau Ubin, Jurong.
- Mussaenda glabra* Vahl. "Balik Adap." A common and conspicuous shrub with orange or yellow flowers, and one lobe of the calyx developed into a large white leaf-like limb. Very variable. In the typical form the leaves are narrow lanceolate and glabrous in another they are ovate and pubescent. In the var. *setulosa* broad and rounded with bristles on the midrib above and pubescent beneath. Common all over Singapore.
- M. variabilis* Hemsl. A half scandent shrub with large star-like flowers, at first scarlet, then orange. Common in the peninsula, rare in Singapore. Selitar.
- Lucinea morinda* De C. Local in deep wet jungle. Bukit Mandai, Chan Chu Kang.
- Adenosacme longifolia* Wall. A slender shrub about 3 feet tall with small flowers, and translucent white berries. Damp rocky ravines. Bukit Timah.
- Urophyllum*. Slender shrubs, rarely small trees, with very small white flowers in axillary clusters and yellow or orange berries.
- U. Griffithianum* Wt. Common in woods, Changi, Bukit Timah, Bukit Mandai, Sungei Buluh,
- U. glabrum* Bl. Very common, Bukit Timah, Chan Chu Kang, Garden jungle,
- U. streptopodium* Wall. Common, Garden jungle, Bukit Mandai, Pulau Ubin.
- U. hirsutum* Wt. Common, Kranji, Toas, Selitar.
- U. villosum* Wall. "Singapore Lobb," probably an error for Penang.

- Lecananthus erubescens* Jack. "Achar Achar." A scrambling epiphyte in swampy jungle. Flowers small white with purple bracts in heads. Chua Chu Kang, Jurong, Selitar.
- Webera fragrans* Bl. "Jarum Jarum." Shrub with greenish white sweet flowers. Kranji, Bukit Timah, Tanglin, Bukit Panjang.
- W. mollis* Wall. Small tree, Garden jungle, Bukit Mandai, Selitar.
- W. grandifolia* Hook. f. A shrub with greenish white flowers. Changi, Bukit Mandai, North Selitar, Bukit Timah.
- W.* sp. Shrub with white flowers. Tampenis (5961), Sungei Brih.
- W.* sp. Chan Chu Kang (6147).
- Gardeniopsis longifolia* Miq. This curious shrub grows in woods. The flowers are seldom produced, they are fairly large and white tinted with rose. Miquel's description of the plant, as obtained by him in Sumatra, fits the peninsular species very well. Bukit Timah.
- Randia fasciculata* De C. A thorny shrub, common near the sea, Changi, Pasir Panjang, Balestier plain, Teluk Kurau.
- R. longiflora* Lam. A strong spiny climber with large white flowers. Not common. Garden jungle, Bukit Timah.
- R. angulosa*, *Canthium angulosum* Wall. A strong spiny climber like the last, but with much smaller flowers in dense heads. It is indeed referred to that species as a variety in the Flora of British India, but seems to me utterly different. Rare, Garden jungle.
- R. densiflora* Benth. "Merumbong jantan." A fairly big tree with a good timber, flowers small white, berries orange. Common on some spots, Changi, Selitar.
- R. anisophylla* Jack. "Simpoh." A medium sized tree with small white flowers, and oblong green fruits, woody, containing many flat seeds in a sweet black pulp, eaten by monkeys, but said to be poisonous by the Malays. Common in woods, and secondary jungle all over Singapore.

- R. macrophylla* Br. "Delima hutan." A small shrub with large white trumpet-shaped flowers 4 inches across, white with dark purple spots in the mouth. A most beautiful plant. Common, Garden jungle, Changi, Bukit Timah, etc.
- Gardenia tubifera* Wall. A shrub or large tree with large sweet-scented flowers opening nearly white and becoming orange very quickly. Dense woods and river banks, not very common here. Garden jungle, Changi, the Reservoir.
- G. Griffithii* Hook. fil. A slender straight tree, with much larger flowers than the last and very large globose fruit. Local, damp thick woods. Bukit Timah, Selitar, Sungei Buluh, Bukit Mandai.
- G. speciosa* Hook.\* "Singapore, Lobb," I have not seen. This fine gardenia has only been collected by Lobb and never met with again.
- Petunga venulosa* Hook var. (?) Small tree, possibly a distinct species. Garden jungle.
- Scyphiphora hydrophyllacea* Gaertn. "Chingum." A very common sea shore shrub, with small white flowers. The seeds may often be seen thrown up on the sea shore in great quantities. Along the coast with mangroves.
- Jackia ornata* Wall. A tall slender tree about 20 feet tall, with drooping panicles of rosy white flowers, and red fruits, very beautiful. Common in open swamps and wet borders of woods. Dalvey road, Bukit Timah, Changi, Selitar.
- Guettarda speciosa* L. A common small or medium sea-coast tree, flowers white, Changi, Selitar.
- Timonius Jambosella* Thw. A very common tree 12 to 20 feet tall, with small yellow flowers. Secondary jungle everywhere.
- T. Rumphii* De C. "Tulang-Tulang Paya." Common in secondary jungle, whole island.
- T. Finlaysonianus* Wall. A sea-shore plant, flowers white. Tidal rivers, Serangoon, Changi.

- Canthium didymum* Roxb. "Mata Keli jantan." Tidal rivers and other places near the sea. Common, Kranji, Selitar, Pulau Tekong.
- C. glabrum* Bl. A tall tree, 20 feet high, with small greenish white flowers and large grey-green plum-shaped fruits containing two 3-sided stones. Woods, Garden road, Toas.
- C. confertum* Korth. Garden jungle (4124), Selitar, Pulau Tekong.
- C. sp.* "Gading." The white wood, suggesting ivory, gives it its native name, the leaves are used for making a kind of tea. Not rare, Tanglin, Thomson Road, Selitar, Jurong (6506).
- C. horridum* Korth. "Bulangan Tikus." A small thorny shrub, with small green flowers and plum-like yellow fruits. Common especially near the coast in dry spots. Tyersall, Tanjong Katong, Bukit Timah, Changi, etc.
- C. scandens* Bl. "Akar Kuku Baning," lit. tortoise-claws. A thorny climber with pubescent leaves, green flowers and black fruits. Thick Woods, Garden jungle.
- Ixora pendula* Jack. A pretty shrub about 4 feet tall with clusters of slender flowers white with a pink tube on long hanging peduncles. Fruit small elliptic dark purple. Common in thick woods. Garden jungle, Changi, Chan Chu Kang, Bukit Timah.
- I. opaca* Br. Woods. Changi, Bukit Timah.
- I. fulgens* Roxb. "Bunga Pechah Priok," lit. the broken pot, the red spreading corolla lobes supposed to resemble a broken earthenware pot. One of the showiest native plants, the splendid orange red trusses of flowers being most conspicuous. Common in woods, Tanglin, Bukit Timah, Changi, Pulau Tekong, etc.
- I. congesta* Roxb. A similar plant with broader leaves and shorter flowers. Common, Changi, Chan Chu Kang, Pulau Ubin, Garden jungle.



- I. concinna* Br. A shrub or small tree, flowers red or yellow. Rather rare, Chan Chu Kang, Chua Chu Kang.
- I. parviflora* Vahl. A tree with small yellow flowers. Rare, Chan Chu Kang.
- I. amena* Wall. Shrub with orange red flowers not common, Serembun, Chua Chu Kang.
- Pavetta indica* L. "Jarum-Jarum." A large bush with greenish white flowers, Kranji, Bukit Timah, Chan Chu Kang.
- Morinda citrifolia* L. "Mengkudu." A small rarely large tree with white flowers, and large pulpy semitransparent heads of fruits. The bark of the root is used for dyeing and tanning nets, also in native medicine. The fruit is used as soap and eaten. It is very doubtfully wild, though it is very common in waste ground.
- M. tinctoria* Roxb. "Mengkudu Hutan." A smaller shrubby plant with narrower leaves possibly the wild form of the preceding. Common everywhere in secondary jungle.
- M. persicifolia* Ham. Singapore (Maingay); not seen.
- M. umbellata* L. Climbing or erect shrub, heads of fruit small orange. Very abundant in open country near the sea. Changi, Pulau Ubin.
- M. sp.* A tall climber with slender stems pubescent leaves and small orange heads of fruits. Garden jungle.
- M. sp.* "Sulong Akar Darat." A scandent shrub with thick leaves pubescent at the back, flowers few in a head white with a long tube and pubescent mouth, very fragrant. Borders of woods, Changi, Pulau Ubin, Pulau Tekong.
- Prismatomeris albidiflora* Thw. A pretty shrub with white flowers. Open places near the coasts, also in swampy woods. Changi, Bajau, Selitar, near the Bungalow.
- Gynochthodes sublancoolata* Miq. A climber with white flowers

and curious lead-grey fruits. Common near the sea, rarer inland, Changi, Tanglin.

*G. coriacea* Miq. A much larger broader leaved plant. Not common, Changi, Garden jungle.

*Psychotria*. A large group of shrubs or climbers with white or green flowers, and black orange or white berries.

Shrubs. Berries orange or black.

*P. stipulacea* Wall. Not common, Bukit Timah.

*P. angulata* Korth. Changi, Garden jungle.

*P. Helferiana* Kurz. Common, Garden jungle, Jurong, Selitar, Kranji, etc.

*P. Malayana* Jack. Fruit black. Bukit Timah (6468), Bukit Mandai, Pulau Ubin.

*P. Griffithii* Hook. fil. Bukit Timah, Pulau Ubin.

*P. montana* var. *tabacifolia* Wall. Singapore, Wallich 8331. (Not seen.)

Climbers, berries white or green.

*P. polycarpa* Miq. "Akar Chinta Mula." Common in hedges, Garden jungle, Changi, Kranji, etc.

*P. sarmentosa* Bl. Common, woods, Serangoon, Changi, Bukit Mandai, Selitar.

*P. Maingayi* Hook. fil. Woods, Selitar, Bajau.

*P. morindastora* Wall. Rather common, Sungei Buluh, Bukit Mandai, Chan Chu Kang.

*P. ovoidea* Wall. Common, woods, Garden jungle, Jurong, Bukit Timah.

*P. sp.* with grey green fruits and large leaves. Reservoir woods.

*P. sp.* leaves lanceolate, flowers green, Kranji, Ang Mo Kio.

*Chusalia curviflora* Thw. "Pechah Piring putih." A very common and variable small shrub or herb, flowers white

on purple stalks, berries black on thickened white stalks.  
Woods, everywhere, Garden jungle, Bukit Timah, etc.

*C. rostrata* Miq. Garden jungle, Bukit Timah.

*Geophila hirta* Miq. Creeping plant with white flowers, local.  
Reservoir woods, Bukit Timah.

*Cephaelis Griffithii* Hook. A small shrub with yellow honey-scented flowers in an involucrate head; berries light blue.  
Sandy woods, Toas, Bajau; also Garden jungle.

*Lasianthus*, small shrubs with axillary whorls of white flowers and blue or white berries.

*L. cyanocarpus* Jack. Sea coasts, Pasir Panjang, Changi, Pulau Ubin, Pulau Tekong.

*L. appressus* Hook. fil. Garden jungle, Bukit Timah, Chan Chu Kang.

*L. pterospermus* Wt. Rare, Chan Chu Kang (6711).

*L. densifolius* Miq. Common, Garden jungle, Changi, Bukit Timah, Selitar.

*L. Griffithii* Wt. Common, Bukit Timah, Chan Chu Kang, Sungei Blukang.

*L. stipularis* Bl. Bukit Timah (4903).

*L. ellipticus* Wt. Garden jungle, Bukit Timah, Chan Chu Kang.

*L. crinitus* Hook. fil. Garden jungle, Bukit Mandai, Pasir Panjang.

*L. Maingayi* Hook. fil. Singapore (Hullett 628.) and several other unidentified species.

*Saprosma* sp. Rare, Bukit Mandai.

*Hydnophytum formicarium* Jack. The ant plant. "Kapala Beruk." one of our most curious plants, epiphytic with a large swollen tuberous stem containing passages always full of

- ants, flowers small white, fruits orange juicy. Common Tanglin, Selitar, Sungei Morai, etc.
- Myrmecodia echinata* Jack. Much resembles the last, but is covered with spines. Rarer, Bukit Timah, Jurong.
- Poederia foetida* L. "Akar Sekuntut." A slender climber with panicles of violet and white flowers. The whole plant has an unpleasant odor. Not common, Chan Chu Kang, Bukit Timah.
- P. tomentosa* Bl. Singapore (Fl. Brit. Ind.) ; not seen.
- Spermacoce hispida* L. A common weed with pink flowers. Paths and waste ground, Tanglin, Changi, Selitar, etc.
- S. scaberrima* Bl. A rough scrambling herb, flowers white. Waste ground, Chasseriau estate.
- S. ocymoides* Burm. A prostrate herb, flowers white. Road-sides, Choa Chu Kang, Passir Panjang, Gardens.

## COMPOSITÆ.

This large order is represented here by four or five native plants and a number of weeds introduced, but now established in waste ground and such places.

- Vernonia arborea* Ham. "Merambong." A large tree with lavender colored flowers. There are two forms of it, one a tall straight tree 50 feet high with perfectly glabrous leaves, Cluny Road, etc., and one more stunted and gnarled with pubescent leaves, Changi, Chan Chu Kang, Jurong, Chua Chu Kang.
- V. cinerea* Less. A common little weed with purple flowers, grows everywhere.
- V. chinensis* L. "Ruku Gajah." A larger rough herb, flowers purple. Common in villages, Chan Chu Kang, Tanglin, Bukit Mandai.
- V. scandens* De C. "Tombak-Tombak." A climber in thickets, flowers yellow. Tanglin, Bukit Timah, Selitar, Changi.

- Elephantopus scaber* L. "Tutup bumi." A very common weed flowers pink. Whole island.
- Adenostemma viscosum* Forst. A coarse herb with white flowers, waste ground near houses, Chan Chu Kang, Pulau Ubin, Bukit Panjang.
- Ageratum conyzoides* L. An exceedingly common weed with blue or white flowers, everywhere.
- Mikania scandens* Willd. "Akar Churoma." A climber with hanging heads of flowers. Thickets, not common, Jurong, Woodsville.
- Eriyeron linifolius* Willd. "Sumbong Jantan." A large coarse weed. Waste ground, Tanglin, Selitar, etc.
- Blumea lacera* De C. An erect herb with yellow flowers. Common waste ground and grassy places. Tanglin, Selitar, etc.
- Bl. membranacea* De C. Alexandra Road.
- Bl. balsamifera* De C. Ngai Camphor. "Sumbong." A tall herb about 8 feet high or less, with yellow flowers. The whole plant has a strong camphor smell, and is used in medicine by the natives. Very common in open ground, Tanglin, Bedoh, etc.
- Pluchea indica* Less "Poko Beluntas." A sea-shore shrub with lilac flowers. Very common on the sea coast, Changi, Galang, etc.; rarer inland, Tanglin, near the rifle range.
- Sphoeranthus africanus* L. A herb with heads of white flowers. Ditches, Galang.
- Coesulia axillaris* Roxb. Ditches, Tanglin and Galang.
- Eclipta alba* Has-k. Common weed in waste ground, flowers white.
- Centipeda orbicularis* Lour. A very small prostrate weed with minute purple flowers. Paths in the Botanic gardens.
- Wedelia biflora* De C. "Serenai Laut." Sea-shore herb with yellow flowers. Common, Galang, Kranji, Changi.

- Spilanthes acmella* L. "K'rabo." The toothache plant; a common weed with conical heads of yellow flowers very pungent. Sold in the native herb shops. Open country, Sungei Morai, Ang Mo Kio.
- Synedrella nodiflora* Gaertn. Stiff weed with yellow flowers. Very common everywhere.
- Tridax procumbens* L. Sandy places, Tanjong Katong, Cathedral Close, Changi, Teluk Kurau.
- Artemisia vulgaris* L. Often cultivated for medicine in Chinese villages.
- Cynura sarmentosa* De C. "Akar Subiak." Climbing herb with glaucous green leaves, and yellow flowers in a purple involucre. Swampy spots in dense jungle, Bukit Mandai, Bukit Timah, Tanglin.
- C. pseudochina* De C. A coarse common weed, Tanglin, Tanjong Katong, Selitar, etc.
- Emilia sonchifolia* De C. "Katumbi jantan." Common herb with bright pink flowers, waste ground.
- (*Cosmos bipinnatus*. Often cultivated as a vegetable.)
- Acanthospermum xanthioides* De C. Prostrate herb with white flowers and burr-like fruit. Not common, Pasir, Panjang, Ang Mo Kio, Tanglin.

## GOODENOVIÆ.

- Scarola Koenigii* Vahl. "Ambong-ambong." A common sea-shore shrub. Flowers and fruit white. All round the coasts. Changi, Selitar, Pulau Ubin, Blakang Mati.

## CAMPANULACEÆ.

- Pratia begonifolia* Lindl. Small creeping herb with blue and white flowers. Wet spots by streams, Bukit Timah, Choa Chu Kang.

*Pentaphragma begoniaefolium* Wall. "Balong Ayam Batu." (Rock Cock's comb), a very curious herb with scorpioid spikes of creamy yellow flowers with purple spots inside. Banks in woods, common, Bukit Timah, Sungei Morai, Changi, Chua Chu Kang.

## VACCINIACEÆ.

*Vaccinium malaccense* Wt. "Kalumpangang." A large bush with pink or white fragrant flowers and eatable black fruits. Sandy places at Changi, abundant.

*V. bancanum* Miq. Epiphytic or terrestrial. A bush or small tree, leaves often red stiff, flowers waxy pink red or white. Sea coast, Toas, Changi, Sungei Morai, on high trees, Bukit Timah.

*V. acuminatissimum* Miq. Rare, Bukit Mandai.

## ERICACEÆ.

*Rhododendron lampongam* Miq: *R. javanicum* var. *tubiflorum*, Bot. Mag. t 9840. A beautiful epiphytic shrub on the tops of lofty trees. Bukit Timah, very rare. Flowers bright red.

## EPACRIDEÆ.

*Leucopogon malayanus* Jack. Shrub with small white flowers and red fruit. Sea shore, Changi.

## PLUMBAGINEÆ.

*Plumbago zeylanica* L. "Cheraka." Waste ground near villages, Galang, etc.

## MYRSINEÆ.

*Musa indica* L. A large shrub or small tree with very small white flowers. Common in woods, Bukit Timah, Reservoir woods, etc.

*M. ramentacea* De C. A half climbing shrub with narrower leaves, but otherwise much like the last. The branches

often bear moss-like masses of abortive branchlets, which are much more elegant than the very insignificant flowers. One of the commonest shrubs in jungles and secondary forest, everywhere.

*Myrcine capitellata* Wall. A small tree, with small white flowers and fruits. Sea coasts, not common, Changi, Bajau.

*Embelia Ribes* Burm. Very common in woods and thickets, Tanglin, Bukit Timah, etc.

Var. *garciniaefolia*. A distinct looking plant with much more coriaceous leaves. Rarer, Changi, Reservoir woods, Bukit Timah.

*E. coriacea* A. De C. Thick jungles, Selitar, Bukit Mandai.

*E. Limpanii* Scheff. Hedges, not common, Changi, Bukit Timah.

*E. amentacea* Clarke. Hedges, Bukit Timah Road, Bukit Mandai,

*E. lucida* Wall.\* Cat 2315. Singapore. I have not met with it.

*Labisia potheria* Lindl. "Akar Fatimah." A little shrub with small pink flowers, and scarlet fruit, leaves of young plants crenulate deep green edged with pink, when older lanceolate with long petioles (var. *lanccolata*) or the petiole winged the whole length, (*pothoina* proper). Common in dense woods.

*Ardisia*. Shrubs, rarely small trees, with or rose pink flowers, often showy, and red or black berries.

*A. crassa* Clarke. Rare, Chan Chu Kang (3844).

*A. lanceolata* Roxb. Very handsome shrub. Selitar, Bukit Timah.

*A. colorata* Roxb. Flowers very small, pale pink. Common, Bukit Timah, Garden jungle, Changi Road.

*A. tuberculata* Wall. Common, Bukit Timah, Selitar, Sungei Morai.



- A. crenata* Roxb. "Mata Pelandok." Common, Alexander Road, Changi, etc.
- A. villosa* Roxb. Rare, dense woods, Pulau Ubin.
- A. odontophyllum* var *Lobbii*. Singapore, Lobb; probably an error of locality.
- A. sp.* near *Bhotanica* Clarke. Rare, Ang Mo Kio (6434).
- A. sp.* near *villosa*. Rare, Pulau Ubin (2816), Changi.
- A. humilis* Vahl. One of the largest species, flowers rose pink, berries black. Tidal mud, and damp spots. Common, Galang, Holland Road, Tanjong Katong, Changi, etc.
- Pimelandra Wallichii* De C. A small tree, flowers pinkish white, berries white with black spots. Common, Tanglin, Changi, Sembawang
- Aegiceras majus* Gaertn. Mangroves local, Toas, Sungei Morai, Pulau Ubin.

## SAPOTACEÆ.

A group of trees, of which many produce gutta percha or Caoutchouc. There are a considerable number here, but they are difficult to collect on account of their great size, and are not easy to identify.

- Chrysophyllum Roxburghii* G. Don. A tall tree with small dark green leaves and yellow flowers, fruit globose 5-angled yellow  $\frac{1}{2}$  an inch long, sweet and eatable but full of rubber. Not rare, Tanglin, Bukit Timah.
- Sideroxylon ferrugineum* Hook. Small tree or shrub. Common along the coast, Serangoon, Kranji, Changi, Pulau Damar.
- S. Maingayi* Clarke. Big tree. Garden jungle.
- S. Malaccense* Clarke. Very large tree. Tanglin, Garden jungle, Selitar.
- Dichopsis bancana* Miq. Vast tree, flowers and fruit green. Garden jungle.

*D. obovata* Clarke. A big tree producing a gutta inferior only to that of *D. Gutta*. Tanglin, Changi.

*D. Gutta* Benth. A large tree, easily known by the beautiful golden underside of the leaves. Though it was formerly very abundant in Singapore, nearly all the larger trees have been cut for the gutta percha. Flowers small white, very rarely produced. *D. oblongifolia* is I think specifically undistinguishable, merely a variety. It is the commonest form now in Singapore. Dense jungle, widely scattered over Singapore. Garden jungle, Bukit Timah, Selitar, Pulau Damar.

*D. rubens* Clarke. Rare, Changi, Chan Chu Kang.

*Bassia Mottleyana* De Vr. A big tree, Selitar, Jurong, Kranji, Bukit Mandai.

*B. cuneata* Bl. Rare, Bukit Timah.

*B. Kingii* Stapf. Bukit Timah.

*B. Malaccensis* (*Payena Malaccensis* Clarke). Common, Garden jungle, Changi, Bukit Timah, Selitar.

*Payena costata* King. "Niato." Common, a medium sized tree. Garden jungle, Selitar, Reservoir woods.

*P. Maingaji* Clarke. "Getah Percha Burong." Rare, Sungei Morai (6497).

*P. Lecrui* Benth. "Getah Sundik." Bukit Timah, Bajau.

*Mimusops hexandra* Roxb. "Niato hitam." Rare, Tanjong Gol.

(*M. Etengi* L. "Poko Tanjong." Commonly planted, but doubtfully wild.)

#### EBENACEÆ.

*Maba luxifolia* Pers. Small tree. Rare, Tampinis.

*Diospyros microphylla* Bedd. Large tree, produces ebony. Garden Road, Bukit Timah.

- D. lucida* Wall. "Kayu Arang." Woods, usually near the sea, not rare. Bukit Timah, Bukit Mandai, Changi, Loyang, Bajau, Tampenis, Sungei Morai.
- D. bilocularis* Oliv. *Maba Maingayi* Hiern. Tree. Garden jungle.
- D. sapotoïdes* Kurz. Very large tree, Bukit Timah, Chan Chu Kang.
- D. oblonga* Wall. Garden jungle, Bukit Timah, Tanjong Gol.
- D. clavijera* Clarke. Produces ebony. Sungei Morai.
- D. argentea* Griff. "Bedil Lalat." "Mulatope Lalat." A small tree with large leaves coated beneath with golden yellow fur. Fruit large, covered with red hair. The dried leaves when burnt crackle, and this is supposed to drive away mosquitoes, hence the native name "Fly-cracker." Not rare. Dense jungle, Bukit Timah, Changi, Chan Chu Kang.
- D. sp.* with large coriaceous leaves, and cream colored flowers on the stem, fruit pearshaped. Bukit Timah.

## STYRACEÆ.

- Symplocos*, small or medium trees with white flowers and blue or green fruit.
- S. spicata* Roxb. Rare, Bukit Mandai.
- S. fasciculata* Zoll. Flowers white in small nearly sessile cymes drupes blue. Very common, woods and secondary jungle. Tauglin, Bukit Timah, Selitar, etc.
- S. adenophylla* Wall. Common in woods, especially near the sea. Changi, Jurong, Kranji, Toas, Pulau Tekong.
- S. celastriifolia* Griff. Rare, Jurong River (8423).
- S. rubiginosa* Wall. Not very common, Chan Chu Kang, Bukit Timah.
- S. rigida* Clarke. A big tree. Rare, Changi.

*S.* sp. "Donoon." A medium sized tree, flowers in compact cymes. Rare, Kranji.

*Styrax Benzoin* Dryand. Gum benjamin. "Kemeniyan." A tall tree with sweet white flowers, and hard grey round flattened fruits. Produces the gum benjamin of commerce, which is obtained by cutting gashes in the bark, when the gum, after some weeks, exudes. Common in jungle, Garden jungle, Bukit Timah, Selitar, Choa Chu Kang.

*S. crotonoides* Clarke. Singapore (Wallich No. 7848); also in Cantley's collection. I have never seen it here.

## OLEACEÆ.

*Jasminum bifarium* Wall. "Melor hutan." Wild Jasmine, very common in open country, and hedges, Tanglin, Balestier plain, Changi, etc.

*J. Griffithii* Clarke. "Kuma-Kuma hutan." A very hairy jasmine. Rare, woods, Garden jungle, Bidadari, Chan Chu Kang.

*Olea maritima* Wall. A large bush with small green flowers and black drupes. Sea coasts in dry spots, Tanjong Katong, Changi, Pulau Ubin.

*Linociera pauciflora* var. *palembanica*. A big tree with small white flowers. Common, Bukit Mandai, Bukit Timah, Changi.

## APOCYNACEÆ.

*Willughbeia firma* Bl. "Getah Grip or Gegrip." A large woody climber with rough black bark, white flowers and green or orange oblong or globose fruits. Seeds deep violet inside. It abounds in rubber, and is the best of all the local rubber vines. The fruit is eatable and sweet, but full of rubber milk. Common, Garden jungle, Bukit Timah, Changi, etc.

*W. coriacea* Wall. "Getah Ujol." An inferior Gutta, which does not set readily, it is used for adulterating and for

bird lime. Common, Tanglin, Bajau, Changi, Blakang Mati, Bukit Timah.

*W. flavescens* Dyer. Flowers short yellowish white, fruit globose orange, containing 2 to 7 seeds. Garden jungle, Pulau Ubin.

*W. tenuiflora* Hook. fil. Changi.

*W.* sp. near *flavescens*, with very small flowers. Corolla tube short and globose, lobes long. Changi (6023), Chan Chu Kang, Jurong.

*W. grandiflora* Dyer. Flowers larger than any other species  $1\frac{1}{2}$  inch long. I take this to be the plant intended for *W. grandiflora*, but note that the leaves are not thickly coriaceous, nor rounded at the tip as described. The mouth of the corolla tube is hairy. Rare. Reservoir woods.

*Leuconotis Griffithii* Hook. fil. "Akar Getah SundeK." A climber, but less thick than *Willughbeia* (not erect as stated in Fl. Brit. Ind.). Flowers orange fruit globular rather small. Not rare. Borders of woods, Jurong, Bukit Mandai, Selitar, Bukit Timah.

*L. Maingayi* Dyer. Singapore (Maingay); not seen here.

*Melodinus orientalis* Bl. Climber, rare, Changi.

*M. micrantha* Hook. fil. Jalan Bray.

*Alyxia lucida* Wall. "Pulasari." Bark strongly scented as of new mown hay. Climber, flowers white fragrant. Bukit Mandai, Jurong, Kranji, Sungei Morai.

*Cerbera lactaria* Ham. "Buta-Buta." A large tree with white flowers and a pink eye and large ovoid reddish fruits. The white milk with which the tree abounds is poisonous and said to cause blindness if it falls into the eye. Very common in tidal rivers and swamps. Balestier plain, Selitar, Tampenis.

*C. odollam* Gaertn. Kranji, Changi.

- Kopsia macrophylla* Hook. fil. Shrub about 15 feet tall; flowers white with pink ring in centre. Chan Chu Kang.
- (*Vinca rosea* L. has established itself in many places near the sea, and *Allamanda Schottii* Pohl. has run wild in a few places.)
- Alstonia scholaris* Br. "Pulai." A tall tree, flowers green, branches in distant whorls. Common, Tanglin, Reservoir woods.
- A. spatulata* Bl. Jungle swamps, Cluny Road, Bukit Mandai.
- A. angustifolia* Wall. "Buta Buta Darat." Common woods, Bukit Timah, Changi, Kranji, Sungei Morai.
- A. grandifolia* Miquel. Singapore (Anderson); doubtful.
- Dyera laxiflora* Hook. fil. "Jelutong." A big tree with grey smooth bark, flowers small white. Pods very large and woody. Seeds thin flattened winged. Produces an inferior rubber. Common all over Singapore. Tanglin, Changi, etc.
- Tabernaemontana corymbosa* Roxb. "Jelutong Badak." A small tree with white flowers fragrant. Not very common, Changi, Reservoir woods, Choa Chu Kang.
- T. hirta* Hook. fil. Chan Chu Kang, Jurong.
- T. Malaccensis* Hook. fil. "Lada Lada jantan." A shrub with small white flowers and orange pods containing several seeds wrapped in crimson arils. Common in woods. Garden jungle, Changi, etc.
- (*T. coronaria* Roxb. "Bunga susu." Is often cultivated and half wild near villages.)
- Parsonsia spiralis* Wall. Climber with greenish yellow flowers. Mangrove swamps. Not rare, Changi, Tampenis, Selitar, Toas, Sungei Morai.
- Vallaris Maingayi* Hook. fil. A large tree with deep green leaves and large white flowers. Pods long and slender

containing many long-plumed seeds. Not common. Garden jungle.

*Strophanthus dichotomus* De C. "Bunga Hantu." A big shrub with large white flowers, with long claret-colored tails to the petals. Open country, Changi, Alexandra road.

*S. brevicaudatus* Wt. Smaller shrub with small deep purple flowers. Tanglin, Holland road, Balestier plain.

*Urceola Malaccensis* Hook. fil. "Getah grip tembaga." A climber flowers very small white. Produces a fairly good rubber. Thickets, Tyersall, Changi, Bedoh.

*U. Maingajii* Hook. fil. Rare, Kranji.

*U. brachysepala* Hook. fil. Bukit Mandai, Bukit Timah.

*U. torulosa* Hook. f. Jungles, common, Tampenis, Changi, Chan Chu Kang.

*U. lucida* Benth. Changi, Pulau Ubin.

*Parameria polyneura* Benth. Climber with pink flowers, Garden jungle, Cluny Road.

*P. glandulifera* Benth. "Singapore Lobb"; not seen.

*Agnosma marginata* Don. Singapore, (Fl. Brit. Ind.); not seen wild.

#### ASCLEPIADEE.

*Streptocaulon Wallichii* Wight. Singapore, Wallich in Fl. Brit. Ind.; but Wallich's No. 8249 is in the Catalogue "Penang et Singapore;" doubtless from Penang only, where it is common.

*Toxocarpus Griffithii* Don. "Singapore, Lobb"; certainly an error of locality.

*Genianthus Maingajii* Hook. fil. Very rare, Bukit Timah, (Cantley).

(*Calotropis procera* Br. Escape from cultivation, Toas, Changi, Pulau Ubin).

(*Asclepias curassavica* L. has established itself at Selitar, etc.)

(*Rophistemma pulchellum* Wall. Garden road; escape.)

*Sarcobolus globosus* Wall. Climber, flowers small yellow with brown streaks. Tidal river banks, not rare, Balestier plain, Alexandra road, Kalang Puding, Changi, Selitar river.

*Stephanotis Maingayi* Hook. fil. A splendid white flowered climber, flowers bigger than the garden *Stephanotis*. Very rare, Changi (Hullett), once collected.

*Tylophora tenuis* Wall. Slender climber, flowers pink. Hedges Blakang Mati, Green Hill, Alexandra road.

*T. Wallichii* Hook. fil. "Singapore, Wallich" in Fl. Brit. Ind., but No. 8194 B. in Wallich's catalogue is labelled Habit ignot.

*Cynanchum ovalifolium* var. Bamboo Hedges, Cluny road, Balestier plain, Bukit Timah Road.

*Dischidia nummularia* Br. An exceedingly common creeping epiphyte draping orchard trees, and doing much damage. Stems very slender, leaves small and fleshy flowers white (scarlet as in Fl. Brit. Ind.). Whole island.

*D. hirsuta* Decne. Flowers red. Common in woods, Selitar, Chan Chu Kang, Kranji.

*D. albida* Griff. Flowers creamy white. Rare, Bajau.

*D. benghalensis* Colebr. A long creeping epiphyte, glaucous green often nearly leafless. Flowers creamy white, woods near the sea. Kranji, Sungei Buloh, Bajau.

*D. Rafflesiana* Wall. A very curious plant with some leaves developed into pitchers, green or often yellow, inside purple, flowers yellow. Common on trees especially near the sea. Tanglin, Blakang Mati, Teluk Kurau.

*D. collyris* Wall. A slender creeper on trees, leaves rounded buff yellow, above purple beneath, lying flat on the trees.



Flowers white. Ants often make their nests between the leaves and the branches of the trees. Common, Tanglin, Chan Chu Kang, Bukit Timah, Kranji.

*D. coccinea* Griff. Flowers scarlet. On lofty trees, Bukit Timah, Selitar, Choa Chu Kang. Very distinct from the last, of which Maingay suggested it was a variety.

*D. Wallichii* Wt. Wall. Cat. 8183. Is apparently a *Ficus*.

*Hoya lacunosa* Bl. Flowers white. Not rare, Tanglin, Selitar, Bukit Mandai.

*H. revoluta* Wt. Singapore, Wallich 8160 B; not identified.

*H. latifolia* Don. A very large-leaved species, leaves often dull red, flowers small pink. The commonest species. Trees in dense jungle. Garden jungle, Kranji, Selitar, Pongol, Changi, Pulau Tekong.

*H. parasitica* Wall. Common near the sea, very floriferous, and pretty, flowers pink. Blakang Mati, Changi, Chan Chu Kang, Toas, Pulau Jahat.

*H. coronaria* Bl. The largest-flowered species. Flowers star-like and waxy opening white, with a yellow tint, then becoming spotted with pink and finally altogether pink. Common especially near the sea. Serangoon, Changi, Kranji, Pulau Tekong, etc.

*H. diversifolia* Bl. A pretty pink flowered species, often covering trees like a mat. Jurong, Chan Chu Kang, Kranji, Serangoon.

*H. coriacea* Bl. Flowers yellowish white. Rare, Tampenis (D'Almeida).

*H. obtusifolia* Wt. A very stout kind with thick oblong leaves. Flowers white with a pink centre, large, rarely produced. Serangoon, Changi.

*H. Finlaysonii* Wall. Cat 8166. Leaves only, not identified.

*Physostelma Wallichii* Wt. "Akar Siak." Slender climber with large thin creamy white flowers with a purple centre.

Roots scented like new mown hay. Rare, Tampenis river, Kranji, Toas.

*Leptadenia reticulata* Wt. "Singapore, Lobb;" evidently wrongly localised.

## LOGANIACEÆ.

*Fagraea carnosæ* Jack (?) Epiphyte, Bukit Timah. Rare. Perhaps a new species, leaves large ovoid, flowers with a long tube in pairs.

*F. auriculata* Jack. A large spreading shrub, with enormous thick white trumpet-shaped flowers. The capsule is very large greyish green conic, splitting when ripe and showing the minute black seed in orange pulp. There are two forms: one has the flowers as large as in Miquel's picture, the other is much smaller. Not common, rocks overhanging the sea, Pulau Ubin.

*F. olorata* Wall. Not common, Kranji.

*F. racemosa* Jack. A big shrub or small tree with short thick racemes of pinkish white flowers. Rare here. Pulau Ubin quarries.

*F. muniudifolia* Bl. Shrub with slender racemes of pink flowers. Not uncommon. Bukit Timah, Kranji, Selitar, Sungei Loyang.

*F. ligustrina* Bl. A tree, leaves deep green small flowers slender creamy white with buff coloring in the throat, fragrant. Rare, Tampenis.

*F. fragrans* Roxb. "Tembusu." A large tree with cream yellow flowers, and orange berries. Well known for its timber. Sandy places, Changi. Abundant, Tanglin and other places near town.

*F. speciosa* Bl. A very much larger tree, with fewer and larger flowers. Garden jungle, Tyersall.

*Norisia malaccensis* Garden. A fairly large tree, flowers white Garden jungle, Changi.

*Strychnos Tieu'e* Bl. "Ipoh Akar." A big climber with small tubular green flowers, fruit large globose gray green with a hard rind, seeds flat, enclosed in a bitter pulp.

Every part of the plant, even the flowers, is intensely bitter, from the presence of Brucine, nevertheless monkeys and musangs often eat the fruit. The bark is used by the Sakais in their dart poison. Common in thick jungle. Garden jungle, Chan Chu Kang.

*S. malaccensis* Benth. Not common. Toas, Garden jungle.

*S. pubescens* Clarke. Bukit Timah.

*Gaertnera Koenigii* Wt. var. *oxyphylla* Wall. Singapore (Wallich); not seen.

*G. viminea* Hook. fil. Small slender shrub, with very small white flowers. Common, Garden jungle, Bukit Timah, Pulau Ubin, Changi.

*G. obesa* Hook. fil. An unbranched erect shrub with dark green leaves and heads of white flowers, berries pale blue. Common in jungles, Tanglin, Selitar, Bukit Arang, Toas, Sungei Buluh, Bukit Timah.

*G. grisea* Hook. fil. Not rare, Bukit Timah, Changi, Chan Chu Kang, Sungei Morai.

## GENTIANACEÆ.

*Limnanthemum indicum* Thw. An aquatic plant with round floating leaves and a tuft of white flowers with a yellow centre. Reservoir.

## BORAGINÆ.

*Tournefortia Wallichii* De C. Climber, flowers green. Thickets, Bukit Panjang, Jurong, Bukit Mandai.

*Heliotropium indicum* L. A common weed in waste ground everywhere.

*Cordia myxa* L. Shrub, Chan Chu Kang, Pasir Panjang.

## CONVOLVULACEÆ.

- Erycibe malaccensis* Clarke. Not common, Chan Chu Kang.
- E. Princei* Wall. "Akar Kijang." Flowers white, coarsely scented, drupes black. Common, hedges, Tanglin, Jurong Kranji, Chan Chu Kang.
- E. Griffithii* Clarke. Not common, Garden jungle, Bukit Timah.
- E. coriacea* Wall. Not common, Changi.
- E. leucocyloides* King. A small-leaved climber, flowers white sweet. Thickets and woods, rarely flowering, common, Tanglin, Chan Chu Kang, Bukit Timah, Changi.
- Lettsomia tomentosa*. "Akar Terong." Climber, with heads of white flowers with pink plaits, bracts pink, and fruit pink. Woods, Chan Chu Kang, Chua Chu Kang, North Selitar.
- Ipomea digitata* L. A large pink convolvulus. Not rare, Bukit Timah Road, Loyang, Changi beach, Chan Chu Kang.
- I. angustifolia* Jacq. Small climber, flowers pale yellow or nearly white eye maroon. Common in grass, or bushes. Tanglin, Changi, Chan Chu Kang, Kranji.
- I. tridentata* Roth. Prostrate with slender stems, flowers small white. Sandy spots, Changi.
- I. linifolia* Bl. Twining and creeping in grass, flowers pale yellow. Common, Tanglin, Chan Chu Kang.
- I. chryseides* Ker. Flowers in heads small lemon yellow. Waste ground, Tanglin, Government Hill, Bukit Timah Road, Bajau.
- I. biloba* Forsk. "Tapak kuda." Flowers large pink. Sea shores, common, Changi, Sungei Morai.
- I. denticulata* Choisy. Flowers pink. Sea shores, Teluk Kurau.
- I. palmata* Forsk. Hedges, Tanglin, Sophia Road.

*I. sepiaria* Koen. White with a pink eye; *I. quimochit* L. and *coccinea* with small scarlet flowers; *I. batatas* L. the sweet potato, "Keledi," flowers pink; and *I. aquatica* Forsk. "Kangkong," a white flowered aquatic eaten as spinach, occur as escapes from cultivation here and there.

*Evolvulus alsinoides* L. A little prostrate plant, flowers light blue. Sandy spots, Changi.

## SOLANACEÆ.

I doubt that any of these, except one *Solanum*, are native to Singapore.

*Solanum nigrum* L. Galang.

*S. torvum* Sw. Shrub with white flowers, the leaves smoked by Malays like tobacco. Waste ground, Tangliu.

*S. melongena* L. "Brinjal." Cultivated.

*S. sarmentosum* Nees. A prickly prostrate plant with blue flowers and black fruits, weed. Botanic Gardens.

*S. aculeatissimum* Jacq. "Terong Blanda." A prickly shrub with white flowers, and smooth red orange fruits. Sandy places, Tanjong Katong, perhaps wild.

*S. biflorum* Lour. Singapore (Wallich); more probably an error for Penang. It is a hill plant.

*Capsicum frutescens* L. *C. minimum*, and more rarely *C. grossum* Willd. are much cultivated, and the two first occasionally occur as escapes.

*Datura fastuosa* L. "Kachubong." Weed in waste ground, often planted for use in medicine. Tangliu, etc., Pulau Ubin.

## SCROPHULARINEÆ.

*Mazus rugosus* Lour. Small weed, flowers pale violet almost white in the centre of the lip, where are 4 or 5 yellow spots. Waste ground, Botanic gardens.

- Adenosma ovatum* Benth. An aromatic herb about 2 feet tall with axillary pale blue flowers. Road sides, not rare, Tanglin, Chan Chu Kang.
- A. capitatum* Benth. "Kuching-Kuching." Aromatic, flowers in heads blue. Sandy fields, Tanglin, Chan Chu Kang, Jurong, Serangoon.
- A. ceruleum* Br. Singapore (Fl. Brit. Ind.); not seen.
- Linnophila conferta* Benth. "Bremi." A little aromatic herb with violet flowers, used in native medicine. Common in damp spots, Tanglin, Bukit Timah, Reservoir, Bukit Mandai.
- L. pulcherrima* Hook. fil. Wet spots, Selitar, Bukit Timah, Bukit Mandai, Chan Chu Kang, Jurong.
- Herpestes Monniera* H. Bk. A small glabrous herb in wet spots, flowers white or blue. Common, Bukit Timah, Rochore, Serangoon, Teluk Kurau, Tampenis, etc.
- Artanema angustifolium* Benth. Singapore (Wallich 3885), not seen.
- Torenia polygonoides* Benth. Common little creeping plant in grass, upper lip of corolla red, lower white. Whole island, Tanglin, Changi, etc.
- T. macronulata* Benth. Weed in Botanic gardens, Bukit Timah.
- Vandellia crustacea* Benth. "Kra Nasi." Common little weed with violet flowers. Paths and waste ground everywhere.
- V. scabra* Benth. Flowers pink. Teluk Kurau.
- V. hirsuta* Benth. Little weed, hairy, flowers pale lilac. Garden weed.
- V. pedunculata* Griff. Wet spots, flowers pale violet. Government Hill.
- Bonnaya veronicifolia* Spreng. Wet spots, Chan Chu Kang, Ang Mo Kio.

- B. reptans* Spreng. Chan Chu Kang, Bukit Panjang.
- B. brachiata* Link. Chan Chu Kang.
- Scoparia dulcis* L. "Té Macao." A common weed with small white flowers. A tea for fever is made of it. Whole island.
- Striga lutea* Lour. "Rumput Siku-Siku." A little stiff erect herb in grass, flowers pink, or white here. Common, Tanglin, Changi, Chan Chu Kang.

## LENTIBULARIÆ.

- Utricularia flexuosa* Vahl. "Lumut Ekor Kuching." Aquatic with bright yellow flowers. Pools, lakes, and ditches. Common. Garden Lake, Reservoir, Bukit Timah, Changi Road.
- U. exoleta* Br. Much smaller than the last. Garden lake, ditches Tanglin, Ang Mo Kio.
- U. bifida* L. A small erect plant with yellow flowers. Common in shallow ditches and wet sand. Bukit Timah, Chan Chu Kang, Reservoir, Bedok.
- U. affinis* var. *Griffithii*. A tall slender species with bright blue flowers. In shallow ditches, Changi, Tampenis, Bedok, Choa Chu Kang.
- U. racemosa* Wall. Very slender, with very small white flowers. Sandy spots towards Tanah Merah, Changi.

## GESNERACEÆ.

- Æschynanthus Motleyi* Clarke. An epiphyte forming large tufts with pendulous branches, leaves pink on the back. Calyx lobes very narrow purple. Corolla green marked in the mouth with brownish red. Woods, not rare, Bukit Mandai, Kranji, Choa Chu Kang, Teban, Selitar.
- Æ. Lobbiana* Hook. Climbing epiphyte, flowers crimson scarlet showy. Common in damp woods, and mangrove swamps, Kranji, Toas, Chan Chu Kang.

- Æ. radicans* Jack. Creeping over rocks and trees, flowers crimson. Local. Bukit Timah, Choa Chu Kang.
- Æ. Wallichii* Br. Calyx short cup-shaped green, corolla crimson. Dense woods, Bukit Mandai, Kranji, Chan Chu Kang.
- Didymocarpus platypus* Clarke. A shrubby plant with white rarely bluish flowers, with a yellow spot in the mouth. Common, woods, Bukit Timah, Bukit Mandai, Chan Chu Kang, Changi.
- D.* sp. Very rare, two plants out of flower in a wooded ravine near Bukit Mandai.
- Cyrtandra bicolor* Jack. A shrubby plant, flowers white with brown or purple spots in the mouth. Leaves sometimes marbled white. *C. humilis* Bl. "Singapore, Prince," in Flor. Brit. Ind. is evidently the same thing. Damp ravines in wet jungle, usually very abundant. Bukit Timah, Bukit Mandai, Choa Chu Kang.
- C. pilosa* Bl. "Singapore Lobb," and *Cyrtandromma acuminata* Benth. Maingay and Lobb, in Flor. Brit. Ind. evidently errors of locality

## BIGONIACEÆ.

- Dolichandrone Rheedii* Seem. Shrub or tree with long tubular white flowers opening in the early morning and closing soon. Common. Tidal Rivers, Alexandra Road, Blakang Mati, Bajau, Ponggol, Pulau Ubin.
- Stercospermum chelonoides* De C. Tree. "Chachar." Rare, Bukit Timah.
- S. hyposticta* Miq. Tree, flowers white or violet. Not rare, Tanglin, Bukit Timah, Bukit Mandai.

## PEDALINEÆ.

- Sesamum indicum* De C. Til-seed. "Bijan." Weed in waste ground. Flowers pink rarely white. Cultivated for the seed, which is crushed for oil. Tanglin, etc.



## ACANTHACEÆ.

*Thunbergia alata* Bojer., climber with yellow or orange flowers with or without black eye, and *T. fragrans* Roxb. with white flowers, are common in hedges, being escapes from cultivation.

*Ebermaiera Griffithiana* Anders. Dense jungle, Bukit Timah.

*E. setigera* Nees. Dense jungle, Bukit Timah, Chan Chu Kang, Chua Chu Kang, Jurong.

*Hygrophila salicifolia* Nees. "Chukal." Herb about 2 feet, flowers lilac, ditches, common. Garden lake, Tanglin, Bukit Timah road, Changi.

*H. quadrivalvis* Nees. Changi, Bukit Mandai.

*Ruellia repens* L. Erect or creeping in grass, flowers pale lilac with darker marks in the throat. Very common, Tanglin Changi, Bajau, Selitar, etc.

*Acanthus ebracteatus* Vahl. "Jeruju." A holly-leaved plant with white or blue flowers. Common in tidal mud. Kandang Kerbau, Tanjong Pagar, Alexandra Road, Changi, etc.

*A. rotundifolius* Wall. Twining, leaves not prickly flowers white. Not common, Bajau, Kranji, Chan Chu Kang.

*Asystasia intrusa* Bl. Straggling plant 3 feet tall or less, flowers pale violet. Hedges and thickets. Fort Canning, Government Hill, Tanglin, Chua Chu Kang.

*Eranthemum album* Nees. Flowers white, Jungles, local, Changi, Chan Chu Kang, Ponggol, Selitar, Choa Chu Kang.

(*E. Andersoni* Masters, described from a plant obtained in Singapore by T. Anderson, is only cultivated here.)

*Justicia andrographioides* Clarke. A straggling herb, with pale yellow flowers, leaves veined with white when young. Damp woods, Bukit Mandai, Chan Chu Kang.

- J. Gendarussa* L. "Ganda Rusa." A common shrub round villages, usually an escape from cultivation.
- Adhatoda vasica* Nees. "Singapore, Flor. Brit. Ind." Not seen even cultivated.
- Peristrophe acuminata* Nees. Common herb with pink flowers. Ang Mo Kio, Choa Chu Kang, Tanglin.
- P. montana* Nees. "Noja." Flowers pink, larger than the last. Leaves used for dyeing eggs, cakes, etc., pink. Tanglin, Blakang Mati, Jurong.

## VERBENACEÆ.

- Lantana Camara* L. "Tahi Ayam." All over Singapore, very common. There are several color varieties, the commonest is orange red color, turning orange yellow when passing over; another form is pale pink with a yellow eye turning darker pink, and where these two forms grow together there is an intermediate or hybrid form. There is a slight difference in the form of the lower lip in the two forms, in the orange one the lip is shorter and broader than in the pink one, where it is nearly quadrate, so that the pink flower appears more irregular than the orange one. The plant is a native of South America.
- L. indica* Roxb. A smaller shrub with lilac flowers, and dark pink fruits. Waste ground near town, abundant, Rochore, Kalang, Balestier plain.
- Lippia nodiflora* Rich. Prostrate herb, flowers lilac. Waste ground, Rochore.
- Stachytarpheta indica* Vahl. "Selasih Dende." Common shrub, flowers blue. Waste ground, everywhere.
- (*S. mau'abilis*, much bigger, with rosy flowers, introduced here and there.)
- Geunsia farinosa* Bl. (Wallich, No. 1836); not seen.
- (*Callicarpa Reeresii* Wall. Singapore, Murton in Fl. Brit. Ind. is cultivated only.)

- C. longifolia* Lam. Shrub, lilac flowers and white fruit. "Tampoh Besih." Common in hedges, Bukit Timah, Tanglin, Ang Mo Kio.
- Premna*. "Buas Buas." A group of shrubs with small white flowers, and black drupes. All very closely allied and difficult to distinguish.
- P. cordifolia* Roxb. Tanglin, Thomson Road.
- P. parasitica* Bl. Changi.
- P. corymbosa* Roth. Climber, Garden jungle.
- P. flavescens* var. *rubens*. Pasir Panjang.
- P. coriacea* Clarke. Jurong.
- P. integrifolia* var. *angustior*. A low prostrate plant, Serangoon River.
- Gmelina villosa* Roxb. "Bulang." A thorny shrub, with large yellow flowers, fruit a yellow acid plum. Common, Tanglin, Changi, Teluk Kurau.
- G. Hystrix* Kurz. occurs in the Garden road, possibly wild.
- Vitex trifolia* L. "Lagundi." Often planted, possibly wild at Bajau.
- V. Negundo* L. Bukit Timah Road, Bukit Mandai; probably an alien.
- V. pubescens* Vahl. "Alban." Tree, flowers blue, very common in secondary growth. Whole island.
- V. vestita* Wall. Tree, flowers yellow. Common in woods, Bukit Timah, Chan Chu Kang.
- V. gamosepala* var. Tree, rare, Changi.
- Clerodendron inerme* Gaertn. Shrub, flowers white stamens pink. Very abundant near the sea, Rochore, Changi, Selitar.
- C. disparifolium* Bl. "Guriam Padang." Small tree, flowers yellow, fruit black with a red calyx. The wood is used

for blackening the teeth. Very common in woods and thickets. Tanglin, Bukit Timah, Changi, etc.

*Cl. deflexum* Wall. A small shrub about 4 feet high with nodding heads of white flowers surrounded with numerous red sepals. Drupe black. Very common, Tanglin, Garden jungle, Chan Chu Kang, Tampenis.

*Cl. panicu'atum* L. Shrub with brilliant crimson flowers. Mandai, Kranji. Doubtfully wild.

*Cl. villosum* Bl. Common shrub with white flowers. Whole island.

*Cl. myrmecophilum* Ridl. \* A slender shrub, with the stem hollow and filled with ants' nests. Panicles large, flowers orange. A handsome plant, rare, streams at Choa Chu Kang. Several cultivated kinds also occur in waste ground near villages; such are *C. fallax* Lindl. *C. squamatum* Vahl. *C. fragrans* Vent. and *C. siphonanthus* Br. which is cultivated by Klings, who use the leaves for smoking instead of Hemp, and call it Ganja.

*Cl. ivoraeflorum* Hassk. A white flowered species, introduced into Java from Singapore about 1855, I know nothing of, and *Cl. Colebrookianum* Walp. "Singapore Lobb" and *Cl. infortunatum* Gaertn. mentioned from Singapore also in Flor. Brit. Ind. I have never met with.

*Sphenodesma pentandra* Jack. "Akar Sulong." Not common, Changi.

*Aricennia officinalis* Bl. "Api-Api." Very common in mangroves and along tidal rivers. River Valley Road, Changi, Pulau Ubin, etc.

#### LABIATE.

*Coleus atropurpureus* Benth. Flowers bright purple. Open country. Ang Mo Kio, Chan Chu Kang.

*Hyptis suaveolens* Poit. Very common in waste ground. Sepoy Lines, Tanjong Katong, Mt. Faber, Changi, etc.

*H. brevipes* Poit. Common, Tanglin, Ang Mo Kio, etc. Both of these are introductions from South America, now thoroughly established.

*Dysophylla auricularia* Bl. "Ekor Kuching." Flowers pale lavender in long spikes. Very common in wet spots. Tanglin, Changi, etc.

*Anisomeles ovata* Br. Not common, Tanglin.

*Leucas zeylanica* Br. "Katumbet." A common weed with white flowers, waste ground. Tanglin, Blakang Mati, Selitar, etc.

*L. tinifolia* Spr. Less common, Mt. Faber, Siglap.

*Ocimum basilicum* L. Basil. "Ruku-Ruku," often cultivated, occurs spontaneously in waste ground, as does also *Leonurus sibiricus* L. and *Leonotis nepetifolia* Br.

## PLANTAGINEÆ.

*Plantago major* L. "Ekor Angin." Waste ground, Chan Chu Kang, Tanglin, etc.

## NYCTAGINEÆ.

*Boerhaavia repens* L. Sandy places, Galang.

## AMARANTACEÆ.

*Allmania nodiflora* Br. Sandy spots. Changi, common.

*Amarantus spinosus* L. "Bayam Duri." Common weed in waste ground. Tanglin, Rochore, etc.

*A. viridis* L. "Bayam Itek." Common in waste ground, everywhere.

*A. caudatus* L. Cultivated, and often as an escape.

*A. paniculatus* L. Government Hill.

*Cyathula prostrata* Bl. Not rare, weed in waste ground. Bukit Timah, Pulau Ubin, Teluk Kurau.

*Alternanthera sessilis* Br. Common everywhere.

*Papalia atropurpurea* Miq. Singapore (Wallich in Flor. Brit. Ind., but in Wallich's Catalogue it is labelled 6933 L. Singapore et Penang). Not seen here by me.

POLYGONACEÆ.

*Polygonum flaccidum* Meisn. Common in wet spots, ditches, etc. Tanglin, Bukit Timah Road, Rochore.

*P. pedunculare* Wall. Singapore. Wallich, not seen.

*P. barbatum* L. Ditches, Holland Road, Galang, Chan Chu Kang.

NEPENTHACEÆ.

The pitcher plants are known to the Malays as "Poko Priok Krah," (ape's cups). The stems of the stouter kinds are used for binding fences. They always occur in open country, borders of woods, etc., and are absent from dense jungle.

*N. ampullaria* Jack. A common kind with the pitchers in whorls often sunk in the ground, pitchers green, or more or less spotted with purple. I once found a plant with ivory white pitchers. Tanglin, Chan Chu Kang, etc.

*N. Rafflesiana* Jack. Pitchers often very large. Common all over Singapore.

*N. phyllamphora* Willd. Not common, Changi, Jurong.

*N. Reinwardtii* Miq. Common, Bukit Timah, Changi.

*N. gracilis* Korth. Blakang Mati, Changi, Bukit Timah.

*N. albomarginata* Lobb. "Singapore, Wallich." Surely an error for Penang, where it is abundant.

ARISTOLOCHIACEÆ.

*Aristolochia unguiflora* Mast. A climber with large trilobed leaves and purple flowers. Local in long wet grass. Jurong.

*Thottea grandiflora* Rottb. "Seburut." A low shrub, 2 feet tall with rough hairy leaves, and bell-shaped flowers as big as a tumbler, hairy with raised veins outside, smooth deep purple inside. A very curious plant. Common in dry jungles, Bukit Timah, Reservoir woods, Bukit Mandai, Chan Chu Kang, Bajau.

*Th. dependens* Klotsch. Rare, Sungei Buluh.

## PIPERACEÆ.

*Piper* (*Muldera*) *Maingaji* Hook. fil. Climber, rarely flowering. Common. Jungles, Bukit Timah, Chan Chu Kang.

*P. (Cubeba) sumatrana* Cas. Not common, Reservoir woods.

*P. pedicellosum* Wall. Rare, Chan Chu Kang.

*P. muricatum* Bl. An erect herb. Not very common, Bukit Timah, Chan Chu Kang, Jurong.

*P. (Charica) caninum* Bl. "Lada Hantu." Slender climber, common in woods. Garden jungle, Selitar, Kranji, Pulau Tekong.

var. *lanata*. Less common, in more exposed spots. Siglap, Chan Chu Kang, Pulau Ubin.

var. *angustifolium*. Garden jungle, Changi.

*P. chaba* L. "Bakek." Cultivated. I have also what may be a wild form of this under the name "Bakek hutan" from Bukit Mandai, (5851).

*P. sarmentosum* "Chabei." "Kadok." An erect herb with long runners. Common in orchards, villages, etc., all over Singapore.

(*P. Betel* L. "Sirih," and *P. nigrum* L. "Lada hitam" are often cultivated.)

*P. miniatum* Bl. "Sirih Ayer." Climber, fruit-spikes red. Woods, not rare, Reservoir woods, Bukit Mandai, Toas, Chan Chu Kang.

*P. rostratum* Roxb. Erect, rare, Bukit Timah.

*P. porphyrophyllum* E. Br. A well known ornamental climbing plant, leaves deep green spotted white and pink. Common but rarely flowering, dense woods, Bukit Timah, Selitar, etc.

(*Peperomia erigua* Miq. A little weed in gardens, on walls, etc., introduced. Tanglin, Chan Chu Kang).

#### CHLORANTHACEÆ.

*Chloranthus officinalis* Bl. Shrublet, with slender spikes of white flowers and translucent white berries. Damp ravines in jungles, local but abundant. Bukit Timah, Bukit Mandai, Jurong.

#### MYRISTICACEÆ.

The wild nutmegs are very plentiful in Singapore, occurring in all the bigger jungles, but almost invariably in an isolated manner, so that it is often by no means easy to get both sexes of any species. They are all trees, varying in height from about fifteen feet to 100 or more. The seeds seem to be (in all but *M. cinnamomea*) deficient in aromatic properties, and are not used by the natives at all. The timber is often good. The native name for the cultivated Nutmeg is "Pala," the Mace being called "Bunga Pala," (literally flowers of Nutmeg). Many of the wild species are called "Pala Hutan," etc.; but "Pendarah," with the local variants Menarah, Mendarah, and Chendara, is the common name for other species.

*M. elliptica* Wall. Common, Bukit Timah, Bukit Mandai, Chan Chan Chu Kang. *var.* Bukit Mandai, Chan Chu Kang.

*M. bracteata* De C. A very large tree, rare, Bukit Timah.

*M. cinnamomea* King. Not common, Bukit Mandai, Sumbawang, Changi, Selitar.

*M. crassa* King. Flowers orange, Garden jungle, Bukit Mandai, North Selitar, Sungei Morai.

*M. Lowiana* King. Rare, Kranji.



- M. iners* Bl. Rare, woods, Bukit Mandai.
- M. ferruginea* Wall. (Cat. 6803.) Rare, Selitar.
- M. superba* Hook. fil. Rare, Sungei Bengkuaug, Toas.
- M. rubiginosa* King. Rare, Garden jungle, Mt. Faber.
- M. Wallichii* Hook. fil. Bajau (3364), also collected by Cantley without locality.
- M. sucosa* King. Rare, Kranji (6558).
- M. Farquhariana* Wall. Common, Garden jungle, Bajau, Selitar.
- M. Forbesii* King. Selitar.
- M. bivalvis* Hook. fil. Very rare, a single male tree in the Botanic Gardens, probably planted, but not known elsewhere.
- M. crassifolia* Hook. fil. Bukit Mandai, Chan Chu Kang, Bajau.
- M. Irya* Gaertn. Rare, Garden jungle.
- M. majuscula* King. Not rare, Tanglin, Cluny road, Bukit Timah, Selitar.
- M. brachiata* King. Singapore (Wallich); not seen.
- M. polysphaerula* Hook. fil. Not rare, Jurong, Chan Chu Kang, Kranji.
- M. oblongifolia* King. Rare, Bukit Timah.
- M. conferta* King. Bukit Mandai, Changi.
- M. Wrayi* King. Rare, Sungei Jurong.
- M. intermedia* Bl. The commonest species. Tanglin, Changi, Bukit Timah.
- M. laurina* Bl. Common, Garden jungle, Bukit Timah.
- M. glauca* Bl. Garden jungle, Kranji, Pulau Ubin.
- M. glaucescens* Hook. fil. Cluny Road.

*M. Hookeriana* Wall. Usually about 20 feet tall, with large leaves covered when young with brown wool which peels off as the leaves become coriaceous, fruit covered with brown wool. Not rare, Tanglin, Bukit Timah, Chan Chu Kang, Choa Chu Kang.

*M. Cantleyi* Hook. fil. Bukit Timah.

*M. longifolia* Wall. Bukit Timah.

*M. pendulina* Hook. The only tree of this species known is in the Botanic Gardens, but must have been planted.

#### MONIMIACEÆ.

*Matthea sancta* Bl. "Churom." A large shrub with small yellow flowers and steel blue fruits. The Jakuns smoke the leaves with tobacco to cure headaches. Common in woods and thickets, Garden jungle, Bukit Timah, Chan Chu Kang, Ang Mo Kio.

#### LAURINEÆ.

Trees, more rarely shrubs, with usually unisexual flowers. A difficult group, owing to the difficulty of getting flowers of both sexes and fruits, many being imperfectly known. The trees are usually called "Medang" by the Malays.

*Cryptocarya Griffithiana* Wt. "Medang Buaya." Medium sized tree, with hairy yellow flowers. Not rare, Tampusis, Changi, Selitar, river, Changi Teban.

*C. impressa* Meissn. "Munjuat." A tall tree. Rare, Garden jungle.

*C. ferrea* Bl. Chan Chu Kang, Choa Chu Kang, Bukit Mandai. And two other species.

*Beilschmiedia malaccensis* Hook. fil. Rare, Bukit Timah.

*Dehaasia microcarpa* Bl. Sungei Jurong.

*Cinnamomum javanicum* Bl. Not rare in dense woods, but very rarely flowering. Garden jungle, Bukit Timah, Ang Mo Kio.

- C. incrs* Reinwdt. A medium sized tree, never tall, common in open country. The young leaves are red and yellow and appearing just before flowering give the tree a fine appearance. The flowers are yellow and foetid, the fruit blue-black. The bark is but feebly aromatic. Whole island, Tanglin, Changi, etc.
- C. nitidum* Bl. Very much like the last, but with larger flowers. Not common, Tanglin.
- Phæbe opaca* Bl. A big tree, flowers yellow, fruits black on swollen red peduncles. Garden jungle, Bukit Mandai.
- Ph. declinata* Nees. "Singapore, Wallich." Not identified.
- Ph. sumatrana* Miq. Changi (1811).
- Machilus rimosus* Bl. Changi (4707).
- Alseodaphne decipiens* Hook. fil. Small tree, flowers yellow, fruit obovate green with white spots. Garden jungle, Chan Chu Kang.
- A. umbelliflora* Hook. fil. Not common, Selitar, Chan Chu Kang.
- A. costalis* Nees. and *A. lucida* Nees. collected in Singapore by Wallich Nos. 2594 B and 2590, are entirely doubtful plants.
- Actinodaphne pruinosa* Nees. Botanic Gardens.
- A. Maingayi* Hook. fil. Dense woods, Bukit Timah.
- Litsea grandis* Bl. Near Tyersall, Bukit Mandai.
- L. amara* Bl. Jurong, Pulau Ubin.
- L. penangiana* Hook. fil. Common, flowers white, fruit white in a green cup. Woods, Tanglin, Bukit Timah.
- L. myristicæfolia* Wall. Siglap, Changi.
- L. Pavamonja* Ham. Rare, Garden jungle.
- L. longipes* Meissn? "Mullay." Rare, Balestier Road.

- L. ferruginea* Bl. Garden jungle, Bukit Arang.
- L. zeylanica* Nees. A large bush, common on the sea coast.  
Changi, Pulau Ubin, Bedoh.
- L. salicifolia* Roxb. Garden jungle.
- L. polyantha* Juss. Chan Chu Kang, Kranji, Changi.
- L. petiolata* Hook. fil. Garden jungle.
- L. nitida* Bl. Bukit Mandai.  
And a number of unidentified species.
- Lindera malaccensis* Hook. fil. Small tree, flowers yellow.  
Abundant in woods, Garden jungle, Tanglin, Bukit  
Timah, Chan Chu Kang, etc.
- L. sp.* "Perawas." Tree, leaves used medicinally. Galang,  
Garden jungle.
- Cassytha filiformis* L. A leafless twining parasite. Common  
near the sea, Blakang Mati, Changi, Chan Chu Kang,  
etc.
- Hernandia peltata* Meissn. Singapore, Wallich No. 7811.  
Not seen.

## PROTEACEÆ.

- Helicia petiolaris* Benn. Tree, common in woods. Bukit Timah,  
Jurong, Woodlands, Kranji, Changi, Garden jungle.
- H. excelsa* Bl. "Membatu Laiang." Not very common, Changi,  
Chan Chu Kang.

## THYMELEACEÆ.

- Aquilaria malaccensis*. The Gaharu, is rare here. I have only  
seen it at Kranji.
- A. grandiflora*. Rare, Bajau.
- A. sp.* A medium sized tree with small white flowers and  
very small fruits. Garden jungle.

*Gonystylus Maingayi* Hook. fil. This aberrant tree is now referred by some botanists to Tiliaceæ. It occurs in the Garden Jungle, Bukit Mandai and Chua Chu Kang.

*Wikstroemia indica*. "Singapore, Lobb;" doubtless an error.

## SANTALACEÆ.

*Henslowia Lobbianà* De C. Climber. Common near the coast, Changi, Kranji, Chan Chu Kang.

*H. burifolia* Bl. Apparently a root parasite. It is a twiggy, often nearly leafless shrub, entirely bright yellow. Berry at first yellow, then red and finally black. Dry woods near the sea, Bajau, Changi, Kranji, Sungei Buluh.

*Scleropyrum Maingayi* Hook. fil. "Rukam puteh." A shrub or small tree with stout spines, flowers greenish yellow in dense spikes, fruit pear-shaped green juicy when ripe. Woods, not rare, Tanglin, Changi, Kranji, Bukit Mandai, Selitar.

*Chempereia Griffithiana* Planch. "Chemperei." A shrub with white branches, small light brown flowers and orange fruit. The leaves are eaten as a vegetable, but it is said to be poisonous to dogs. Sandy spots on the coasts, Changi, Tampenis, Selitar, Bajau.

*Linostoma pauciflorum* Griff. A slender climber with light yellowish green flowers enclosed in greenish cream colored bracts. Common, Garden jungle, Blakang Mati, Bukit Timah, Changi, Loyang.

*L. scandens* King. "Akar kareh hitam." A scandent shrub or tall climber. Common, Garden jungle, Changi, Chan Chu Kang.

## LORANTHACEÆ.

These parasites are often very destructive to trees in gardens. They are called by the Malays "Api-Api" or Senalu, with its variants Bendalu, Ndalù.

- Loranthus Loblii* Hook. fil. A variety with red, not yellow flowers. Changi, Chan Chu Kang.
- L. coccineus* Jack. Bukit Mandai.
- L. ferrugineus* Roxb. Common, Tanglin, etc.
- L. longiflorus* Desr. Flowers crimson-scarlet. On a very lofty tree, Bukit Timah.
- L. pentandrus* L. A big stout plant, flowers light pinkish red; parasitic on *Eugenia*. Gardens, Alma, Bukit Timah, Chan Chu Kang.
- L. albidus* Bl. Flowers white, rare, Bukit Timah.
- L. retusus* Jack. On *Rhodomyrtus* and *Eugenia*, near the sea. Changi, Blakang Mati, Pulau Tekong, Jurong.
- L. ampullaceus* Roxb. Flowers green and black. Very common, Tanglin, Changi, Chan Chu Kang.
- L. crassus* Hook. fil. Gardens, Changi.
- L. Maingayi* Hook. fil. A very curious little flowered species, flowers brown. Rare, Kranji (6923).
- Viscum articulatum* Burm. Parasitic on *Loranthi*. Common, Tanglin.
- V. orientale* Willd. On *Ficus*, and *Macaranga javanica*. Common, Rochore, Bukit Timah, Jurong, Chan Chu Kang, etc.

## EUPHORBIACEE.

- Euphorbia atoto* Forst. A shrubby plant, sea coasts, Changi.
- E. pulifera* L. "Gelang Susu." Common weed in waste ground, everywhere.
- E. thymifolia* Benn. Prostrate weed, waste ground, paths, etc. Common, Tanglin, etc.
- (*E. Tirucalli* L. A large succulent shrub, often cultivated, occurs as an escape. The milk is used in native medicine, and for putting into the wounds made for marking

- cattle to make the marks permanent. Said to be a native of Africa.)
- Agynwia bacciformis* Muell. A little shrubby plant, in grass, seashore. Teluk Kurau.
- Bridelia tomentosa* Bl. "Kenidai." Shrub or small tree. Garden jungle.
- B. pustulata* Hook. fil. Shrub. Jurong, Selitar.
- Cleistanthus levis* Hook. fil. Tree, Garden jungle, Changi.
- Cl. myrianthus* Kurz. Bushy tree with coppery leaves. Kranji road, near Stagmount, Jurong, Chan Chu Kang.
- C. hirsutulus* Hook, fil. Rare, Bukit Timah.
- C. macrophyllus* Hook. fil. Rare, Bukit Timah.
- C. nitidus* Hook. fil. "Singapore, Lobb"; doubtless Penang.
- Actephila javanica* Miq. Wallich 8016. A shrub with very small greenish white flowers. Common, Garden jungle, Bukit Timah, Bukit Mandai.
- Phyllanthus pectinatus* Hook. fil. "Laka, Malakka." A handsome tree with a trunk like a yew and elegant feathery foliage. The fruit a yellowish green angled drupe, acid; and used for preserves and in curries. The town of Malacca is said to take its name from the tree. Common in woods, Bukit Timah, Chan Chu Kang, Mandai.
- P. coriaceus* Wall. "Singapore, Wallich 7946." Not seen only known from Wallich's collection.
- P. pulcher* Wall. *Reidia glaucescens* Miq. Small shrub, sometimes cultivated as an ornamental plant, possibly wild, but usually seen about cultivated ground. Tanglin.
- P. maderaspatensis* L. A small weed. Changi.
- P. niruri* Wall. "Dukong Anak Merah." Common weed, waste ground, Tanglin, Galang, Changi.



- P. urinaria* L. "Dukong Anak." Common weed everywhere, used medicinally, and it is also supposed that after chewing a bunch of this plant it is possible to bite up glass with impunity.
- (*P. distichus* Muell. *Cicca acidissima* is sometimes cultivated.)
- Glochidion*. Trees with inconspicuous flowers. "Ubah," of the Malays.
- G. littorale* Bl. Banks of tidal rivers. Chan Chu Kang.
- G. goniocarpum* Hook. fil. Not rare, Tanglin, Bukit Timah, Galang.
- G. desmogyne* Hook. fil. Rare, Bukit Timah, Selitar.
- G. insulare* Hook. fil. Not rare, Selitar, Bukit Mandai, Toas, Jurong, etc.
- G. brunneum* Hook. fil. "Ubah Merah." Gardens, Bukit Timah.
- G. desmocarpaceum* Hook. fil. Not common, Tanglin, Bajau.
- G. lrevigatum* Hook. fil. Bukit Timah, Sungei Bruang, Bukit Mandai.
- G. microbotrys* Hook. fil. Tall tree with flaking bark. Flowers very small scented of cucumbers. Gardens, Chan Chu Kang, Changi, Pulau Ubin.
- G. superbum* Baill. Small tree with large leaves. Common in open country all over Singapore.
- G. leiostylum* Kurz. Common, Gardens, Selitar.
- G. coronatum* Hook. fil. Rare, Jalan Bray.
- Breynia rhamnoides* Muell. Large shrub. Eskbank (Hullett).
- B. discigera* Muell. Rare, Upper Bukit Timah.
- B. reclinata* Hook. fil. "Hujan Panas." A shrub conspicuous from its bright red berries, but why called Hujan Panas,



lit. warm rain, no one seems to know. Very common, especially near the sea, Tanglin, Reservoir, Changi, etc.

*Sauropus albicans* Bl. "Chekop Manis." A small shrubby plant with dark green leaves with a white central blotch, red flowers and pink or white fruit. A popular native vegetable, leaves eaten as spinach. Waste ground, common.

*Cyclostemon longifolius* Bl. A tree with pendent branches and large leathery leaves. Rarely met with in flower. Common in woods, Garden jungle, Selitar.

*Choriophyllum malayanum* Benth. Sandy spots near the sea. Rare, Seremban; also collected by Wallich, 7975.

*Aporosa ficifolia* Baill. Not rare, Bukit Timah, Chan Chu Kang, Garden jungle.

*A. nigricans* Hook. fil. Tanglin, Bukit Timah, Bukit Mandai.

*A. Maingayi* Hook. fil. A shrub, Garden jungle, Selitar, Kranji, Jurong.

*A. fruticosa* Muell. A bush, common, Tanglin, Tanjong Gol, Chan Chu Kang.

*A. Praineana* King. Bukit Mandai, Selitar, Kranji.

*A. Benthamiana* Hook. fil. Tree, about 40 feet tall, with red showy fruits. Not rare, Tanglin, Bukit Timah, Chan Chu Kang.

*A. lunata* Benth. Not common, Jurong.

*A. stellifera* Hook. fil. Garden jungle, Kranji, Bukit Timah.

*A. falcifera* Hook. fil. Not common, Jurong, Toas.

*Daphniphyllum laurinum* Baill. "Ruas-Ruas jantan." A big shrub or tree with white flowers, and olive shaped green fruits. Usually near the sea, Changi, Kranji, Teban, Siglap.

*Antidesma velutinosum* Bl. Shrub with racemes of pink fruits. Common, Garden jungle, Changi, Pulau Ubin, etc.

*A. cuspidatum* Muell. "Sebasah." A big shrub, common in thick woods, Bukit Timah, Changi, Bukit Mandai, Teban, Reservoir woods.

*A. fallax* Meisn. Not common, Bukit Timah.

*A. alatum* Hook. fil. Thick woods, common, Bukit Timah, Changi, Bukit Mandai, Jurong.

*A. lunias* Spreng and *A. ghaesembilla* Gaertn. mentioned in Flora Brit. Ind. I have not seen wild.

*Baccaurea*. A genus of trees of no great size, with flowers in long scented racemes. Fruit usually a capsule, orange colored or brown, splitting and disclosing the seeds enwrapped in an orange pulp hanging from the placentas; sometimes the fruit is a berry, and does not split. Most are more or less eatable though often acid.

*B. parviflora* Muell. "Setambun." A small tree with a knotted stem, and very hard compact yellow wood, used for making sticks. The male flowers are borne in racemes in tufts on the stem, they are yellow and smell like cowslips. The female racemes are borne at the foot of the tree, so as to lie on the ground. The fruit is a spindle-shaped berry, claret colored and eatable though acid. A common plant. Tanglin, Bajau, Changi, etc.

*B. macrophylla* Muell. Tree small or medium. Fruits globose dull orange russet, pulp of seed orange, sweet. Garden jungle. Selitar.

*B. molleyana* King. "Rambai." A well known fruit, common in cultivation and apparently also wild.

(*B. Malayana* King. "Tampoi." Occurs in cultivation but is not common.)

*B. bracteata* Muell. A small tree. Common, Bukit Mandai, Holland Road, Kranji.

*B. latifolia* King. Garden jungle (6264).

*B. sp.* B. in Flor. Brit. Ind. Garden jungle, Kranji.

- B. reticulata* Hook. fil. Kranji, Selitar.
- B. Kunstleri* King. A fair sized tree, fruits ochreous, with orange pulp. Common, Garden jungle, Selitar, Tanjong Gol.
- B. minor* Hook. fil. Fruit as big as a cherry, ochreous pulp orange. Garden jungle, Bukit Timah.
- B. symplocoides* King. A small tree, fruits orange, aril crimson. Garden jungle, Chan Chu Kang.
- B. sp.* Tree with narrow lanceolate acute leaves, flowers green. Garden Jungle (6263).
- Microdesmis casearifolia* Planch. A small tree, flowers bright yellow, berries red. Thick woods, common, Garden jungle, Changi.
- Galearia.* Low shrubs with long slender spikes of very small flowers, fruits white pulpy. The species are all very much alike and difficult to distinguish.
- G. affinis* Benn. Woods. Garden jungle, Changi, Bajau.
- G. Wallichii* Br. Changi (Hullett).
- G. subulata* Muell. Garden jungle.
- G. phlebocarpa* Br. The commonest species. Garden jungle, Bukit Timah, Chan Chu Kang, Pulau Ubin.
- G. sp.* with the leaves pubescent beneath, shoots and racemes covered with black pubescence. Changi, Siglap.
- (*Jatropha curcas* L. "Jarak Blanda." Occurs in and near villages.)
- (*J. gossypifolia* L. A garden escape, occurs here and there).
- (*Aleurites Moluccana* Willd. Candle nut Singapore nut, Kamiri, Buah Kras, is often cultivated).
- Croton argyratus* Bl. A shrub, leaves silvery beneath. Local, Batu Putih, Changi.

- C. caudatus* Geisel. "Tuku Takal." There are two forms, if they are not specifically distinct here, one a long stout woody liana with rough greenish capsules. Common at Tanglin, Chan Chu Kang. The other a scandent or erect shrub with erect racemes of white flowers and hard globose yellow capsules as big as a bullet.  
Common in open country. Tanglin, Bukit Timah, Bajau, Changi.
- C. Griffithii* Hook. fil. A common shrub in woods. Garden jungle, Bukit Timah, Sungei Buluh, Chan Chu Kang.
- C. longifolium* Roxb. Bukit Mandai, Selitar.
- Trigonostemon longifolius* Baill. A small shrub. Not common, Chan Chu Kang, Kranji Road.
- Ostodes macrophyllus* "Kayu Julong." A tree, rare, Bukit Panjang (common in Malacca).
- O. muricata* var. *minor* and *Dimorphocalyx capillipes* Hook. fil. "Singapore Lobb"; evidently an error for Penang.
- Agrostistachys filipendula* Hook. fil. A big stiff shrub. A gum which exudes from the buds was formerly collected for making a resin for polishing sheaths of Krises. Local. Sandy spots near Changi.
- A. longifolia* Benth. var. *Malayana*. "Julong Julong." A low little or unbranched shrub, with large erect stiff leaves, used for thatching and wrappers. The Singapore plant is very different from that of Pahang and Perak, which is a much larger branched shrub. Common in woods. Tanglin, Sungei Buluh, Chan Chu Kang, etc.
- Claoxylon indicum* Hassk. A large shrub. Thickets, Grange Road.
- Cl. longifolium* Muell var. *brachystachys*. Woods, not rare, Bukit Timah, Pulau Ubin, Bukit Mandai, Chan Chu Kang.
- Acalypha indica* L. A weed, common in waste ground. Bajau, Galang, Pulau Ubin, Teluk Kurau.

- Celodepas ferrugineum* Hook. fil. A small tree with long slender yellow flower spikes, and capsules covered with brown wool. Garden jungle (5991, 6481), Bukit Timah.
- Alchornea villosa* Muell. "Ramin bukit." A big shrub, the bark used for string. Common in thickets and edges of woods. Bukit Timah Road, Reservoir woods, Chan Chu Kang, Bukit Mandai.
- A. ruycosa* Muell. Common, Changi, Serangoon.
- Mallotus macrostachyus* Muell. A big shrub. Thickets, Bukit Timah Road at the 9th mile.
- M. Cochinchinensis* Lour. "Balik Angin." A small tree, pretty when in flower from its pendent white racemes. The under side of the leaves is white, so that when blown by the wind the whole tree appears white, whence the native name. A fairly good fibre can be obtained from the bark. Common in open country, Tanglin, Kranji, etc.
- M. penangensis* Muell. Not common, Bajau, Toas, Sungei Morai.
- M. philippinensis* Muell, and *M. barbatus* Muell, given in Flor. Brit. Ind. as from Singapore; (the latter collected by Lobb) are doubtless errors.
- M. vernicosus* Hook. fil. "Singapore Botanical Garden, Cantley" is altogether doubtful.
- Macaranga hypoleuca* Muell. A fair sized tree with white stems and white undersides to the leaves. Sticks of its wood are used for setting gambier. Common in dry woods and secondary growth, all over Singapore. "Mahang putih."
- M. megalophylla* Muell. "Kubin." A fair sized tree with very large leaves. The wood used for making windmills, hence its name. Selitar, Choa Chu Kang.

- M. trichocarpa* Muell. A shrub half scandent, with irritating prickly capsules. Dry woods, common, Tanglin, Bukit Timah, Changi.
- M. javanica* Muell. "Mahang." A common tree all over the island with reddish inflorescence, and small capsules bilobed smooth, and covered with a waxy coat. It is doubtful whether this is the same as the Javanese species. Open country and secondary growth, exceedingly common.
- M. triloba* Muell. A medium sized tree, leaves entire or three lobed. Young plants have red leaves, and look very handsome. Abundant all over Singapore, in woods, Tanglin, Changi, Pulau Ubin.
- M. Lowii* King. Not common, Jurong, Tyersall, Chan Chu Kang.
- M. populifolia* Muell. Big tree, in woods, Bukit Timah.
- Ptychopappis costata* Miq. A big tree, flowers velvety yellow, fruit large green hairy wrinkled. Not common, Garden jungle, Chan Chu Kang.
- (*Ricinus communis* L. "Jarak," Castor oil; occurs near villages.)
- Endospermum malaccense* Muell. "Sendok-sendok." A big tree, with smooth grey bark, flowers green very sweet, fruit as large as a pea, orange, sweet. The wood is used to make clogs. Not rare, Bukit Timah, Chua Chu Kang.
- E. chinense* Benth. Singapore, Wallich 7846; a doubtful specimen.
- Gelonium multiflorum* Juss. Woods, Changi, Bukit Timah.
- G. bijarium* Roxb. Sea coasts, Changi, Pulau Ubin.
- Megistostigma malaccense* Hook. fil. A stinging climber. Garden jungle.
- Homalanthus populifolius* Grah. Occurs here and there, about the Alexandra road and elsewhere, probably planted.

- Sapium discolor* Muell. A tall tree, very common, Tanglin, Jurong, Reservoir.
- S. indicum* Roxb. "Gucing." Sea coasts, Kranji, Pasir Panjang.
- Erecocaria ayallocha* L. A small tree full of poisonous milk, flowers green, very fragrant. Sea coasts, often growing between rocks. All round the coasts, Kranji, North Selitar, Toas.
- Sebastiania chamorlea* Muell. A herb. Sandy spots, Changi, Blakang Mati.

## URTICACEÆ.

- Trema orientalis* Bl. A common shrub in waste ground, Tanglin, Changi.
- T. angustifolia* Bl. Not common, Changi.
- T. timorensis* Bl. Very common, Tanglin, Chan Chu Kang.
- Givonniera nervosa* Planch. "Kasap." A big tree, with small bright orange-colored fruits. Common in woods, Tanglin, Chan Chu Kang, Changi.
- G. subaequalis* Planch. A big tree, less common, Tanglin, Chan Chu Kang.
- G. parvifolia* Planch. A small tree in dense jungle common in the hill districts of the peninsula, rare in Singapore, Bukit Timah, Kranji.
- Strobilus asper* Lour. A climber with milky juice. Rare, Pulau Ubin.
- Sloetia sideroxydon* Teysm. "Tampenis." A big tree with dark brown heart wood, one of the best timbers in the region, being untouched by termites and unaffected by ordinary decay for a very long time. The wood when fresh cut exhales an unpleasant odor. Large trees are now scarce as the natives cut them when young to make carrying sticks, and gambier stirrers, etc. There is a good deal of difference in the size of the leaves

according to the age of the tree. Young shoots from an old stump usually have large leaves, and it seems to me that *S. penangiana* Oliv and *S. Wallichii* King are mere states of *S. sideroxylon*, Teysm. The natives however certainly draw a distinction between some forms calling *S. Wallichii*, Tampenis putih and *S. sideroxylon*, Tampenis Merah, i.e. red and white Tampenis. The plant flowers very readily, even seedlings in a pot sometimes flower and fruit when only a foot and a half tall. The fruit is a soft white drupe enclosed in the four thickened white sepals. These are sweet and eatable and any pressure on them ejects the fruit to some distance so that if a bird attempts to eat them the fruit is thrown out.

Common in dry woods, open country, etc., especially the broad leaved var. *penangiana*. Tanglin, Chan Chu Kang, Changi, etc.

*Ficus*. The figs are tolerably well represented here, no less than 35 species occurring in the island. They comprise creeping shrubs, big climbers, erect shrubs from two feet tall to trees of great size. The figs, none of which here are eatable, are sought for by birds, especially pigeons, bul-buls and starlings, and by fruit-bats, which frequent the trees when in fruit in great numbers, and distribute the seeds everywhere. The common Malay name for any species of *Ficus* is "Ara." "Sipadik" is applied to many scandent species, and "Kelampong" to such trees as bear the figs clustered on the stem. Most of the trees are of rapid growth with soft valueless timber.

*F. pisiifera* Wall. Small tree, figs white, common, Bukit Timah, Bukit Mandai, Pulau Ubin.

*F. wrophylla* Wall. "Ara Supudeh." A shrub, often epiphytic on other trees and sometimes killing them, figs small orange. Very common, Tanglin, Bukit Timah, Chan Chu Kang.

(*F. bengalensis* L. A big tree, often planted.)



- F. bracteata* Wall. A medium sized tree, figs orange. Not rare near the sea, Changi, Batu Puteh, Chua Chu Kang.
- F. annulata* Bl. Climber or tree, figs large and orange. Rare, Bukit Timah.
- F. globosa* Bl. A bushy tree, figs dark green, common in thickets, Bukit Timah, Bukit Mandai, Changi, Toas, Reservoir.
- F. xylophylla* Wall. A small tree or epiphyte, figs 2 inches long orange with darker spots, very handsome. Not rare, Galang, Bukit Timah, Changi, Selitar.
- F. obtusifolia*. Rare, Pulau Ubin.
- F. altissima* Bl. Big tree. Garden jungle, Serangoon.
- F. consociata* Bl. Var. *Murtoni*. A tree or large shrub, figs orange. Not rare on the coast, Changi, Selitar, Ponggol, Bukit Timah.
- F. procera* Bl. A big tree. Fort Canning, Changi.
- F. microstoma* Wall. Not seen. Singapore, Wallich 4566.
- F. indica* var. *Gelderii*. An epiphyte or tree. Selitar, Pulau Ubin.
- F. sumatrana*. Tree. Chan Chu Kang.
- F. acamptophylla* Miq. Big tree, not rare, Bukit Timah, Changi, Kranji, Bajau, Serangoon.
- F. binnendykii*. Mangrove swamps, Jurong, Kranji, Tampenis.
- F. obtusifolia* Roxb. Rare, Pulau Ubin (Hullett).
- F. Benjamina* L. "Waringin." Commonly cultivated.
- F. glabella* Bl. Big tree, figs small white with pink spots. Chan Chu Kang, Bedok, Bukit Timah.
- F. retusa* var. *nitida*. Tree. Galang, Changi, Bajau.  
(*F. religiosa* L. Commonly planted.)

- F. pisocarpa* Wall. A big tree. Government House Grounds, Tanglin, Changi, Chan Chu Kang.
- F. callicarpa* Miq. A big climber with flattened stem, figs very large, pear-shaped orange with paler spots, very showy. On big trees, common, Bukit Timah, Chan Chu Kang.
- F. punctata* Thunb. Slender climber on old stumps. Tanglin, Chan Chu Kang, Selitar, Tanjong Gol.
- F. apiocarpa* Miq. Strong climber, figs pear-shaped large orange red. Tanglin.
- F. obscura* Bl. Figs yellowish white. Not rare, Bukit Timah, Chua Chu Kang.
- F. lavis* Bl. Rather rare, Bukit Timah, Pulau Ubin (Hullett), Chua Chu Kang.
- F. recurva* Bl. var. *ribesioides*. Bajau, Sungei Morai, Kranji, Chan Chu Kang.
- F. ramentacea*. Climber with yellow milk, figs bright pink. Dense woods, Bukit Timah, Chan Chu Kang.
- F. villosa* Bl. Climber, figs red or yellow, hairy. Tanglin, Bukit Timah, etc. Very common.
- F. diversifolia* Bl. Small shrub, terrestrial in sandy spots or epiphytic in mangrove swamps. Var. *ovoidea*. Very common, Changi, Kranji, Sungei Buluh, Teban, Selitar, Pulau Tekong.
- F. Mique'i* King. Medium to large tree, figs green with whitish spots, at length dull red in clusters on the stem. Very common, Tanglin, Bukit Timah, Bukit Mandai.
- F. ribes* Reinwdt. Singapore, Wallich; not seen.
- F. fistulosa* Reinwdt. Bukit Timah, Changi, Chan Chu Kang Pulau Ubin.
- F. glandulifera* Wall. Tree with spreading crown, figs yellow. Not very rare, Garden jungle, Changi.

- F. alba* Reinwdt. A shrub leaves lobed and large when young smaller and entire in older trees, white beneath, figs, yellow, becoming red. Very common in open country.
- F. chrysocarpa* Reinwdt. A small shrub with rough leaves and golden hairy figs. Common in open country everywhere. Dr. King calls this 10 to 30 feet tall, and distinguishes it from *F. hirta* by the latter being small and having lobed leaves. I have never seen this more than 5 or 6 feet tall, and the leaves are never lobed.
- F. chartacea* Wall. A very slender shrub with very small yellow figs. The bark is used for string. Common in thick woods, Garden Jungle, Changi, Bukit Mandai.
- Artocarpus rigida* Bl. "Tampunei." Monkey Jack. A very fine large tree with round yellow fruits covered with short spines and enclosing numerous seeds embedded in an orange colored sweet pulp. An excellent fruit. Tanglin, Changi, Chan Chu Kang.
- A. Kunstleri* King. "Getah Terap." A large tree, very variable in the shape of its leaves in young trees deeply lobed, in adults ovate oblong entire. The best is used for cordage, and as clothing by the Sakais. The milk is used as birdlime. Common all over Singapore.
- A. Lowii* King. Rare. Bukit Timah.
- A. Maingayi* King. Rare, Toas.
- A. Scortechinii* King. Not rare, Garden jungle, Kranji.
- A. lanceifolia* Roxb. "Keledang." A very large tree with excellent timber. Not common, Tanglin, Changi.
- A. Lakoocha* Roxb. "Tampang Ambong." Not rare, Bukit Timah, Chan Chu Kang, Tanglin, Changi, Pulau Ubin.
- A. Gomeziana* Wall. "Tampang." A medium sized tree. Fruits smooth round, yellow and shining outside, inside rose pink, eatable but sour.
- A. pedunculata* King. Rare, Bukit Mandai.

- A. integrifolia* L., the Jack, "Nangka;" *A. incisa* L., Bread fruit; and the "Sukun" said to be a variety of it; and *A. polyphema* Pers., the Champedak, are cultivated. The latter may possibly be wild at Changi.
- A. sp.* Large tree with pinnate leaves and fruit like that of *A. rigida*, probably undescribed. Garden jungle, Pulau Ubin, Bukit Timah.
- A. sp.* Medium sized tree with small leaves, and small green fruits with white flesh  $1\frac{1}{2}$  inch long, seeds few. Garden jungle.
- Conocephalus suaveolens* Bl. A big scrambling shrub with large leaves and compact heads of dirty white flowers, smelling of pears. Not rare, thick jungles, Bukit Timah, Bukit Mandai, Pulau Ubin.
- C. amarus* King. Flowers pink. Dense jungles, Selitar, Pulau Ubin.
- C. Scortechinii* King. Singapore, Maingay, and *C. subtrinervius* Miq. collected by Lobb, probably erroneously localised.
- Fleurya interrupta* Gaud. A weed, sometimes stinging. Tanglin. (*Pilea muscosa* Lindl. Introduced, common in waste spots in gardens, etc.)
- Pouzolzia indica* L. and var. *angustifolia*. "Ubai-Ubai." Used as a vegetable by the natives. A low weed, not very common, Bukit Timah, Chan Chu Kang.
- P. pentandra* Benn. A common weed, Tanglin, etc.
- Pellionia javanica* Wedl. "Singapore Lobb," doubtless an error for Penang.
- Elatostema molle* Wedd. Singapore, Wallich 4633; probably an error for Penang.
- Pipturus mollissimus* Wedd. Shrub. Rare, Toas.

## JUGLANDEÆ.

- Engelhardtia Wallichiana* Lindl. Tree with winged fruits.  
Rare, Garden jungle.
- E. serrata* Bl. Rare, Changi.

## MYRICACEÆ.

- Myrica Nagi* Thumb. "Gilinche." A small tree with dark green leaves and very small red drupes, much smaller than those figured in the Botanical Magazine t. 5727. Common on the sea coasts, Toas, Changi, Jurong, Blakang Mati; rarer inland, Bukit Timah.

## CUPULIFERÆ.

Oaks and chestnuts are very abundant in Singapore, and are usually fairly large trees, the timber however is usually remarkably poor and valueless. When in flower, the small green blossoms are visited by myriads of small blue-bottle flies, with red heads. The fruits are sought for and dispersed by squirrels.

- Quercus oidocarpa* Korth. Not common, Garden jungle.
- Q. Wallichiana* Lindl. Jurong, Changi.
- Q. spicata* var. *graci ipes*. "Berangan Padi." Bukit Timah, Pulau Ubin.
- Q. sundaica* Bl. "Mempening Bagan." Not rare, Changi, Tengah.
- Q. Lamponga* Miq. Our commonest species. A medium sized tree with leaves silvery on the back. Very common, Tanglin, Changi, Chan Chu Kang. A form passing into *Q. Ewyckii* occurs in many spots. Selitar, etc.
- Q. hystrix* Korth. "Mempening." Common Bukit Timah, Kranji, Chan Chu Kang, Toas.
- Q. conocarpa* Oudem. Common, Garden jungle, Reservoir, Changi.

- Q. Bennettii* Miq. Rare, Garden jungle, Bajau.
- Q. Cantleyana* King. Common, Tanglin, Bukit Timah, Chan Chu Kang.
- Q. lucida* Roxb. Common, Changi, Selitar, Bukit Mandai.
- Q. encleisocarpa* Korth. A big tree, acorns almost completely enclosed in the very thin cup. Common, Tanglin, Bukit Timah, Changi.
- Q. cyclophora* Endl. with very large disc-like acorns. Singapore, Wallich; not seen.
- Castanopsis javanica* De C. "Katek Tanga." "Berangan Gajah." A big tree with very large spiny chestnuts, uneatable. Common, Tanglin, Changi.
- C. Wallichii* King. Garden jungle, Bukit Timah, Chan Chu Kang. Changi, common.
- C. hystrix* Dr C. Rare, Toas.
- C. Hullettii* King. Involucre without spines but stout ridges on them. Nuts eatable and good. Garden jungle, Bukit Timah, Sumbawang, Bukit Mandai.
- C. sp.* Like the last, but the involucre are spiny, and leaves smaller. Garden jungle, Changi.
- C. nephelioides* King. Rare, Bukit Timah, Pulau Damar.
- C. sumatrana* De C. Singapore, Wallich 2762; not seen.

## CASUARINEÆ

*Casuarina equisetifolia* Forst, "Ru", is often planted, and was possibly wild here formerly.

## CONIFERÆ.

*Dacrydium elatum* Wall. "Singapore, Schomburgk" in Flor. Brit. Ind., must have been of course from a garden. The tree does not occur wild at much less than 2,000 feet altitude in the peninsula.

*Podocarpus neglectus* Bl. "Sintada." Common in mangroves, and all round the island, Kranji, Changi, Jurong, Serangoon.

*P. neriiifolia* Don. Sea coasts, Changi.

*Agathis loranthifolia* Salisb. Very rare, a few young plants in a wood near Changi. This Damar tree is usually to be met with only at an altitude of about 2000 feet in these latitudes, but both at Changi, and in the low country of Siak, Sumatra, I have found small plants growing far in the jungle.

## GNETACEÆ.

*Gnetum neglectum* Bl. A big climber, fruit apricot color. Common in forests, and in woods near the sea. Garden jungle, Chan Chu Kang, Kranji, Bajau, Pulau Tekong.

*G. macrostachyum* Hook. fil. Not rare, Bukit Timah, Changi, Jurong, Selitar.

*G. junicu'are* Bl. A big climber, the bark used for making string. Common, Tanglin, Sumbawang, Kranji.

*G. edule* Bl. Rare, near Selitar.

## CYCADACEÆ.

*Cycas Rumphii* Miq. Sandy spots by the sea. Changi, Toas.

## MONOCOTYLEDONES.

### HYDROCHARIDÆ.

*Hydrilla verticillata* Casp. A common water weed in ditches Tanglin, Chan Chu Kang.

*Blyxa malaccensis* Ridl. An aquatic with grassy leaves. Tanglin, Chan Chu Kang.

*Euhalus Koenigii* Rich. "Setul." A marine plant with long strap-like leaves. The male flowers are very small and white, borne in a pair of large green boat-shaped bracts on the end of a long stalk. When fully developed the inflorescence rises to the surface, and the flowers break off and float away till they come in contact with a female flower which they fertilise. The sea is sometimes sprinkled all over with them. The female flowers are solitary in the bracts. After fertilization the stalk contracts into a spiral and the fruit is drawn down to the bottom of the sea to ripen. It is ovoid, green and hairy, about  $1\frac{1}{2}$  inch long. Malay children eat it. The Dugong (*Halicore*) lives mostly on the leaves of this plant. It is very abundant in shallow bays in the Johore Strait, round Blakang Mati and wherever the sea is shallow enough for it.

*Halophila ovata* Gaud. A small creeping marine plant with obovate leaves. Abundant in shallow bays in mud. Changi, Blakang Mati.

### BURMANNIACEÆ.

*Burmannia coelestis* Don. "Sisik Naga." A slender little plant with blue urn-shaped flowers, in grassy spots, common. Tanglin, Pasir Panjang, Mt. Faber.

*B. tuberosa* Becc. A small white saprophyte, usually almost completely buried in the ground. Flowers white with yellow corolla lobes, scented of cowslips. Damp



jungle in rotten leaves, Chan Chu Kang, Bukit Timah, Bukit Mandai.

*Thismia Aseroe* Becc. A saprophyte, with urn-shaped flowers, the perianth lobes drawn out into tails yellow. Decaying leaves in wet jungles. Fairy point, Changi (Beccari), Bukit Timah, Kranji.

*Th. fumida* Ridl.\* Somewhat like the last but smoky grey. Rare, Chan Chu Kang.

*Gymnosiphon borneense* Becc. An exceedingly fragile little plant, with lavender flowers. Dense jungles in rotten leaves, Bukit Timah, Chan Chu Kang.

#### ORCHIDEÆ.

*Oberonia*. Small epiphytic orchids with ensiform distichous leaves and slender spikes of very small green, yellow or red flowers.

*O. dissitiflora* Ridl.\* Mangroves, Kranji.

*O. lunata* Lindl. On a high tree, Selitar, Bukit Timah.

*O. anceps* Lindl. Galang, Kranji.

*O. miniata* Lindl. "Singapore cultivated in Loddiges Garden," has not been seen here of late years, and is probably an error of locality.

*O. ciliolata* Hook. fil. Mangrove swamps and orchard trees. Kranji, Chan Chu Kang, Changi, Sungei Morai, Bukit Timah.

*Microstylis*. Terrestrial orchids, with the stems usually swollen at the base, thin-textured leaves, and small red green or yellow flowers.

*M. micrantha* Hook. fil. A creeping plant with a rather long cylindric stem, and lanceolate copper colored leaves, which "sparkle like the stone avanturine." Flowers very small red and yellow. On dead leaves, Bukit Mandai, Changi, Selitar.

- M. congesta* Rchb. f. Stem swollen at the base, flowers pink or green. Common in woods, Bukit Timah, Kranji, Sungei Pandan.
- Liparis venosa* Ridl. The finest in the genus. Flowers fairly large, petals and sepals pink, lip with dark red veins. Terrestrial. Woods, very rare. Chan Chu Kang.
- L. nervosa* Lindl. Flowers yellow or purple. Terrestrial in swamps among grass in water Changi, Ang Mo Kio. near the Reservoir, Tanglin.
- L. elegans* Lindl. Epiphytic, with stiff leaves, and racemes of small yellow flowers with a red lip. Common on old stumps and trees near the sea. Selitar, Kranji.
- L. disticha* Lindl. Epiphyte. The flowers crowded to the end of the raceme with distichous bracts; small, opening one at a time, apricot colored. Common. Mangrove swamps. Kranji, Chan Chu Kang, etc.
- Platyclinis longifolia* Hemsl. Epiphyte, forming large tufts, with conical pseudobulbs, long narrow leaves and long nodding spikes of brown flowers. It is easy to cultivate, and flowers all the year. Dry woods near the sea, Kranji, Sungei Jurong.
- Dendrobium longicolle* Lindl. \* Epiphytic, forming a tuft of long slender pseudobulbs, bearing one leaf apiece, flowers solitary on long stalks with long filiform petals and a yellow lip. Rare, growing with the last. Sungei Morai. First discovered by Cuming.
- D. (Bollidium) punctatum* Roxb. A little tufted plant with two leaves to each stem and one or two small flowers, yellow or veined with purple. Not rare on trees. Mangrove swamps, orchards, etc. Kranji, Bajau, Selitar.
- D. (Sect. Lesmotrichum) lonchophyllum* Hook. fil. Stems branched and swollen at intervals. Flowers small and fugacious, yellow with pink stripes. Common all over Singapore.
- D. criniferum* Lindl. Flowers yellow spotted purple, lip with

many yellow filaments on the end. Mangroves. Kranji, Sungei Morai, Changi.

- D. Kunstleri* Hook. fil. Flowers cream color with pink spots Bukit Timah, Kranji, Changi.
- D. pallidiflorum* Ridl.\* Flowers yellowish white. Rare. Kranji.
- D. lacinosum* Ridl.\* Flowers yellowish. Rare, Pulau Selitar.
- D.* (Sect. *aporum*) *Serra* Lindl. Stems flat covered with opposite distichous triangular leaves sometimes red, flowers very small, white. Common, Kranji, Changi, etc.
- D. sinuatum* Lindl. Stems as the last, but leaves longer; flowers orange small. Common, Selitar, Kranji.
- D. eulophotum* Lindl. Flowers yellow striped red. Common, Kranji, Bajau.
- D. rhizophoreti* Ridl. Mangroves, Kranji, Sungei Buloh.
- D. atropurpureum* Miq. Flowers brownish red or yellow. Common, Tanglin, Kranji.
- D. Leonis* Rehb. f. A stout plant with triangular dull green flat leaves and fairly large yellowish flowers spotted red, scented of vanilla. On trees, common, Tanglin, Selitar, Bukit Timah.
- D. prostratum* Ridl. A smaller plant than the last, creeping on the trunks. Mangrove swamps. Kranji, Selitar, Sungei Blakang.
- D.* (Sect. *strongyle*). This section has slender stems with terete curved leaves.
- D. teres* Lindl. Stems a foot tall, flowers white, an orange spot on the lip. Pretty but rare, on high trees, Toas.
- D. junceum* Lindl. "Singapore Hort. Loddiges;" probably an error.
- D. aciculare* Lindl. "Singapore," probably an error.

- D. subulatum* Hook. fil. A small tufted plant, flowers white with pink veins. Bukit Timah, Bukit Mandai, Selitar.
- D. acerosum* Lindl. Common, Kranji.
- D. flexile* Ridl. Rare, Bukit Timah.
- D.* (Sect. *Virgata*) *conostachia* Rehb. f. Terrestrial, growing in water, with slender erect stems grassy leaves and small brown flowers. "Rumput Raja Sari." Changi, Bukit Mandai.
- D. villosulum* Wall. Like the last but hairy. On leaves in dry woods, Bajau, Sungei Buloh, Kranji.
- D.* (Sect. *Bambusaefolia*) *gemelum* Lindl. Epiphyte with long slender stems and pale yellow flowers. Common in mangrove swamps.
- D. pensile* Ridl. A very curious plant with long hanging stems, fleshy leaves and yellow flowers in pairs. Mangroves, Selitar.
- D.* (Sect. *clivata*) *tuberiferum* Hook. fil. Rare, Selitar, Toas.
- D. crumenatum* Sw. The "pigeon orchid." Very common all over Singapore.
- D.* (Sect. *distichophylla*) *bifarium* Lindl. A small plant with pale yellowish white flowers. Not rare, Tanglin, Toas, Selitar, Serangoon.
- D. pandaneti* Ridl. A curious plant with long creeping stems and grassy leaves, flowers fawn color and white. It always grows on Pandans, or Sagos, or Coconut palms, climbing up the stems. Bukit Mandai, Jurong.
- D.* (Sect. *brevislores*) *calibotrys* Ridl. \* A pretty plant with bunches of white flowers with a red and yellow lip, sweet scented. Rare, Toas, Sungei Morai.
- D. euphlebiun* Rehb. f. Mangrove swamps, Kranji, Selitar, Toas.
- D. flavidulum* Ridl. A tall slender plant with yellow or whitish flowers. Kranji, Jurong. Mangrove swamps.

- D.* (Sect. *Pedionum*), *pyropum* Ridl. A tall plant with bright orange flowers, fairly large. Very rare, Chua Chu Kang.
- D. lamellatum* Lindl. An odd plant with ovate flat thin stems and white flowers turning yellow. Damp woods, rare, Changi.
- D.* (Sect. *speciosa*) *Dalhousieanum* Wall. This well-known and grand plant has once been found on a big fallen tree in the forest at Chan Chu Kang.
- Bulbophyllum micranthum* Lindl. Flowers fairly large pink, spotted, scented of cloves. Common in woods.
- B. patens* King. Like the last but smaller. Chan Chu Kang.
- B. rugosum* Ridl.\* Flowers yellow. Not common, Chan Chu Kang.
- B. pileatum* Lindl. Selitar.
- B. striatellum* Ridl.\* Flowers very small, yellow. Not common, Chan Chu Kang.
- B. catenarium* Ridl. Abundant on mangrove trees. Sungei Buloh, Changi, Selitar.
- B. avicella* Ridl. On mangroves common, Kranji, Bajau.
- B. clandestinum* Lindl. Common on trees, Kranji, Tanglin, Sungei Morai, Selitar.
- B. concinnum* Hook. fil. Flowers small flame-colored. On mangroves abundant, Kranji, North Selitar.
- B. vermiculare* Hook. f. An inconspicuous little plant with greenish white flowers. Mangroves, Kranji, Selitar, Changi.
- B. adenopetalum* Lindl. "Singapore Hort. Loddiges;" is probably an error. It has never been found here again.
- B. apodum* Hook fil. Flowers small yellow in spikes, floriferous. Common, Kranji, Selitar.
- B. botryphorum* Ridl. Forms large tufts on trees, flowers in small pendulous bunches, purple. Mangroves, Kranji, Toas, Sungei Buloh.

- B. densiflorum* Ridl.\* A large long-leaved plant, flowers in bunches purple. Trunks of trees in woods. Selitar, Choa Chu Kang, Bukit Timah, Kranji.
- B. limbatum* Lindl. "Singapore, Loddiges;" locality doubtful.
- B. trifolium* Ridl.\* A curious plant with pink flowers in a bunch like clover. Rare, Sungei Morai.
- B. stella* Ridl. Flowers on a long slender stem in a terminal raceme opening singly at intervals, large yellowish and pink on trees in thick jungle. Bukit Mandai, Jurong, Choa Chu Kang.
- Cirrhopetalum Meduse* Lindl. Flowers in a dense mop-like head, with long tails to the sepals, white with pink spots. Stems and branches of trees in jungle often very high up, or on rocks. Tanglin, Galang, Bukit Timah, Chan Chu Kang, Pulau Ubin.
- C. vaginatum* Lindl. Flowers pale yellow. On trees, common.
- C. concinnum* Hook. fil. Flowers cream with pink spots or entirely pink. Common, Bajau, Kranji, etc.
- C. gamosepalum* Griff. Common, Bajau, etc.
- C. acuminatum* Ridl.\* Rare, Choa Chu Kang.
- C. microbulbon* Ridl.\* Rare, Sungei Buloh.
- C. linearifolium* Ridl.\* Kranji, Bukit Mandai, Chua Chu Kang.
- C. semibifidum* Ridl.\* Rare, Kranji.
- C. makoyanum* Rehb. f. Rare, Chan Chu Kang.
- C. citrinum* Ridl. Flowers yellow. Kranji, Tanjong Gol.
- C. Blumei* Lindl. Mangrove swamps, Kranji, Chan Chu Kang.
- Eria obliqua* Lindl. A small plant with little white flowers. Mangroves, Kranji.
- E. floribunda* Lindl. Flowers in dense spikes white with pink lips, pretty common. Mangroves, Kranji, Sungei Buloh, Sungei Morai.

- E. tenuiflora* Ridl. Flowers thin yellow. Sungei Morai, Toas.
- E. bractescens* Lindl. Trees, usually near the sea. Chan Chu Kang, Pulau Tekong, Pulau Selitar.
- E. pulica* Ridl. Rare, Changi.
- E. endymion* Ridl. Flowers white, sides of lip purple. Rare, Selitar.
- E. nutans* Lindl. Common, Selitar, Toas, Kranji.
- E. neglecta* Ridl. Common, Kranji, Selitar, Sungei Buluh.
- E. longe-repens* Ridl. Not common, Sungei Morai.
- E. pulchella* Lindl. Common on trees or rocks. Kranji, Pulau Tekong, Sungei Morai.
- E. pannea* Lindl. On trees. Common, Kranji, Chan Chu Kang.
- E. stellata* Lindl. Rare, Choa Chu Kang.
- E. striolata* Rehb. f. Rare, Kranji.
- E. vestita* Lindl. Not uncommon, Kranji, Sungei Brih, Sungei Morai.
- E. oligantha* Hook. fil. Local, Toas.
- E. velutina* Lindl. Common, Sungei Morai, Kranji, Jurong.
- Phreatia minutiflora* Lindl. A very small plant with minute white flowers. Common in mangroves. Kranji, Toas, Jurong.
- Agrostophyllum majus* Hook. fil. Common, Kranji, Selitar.
- Spathoglottis plicata* Bl. A terrestrial orchid with pink flowers very common in open country and on damp rocks. Tanglin, Bukit Timah, etc.
- Nephelaphyllum pulchrum* Bl. Terrestrial. Damp woods, Bukit Timah, Bukit Mandai, Sungei Brih.
- Plocoglottis porphyrophylla* Ridl. Terrestrial, leaves purple. Local, Kranji, Toas, Selitar.
- P. javanica* Bl. Terrestrial, flowers red and yellow. Woods, local. Chan Chu Kang, Choa Chu Kang.

*P. foetida* Ridl. Wet woods. Bukit Timah.

*Cladonia viridiflora* Hook. fil. A creeping plant climbing up trees. Flowers large green. Common, Garden jungle, Bajau, etc.

*Calogyne testacea* Lindl. Sandy places near the coast on trees and stumps or on the ground. Kranji, Chan Chu Kang, Sungei Morai.

*C. Rochussenii* De Vr. Not common, Selitar.

*C. Cumingii* Lindl. Bukit Timah, on high trees.

*C. Mayeriana* Rehb. f. Flowers green and black, on palm trees near the sea. Very local, Sungei Buluh, Kranji, on high trees, Bukit Timah.

*Calanthe curculigoides* Lindl. A beautiful terrestrial plant, with apricot orange flowers with red lips, in a dense spike. Common, Choa Chu Kang, Kranji, Toa Payoh, Bukit Timah.

*Dilochia Wallichii* Lindl. Singapore (Wallich No. 1952), has never been found again in the peninsula.

*Eulophia squalida* Lindl. Terrestrial, flowers pink and green. Open grassy spots, common. Tanglin, Changi, Chan Chu Kang.

*E. graminea* Lindl. "Bawang hantu." Common in sandy spots. Tanglin, Choa Chu Kang, Chan Chu Kang.

*Cymbidium aloifolium* Sw. Epiphytic. Common on the island and Pulau Ubin.

var. *pubescens* less common, Sungei Buluh, Jurong.

*Grammatophyllum speciosum* Bl. Rare, Toas, Pulau Ubin.

*Dipodium pictum* Rehb. f. Climbing on small trees, in woods. Common, Kranji, Chan Chu Kang.

*Bromheadia palustris* Lindl. Open grassy and sandy spots, very common. Flowers white lip pink and yellow. Sweet-scented.



- B. sylvestris* Ridl. In dense woods, local. Kranji, Changi, Toas, Sungei Morai.
- B. a'ticola* Ridl. On high trees, common, Bukit Timah, Bukit Panjang.
- B. aporoïdes* Rehb. f. On lofty trees. Bukit Timah, Selitar.
- Polystachya singaporensis* Ridl. \* On trees near mangrove swamps, rare, Sungei Morai.
- Adenoccos virens* Bl. A small epiphyte with green flowers. Common on mangroves, Kranji.
- Renanthera alba* Ridl. Local, Pulau Selitar and other islands round the coast.
- R. elongata* Lindl. Rocks, Pulau Ubin; Roadside, Bukit Timah.
- R. Maingayi* Hook. fil. Pulau Selitar.
- Renantherella histrionica* Ridl. Rare. Mangroves, Serangoon.
- Rhynchosstylis gigantea* Ridl. Very rare, one plant on a tree at Selitar.
- Saccolabium perpusillum* Hook. fil. A very small plant with minute white flowers. Common in mangroves, Kranji, Sungei Buluh.
- Microsaccus juvenis* Bl. Mangroves, Kranji.
- Teniophyllum serrula* Hook. f. A leafless epiphyte with long roots and small yellow and white flowers. Common, mangroves, orchard trees, etc. Tanglin, Toas, Kranji, etc.
- Cleisostoma latifolium* Lindl. Singapore, according to Lindley. Not seen.
- C. spicatum* Lindl. ? (*non aliorum*). A common plant in the Peninsula. I am doubtful as to its identification with Lindley's plant. Not common, Jurong.
- Sarcanthus halophilus* Ridl. On trees by the sea, common, Kranji, Sungei Morai, Sungei Tengeh, Pulau Tekong.

- S. densiflorus* Par. *S. castaneus* Ridl. Rare, on a tree, Dalvey road. This is figured by Dr. King, Ann. Bot. Gard. Calcutta Pl. 83 under the name of *Cleisostoma spicatum*, but it is not a *Cleisostoma* at all, as I understand the genus. Lindley's original description of *C. spicatum* is very short, but he says the flowers are pilose and the lip is longer than the spur, which does not apply to this plant.
- Sarcochilus caligaris* Ridl. On tree trunks in dense woods. Bukit Timah, Chan Chu Kang.
- S. adnatus* Ridl. Very rare, Toas.
- Thriasperrun liacinum* Rehb. fil. Scrambling among bushes and grass in swamps. Flowers lilac or white. Common, Selitar, Changi, Ang Mo Kio, Balestier plain.
- Th. calceolus* Rehb. f. Grows in great masses on the ground or on trees. Flowers white sweet fugacious. Common, Kranji, Sungei Morai, Bukit Timah Road, Pulau Ubin, Pulau Tekong.
- T. cruchmites* Rehb. f. On trees, flowers yellow dotted red with very long tails to the sepals and petals. Rare, Selitar.
- T. notabile* Ridl.\* Leaves dull red, flowers pink, on trees. Rare Chan Chu Kang, Bukit Mandai.
- Dendrocolla maculata* Ridl.\* Rare, Bukit Mandai.
- D. trichoglottis* Ridl. Very common on orchards, and gardens. A small plant with fugacious yellowish flowers. Whole island.
- D. filiformis* Ridl. Leaves long slender terete, flowers white. On orchard trees, rare. Bukit Mandai, Chan Chu Kang, Dalvey road.
- Acriopsis javanica* Reinwtd. Epiphyte with slender panicles of pink flowers. Trees, open country. Very common, Tanglin, Changi, Kranji, etc.
- A. Ridleyi* Hook. fil.\* Flowers yellow, very rare, one plant only found at Bukit Mandai.

- Podochilus microphyllus* Lindl. A small creeping epiphyte with white flowers, on mossy trees, common. Chan Chu Kang, Ang Mo Kio, Kranji.
- Appendicula bifurca* Lindl. Common on trees, Sungei Morai, Kranji, Bukit Timah.
- A. callosa* Bl. Very common, Bukit Timah, Sumbawang.
- A. Lewisii* Griff. Singapore (Wallich); not seen.
- A. lucida* Ridl. Mangrove swamps. Common, Kranji, Chan Chu Kang.
- Thelasis elongata* Bl. Common, mangroves, Kranji, etc.
- Oxyanthera elata* Hook. f. Mangroves, common, Kranji, Sungei Buluh.
- O. decurva* Hook. fil. Common, mangroves, Serangoon, Selitar, Kranji.
- Gulcola*. Curious saprophytes with long straggling yellow branches, no leaves, and white or yellow flowers, growing among long grass or over stumps or tree trunks, or even over native huts.
- G. altissima* Rehb. f. Not common, Chan Chu Kang.
- G. hydra* Rehb. f. Kranji, Sungei Buluh.
- Vanilla Griffithii* Rehb. f. Flowers white, fruit sweet, not vanilla scented. Local. Pulau Ubin.
- Corymbis longiflora* Hook. fil. A tall leafy plant about six feet tall with sweet white flowers. Damp woods. Pulau Ubin, Choa Chu Kang.
- Vrydagzynea albida* Bl. A small ground orchid, flowers white. Damp woods. Chan Chu Kang, Bukit Mandai, Choa Chu Kang.
- V. lancifolia* Ridl. Local, Bukit Timah.
- V. tristriata* Ridl. \* A very small plant, leaves reddish olive

- with 3 pink stripes. Very wet spots in jungle, rare, Chan Chu Kang.
- Mucodes Petola* Lindl. Leaves bright green with gold veins. Rare, Selitar.
- Cystorchis variegata* Bl. Leaves apple green with darker markings. Common in wet woods. Chan Chu Kang, Bukit Timah, etc.
- var. *purpurea*. Leaves purple. Choa Chu Kang.
- Hylophila mollis* Lindl. Wet woods, common. Chan Chu Kang, Choa Chu Kang, Bukit Timah, Kranji.
- Heteraria obliqua* Bl. Rare, Bukit Timah.
- Aphylloorchis pallida* Bl. A leafless saprophyte, straw color. Not rare, Tanglin, Reservoir woods, Bukit Timah.
- Anectochilus geniculata* Ridl. Leaves deep red with gold veins, Woods, Toas, Chan Chu Kang, etc.
- Cryptostylis arachnites* Bl. Rare, Bukit Timah, Pulau Damar.
- Pogonia punctata* Bl. Rare, Bukit Timah.
- Didymoplexis pallens* Griff. Leafless purplish saprophyte. Not common, Chan Chu Kang, Bajau.
- Lecanorchis melicenis* Ridl. A black wiry leafless plant with pinkish flowers. Common in woods, Bukit Timah, Bajau, etc.
- Gastrodia javanica* Lindl. Rare, Chan Chu Kang, Bukit Mandai.
- Habenaria singaporensis* Ridl. \* Very rare, Choa Chu Kang woods.
- H. lacerifera* Benth. Small white flowered ground orchid. Common along paths, in grass, etc. Whole island.
- H. Maingayi* King. \* "Singapore Maingay." I have not seen this, and hardly see how it differs from the last, which is a somewhat variable plant.

## APOTASIACEÆ.

- Apostasia nuda* R. Br. Shrubby plant with narrow leaves and small white flowers. Very common in dry woods, Bukit Timah, etc.
- Newwiedia Lindleyi* Rolfe. A tall handsome plant with bright yellow flowers. Not rare, Bukit Timah, Chan Chu Kang, Chua Chu Kang.
- N. Curtisii* Rolfe. Rare, Changi, Kranji. This is the *Tupistra singapuriensis* of Wallich's Catalogue.
- N. Griffithii* Rehb. f. Stems creeping, flowers white. Wet spots. Bukit Timah, Bukit Mandai, Sungei Morai, Chan Chu Kang, Jurong.

## SCITAMINEÆ.

The Gingers have already been described in a previous number of the Journal.

- Globba panicoides* Miq. Woods, Bukit Timah, etc.
- Gl. uliginosa* Miq. Bukit Mandai.
- Gl. leucantha* Miq. Bukit Timah, Chan Chu Kang.
- Curcuma zeoaria* Rosc. Abandoned gardens. Reservoir, Bukit Mandai, etc.
- Costus speciosus* Sm. Common, Jurong, Bukit Timah, etc.  
var. *argyrophyllus* Bukit Timah.
- C. globosus* Bl. Rocky places, Bukit Timah.
- Zingiber zerumbet* Sm. Waste ground.
- Z. gracile* Jack. Bukit Timah.
- Z. puberula* Ridl. Common, Bukit Timah, Serangoon, Bajau.
- Z. Griffithii* Bak. Bukit Timah.
- Amomum hastilabium* Ridl. Bukit Timah, Selitar.
- Hornstedtia scyphus* Retz. Common, Tanglin, Bukit Timah.

- H. Leonurus* Retz. Common. Tanglin, Bukit Timah, Bukit Panjang.
- H. megalochilus* Ridl. Rare, Bukit Mandai.
- H. conica* Ridl. Rare, Bukit Panjang.
- H. Maingayi* Ridl. Local, Bukit Timah, Sungei Buluh.
- Plagiostachys lateralis* Eidl. Local, Bukit Timah, Bukit Mandai, Reservoir woods.
- Elettariopsis latiflora* Ridl. Common, Bukit Timah, Kranji, Sungei Buluh.
- Alpinia melanocarpa* Ridl. Sandy spots near the sea. Kranji, Selitar.
- A. Galanga* L. Waste ground and gardens.
- A. Rafflesiana* Wall. Not common, Sungei Buluh, Changi, Toas.
- Donax grandis* Ridl. Bukit Timah, Bukit Panjang.
- Phrynium Griffithii* Bak. Common, Bukit Timah, Jurong.  
(*Canna indica* L. and *C. Warcewiczii*. Garden escapes. Tanglin, etc.)

## OPHIPOGONEÆ.

- Peiosanthes violacea* Wall. Dense woods, Bukit Timah.
- P. viride* Ridl. Common, Chan Chu Kang, Ang Mo Kio.

## AMARYLLIDÆÆ.

- Curculigo recurvata* Dryand. "Lumbah." Common in open country, Bukit Timah, etc.
- C. latifolia* Dryand. Very common and variable. All over the island.
- C. villosa*, Wall. *C. latifolia*, var. *villosa* Bak. This is a very distinct species from *C. latifolia*. The leaves are narrow lanceolate acuminate caudate stiff, glabrous above, cobwebby

beneath  $2\frac{1}{2}$  feet long and 5 inches wide with a petiole one foot long. Spikes 2 inches long, bracts stiff oblong obtuse green, with the points recurved, something like the spike of a *curcuma*. Flowers aere yellow  $\frac{3}{4}$  inches across. Sepals lanceolate acute petals shorter and blunter. Fruit with beak one inch greenish white. Seeds few black about half as big as those of *C. latifolia* Dry. Not rare, in long grass and secondary growth. Bukit Timah, Tanglin, Chua Chu Kang.

*Crinum asiaticum* L. "Bakung." The common white sea shore *Crinum*. *C. pedunculatum* Br. is said to differ in the long-pedicelled flowers and elongate root stock. I have only seen one species in Singapore and Penang, and that has long pedicelled flowers and no root stock. The flowers open about 6 p. m. and are sweet scented, and very attractive to hawk-moths. Sea coasts, Kranji, Selitar, Pulau Ubin.

*Eurycles sylvestris* Salisb. Is probably native here. It occurs in the sea sand at Changi, Bajau, etc., and is often cultivated.

## TACCACEÆ.

*Tacca cristata* Jack. Common in woods, Bukit Timah, etc.

## DIOSCOREACEÆ.

*Dioscorea daemon* Roxb. "Gadung." A fairly large climber with prickly glaucous stems. The tubers sliced and washed in running water are eaten, but unless so washed are stated to be poisonous. Common in villages; I have never seen it elsewhere.

*D. pyriformis* Kunth. Common, Bukit Timah, Chan Chu Kang, Bukit Mandai, Sungei Pandan.

*D. oppositifolia* L. Garden jungle, Selitar, Bukit Mandai Road.

*D. laurifolia* Wall. Woods and edges of jungles, common, Tanglin, Sungei Morai, Bukit Timah, Changi.

- D. deflexa* Hook. fil. "Singapore Maingay"; not seen.  
*D. polyclades* Hook. fil. Not common. Sungei Pandan.  
*D. glabra* Roxb. Tanglin, Bukit Mandai.  
*D. sativa* L. "Ubi Kistala." Waste ground and hedges, common.  
(*D. alata* L. The yam is often cultivated.)

## ROXBURGHACEÆ.

- Stemona tuberosa* Lour. Not common, Bukit Timah.

## LILIACEÆ.

- Smilax calophylla* Wall. A dwarf erect shrub with yellow flowers and red berries. Common in dense jungle. Garden jungle, Changi, Bukit Mandai, Bukit Timah, etc.  
*S. myosotiflora* A. De C. Slender climber flowers green. Rare, Garden jungle, Chan Chu Kang.  
*S. megacarpa* Roxb. Not common, Garden jungle, Bukit Timah.  
*S. barbata* Wal. A strong climber with upright stems. Common all over Singapore, Tanglin, etc.  
*S. leucophylla* Bl. with large lanceolate acuminate leaves broad at the base, smooth unarmed stem, and large flowers in solitary umbels on stout peduncles 2 inches long. Rare. Tanjong Katong (Hullett), Bukit Mandai, Bukit Timah.  
*Dianella ensifolia* Red. "Lenjuang." Herb, flowers yellowish and fruit white, or flowers and fruits blue. Common all over Singapore.  
*Dracena granulata* Hook. fil. A tree about 20 feet tall with stems about 4 inches through, leaves narrow and dark green, flowers white in large panicles. A beautiful tree. In Journ. Bot. Apr. 1896. I confused this with *D. graminifolia* Wall, a low shrub occurring in the Dindings. Wet jungles, Bukit Timah, Bukit Mandai, Choa Chu Kang.



- D. terniflora* Roxb. A low shrub. Common, thick jungles. Garden jungle, Selitar, Changi, Pulau Ubin.
- D. Porteri* Bak. Common in thick jungles. Garden jungle, Jurong, Chan Chu Kang, Pulau Ubin.
- D. aurantiaca* Wall. *D. Cantleyi* Bak. A shrub little or not branched, leaves green or purple with lighter rings. Flowers purple rarely white, fruit orange. Damp spots all over Singapore, common, Tanglin, Bukit Timah, Selitar, etc.
- D. Maingayi* Hook. fil. A big tree. Sandy spots near the sea. Changi, Sungei Morai, Bukit Panjang, Toas.
- D. singaporensis* Ridl.\* Woods, Chan Chu Kang, Bukit Timah.
- E. gracilis* Wall. Common in jungles, Garden jungle, Chan Chu Kang, Bukit Mandai.
- (*Cordyline terminalis*, the *Dracaena* of Gardens, is not wild anywhere in the peninsula, it is cultivated only.)

## PONTEDERIACEÆ.

- Monochoria hastefolia* Presl. Aquatic, flowers light blue. Common, Galang, Ang Mo Kio.
- M. vaginalis* Presl. Flowers dark blue. Common in ditches all over Singapore; the var. *plantaginea* is even commoner.

## PHILYDRACEÆ

- Philydrum lanuginosum* Banks. Local. Wet sandy spots, Bedoh.

## XYRIDEÆ.

- Xyris anceps* Lam. A tufted grassy plant with terminal cones of brown bracts, with fugacious yellow flowers. Sandy places, Balestier, plain Macpherson road, Changi, Pulau Tekong.

- X. schanoides* Mart. Balestier plain, Reservoir.

## COMMELINACEÆ.

- Pollia sorzogonensis* Endl. Herb, flowers white. Jungle, Pulau Ubin.
- Commelina nudiflora* L. "Rumput Aur." Common weed with blue flowers opening in the early morning and soon withering. Common all over Singapore.
- C. benghalensis* L. Weed in cultivated ground, flowers blue. Tanglin, Galang.
- Ancilema nudiflorum* Br. Small weed with pink flowers, waste ground, Tanglin.
- A. vaginatum* Br. Telok Kurau.
- Forrestia mollis* Hassk. "Setawa." A tall erect plant about, 4 feet high, with white flowers and pink capsules. Common in jungles, Bukit Timah, Tanglin, Tampenis, Reservoir, Pulau Ubin.
- F. marginata* Hassk. Stout creeping plant, flowers white. Capsule purple. Rocks, Bukit Timah.
- Cyanotis cristata* C. B. C. Sandy shores. Changi, Teluk Kurau.
- Floscopa scandens* Lour. Damp spots, Tanglin, Galang.

## FLAGELLARIEÆ.

- Flagellaria indica* L. "Rotan Binni." Stems used for making baskets. Common in mangrove swamps and other places near the sea. Bajau, Changi, Pulau Ubin.
- var. *minor* Jurong, Selitar, Bajau.
- Susum anthe'miticum* Bl. Common in jungle. Bukit Timah, Chan Chu Kang.

## PANDANEÆ.

- Pandanus atrocarpus* Griff. "Mengkuang." The biggest species here, often 40 feet high with very long leaves used for Kajangs, and ataps, baskets, hats, etc. Common all over Singapore, in swamps.

*P. Houlettii* Carr. About 15 feet tall, leaves large, dark red when young. Dense jungle, Bukit Timah.

*P. fascicularis* Lam. "Pandan Duri." A large much branched plant, with heads of fruit as large as a man's head, bright orange. Sea coasts, and often planted. The leaves used for mats and baskets. Common, Changi, Bajau, Blakang Mati, Pulau Ubin.

*P. ornatus* Kurz. A bush with narrow glaucous leaves. Bukit Timah.

*P. laevis* Rumph. "Pandan Jelinkeh," with glaucous unarmed leaves, is often cultivated, the leaves used to flavour rice, and as a perfume.

*P. parvus* n. sp. *Pandanus* 15 Hook. Fl. Brit. Ind. Vol. vi. 487.

This has never been completely described nor named so I give a description of it here. Stem 3 feet tall or less, and  $\frac{1}{2}$  inch in circumference erect grey, emitting long slender roots from all parts often producing shoots at the base seldom branched higher up. Leaves a foot long and 3 inches wide abruptly caudate acuminate, the point 2 inches long very slender dull green above glaucous beneath rather thin in texture, spines very small numerous on the edges and keel at the apex, none on the keel at the base of the leaf. Male spadix six inches long, rachis white. Bracts oblong boat-shaped keeled mucronate lowest 4 inches long, the mucro one inch long in the two lowest bracts which are empty, the upper bracts smaller with the keel, edges, and point green and armed with short stiff spiny bristles. Flowering bracts 7, softer than the lower ones ivory white spinulose ovate to ovate lanceolate, the terminal one flat lanceolate barely  $\frac{1}{2}$  an inch long. Spikes 5 shorter than the bracts except the terminal one  $\frac{3}{4}$  inch long. Stamens free very slender  $\frac{1}{8}$  inch long. Female spadix solitary globose about  $1\frac{1}{2}$  inch long carpels conic rather abruptly passing into a long brown shining upcurved spine nearly  $\frac{1}{4}$  inch long.

Dry woods, common. Bukit Mandai, Bidadari, Changi, Kranji, Sungei Pandan, Pulau Ubin. Also occurs in Johore,

Perak, Sungei Ujong and Malacca. This is a very distinct little species, and one of the smallest known to me. The male plants are very rare. I have only met with one, and have never seen ripe fruit.

Three other Pandans occur here which I cannot at present identify.

*P.* near *P. helicopus* Kurz. but with very short styles to the fruit, leaves broad and very thorny at the tip. Woods, Bukit Timah.

*P.* sp. Stems slender about 5 feet tall much branched, leaves narrow fruit cylindrical 3 inches long and one inch through. Carpels small narrowed into a single curved spine. Streams, Bukit Mandai, Bukit Timah.

*P.* sp. A tall plant about 10 feet high, with long glaucous leaves  $1\frac{1}{2}$  inch broad, tips deflexed. Fruits about 5 in a spike subglobose on a stout peduncle, each 3 inches long, carpels acuminate into a long spine conic, orange color. Forming large thickets in swamps near Bukit Mandai on the road to Kranji.

*Freycinetia angustifolia* Bl. A slender climber with narrow leaves, often covering trees like a mat. Spathes apricot orange. common, Garden jungle, Bukit Timah, Kranji.

*F. Gawlichaudi* Penn. Leaves broader spathes yellow. Common, Bukit Mandai, Bukit Timah, Kranji.

*F. insignis* Bl? A very stout climber much bigger than the others. Thick woods. Garden jungle, Chan Chu Kang, Chua Chu Kang.

#### PALMÆ.

(*Areca Catechu* L. "Pinang." Betel-nut. Commonly cultivated, it does not seem to be known wild anywhere.)

*Pinanga coronata* Bl. Rare, Selitar.

*P. disticha* Bl. A dwarf palm with mottled leaves. Rather rare, Selitar.

- P. Malaiana* Scheff. A tall slender palm. Chan Chu Kang woods.
- P. paradoxa* Scheff.? Rare, Chan Chu Kang. The only specimen I have closely resembles this plant which is otherwise a native of our hills at 2,000 feet upwards.
- P. polymorpha* Becc. "Singapore Lobb;" doubtless an error for Penang.
- Nenga Wendlandiana* var. *Malaccensis*. "Pinang Umu." About 15 feet tall fruit black on a red spadix. Flowers cream colour. Wet woods common; Garden road, Chan Chu Kang.
- Ptychoraphis singaporensis* Becc. "Kerintin." A tufted palm about 10 feet tall. Abundant in dry woods, Garden jungle, Bukit Timah.
- Cyrtostachys Lakka* Becc. The sealing-wax palm. "Pinang Rajah." Wet places near the sea, common, Kranji, Toas, Chua Chu Kang.
- Oncosperma horrida* Scheff. "Bayas." A big thorny palm, common in dense jungle. Garden jungle, Bukit Timah.
- O. tigillaria*. *Areca tigillaria* Griff. "Nibong." Like the Bayas, but with drooping leaves, and smaller fruit. Quite distinct from the Javanese *O. filamentosa* Bl. which is made a synonym in Flor. Brit. Ind. The wood is used in building and for many other purposes. Common usually near the sea, Kranji, etc. The Malays distinguish several other species under the names of Lenou, Ibas, and Bayas Padi, but they do not seem to me to be specifically distinct.
- Iguanura geonomæformis* Becc. Not common. Streams in thick jungle, Bukit Timah, Bukit Mandai.
- I. Malaccensis* Becc. Rare, Chan Chu Kang.
- I. Wallichiana* Hook. fil. "Singapore Lobb"; evidently an error for Penang.

(*Arenga saccharifera* Labill. "Kabong," Sugar palm, is commonly cultivated.)

*Caryota mitis* Lour. "Tukus." Common in woods, Grange Road, Bukit Timah.

*Orania macrocladus* Mart. "Ebol." A noble palm about 40 feet tall. Rare in Singapore. Some trees at Chan Chu Kang. More abundant in Pulau Ubin.

*Nipa fruticans* Wurm. "Nipah." Common in tidal mud, all round Singapore. I have found fruits of this in the swampy ground of the Botanic Gardens near Cluny road, showing that the Bukit Timah stream was formerly tidal and salt as far inland as this.

*Phoenix* sp. A few plants of a wild date occur scattered about round Singapore, at Toas and elsewhere, but I have never been able to get fruits or flowers.

*Licuala ferruginea* Becc. "Palas." A stem-less palm with orange colored flowers and pink fruits. Common in jungle, Garden jungle, Bukit Timah, Chan Chu Kang.

*L. triphylla* Griff. A very pretty dwarf species, local, thick woods, Changi.

*L. spinosa* Wurm. Woods, Pulau Ubin.

*L. acutifida* Mart. "Singapore Lobb"; evidently an error for Penang.

*Livistona Kingiana* Becc. A tall palm about 40 feet or more with large fan shaped leaves. Dense woods, Choa Chu Kang, Toas, Kranji.

*Calamus*. The Rotans so extensively exported from Singapore belong to the genera *Calamus*, *Dæmonorops*, *Korthalsia*, *Ceratolobus* and *Myrialepis*. They inhabit dense forests climbing to the tops of trees by the aid of their thorny flagella or whips. These flagella are used to protect fruit-trees from bats, the natives attaching them to the branches and bunches of fruits in such a way that the bats tear their wings when they fly to the tree.

- C. javensis* Bl. "Rotan Lilin." A fine slender rattan, Kranji, Bukit Timah.
- C. diffusus* Becc. "Singapore Lobb." I know nothing of this.
- C. Singaporensis* Becc. Forest near the Botanic Garden, Murton. A very imperfectly known plant. I do not know it, and can find nothing like it there now.
- C. pallidulus* Becc. Rare, Jalan Bray.
- C. Oxleyanus* Teysm. Rare, Toas.
- C. insignis* Griff. Bukit Timah.
- C. densiflorus* Becc. Bukit Mandai.
- C. Lobbianus* Becc. A short-stemmed species, with dark green leaves with white backs, and curious black fruits. Bukit Timah, Selitar.
- C. n. sp.* near *radulosus*. Garden jungle, Bukit Mandai.
- Dæmonorops grandis* Mart. "Rotan Sumambu." Common, Garden jungle, Bukit Timah, Selitar.
- D. hygrophilus* Mart. "Rotan Sepat." Chua Chu Kang, Chan Chu Kang.
- D. angustifolius* Mart. Garden jungle, Changi, Selitar.
- D. intermedius* Mart. Garden jungle, Bukit Timah.
- D. propinquus* Becc. "Rotan Bakau." Kranji, Bukit Arang, Ang Mo Kio, Bukit Mandai.
- D. didymophyllus* Becc. Common, Bukit Timah, Changi, Toas, Selitar.
- D. leptopus* Mart. Bukit Timah, Selitar.
- D. hystrix* Mart. "Rotan Sabut." Very common, Garden jungle, Bukit Timah, Selitar.
- D. geniculatus* Mart. Bukit Timah, Toas.

*D. longipes* Mart. Chan Chu Kang, Bukit Timah, Manlai Changi.

*D. cochleatus* Teysm. Rare, Selitar.

*D. crinita* Bl. Not rare, but I have never seen flowers or fruits. "Rotan Chinchin," Bukit Timah, Chan Chu Kang.

*D. accedens* Bl. Chan Chu Kang.

*Zabacca conferta* Griff. "Asam Payoh." "Kelubi." A very thorny palm, common in water in jungles, forming close thickets, fruit very acid, sold and eaten by Malays. Cluny road, Chan Chu Kang, Bukit Mandai.

*Z. Wallichiana* Mart. Dryer woods. Bukit Timah, Bukit Mandai.

*Korthalsia echinometra* Becc. Climber with very large swollen sheaths inhabited by ants. Flowers and fruits unknown. Rare, Bukit Timah.

*K. scaphigera* Mart. "Rotan Semut." Common, Garden jungle, Bukit Timah. A good rattan.

*K. flagellaris* Miq. Bukit Mandai, Chan Chu Kang.

*K. polystachys* Mart. Bukit Timah.

*Ceratolobus Kingianus* Becc. Bukit Timah, Selitar.

*Plectocomia Griffithii* Becc. "Rotan Dahan." A very large stout rattan. The flowers produced in an enormous inflorescence of pendulous spikes 8 feet long with close dark brown sheaths enclosing the flowers, each plant is unisexual, and the flowering stems die away after flowering. Common in all the woods.

*Myrialepis Scortechini* Becc. "Rotan Kertong." Bukit Mandai, Selitar, Kranji.

The Sago palms *Metroxylon Sagus* Rottb. and *M. Ruuphi* Mart., the "Lontar," *Borassus flabellifer* L., and the Coconut, *Cocos Nucifera* L. are cultivated here.



## AROIDÆ.

- Cryptocoryne ciliata* Fisch. Very abundant in tidal mud. Flowers very rarely produced, Kranji, etc.
- C. Griffithii* Schott. Aquatic in streams in the forests often almost blocking them. Spathes submerged up to the mouth, tube white, limb dark crimson pustular. Fruits pink. Common, Tanglin, Garden Road, Bukit Timah, Toa Payoh, Kranji, Choa Chu Kang.
- Pistia stratiotes* L. "Kiamban." The Water lettuce, is cultivated by the Chinese to feed pigs. Common in ditches.
- Typhonium Roxburghii* Schott. A weed in waste ground.
- Amorphophallus Prainii* Hook. fil. Bukit Timah.
- A. sp.* Leaf only seen. Reservoir, Bukit Timah.
- Colocasia antiquorum* L. "Keladi," and *Alocasia macrorrhiza* Schott and *A. indica* Schott are commonly cultivated, and occur as garden escapes. *A. cucullata* Schott occurs in waste ground in Tanglin, also doubtless introduced.
- Alocasia denudata* Engl. "Keladi Rimau." With hastate leaves deep green with paler nerves entire and peltate in seedlings, stem mottled with olive, is common in woods and banks all over Singapore.
- A. longiloba* Miq. "Singapore Wallich," is probably erroneously localised.
- Aglaonema nitidum* N. E. Br. with stems 1 to 2 feet tall and narrow deep green leaves at the top, is very common in dense woods. Bukit Timah, Chan Chu Kang, Changi, Pulau Ubin.
- A. oblongifolium* Schott. A stout plant with dark green leaves flecked with white. Common in swamps in the jungle. Chan Chu Kang, Bukit Mandai, Changi, Loyang.
- A. minus* Hook. fil. A dwarf species, leaves often mottled with paler color, or pale or dark green. Common in wet jun-

- gles. Garden Road, Kranji, Chua Chu Kang, Bukit Mandai, Bukit Timah.
- Homalomena sagittifolia* Jungh. "Kelanoyiang." Dense swampy jungle, Selitar, Changi, Bukit Timah.
- H. coerulescens* Jungh. Common in jungles, hedges and banks. Tanglin, Changi, Bukit Timah, Kranji, Selitar.
- H. paludosa* Hook. fil. Wet swampy woods. Common, Kranji, Bukit Timah, Toas, Ang Mo Kio, Jurong.
- H. pumila* Hook. fil. A small plant leaves deep velvety green or purple according to locality. Common in woods, and very variable. Bukit Timah, Selitar, Reservoir woods.
- H. Griffithii* Hook. fil. Common in thick jungle, Bukit Timah, Bukit Mandai, Tanjong Gol, Selitar.
- H. Kingii* Hook. fil. Singapore, swamps (King). Not seen.
- H. ovata* Hook. fil. Singapore (Wallich). Not seen.
- H. singaporensis* Regel. An altogether doubtful plant, cultivated in Russia.
- Schismatoglottis Wallichii* Hook. fil. Dense jungle in ravines abundant. Bukit Timah, Chua Chu Kang.
- S. longipes* Miq. Leaves ovate cordate dark green with a light green bar running round the centre. Abundant, rocky ravines. Bukit Timah.
- Anadenium montanum* Schott. Climbing on trees low down. Common, Garden jungle, Bukit Timah.
- A. medium* Schott. *Pothos bifaria* Wall. *Pothos celaticaulis* of Gardens. The young plant grows flat on trees and rocks with close set distichous velvety green leaves and has long been cultivated under the last name in Europe. This form gradually passes into the adult which has stalked lobed and perforate leaves like those of *Monstera*. Not rare, Bukit Timah, Jurong, Bidalari, Reservoir woods.
- Scindapsus pictus* Hassk. A well known ornamental climber with green leaves mottled with silver. Common in woods

but rarely to be met with in flower. Bukit Timah, Chan Chu Kang.

*Sc. hederacea* Schott. Climber. Common thick woods, Bukit Timah, Sungei Buluh, Sungei Tengeh, Chua Chu Kang, Bidadari.

*Raphidophora Lobbii* Schott. Woods, Bukit Timah.

*R. minor* Hook, fil. Rare, Toas.

*R. gracilipes* Hook, f. ? Rare, Chan Chu Kang.

*Epipremnum giganteum* Schott. A strong creeper, with very large leathery leaves on trees and stumps common, Chan Chu Kang, Bedoh, Sungei Blukang.

*Lasia heterophylla* Schott. Tidal mud, also inland on muddy stream banks. Chua Chu Kang.

*Cyrtosperma lasioides* Griff. Common in marshes. Tanglin, Jurong, Chan Chu Kang, Bukit Mandai.

*Pothos Curtisii* Hook, f. Climbing on trees, Bukit Mandai, Kian-j'i.

(*Acorus Calamus* L. "Deringu" cultivated and occurring as an escape. It rarely flowers here, but I found it in flower in June 1899.)

#### LEMNACEÆ.

*Lemna paucicostata* Hegelm. Ditches, Tanglin, Galang, etc.

*L. polyhiza*. Ditches, Tanglin.

*L. sp.* near *L. trisulca*, L. Galang.

*Wolffia arhiza* Wimm. Ditches, Alexandra road.

#### TRIURIDEÆ.

*Sciaphila affinis* Becc. A minute slender plant pink with violet fruits. Not rare, dense jungle among dead leaves. Bukit

Timah, Chan Chu Kang, Selitar. I doubt this being distinct from Blume's *Sc. tenella*.

NAIADACEÆ.

*Naius minor* All. Ditches, Gardens, often a perfect pest in the Gardens lake.

ERICCAULONEÆ.

*Eriocaulm sexangulare* L. Very common all over Singapore.

*E. truncatum* Ham. Damp sandy spots, common. Tanglin, Tampenis, Bukit Timah, Chan Chu Kang.

CYPERACEÆ.

*Kylinga cylindrica* Nees. Rare, sandy spots. Cathedral close.

*K. melanosperma* Nees. Rare, in long damp grass. Tanglin.

*K. brevifolia* Rottb. Very common, whole island.

*K. monocephala* Rottb. Whole island.

*Pycreus nitens* Nees. Rare, damp sandy spots, Selitar, Changi.

*P. polystachyus* Beauv. Very common, waste ground and open spots. var. *lariflorus*. Marshy ground.

*Cyperus Haspan* L. Very common in marshy spots. Whole island.

*C. diffusus* Vahl. Sandy woods, Bukit Timah.

*C. radians* Nees. Sea shores, Changi.

*C. compressus* L. Common in waste ground, whole island.

*C. Iria* L. Weed of cultivation, whole island.

*C. distans* L. Very common in waste ground.

*C. Malaccensis* Lam. Muddy spots by tidal rivers, Balestier plain.

*C. pilosus* Vahl. Wet or damp spots, whole island.

- C. bancanus* Miq. Cantley's collection, no locality.
- C. Zollingeri* Steud. Common, waste ground near villages.
- C. rotundus* L. Very common weed, gardens and waste ground.
- C. stoloniferus* Retz. Sea sand, Tanjong Ru, Changi.
- Mariscus Dregeanus* Kth. Common sandy places near the sea. Tanjong Katong, Balestier plain, Changi.
- M. Cyperinus* Vahl. Very common in dry spots, all over Singapore.
- M. Sieberianus* Nees. Waste ground, Tanglin, Galang.
- M. albescens* Gaud. Common near the sea. Tanjong Ru, Rochore, Bajau.
- M. microcephalus* Presl. Galang.
- Eleocharis variegata*, var. *luriflora* C.B.C. Very common in ponds and marshes, Tanglin, Reservoir, Blakang Mati, Changi.
- E. ochrostachys* Steud. Not rare, Garden Lake, Changi, Selitar, Tivoli.
- E. capitata* Br. Local, Changi, Tampenis, Teban.
- E. chaetaria* Roem. Common in ditches, Tanglin, Chasseriau Estate, Selitar.
- E. fistulosa* Schultes. Local. Marshes round the reservoir.
- Fimbristylis tetragona* Br. Balestier plain.
- Fimbristylis acuminata* Vahl. Common, Blakang Mati, Bukit Timah, Changi.
- F. setacea* Benth. Rare, Tanglin.
- F. nutans* Vahl. Damp sandy spots, Bukit Timah, Changi, Bukit Mandai, Blakang Mati.
- F. pauciflora* Br. Common all over Singapore in turf, and in damp spots.
- F. diphylla* Vahl. Very common all over Singapore.

- Var. *pluvistriata*. Long wet grass. Bukit Timah, Chan Chu Kang.
- F. aestivalis* Vahl. Damp cultivated ground, Tanglin.
- F. ferruginea* Vahl. Tidal river mud. Kranji, Chan Chu Kang, Pulau Ubin.
- F. spathacea* Roth. Sandy spots near the sea, common. Selitar, Bukit Mandai, Kranji, Changi.
- F. tenera* var. *obtusata*. Sandy spots and in turf, not rare, Tanglin, Jurong, Bukit Timah, Chua Chu Kang.
- F. asperima* Boeck. Woods, Bukit Mandai.
- F. nitida* Vahl. Very common in dry spots all over Singapore.
- F. glauca* Kth. Common. Tanglin.
- F. complanata* Link. Not very common. Botanic Gardens. Chan Chu Kang, Balestier plain.
- F. leptoloba* Benth. Common in sandy spots. Tanglin, Bukit Timah, Changi, Balestier plain.
- Bulbostylis barbata* Kunth. Common everywhere in sandy spots.
- B. puberula* Kth. In Cantley's collection, without locality.
- Scirpus mucronatus* L. Common in pools and ditches, Reservoir, Chan Chu Kang.
- Sc. grossus* Lin. fil. Rare. Ditch at Wayang Satu, Bukit Timah Road.
- Fuirena umbellata* Rottb. Common in swampy spots.
- Lipocarpa argentea* R. Br. Common in wet spots all over the island.
- L. microcephala* Kth. Local. Bukit Mandai, and on the Bukit Timah road near Kranji, Galang.
- Rhynchospora Wallichiana* Kth. Common in dry heathy spots. Jurong, Sungei Morai, Selitar.

- R. ma'asica* C. B. C. Rare, Belok, Bukit Mandai.
- R. aurea* Vahl. Common in wet spots all over the island.
- R. glauca* var *chinensis*. Rare. Sandy spots usually near the sea. Blakang Mati, Changi.
- Schoenus calostachyus* Poir. Rare. Sandy spots, Changi.
- Cladium glomeratum* Br. Damp sandy spots, Changi.
- Gahnia tristis* Nees. Common, Blakang Mati, Bukit Timah, Sungei Morai, Tanglin.
- Remirea maritima*, Aubl. Sea shores, local, Changi, Tanah Merah.
- Hypolytrum latifolium* Rich. Woods, Jurong, Chan Chu Kang.
- H. proliferum* Boeck. Damp spots, Tanglin, Chan Chu Kang.
- Thoracostachyum bancanum* Kurz. Very common in all jungles.
- Mapania palustris* Benth. Dense woods, common, Bukit Timah, Chan Chu Kang.
- M. longa* C. B. C. In streams in jungle, rare, Chan Chu Kang.
- M. multispicata* C. B. C. Jungles, Bukit Timah.
- M. humilis* Naves Jungles, common, Chan Chu Kang, Bukit Timah, Kranji, Bajau.
- Scirpoidendron costatum* Kurz. "Silensing." Common in tidal woods, forming large clumps of long grassy leaves, among which the flower panicles are concealed. The fruit is an inch long and is probably the largest in the order. Bukit Mandai, Jurong, Changi, Selitar.
- Lepironia mucronata* Rich. Swamps, Teban, Jurong.
- Scleria radula* Hance. Bukit Timah, Bedoh.
- Scl. Ridleyi* Clarke. Rare, Changi. It also occurs in Pulau Buru near the Carimon Isles and Hongkong.
- Scl. biflora* Roxb. Damp spots and turf. Blakang Mati, Bukit Timah, Changi, Tanglin.

- ScL. zeylanica* Poir. Wet spots, Changi, Tanglin.  
*ScL. caricina* Benth. Very common, paths and turf, and damp spots. All over Singapore.  
*ScL. lateriflora* Beckler. Kalang, Tanglin.  
*ScL. oryzoides* Presl. Rare, wet spots, Changi.  
*ScL. bancana* Miq. Common in open country, Tanglin, etc.  
*ScL. multifoliata* Boeck. Not uncommon in woods. Bukit Timah, Garden jungle.  
*ScL. sumatrensis* Retz. Very common in open country all over the island.  
*ScL. levis* Retz. Common in dry open spots and waste ground. Whole island.  
*Carex cyrtostachys* Brngn. Local, in a stream on Bukit Timah.

## GRAMINEÆ.

- Paspalum scrobiculatum* L. Common everywhere.  
*P. conjugatum* Berg. Very common, probably introduced.  
*P. distichum* Burm. Plentiful in salt mud all round the island, Tanjong Ru, Bajau.  
*P. sanguinale* Lam. Common everywhere in waste ground.  
*P. longiflorum* Retz. Common in waste ground.  
*Isachne Kurthiana* Wt. Wet places in woods. Bukit Mandai, Chan Chu Kang, Jurong.  
*I. australis* R. Br. Very common in marshes, Tanglin, etc.  
*I. miliacea* Roth. Wet spots in woods, Tanglin, Bukit Timah Road 6th mile, Selitar.  
*Panicum crusgalli* L. Rare, collected by Hullett without locality  
*P. colonum* L. Common in waste ground.



- P. distachyum* L. Not Common, Bukit Mandai, Changi, Tanglin.
- P. repens* L. Common, Tanglin, Reservoir, Changi.
- P. auritum* Presl. Wet, open spots, Reservoir, Changi, Ang Mo Kio.
- P. indicum* L. Common, waste ground.
- P. mysuroides* Br. Ditches, Ang Mo Kio, Kranji.
- P. nodosum* Kth. Hedges and thickets, Tanglin, Chan Chu Kang.
- P. ovalifolium* Poir. Rare, Government Hill.
- P. sarmentosum* Roxb. Woods, Grange Road, Changi, Sumbawang.
- P. luzonense* Presl. Dry roadsides and waste ground, Tanglin, Galang.
- P. patens* L. Shady spots, Tanglin, Bukit Timah, Chua Chu Kang.
- P. pilipes* Nees. Roadsides, Bukit Timah, Gardens, etc.
- P. utrifolium* L. Damp, shady spots, Tanglin.
- Axonopus cymicinus* Beauv. Waste ground, Tanglin, Chan Chu Kang.
- Setaria glauca* Beauv. Waste ground, common. Tanglin, Ang Mo Kio, Chan Chu Kang.
- Thuarea sarmentosa* Pers. Sandy places near the sea, local. Changi, Galang, Teluk Kurau.
- Leersia hexandra* Sw. Common in marshes, whole island.
- Leptaspis urceolata* R. Br. Dense woods, Bukit Timah, Changi, Chan Chu Kang.
- Perotis latifolia* Ait. Sandy places, Cathedral compound, Galang, Changi.
- Zoysia pungens* Willd. Common in turf and near the sea.

- Coxs Lachryma-Jobi* L. "Job's Tears," "Jilei." Occurs in waste ground.)
- Dimeria ornithopoda* Trin. Dry sandy spots, Tanglin, Bukit Timah road. Var. *Subrimosa* sub. var. *imperfecta* Hackel. Changi.
- Imperata arundinacea* Cyrill. "Lalang." Probably the commonest plant in the island.
- I. exaltata* Brugn. "Lalang Jawa." Common, usually near abandoned villages, Selitar, Bajau, Chua Chu Kang.
- Ischaemum rufosum* Salisb. Rare, Galang.
- I. magnum* Rendle. Blakang Mati, Balestier plain, Galang. I have also collected it in Labuan.
- I. muticum* L. Common everywhere.
- I. ciliare* Retz. Roadsides, and turf. Very common.
- I. timorensis* Kth. Roadsides, Tanglin, Kranji.
- Rottboellia glandulosa* Trin. Borders of woods and thickets, Changi, Bajau, Pulau Ubin.
- Andropogon pseudograya* Kth. Sandy places. Galang, Changi, Blakang Mati.
- A. aciculatus* Retz. Very common in turf, etc., everywhere.
- A. contortus* L. Sandy spots near the sea, Changi.
- Anthistivium arjuns* Willd. Dry open spots. Chinese cemetery, Sepoy lines.
- A. gigantea* var. *villosa*. A very tall reedlike-grass. Dry spots. Fort Siloso, Siglap, Balestier plain.
- Polytrias praeorsata* Hack. Grassy spots. Tanglin, Chasseriau Estate.
- Sphoerocaryum elegans* Nees. Wet paths in jungle common, Kranji, Ang Mo Kio.
- Sporobolus indicus* L. Mt. Faber, Ang Mo Kio, Tanglin, Galang.

- Eriachne pallescens* Br. Dry sandy spots. Blakang Mati, Galang.
- Cynodon dactylon* Pers. Common in dry spots.
- Chloris barbata* Sw. Pulau Brani (introduced) Passir Panjang
- Eleusine indica* L. Very common in waste ground. The cultivated variety *coracana* is also sometimes to be met with.
- E. aegyptiaca* Desv. Local, Rochore, Changi.
- Eragrostis tenella* R. and S. Very common in waste ground.
- E. amabilis* Wight. Very common.
- E. elegantula* Steud. Chasseriau Estate.
- E. elongata* Jacq. Dry spots, Tanglin, Changi, Bukit Timah, Chasseriau Estate.
- Centotheca lappacea* Beauv. Common in woods. Garden jungle, Bukit Timah, etc.
- Lophatherum Lehmanni* Brngn. Woods. Garden jungle, Selitar, etc.
- Bambusa Ridleyi* Gamble.\* A very slender bamboo growing in dense woods, Bukit Timah.
- (*Dendrocalamus flagellifer* Munro. Cultivated for its edible shoots. Jurong, Tanglin. )
- Schizostachyum Blumei* Nees. Perhaps introduced from Java, Roadsides, Selitar, Bukit Timah Road.
- (*Gigantochloa verticillata* Munro. Cultivated, Tanglin, Bukit Timah Road. )
- Ochlandra Ridleyi* Gamble.\* "Buluh Kasap." Bukit Mandai, Choa Chu Kang. The Javanese say this is introduced from Java, but it is not known elsewhere than Singapore.

## FILICES.

In this list of the ferns, I have followed Beddome's Ferns of British India.

*Gleichenia linearis* Burm. *Gl. dichotoma* Willd. "Resam," common all over Singapore.

*Alsophila lutebrosa* Hook. Tree fern, stem about 5 feet tall and 2 inches through. Common in damp woods, Bukit Timah, Jurong, Chau Chu Kang, Bukit Mandai, Choa Chu Kang.

*A. comosa* Hook. Not rare, Bukit Timah, Jurong, Selitar, Chan Chu Kang.

*A. Ridleyi* Bak. Rare, Sungei Morai.

*Lecanopteris carnosa* Bl. Very rare, on lofty trees, Bukit Timah,

*Hymenophyllum polyanthos*. Common on trees and rocks in thick woods. Bukit Timah, Kranji, Changi, Bajau, Sungei Morai.

*H. denticulatum* Sw. Not common, mangroves, Kranji.

*H. Neesii* Hook. Selitar, Bukit Timah.

*H. sp.* Bukit Mandai (8938).

*Trichomanes muscoides* Sw. Rocks, Bukit Timah.

*Tr. Javanicum* Bl. Terrestrial, very common in all damp woods.

*Tr. rigidum* Sw. Less common, Bukit Timah, Toas, Kranji, Sungei Morai, Selitar, Tanjong Merawan.

*Tr. filicula* Bory. *Tr. bipunctatum* Poir. Creeping on rocks and trees, not very common, Bukit Timah, Chan Chu Kang, Kranji.

*Tr. maximum* Bl. Rare, Bajau.

*Tr. digitatum* Sw. Rare, Kranji.

*Tr. parviflorum* Poir. "Singapore, Moore's Herbarium" file Beddome; not seen.

*Humata heterophylla* Sw. On trees and on the ground in sandy spots. Common, Changi, Bajau, Tampenis, Kranji, Bukit Timah.

- H. angustata* Wall. On trees, Sungei Morai, Chan Chu Kang.
- H. pedata* Sw. Not common, Kranji, Bajau.
- H. parallela* Wall. Tanjong Merawan.
- H. sessilifolia* Bl. "Singapore, Sinclair and Moore's Herbarium" in Beddome; not seen.
- Leucostegia parvula* Wall. Mangrove swamps. Kranji, Sungei Buluh, Tanjong Merawan.
- Prosaptia contigua* Sw. "Singapore" fide Beddome, must be very doubtful.
- Davallia triphylla* Hook. On lofty trees, apparently by no means rare, but difficult to produce. Bukit Timah, Selitar, Kranji.
- D. solida* Sw. Common, Selitar, Chua Chu Kang, Sungei Merau.
- D. elegans* Sw. On trees, often very high, and on the sand of the shores, Bukit Timah, Changi.
- Microlepia speluncae* L. Common on banks, Tanglin, Ang Mo Kio, Changi, Pasir Panjang, Rochore.
- Lindsays repens* Thw. Climbing on small trees in thick forest. Bukit Timah.
- L. trapeziformis* Dry. *L. lanuca* (L). Dense forest, Bukit Timah Selitar.
- L. borneensis* Hook. Jurong.
- L. rigida* Sm. Rare, Sungei Buluh.
- L. Walkeræ* Hook. In open wet spots, common, but local, Changi, Tampenis, Bukit Mandai.
- L. divergens* Wall. Common in dry woods, Bukit Timah, Bajau, Sungei Morai.
- L. umuginosa* Wall. On trees, Jurong river, Bajau, on trees in the Botanic Gardens.

- Schizoloma lobata* Poir. In dense woods, Bukit Timah.
- Sch. ensifolia* Sw. In thick wet woods. Chua Chu Kang.
- Sch. media* R. Br. Rare, Pulau Brani.
- Sch. heterophylla* Dry. Rare, Pulau Brani.
- Adiantum flabellulatum* L. Banks, Changi; Rocks, Pulau Ubin.  
A few other species have established themselves as garden escapes.
- Cheilanthes tenuifolia* Sw. Common in dry spots, Tanglin, Chan Chu Kang, Pulau Ubin.
- Pteris ensiformis* Burm. Common in dry spots, Bukit Timah, Tanglin, Pulau Ubin.
- Pt. longifolia* L. Mount Pleasant, (Hullett).
- Pt. aquilina* L. Common all over Singapore.
- Litobrochia incisa* Thuab. Tanglin (probably an escape).
- Ceratopteris thalictroides* L. Common in ditches and sluggish streams. Tanglin, Selitar, Changi.
- Blechnum orientale* L. Very common in open places, Tanglin, Bukit Timah, etc.
- B. Finlaysonianum* Wall. In similar localities, Reservoir, Bukit Timah, Chan Chu Kang.
- B. serrulatum* Rich. Singapore (Hullett).
- Thamnopteris nidus* L. Common on trees all over Singapore, the large form var. *musaeifolia* is the commonest form.
- Asplenium squamulatum* Bl. Much resembles the last, but has a creeping stem. Wet woods, usually growing on stumps, Bukit Timah, Chua Chu Kang.
- A. longissimum* Bl. On roots of Bamboos, Tanglin.
- A. tenerum* Forst. Woods, common, Garden jungle, Bukit Timah, Ang Mo Kio.

- A. falcatum* Lam. Rare, woods, Bukit Timah.
- A. macrophyllum* Sw. Not common, Chan Chu Kang, Sungei Buluh, Pulau Ubin (Kunstler).
- Diplazium pallidum* Bl. Toas.
- D. porrectum* Wall. Common in woods, Reservoir, Holland Road, Chan Chu Kang, Bukit Timah, Changi.
- D. bantamense* Bl. Singapore (Hullett).
- D. sylvaticum* Presl. Singapore (Hullett).
- D. speciosum* Mett. Wood near Holland road, Serangoon Road, Bukit Timah.
- D. tomentosum* Hook. Woods, Bukit Timah.
- D. sorzogonense* Presl. Bukit Timah.
- Anisogonium cordifolium* Mett. Recks, Bukit Timah.
- Aspidium Singaporianum* Wall. Woods, common, Bukit Timah, Chua Chu Kang.
- A. vastum* Bl. Woods, Bukit Timah, Pulau Ubin.
- A. cicurium* Sw. Common in woods, Sungei Blukang, Bukit Timah, Pulau Ubin.
- A. semibipinnatum*. Bukit Timah, Bajau, Bukit Mandai.
- A. Zollingerianum* Kze. Bukit Timah.
- Pleocnemia gigantea* Bl. Bukit Timah.
- Lastrea crassifolia* Bl. Bukit Timah, Bajau, Bukit Mandai
- L. fuscipes* Wall. Bukit Timah.
- L. appendiculata*. Chua Chu Kang.
- Nephrodium unitum* L. Common in open places, Galang, Selitar.
- N. cuculatum* Bl. Common, Sepoy lines, Jurong, Changi.
- N. aridum* Don. Jurong, Green Hill, Kranji.

- N. urophyllum* Wall. Dense jungle, Bukit Timah.
- N. mollis* Desv. Common in open places, Tanglin, Chua Chu Kang, Selitar, Pulau Brani.  
 Var. *amboinense*. Green Hill, etc.  
 Var. *procurrens*. Green Hill.  
 Var. *didymosorum*. Not rare.
- N. pennigerum* Bl. Chan Chu Kang.
- N. tectum* Wall. Singapore (Wallich); not seen.
- N. heterocarpon* Bl. Green Hill (Hullett).
- N. polycarpum* Bl. *Mesochlœna polycarpa* Bl. Woods, Bukit Timah.
- N. lutebrosum* Kze. Bukit Timah.
- N. truncatum* Presl. Singapore (Hullett).
- Nephrolepis exaltata* L. Common in open country all over Singapore.
- N. volubilis* J. Sm. Climbing over bushes, Rochore, Toas, Sungei Moraí.
- N. acuta* Presl. Singapore (Hullett.)
- N. Duffii*. Has established itself at Changi and a few other places.
- Dictyopteris Barberi* Hook. Bukit Timah.
- D. difformis* Bl. Bukit Timah.
- Polypodium decorum* Brack. Common on trees, mangrove swamps, Kranji, Sungei Buluh, Toas.
- P. streptophyllum* Bak. Very rare. Trees on Serangoon Road (Murton).
- P. adpersum* Bl. and *P. setigerum* Bl. in Moore's Herbarium (Beddome), probably wrongly localised.



- Goniophlebium verrucosum* Wall. Damp open spots, Bukit Mandai, Pasir Panjang.
- Nipholobus adnascens* Sw. On trees, Changi, Pulau Ubin.
- N. acrostichoides* Sw. Garden jungle, Chan Chu Kang.
- N. penangianus* Hook. Rare, Kranji.
- Dipteris Horsfieldii* Br. Abundant on rocks and banks overhanging the sea, all round the island from Pasir Panjang to Changi, also on Pulau Tekong and other islands in the Strait.
- Drynaria Linnaei* Bory. On trees, Changi, Serangoor, Toas.
- D. quercifolium* L. On trees, Toas.
- D. splendens* Hook. Singapore (Beddome).
- Pleopeltis stenophylla* Bl. On lofty trees, Bukit Timah.
- P. sinuosa* Wall. Common on trees. This curious fern is remarkable for its hollow rhizome always full of ant's nests. Gardens, Jurong, Bukit Timah.
- P. longifolia* Mett. Sungei Morai.
- P. angustata* Sw. Common on trees, Gardens, Sungei Morai, Changi, Bajau, Serangoon.
- P. punctata* L. *P. irioides* Hook. Common on trees and banks. Tanglin, Siglap, Sungei Buloh, Chan Chu Kang.
- P. phymatodes* L. Very common on trees on the ground in dry spots. Tanglin, Bukit Timah, Selitar, Changi.
- P. nigrescens* Bl. Woods, Bukit Timah.
- Monogramme trichoides* Sm. A very small hair-like fern, rocks, Bukit Timah.
- Syngramme Wallichii* Hook. Woods, common, Bukit Timah, Selitar, Chua Chu Kang, etc.
- S. alismaefolia* Hook. Less common, Bukit Timah, Chan Chu Kang.

- Seligeria Feei* Hook. Common on trees, especially mangroves  
Kranji, Bajau, etc.
- S. membranacea* Hook. "Singapore, Moore's Herb." (Beddome.)
- Gymnogramme calomelanos*. The silver fern occurs here and there  
as an escape. Tanglin, Chan Chu Kang.
- Meniscium triphyllum* Sw. Banks of streams, Toa Payoh.
- M. cuspidatum* Bl. Upper Mandai, Bukit Timah, Chua Chu  
Kang.
- Antrophyum reticulatum* Kaulf. On trees and rocks, not common,  
Bukit Timah.
- A. plantagineum* Kaulf. Selitar.
- Vittaria elongata* Sw. Very common on trees, Gardens, Kranji,  
Thompson Road, etc.
- V. scolopendrina* Presl. On trees. Chua Chu Kang.
- Taenites blichnoides* Willd. Very common in woods all over  
Singapore.
- Drymoglossum piloselloides* Presl. Common on trees everywhere.
- Elaphoglossum latifolium* Sw. On trees in mangrove swamps.  
Kranji.
- Stenochlæna palustre* L. Common, climbing over trees and  
bushes. The young creeping form with delicate finely  
cuts fronds may be found in wet woods. I found a  
curious fasciated form on Bukit Timah. Rochore, Tanglin,  
Bukit Timah, etc.
- Polybotrya appendiculata* Willd. Local. Rocks, Bukit Timah.
- Gymnopteris subrepanda* Hook. Bukit Timah.
- G. Prestiana* Hook. Bukit Timah (Hullet).
- Acrostichum aurcum* L. Common in tidal mud, on all the rivers.
- Platyserium grande* Sm. Not seen. Singapore (Beddome).

- Pl. biforme* Bl. Common in trees all over Singapore.
- Schizaea dichotoma* Sw. Dry woods, common all over Singapore.
- Sch. digitatum* Sw. Dry woods. Common all over Singapore.
- Lygodium microphyllum* B. Br. Common in open places, thickets, etc. Tanglin, Changi, Kranji.
- L. circinatum* Sw. *L. dichotomum* Bedd. "Ribu-Ribu." Very abundant, climbing over trees and bushes, whole island.
- L. flexuosum* L. Singapore, Hullett.
- Angiopteris erecta* Hoffm. Rocky woods, Bukit Timah.
- Ophioglossum nudicaule* L. Bukit Panjang, Chan Chu Kang.
- O. pendulum* L. Epiphytic on *Thamnopteris* and *Platyserium*. Not common, Tanglin.

## LYCOPODIACEAE.

- Lycopodium cernuum* L. Terrestrial. Common all over Singapore, in open country and secondary growth.
- L. taxifolium* Sw. Epiphytic on mangroves and other trees near the sea. Sungei Sumbawang, Chan Chu Kang.
- L. phlegmaria* L. Epiphytic, Garden jungle, Chan Chu Kang.
- L. squarrosum* Forst. Epiphytic. Tanjong Merawan.
- L. nummularifolium* Bl. Epiphytic, Chan Chu Kang.
- Selaginella atroviridis* Spring. Common in woods, Garden jungle, Changi, Bukit Timah, Chua Chu Kang.
- S. plumosa* Bak. Plentiful in many spots in damp woods, Bukit Timah, Jurong.
- S. Willdenowii* Bak. Common climbing in thickets. Bukit Timah, Bukit Mandai, Kranji, etc.
- S. trichobasis* Bak. "Singapore, Sir W. Norris," file Baker; perhaps an error for Penang, where Sir W. Norris collected plants. I have not seen it in Singapore.

*S. sp.* Small plant, Bukit Timah, No. 6547.

*Psilotum flaccidum* Wall. On trees in mangrove swamps, Kranji

*P. complanatum* Sw. Mangroves, Sungei Morai, Kranji.

RHIZOCARPEAE.

*Azolla pinnata* R. Br. A small floating plant. Ditches, common, Tanglin, Ang Mo Kio, Galang.

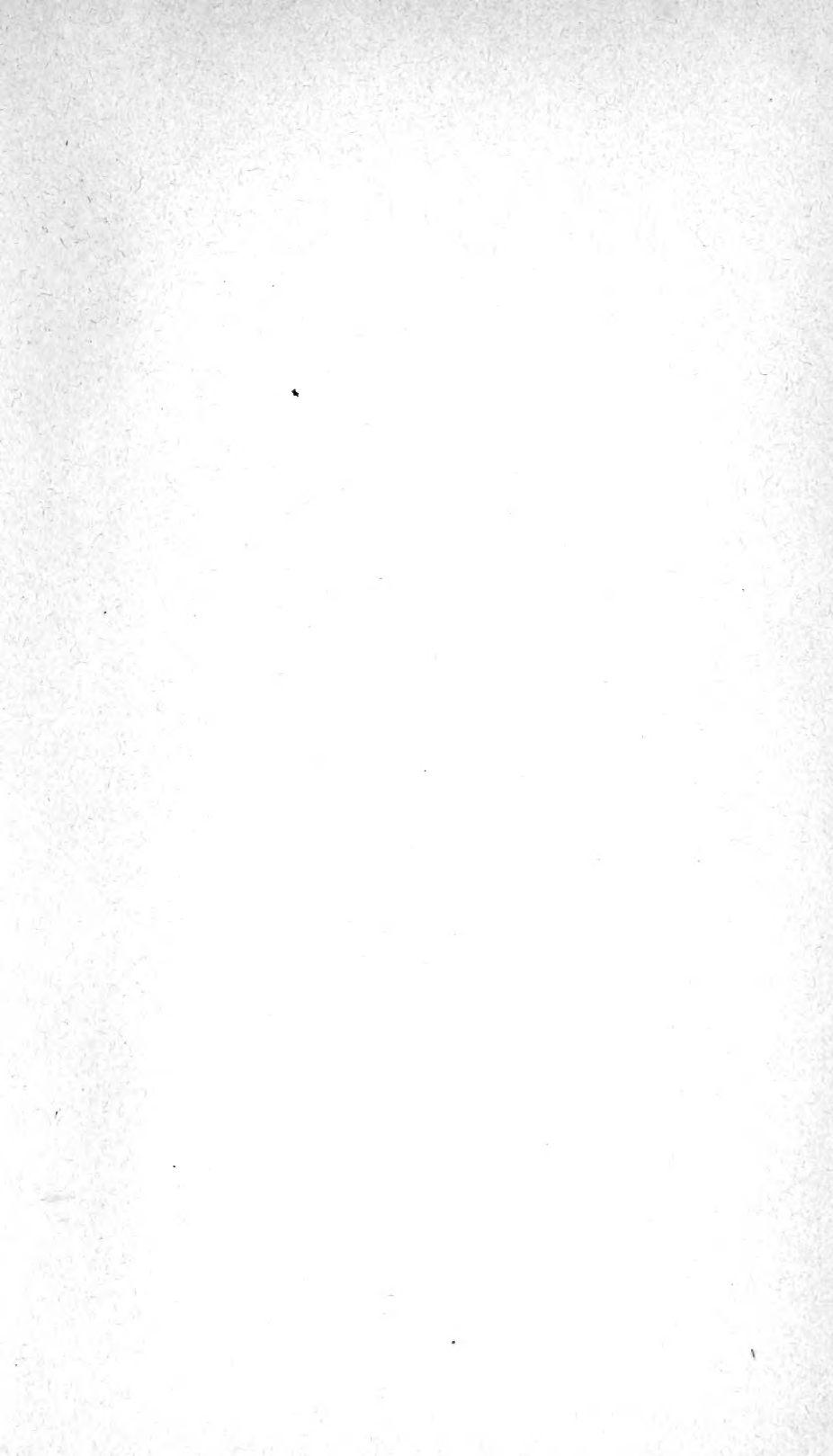
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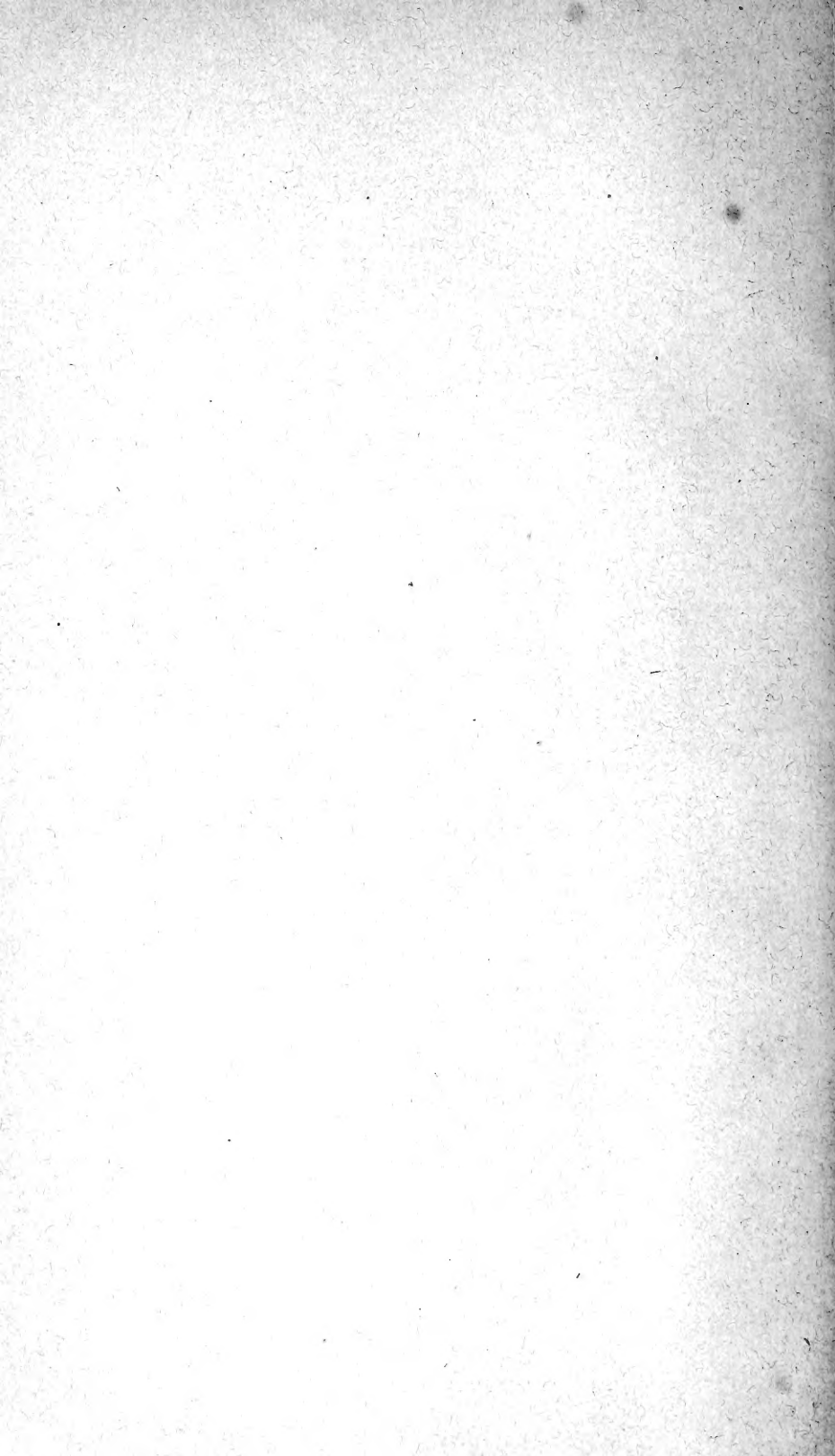
*Ludwigia parviflora* Roxb. Ditches, Tanglin.

*Euhydrias angustipetala* Ridl. Common in ponds and ditches, Tanglin. This new genus must be put in place of *Hydrilla verticillata*, for which it was mistaken.











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