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LIST
OF THE
TREES, SHRUBS, AND LARGE CLIMBERS
FOUND IN THE
DARJEELING DISTRICT, BENGAL.

11

15

~~W. G. A. G.~~
Calcutta
10/1/78

11-1

*Scrophulariaceae Indica. G. Bentham. Londn. Ridgway.
+ Jones. 1835.*

Hedge Plants of India. L. H. Gleghern, read to the
B. Acad. 1850. *Annals & Mag. of Nat. Hist.* Oct. 1860

Observations on Himalayan Conifers. Madras
Agri. Hort. Soc. Calcutta 1850.

Plants of Kumeau. W. Watersfield C. I. (?)
2 1877

Test of the plants of Garhwal, Jaunsar Bawar &
Dehra Dun by P. G. King. D^r. R. K. G. ^{Jun} Cal.

On the Flora of Helka & the Mountain
Paracnatta by D. T. Anderson. Suppl. No.
3rd Calcutta.

List of Indian Woods collected by S. Wallis.
Trans. of Soc. of Arts Vol XLVIII. 1831.

Calatome of plants found in Banda
Dist. 1847-49 by M.P. Edmontⁿ & C.

Calatome of *M. digeomus* flowering plant of
Boulay Press by N. A. Dalzell M. A. 1858
Lund

LIST

OF THE

TREES, SHRUBS AND LARGE CLIMBERS

FOUND IN THE

DARJEELING DISTRICT, BENGAL.

By J. S. GAMBLE, M.A.,

ASSISTANT CONSERVATOR OF FORESTS, BENGAL.

Calcutta:

PRINTED AT THE BENGAL SECRETARIAT PRESS.

1878.

PREFACE.

IN January 1873, when on tour in the Darjeeling Terai with Dr. W. Schlich, the Conservator of Forests in Bengal, we found considerable difficulty in determining the names of the large number of different species of trees which we came across. The native names did not help us much. No Paharia,* Lepcha, or Mechi names were to be found in such books as were then available, and of which Balfour's "Timber Trees" was the principal. We then determined to commence at once to collect specimens, as well as notes on the native names and on the economic uses of which we could obtain any information. The information thus collected is by no means complete, and it would scarcely have been published so soon had it not been for my transfer from Darjeeling, and the consequent orders of the Government of Bengal that I should prepare as complete a list as possible before leaving. Only about six weeks have, however, been available for the work, and the result is that the list is very incomplete; but I hope that Darjeeling Forest Officers will not allow the collection of data to drop, but add to the information herein given such further notes as they may be able to make with a view to the ultimate preparation of a more complete list. There are many gentlemen about Darjeeling, especially planters, from whom I have received much information; and I have no doubt that many of them would again consent to help and add any facts which may come before them. For the determination of the scientific names I am indebted to the kindness of Dr. G. King, the Superintendent,

* The emigrants from the eastern parts of Nepal who have settled in the Darjeeling district are called "Paharias."

and Mr. Sulpiz Kurz, the Curator of the Herbarium at, the Royal Botanical Gardens, Calcutta; and Mr. C. B. Clarke, M.A., of the Educational Department, has given me much help by a nearly complete set of his own Darjeeling collection. Specimens of almost all the plants mentioned in this list have been filed by me in the office of the Conservator of Forests, Bengal, and will be always available for inspection and consultation.

In cases where there is any doubt of the correct scientific name, either generic or specific, it has been written in brackets: thus—

(*Melia composita*, Willd.) means that both the correct generic and specific names are uncertain, but that I consider it may possibly be that species.

Acacia (ferruginea, DC.) means that though the plant undoubtedly belongs to the genus "Acacia," yet it is not quite certain, though very probable, that it is the species "ferruginea, DC."

The native names must be received with a certain amount of caution. "Lepcha" names are generally to be pretty well depended on; but those given by "Paharias" as often as not are given on the spur of the moment, and in many cases merely invented to mean "a pretty tree," "bitter leaves," "medicine bark," or some such name, derived only from the appearance or use of the plant. Paharias, too, especially "chaprasis" or other servants, on being questioned, often think they are bound to give a name of some kind, especially if they think the questioner is anxious to find one, and consequently invent them for the plant on the spur of the moment, quite as readily as they invent new names for themselves at each place where they find work. I have done my best to verify constantly the correctness of the names given, but I have very little doubt but that in many cases they will prove to be wrong, or at any rate useless, as already described. The following are the letters used to designate the different languages: P.=Paharia, L.=Lepcha, H.=Hindi, Bg.=Bengali, Bh.=Bhutia.

In the description of size of tree, I have used the formula invented by Mr. Kurz in his "Preliminary Forest Report of Pegu," only considerably simplified. The letters E. and L. denote "evergreen" and "leaf-shedding" respectively; and, as an example of how the formula is to be read—

L. ¹⁰⁰⁻¹²⁰_{60-80 + 10-15} means a leaf-shedding tree growing to the height of from 100 to 120 feet, having a clear stem of from 60 to 80 feet, and an average girth, at four feet from the ground, of from 10 to 15 feet.

The letters denoting forest are thus explained:—

S. F. = Sal forest.

K. S. F. = Khair and Sissu forest.

Sv. F. = Savannah forest.

M. P. F. = Mixed plains forest. This may be either *w.*, "wet," like the "Dalka Jhar;" or *d.*, "dry," like the forests about the Balasun river, and between it and the Hurlia nadi.

L. H. F. = Lower hill forest, generally found from the plains to 3,000 feet elevation. It may be "ridge" forest, or "valley" forest.

M. H. F. = Middle hill forest, generally found between 3,000 and 6,000 feet.

U. H. F. = Upper hill forest, from 6,000 to 8,000 feet, sometimes called "oak" forest.

R. F. = Rhododendron forest, about 8,000 to 10,000 feet.

F. F. = Fir forest, generally from 9,000 to 12,000 feet.

These different kinds of forests were described by Dr. Schlich in his "Memorandum on the Forests of Sikkim" in 1873, and by myself in an article in the "Indian Forester," Vol. I, No. 2. *Memorandum*

The flowering and fruiting seasons are described by the number of the months, thus: fl. 3, fr. 7, mean "flowers in March and ripens its fruit in July."

The present list merely relates to the political district of Darjeeling, a district which is separated on the north from Sikkim by the Rumaun, Great Rangft, and Rangpo rivers; on the west from Nepal by the Singalila mountain range and the Mechi River; and on the east from Bhutan by the Jaldoka River. To the south lie the British districts of Purneah and Julpigori.

In conclusion, I would suggest the application of a similar plan of local lists of trees to other divisions of the provinces of Bengal and Assam: they would prove of great value if ever a forest flora of North-Eastern India is compiled to complete the series of forest floras already published for Madras, Burma, and North-Western and Central India.

J. S. GAMBLE

DARJEELING,

The 31st March 1877.

LIST
OF THE
TREES, SHRUBS, AND LARGE CLIMBERS

FOUND IN THE
DARJEELING DISTRICT, BENGAL.

RANUNCULACEÆ

- CLEMATIS SMILACIFOLIA, Wall. Climber of the M. Hills up to 5,000 ft. Fl. 10; red, very handsome.
- CLEMATIS GOURIANA, Roxb. Climber of Terai forests, and up to 3,000 ft. Fl. 9.
- CLEMATIS ACUMINATA, DC. Climber; common about 4,000 and up to 7,000 ft. Fl. 9-12.
- CLEMATIS BUCHANANIANA, DC. *Tungbongrik, L.* Climber of M. and U. H. F. 5,000 to 10,000 ft. Fl. 10-12; cream colour.
- CLEMATIS GREWIAFLORA, DC. Climber of M. and U. H. F. 5,000 to 7,000 ft. Fl. 11-1; very woolly.
- CLEMATIS MONTANA, Ham. Climber of U. H. F. about 7,000 to 8,000 ft. Fl. 7.
- NARAVELIA ZEYLANICA, DC. Climber of Terai, near streams and L. H. F. up to 3,000 ft. Fl. 6-7, fr. 10.

DILLENIACEÆ

- (*Det. St. 19*) DILLENI INDICA, L. *Chalta, P.; Phansikot, L.* E. ¹²⁻²⁰⁻²⁻³ of the M. P. F. in Terai and L. H. F. valleys. Fl. 9, fr. 3-4. Bark red, peeling off in large flakes, and easily recognized in the swamp forests, where the leaves are only seen with difficulty. Wood red-brown, hard, heavy, with numerous medullary rays; rarely used. Fruit very large, like a big apple; outside formed of the fleshy leaves of the calyx; is not unpleasant when nearly ripe. Flowers white, very big. Leaves big, rough, with numerous parallel veins.

See below for other species

C. Indica Ham. L. H. F. slender climber

C. Nepenthes DC. L. H. F.

C. Montana DC. U. H. F. for 5-10000 ft. large woody climber

Phanphal, Kuchinphal P.

W. H. C. S. S. S.

note. requires stiff yellow clay & grows well. 46 lbs = 1 cft

48 lbs = 1 cft

Hk. & Gilchrist Hb. of Hunt plant. Plate VI. — stiff clay soil. — quite east. Dev.?

refers to some other tree not yet determined.

U. Hamiltoni, H. f. and T.
Terai. Hk. Hb. Ind. i-48

Michelia



Flowers terminal

M. alticarin

Flowers axillary

Flowers yellow

Leaves large, 8-10 in. long
by 2-4 in. broad.

M. Champaca

Leaves small, 5-6 in. long
by 1-2 in. broad.

M. Kisapa

Flowers white

Tikka trees

Leaves broad, geminate, glabrous.
" long " pubescent.

M. excelsa

M. lanuginosa

Rhacia trees

Leaves abruptly acuminate, ^(not) glabrous, ^(not) pubescent.
" obtusely " " "

M. punctata

M. oblonga

Western Ghats

M. philagrica

TALACMA HODGSONI, Hk. f. and Th. Patpatta, P.; Harre, P.; Hk. Hb. i-48
Sissoo-kung, L. E. ³⁰⁻⁴⁰ of the L. and M. H. F. up to 6,000 ft., and of the M. P. F. w. in Terai (Dalka Jhar). Fl. 5, fr. 10. Wood white, (but in very old trees it is quite black, especially the wood of the roots. It is used for "kukri" and "han" handles, and for various other small wood purposes. Flowers terminal, large, the petals falling almost immediately after opening. Fruit large; seeds bright red; leaves very large.

SCHIZANDRA GRANDIFLORA, Hk. f. and T. Singhatara, P.; Hk. Hb. i-48
Taksielrik, L. Large climber of U. H. F. from 6,000 to 10,000 ft. Fl. 5, fr. 6-7, — red, edible. Common round Darjeeling.

SCHIZANDRA ELONGATA, Hk. f. and T. Mandani—Singhata, P.; Hk. Hb. i-48
Plotoshingrik, L. Climber of the U. H. F. Not so common as the preceding.

ANONACEÆ.

UVARIA MACROPODA, Hk. f. and T. *Rabu-lara*, P. Large woody climber of the L. H. F. about 2,000 to 3,000 ft. Fl. and fr. 9. Found at Mongpu.

GONIOPTHALAMUS RESQUIPEDALIS, Hk. f. and T. Sané, P.; Hk. Hb. i-48
Singnok-kung, L. E. small shrub, 3-6 ft. high, of M. P. F. w. (Dalka Jhar, &c.) in Terai and L. and M. H. F. up to 5,000 ft. Fl. and fr. at almost all seasons.

ANONA SQUAMOSA, Linn. *Shariphal*. The custard-apple is found in cultivation in the Terai, and with a little care gives very good fruit.

MILIUSA MACROCARPA, Hk. f. and T. Small tree of the M. H. F. about 4,000 to 6,000 ft. Fl. 12-3, fr. 8-9. Not very common, but good specimens may be seen in the Tukdah Reserve.

MICHELIA EXCELSA, Bl. *Bara Champ*, P.; *Safed Champ*, P.; *Gak, Bh.*; *Singrip*, L. L. $\frac{60-100}{45-50+10-15}$ of the U. H. F. from 6,000 to 8,000 ft. Fl. 3, fr. 10. Wood yellow, turning yellow-brown with exposure; light, close-grained, easily worked; used for all purposes of building, but chiefly for planks, window frames, door frames and panels, also to make tables and chairs. It has a very strong smell when freshly cut. Flowers large, white, sweet-scented. Seeds red, very oily. Ripe in November, and if sown then germinate in May and June. It is being largely grown at Rungbool for plantation purposes, and the seedlings seem to require several shiftings, and to be kept at least three years in nursery before transplanting.

MICHELIA CHAMPACA, Linn. *Outia Champ*, P. E. $\frac{80-100}{40-50+10-15}$ of the L. H. F. up to 3,000 feet. Sapwood white, soft; heartwood light yellow, with narrow medullary rays, rather large pores, and very distinct annual rings; stem very cylindrical, reaches 8 ft. girth at an age of 100 to 120 years. The timber is very good for planking, door and window frames, furniture, &c., and much in demand, but it is now rather rare, and big trees very scarce. A small quantity of seed has been sown at Bamunpokri.

TALAUMA HODGSONI, Hk. f. and Th. *Palpata*, P.; *Harre*, P.; *Siffo-kung*, L. E. $\frac{30-40}{15-20+5-10}$ of the L. and M. H. F. up to 6,000 ft., and of the M. P. F. $\frac{30-40}{15-20+5-10}$ in Terai (Dalka Jhar). Fl. 5, fr. 10. Wood white, (but in very old trees it is quite black, especially the wood of the roots. It is used for "kukri" and "ban" handles, and for various other small wood purposes.) Flowers terminal, large; the petals falling almost immediately after opening. Fruit large; seeds bright red; leaves very large.

SCHIZANDRA GRANDIFLORA, Hk. f. and T. *Singhatalara*, P.; *Takielrik*, L. Large climber of U. H. F. from 6,000 to 10,000 ft. Fl. 5, fr. 6-7, red, edible. Common round Darjeeling.

SCHIZANDRA ELONGATA, Hk. f. and T. *Mandani-Singhata*, P.; *Photoshingrik*, L. Climber of the U. H. F. Not so common as the preceding.

ANONACEÆ.

UVARIA MACROCARPA, Hk. f. and T. *Rabu-lara*, P. Large woody climber of the L. H. F. about 2,000 to 3,000 ft. Fl. and fr. 9. Found at Mongpu.

GONIOTHALAMUS SESQUIPEDALIS, Hk. f. and T. *Sané*, P.; *Singnok-kung*, L. E. small shrub, 3-6 ft. high, of M. P. F. $\frac{30-40}{15-20+5-10}$ (Dalka Jhar, &c.) in Terai and L. and M. H. F. up to 5,000 ft. Fl. and fr. at almost all seasons.

ANONA squamosa, Linn. *Shariphal*. The custard-apple is found in cultivation in the Terai, and with a little care gives very good fruit.

MILNEA MACROCARPA, Hk. f. and T. Small tree of the M. H. F. about 4,000 to 6,000 ft. Fl. 12-3, fr. 8-9. Not very common, but good specimens may be seen in the Tukdah Reserve.

Hk. & f. all over H. H. F. plant. Plate VI. — stiff

clay soil. — quite rare. Seed?

refers to some other tree not yet determined.

U. Hamiltoni, H. f. and T.
Terai. Hk. H. Ind. p. 48

No 657-22
Paris 5.0.1898
Chatterjee
1898

No 676 — 1/2 dm
Paris 5.0.1898

No 676-1/2 dm

No 676-1/2 dm

No 676-1/2 dm

Hall. Cat. No 38.
Milkmaid. Name *Juncea-munda* P.

Kyento, L.

Wall. Cat. 39
Milkmaid. Name *Chitra* P.
Wood tough, greenish yellow

BERBERIS NEPALENSIS, Spreng. *Chatri*, P. E. ¹⁵⁻²⁰₆₋₂₊₁₂ of the U. H. F., from 6,000 to 8,000 ft. Very common in the Rungbool forest and the station of Darjeeling, where it is often planted for ornament. Fl. 9-11, fr. 3-4. Bark soft, light brown, corky. Wood bright yellow, with fine modular rays; hard, heavy. The wood is used, ground into a paste, by Paharias, to mark the caste-marks on their foreheads. It is easily recognized by its pinnate leaves with holly-like prickly leaflets, yellow flowers and blue glaucous berries.

BERBERIS UMBELLATA, Wall. E. shrub of the Singalila range, about 10,000 to 11,000 ft. Fr. 9.

BERBERIS ARIETATA, DC. *Tsena* Bh. E. small prickly-leaved shrub. Common on Tonglo, 10,000 ft., where it forms the chief undergrowth under the rhododendrons. Fl. 4-5, fr. 9-10.

BERBERIS CONCINNA, Hk. f. *Tsena* Bh. E. small shrub, found with the preceding, but recognized from it by its red branches and leaves.

BERBERIS INSIGNIS, Hk. f. and T. *Timberghien*, L. E. large shrub of the hill forests of Singalila and the higher points of the Dumsong Hills, about 8,000 to 10,000 ft. Fl. 4, fr. 10. Often cultivated for ornament, e.g. at Rungyrum.

BERBERIS ANGULOSA, Wall. *Chutra*, P. E. large shrub of Singalila range. Common on Subarkum, 11,000 ft. Fl. 4, fr. 10. Bark brown, rather corky. Wood yellow-brown, hard, close-grained, with very narrow annual rings.

CAPPARIDÆÆ.

CAPPARIS PUMILA, Champ. E. shrub of the L. H. F. valleys, up to 3,000 ft. Fl. 9.

CAPPARIS MULTIFLORA, Hk. f. and T. *Suntri*, P. E. (P) large shrub or woody climber of the L. and M. H. F., from 2,000 to 5,000 ft. Fl. 4-5, fr. 12-3.

CAPPARIS OLACIFOLIA, Hk. f. and T. *Naski*, P.; *Hais*, P.; *Jhenk-kung*, L. E. (P) ²⁰⁻¹⁵₆₋₂₊₁₂ large shrub of the K. S. F. undergrowth in the Terai and by the banks of rivers, occasionally in L. H. F. Fl. 3-4, fr. 1-3 of succeeding year. Bark brown, rough. Wood white, soft, but close-grained. Flowers large, white, with yellow lip. Berries red or black.

CAPPARIS VIMINEA, Hk. f. and T. *Chinli*, P.; *Pundi-kung*, L. Large shrub of L. H. F. from Terai up to 4,000 ft. Fl. 4, fr. 7.

CAPPARIS (NEAR *FLORIBUNDA*). Large climbing shrub of M. H. F., about 4,000 ft. Fl. 6.

ROYDSIA SUAVEOLENS, Roxb. *Kasonli-laru*, P.; *Tunggor-rik*, L. Large climber of Terai and L. H. F. Fl. 3.

CRATGEVA RELIGIOSA, Forst. *Purbongnyok*, L. L. ²⁰⁻⁴⁰₁₀₋₁₂₊₂₄ of the M. P. F. d., K. S. F. and waste places in Terai and L. H. F. up to 2,000 ft. Fl. 3-4, fr. 7-8. Wood white, close-grained, not used.

VIOLACEÆ.

ALSOEIA BENGALENSIS, Wall. *Kaipat*, P. E. A large shrub or small tree of the L. H. F. damp valleys, e.g. near Siroke.

BIXINEÆ.

BIXA ORELLANA, Linn. *Nali*, P. (?) I have seen this in gardens in Julpigori; it may probably be also found in the lower Terai. Cultivated for the "arnotto" dye which it produces.

GYNOCARDIA OBOVATA, R. Br. *Kadoo*, P.; *Bandri*, P.; *Bandka*, M.; *Tuk-kung*, L. E. ¹⁰⁻²⁰₁₀₋₂₀₊₂₋₄ of the M. P. F. w. in the Terai and L. H. F. up to 4,000 ft. Fl. 5, fr. 11-1. Wood hard, red, used for many purposes; but it is not sufficiently common, and the tree scarcely straight enough for very general use. It is easily recognized by the hard round fruits which grow on the stem and main branches, and the pulp of which is used by the Lepchas to poison fish. The pulp is also eaten by Lepchas after boiling. The seeds give an oil, which does not seem to be used in Sikkim, though it is used in medicine in Bengal under the name "Chaulmoogra."

PITTOSPOREÆ.

PITTOSPORUM FLORIBUNDUM, W. & A. *Prongam-kung*, L. E. ¹⁰⁻²⁰₁₀₋₂₀₊₂₋₄ and perhaps occasionally larger, of the M. and U. H. F. from 5,000 to 8,000 ft. Fl. 5, fr. 11. Very common about Darjeeling and Dumsong.

POLYGALEÆ.

POLYGALA ABILLATA, Ham. *Karima*, P.; *Michenpor-kung*, L. Large shrub of the M. and U. H. F. from 4,000 to 7,000 ft. Fl. 6, fr. 10. Flowers yellow. The root is said to be used as a "yeast" in the fermentation of "murwa" beer by the Bhutias. Wood used to procure fire by friction.

TAMARISCINEÆ.

TAMARIX DRACA, Roxb. This is by no means uncommon in the Western Duars, and may probably be found in the Terai on the Mechi or Mahanadi rivers.

HYPERICINEÆ.

HYPERICUM (HOOKERIANUM, W. & A.) TUMBORI, L. Common shrub of the U. H. F., 3-6 ft. high. Exceedingly common in

16 Dec. Oct. 89

add.

Myrica germanica Desv.

species from Chumbi by Tibet sent by Dr. Schlegel
for Paris F. U. 1090 No 74-164.

Darjeeling, where it is often used for hedges. Fl. 6-7, fr. 11-12. Very handsome with its masses of bright yellow flowers. Bark brown. Wood hard, close-grained; polishes smooth.

NOTE.—There are two or three other species of a shrubby growth, chiefly from the Singuila range, but not well enough determined to mention. In Mr. C. B. Clive's notes on a trip from Darjeeling to Tunjoo, published in the Linnaean Society's Journal for 1876, the species here given is called *H. xatelan*, Thbg.

GUTTIFERÆ

GARCINIA STIPULATA, T. And. *Sanakadan-kung*, L. E. ⁴⁰⁻⁵⁰₁₅₋₂₀₊₅₋₅ of the L. H. F. up to 3,000 ft.; chiefly near streams. Very common in the valleys of the Tista and its affluents. Fl. 8-9, fr. 1-2. Fruit yellow, sometimes eaten by Lepchas. The tree and its fruit give a yellow gum, but it does not seem to be used.

NOTE.—I have found a small-leaved species growing 40 feet high in the Dalka Jhar; and *G. pedunculata*, Burb., is cultivated at Julpiguri, and perhaps in the Terai.

CALOPHYLLUM POLYANTHUM, Wall. *Kironli*, P.; *Sunglyerngok*, L. E. ²⁰⁻³⁰₁₅₋₂₀₊₄₋₁₀ (one specimen I measured at Latpanchor gave 11 ft. 8 in. girth, but this is unusual). Common large tree of the L. and M. H. F. from the Terai up to 5,000 ft. Fl. 5. Recognized by its opposite lanceolate leaves with prominent midrib and close parallel veins and white flowers. Wood said to be very strong and good.

TERNSTRÖMIACEÆ

EURYA JAPONICA, Thunb. *Jhingni*, P.; *Tungchong-kung*, L. E. ²⁰⁻⁴⁰₁₅₋₂₀₊₅₋₄ of the M. H. F. from 3,000 to 6,000 ft. Fl. 8, fr. 11. Chiefly found in second-growth forest on old cultivations, mixed with *Shima Wallichii* and *Castanopsis Indica* and *tribuloides*. It is one of the trees which the Sikkim Bhutias in Kalimpung leave in their fields to be yearly pollarded for manure. Coppices very well, and grows very quickly.

EURYA SYMLOCINA, Bl. *Bara jhingni*, P.; *Kiari*, P.; *Flotungchong-kung*, L. E. ²⁰⁻³⁰₁₅₋₂₀₊₇₋₅ of the M. and U. H. F. from 5,000 to 7,000 ft. Fl. 10, fr. 2. Bark brown, thin. Wood pink-white, with fine medullary rays, well marked annual rings, and numerous medullary spots; hard, easily worked, and does not warp much.

EURYA ACUMINATA, DC. *Sanu jhingni*, P.; *Flotungchong-kung*, L. E. ¹⁵⁻²⁰₁₀₋₁₅₊₇₋₂. Small tree of the M. and U. H. F. from 5,000 to 8,000 ft. Fl. 3-4, fr. 6. Very common about Darjeeling. Bark brown, thin, smooth. Wood pink-white, resembling the former species but heavier and with fewer medullary spots. There is a variety with larger leaves and less pubescence, which I have found in the Dalka Jhar in the Terai.

Ho 348-12
Pau E.V. 1898
"Rungkil yam"

haya floribunda Wall.; Hk. K. Ind. i. 276 — tropical forest
of Sikkim up to 3000 ft

ACTINIDIA CALLOSA, Lill. *Tikiphal*, P.; *Tuksingrik*, L. Large climber of the M. H. F. about 5,000 ft. Fl. 5-6, fr. 11. Reaches 4 in. diameter. Bark corky, brown, rough. Wood brown, soft, open-grained, with no medullary rays and very large pores. Fruit edible, subacid, very pleasant.

ACTINIDIA STRIGOSA, Hk. f. and T. *Tikiphal*, P.; *Tuksingrik*, L. Large climber of the U. H. F. from 6,000 to 8,000 ft. Exceedingly common about the station of Darjeeling. Fl. 5, fr. 9. The fruit is edible, and is, I think, the best wild fruit in the district with the exception of the yellow raspberry, "*Rubus flavus*." This creeper is almost yearly attacked by a caterpillar (about 1½ in. long, cream-coloured, with black and orange spots), which completely denudes it of its leaves.

NOTE.—A large climbing shrub, near *Actinidia callosa*, Lill., and with strong hooked prickles is very common in the Dula char in the Terai.

SAURAUJA NEPALENSIS, DC. *Gogen*, P.; *Kasur-kung*, L. E. ²⁰⁻³⁰₁₅₋₂₅ of the M. and U. H. F. from 4,000 to 7,000 ft. Fl. 1-5, fr. 9-10. Is chiefly common to the east of the Senehal range, rare to the west, as are all the species. Generally in second-growth forest, but also in old parts. Wood pink, with fine medullary rays, very soft, light, and liable to warp. Bark reddish brown, thin. Leaves used to feed cattle, for which purpose the tree is often regularly pollarded. Fruit eaten by Lepchas.

SAURAUJA GRIFITHII, Dyer. *Gogen*, P.; *Hlongpha-kung*, L. E. ¹⁵⁻²⁵₁₀₋₁₅ of the M. H. F. from 4,000 to 6,000 ft. Fl. 5-6, fr. 9-10. Very local. It is common on Sitong round Lamting Pokri, but the only other place that I have ever seen it is below Chongtong, close to the Little Rangit Bridge, at 2,000 ft. A magnificent plant, with huge leaves of a bright green above and dense brown flocculent tomentum beneath and on the petioles and young shoots.

SAURAUJA FASCICULATA, Wall. *Sare gogen*, P.; *Sipha-kung*, L. E. ¹⁵⁻¹⁸₁₀₋₁₅ of the L. and M. H. F. from 2,000 ft. to 5,000 ft. Fl. 5. Has long leaves, densely ferruginous-tomentose beneath.

SAURAUJA FUNDOANA, Wall. *Bata gogen*, P.; *Sipha-kung*, L. E. ¹⁵⁻²⁵₁₀₋₁₅ of the M. P. F. w. in Terai and L. H. F. up to 4,000 ft. Fl. 5. Resembles the last, but has larger leaves.

SAURAUJA ROXBURGHII, Wall. *Ouli gogen*, P.; *Dangsiapha-kung*, L. E. ²⁰⁻³⁰₁₅₋₂₅ of the M. P. F. w. and banks of streams in Terai and L. H. F. valleys. Fl. 5. Fruit eaten by Lepchas.

SCHIMA WALLICHII, Choisy. *Chilawu*, P.; *Kungsiung-kung*, L.; *Sumbong-kung*, L. E. ²⁰⁻¹⁰⁰₁₅₋₂₅ Very large tree of the S. P. (scarce) and M. P. F. w. in Terai, L. and M. H. F. up to 5,000 ft. Fl. 5, fr. 11-12. Bark black, with deep vertical clefts. In trees which have been in the open it is smoother and of a dark-grey colour. Wood red or reddish brown, moderately hard, close-grained; used for every purpose of house-building. It does not warp much, but

Stachyurus himalaicus, Hk. f. th. *Sikkim* 5-8000 ft (Hooker)

Claytonia ciliolata DC. (?)

S. cerea Griff. *Shenchon*, *Shentan*, 3570 ft. R. 22, 1-128.
S. China

Gordonia excelsa, Bl. is not uncommon about Mongpan

shrinks while seasoning, so that planking laid down green, as it usually is in the district, has to be often taken up again after a year and put down afresh. It is perhaps most common in the forests east of the Tista, and in the Murti-Jaldoka forest and the Lower Hills towards the Bhutan frontier it is the prevailing tree. Fine forests of it also exist in the Dalka Jhar, Damunpokri upper plateau, and at Sakna. In the Hills it is generally smaller, and at Kalimpong is generally preserved in cultivations for the branches, which are cut off and burnt for manure. It coppices well, and is profusely regenerated from seed, provided that sufficient light is obtainable for the seedlings.

CAMELLIA THIFERA, Griff.; CAMELLIA THEA, Link. *Cha.* The tea plant. Cultivated in the Terai and up to 7,000 ft. almost. *C. thifera* is the "Assam" plant, and is cultivated in the Terai chiefly. *C. thea* is the "China" plant, cultivated on the hills and in the Terai; but lately "hybrid" varieties are the ones which have been most planted.

CAMELLIA DEUTIFERA, Lour. *Hingua*, P.: *Chashing*, Bh. E. ¹²⁻²⁰_{6-8 + 1-2}. A large much-branched shrub of the M. H. F. from 4,000 to 6,000 ft. Fl. 1. Much resembles the tea plant, but is more tomentose and has rounder leaves. Attempts have several times been made to make tea of the leaves, but without success. Wood hard and strong; prized for axe and hoe handles.

DIPTEROCARPEÆ.

Halt. Ch. 577.

SHOREA ROBUSTA, Gaertn. *Sāl*. H. Sakwa M. P.; *Teturi-kang*, L. The Sāl tree. L. ⁸⁰⁻¹⁰⁰_{50-80 + 10-15}. Found in S. F. in the Terai, in the L. H. F. on ridges up to 3,000 ft. from the Meechi river to the Chel, and in the inner valleys of the Tista, Great Rangit, and Rangpo rivers for a great distance, and to an elevation of 3,000 ft. Fl. 3-4, fr. 6. The most valuable tree in the district, the chief forest tree (and indeed almost the only gregarious one), and the chief source of revenue. (For description of the bark and wood c.f. *Brondie's Forest Flora*, and for details of its geographical distribution in the district and map reference may be made to the article "The Darjeeling Forests," at page 74 of Vol. I of the *Indian Forester*.) Used for building bridges, railway sleepers, &c., also for dug-out canoes. It gives a quantity of resin, which, happily, has not been much collected in the district. In some places in the Upper Tista forests large pieces, often nearly 30-40 cubic inches in size, are occasionally found in the ground at the foot of the trees. How they are produced is not known, but should be investigated. Specimens may be seen in the Conservator's office in Darjeeling and at the Economic Museum, Calcutta. Seedlings come up everywhere, but best in shade. When once, however, they are established, they require light, otherwise they are very liable to die off again.

Ho. H. 108
Ho. 297-80 Terai
Barin E.O. 197

MALVACEÆ.

KYDIA (CALYCINA, Roxb.) *Kubindé, P.; Mahow, M.; Sedangtag-lar, L. E.* ²⁰⁻²⁵ of the S. F. and M. P. F. d. in Terai and L. H. F. up to 2,000 ft. Fl. 9-10, fr. 1-2. Chiefly common in Savannas. Bark grey-brown. Wood reddish, hard, close-grained, not used except for charcoal.

DICELLOSTYLES JUBIFOLIA, Bth. *Kubindé, P.; Dantaglar, L. E.* ²⁵⁻³⁰ of the L. H. F. Fl. 1, fr. 3. Flowers white, in great abundance, furnished with big bracteoles, which remain with the fruit.

HIBISCUS SCANDENS, Roxb. Large climbing shrub of L. and M. H. F., from 1,000 to 4,000 ft. Fl. 10.

NOTE.—Several species of *Hibiscus* and *Albizia* are cultivated in gardens in the Terai and Lower Hills.

THESENERIA LAMPAS, Dalz. and Gibbs. *Kaphalmuk, L.* Large shrub, with big yellow flowers. Common in L. H. F., e.g. about Pankabari. Fl. 8.

BOEMBA MALABARICUM, DC. *Samul, P.; Sungloo-kung, L. L.* ⁴⁰⁻¹⁰⁰ of all kinds of forest in Terai, but chiefly in S. F. and in L. H. F. up to 3,000 ft. Fl. 1-2, fr. 4-5. Bark grey-white, shining, soft. Stem covered when young with big conical prickles; when old, with small prickles. Branches in whorls. Stem very cylindrical, except at the base, where, when old, it forms large buttresses, often 4-6 ft. deep. The wood is light, soft, easily worked; it is in great demand for tea-boxes, and is used also for temporary "dug-out" canoes. A yellowish gum exudes from the bark. The fruit gives the "samul" cotton, of which large quantities are collected and sold for stuffing mattresses, pillows, rezaïs, &c. The finest trees are found on the flats on the banks of rivers just within the hills, and on plateaux of rather damp forest, such as Bamunpokri; but it grows to a great size in Savannas also, and appears not to suffer in the least from jungle fires after it has reached 30 ft. in height. It strikes very readily from cuttings even of big branches. Its growth from seed is also exceedingly quick.

STERCULIACEÆ.

STERCULIA VILLOSA, Roxb. *Udal, P.; Kunhigem-kung, L. L.* ⁴⁰⁻⁵⁰ of the S. F. and M. P. F. d. in Terai, and L. H. F. up to 2,000 ft. Commonest in mixed forests, such as those on the Balaan, and between it and the Hurlia river, and in L. H. F. plateaux like Sukna or Bamunpokri. Fl. 1-2, fr. 6-7. The leaves fall in December and are not renewed till May. The bark is grey-brown, rather rough. The wood is light greyish

No 677 - 9 Jan
Paris E. M. 1898

No 620 - 17 Jan
Paris E. M. 1898

Sitola ledal. P.

L. B. Munson

x *pallens*, Wall. from Nepal cf. *Vingt. Hort. Sub. Cal.* p. 105.
and *Kurzi* As. Soc. p. 79.

R. Wallichii, Dr. Hook. H. Ind. i. 364.

Hebroma Cacao The Cocoa tree - there are a few
plants at Banumpokri planted by R. G. King in
18 and now growing very fairly

Helicteres elongata, Wall. } Ex. Hook. H. Ind. i. 365, 366.
" *spicata*, Colebr. }

brown, very light. It has numerous medullary rays, very large pores, and here and there concentric bands of a dark-brown colour. It is not generally used, though it has been tried for tea-boxes. If felled in the forest, it rots away in one year after felling; but sends up innumerable coppice shoots, of very strong and quick growth and difficult to extirpate. A copious white transparent gum exudes from wounds cut into the liber. The inner bark is extensively used for rope-making, and is very strong. It is stripped off young (very rarely old) trees; the innermost layers are rejected, as well as the outer ones; the rest are cut into strips and dried, and are made up into rope, which is used for making elephant dragging breast-bands as well as for other purposes.

STERCULIA COLORATA, Roxb. *Phirphiri*, P.; *Kanhlyen-kung*, L. *Asps. RUE?*
L. ²⁰⁻³⁰₁₅₋₂₀₊₃₋₄ of the S. F. and M. P. F. d. in the Terai. Fl. 4. The flowers appear when the tree is leafless, and are of a brilliant scarlet colour. Wood soft, similar to that of *S. villosa*. It also gives a gum, but it is not used. The inner bark is also used for ropes, but is not so good as that of *S. villosa*.

STERCULIA COCCINEA, Roxb. *Kattor-kung*, L. Small tree of the L. H. F., and especially of the inner valleys up to 3,000 ft. Fl. 8. The Lepchas eat the flowers.

x *STERCULIA PALLENS* (named by Kurz in H. B. C. Should it not be *fulgens*, Wall.?). *Kaphal kung*, L. Large tree of the L. H. F. up to 3,000 ft. Flowers and fruits I have never seen. The roots of young trees have tubers, which are eaten by the Lepchas. Leaves soft, 3-lobed, of a yellowish tinge.

STERCULIA ALATA, Roxb. *Musini*, P. Very large tree, up to 100 ft. high, of the L. H. F. Not very common, but I have several times seen it in the Tista valley. Leaves large, entire, cordate, 5-7 nerved, foliicle big, woody.

RIETVELDIA PUBESCENS, Mast. *Kala boeri*, P. A tree of the L. and M. H. F. from 3,000 to 5,000 ft. Fl. 5, fr. 8. Not uncommon about Kurseong. Bark sometimes used to make ropes.

PEROSPHERMUM ACRIFOLIUM, Willd. *Hattipaila*, P. E. ⁴⁰⁻⁵⁰₂₀₋₃₀₊₄₋₆ of the L. H. F. up to 4,000 ft. Fl. 5. Wood light red, rather close-grained, easily worked, takes a good polish, would probably be very good for furniture. This is a very handsome tree, with large flowers and large leaves, white tomentose beneath. The soft tomentum is used by Paharias to stop bleeding in wounds. The leaves are used as plates and for packing tobacco.

ERIOLENA, A tree of the L. H. F., e.g. Banumpokri upper plateau. Wood red-brown, hard, close-grained, much esteemed by Paharias.

ABROMA AUGUSTA, Linn. *Sannu-kapashi*, P. L. ¹⁰⁻¹⁵₅₋₁₀₊₁₋₁. Small tree of L. and M. H. F. from Terai to 4,000 ft. Fl. 9, fr. 1. Probably introduced, but now common in the forests. The bark is said to give a good fibre, but it is rarely used. Seeds eaten.

BYTTNERIA PILOSA, Roxb. *Sali-lara*, P. A climbing shrub of the L. H. F. up to 4,000 ft. Fl. 5.

Wallichii, Dr.

As 598-96
Paris P. O. 1878

BYTTNERIA ASPERA, Coleb. *Nalgi*, P. A climbing shrub of the M. P. F. w. in Terai (common in the Dalka Jhar) and L. H. F. up to 4,000 ft. Fl. 5, fr. 8. Leaves given to cattle. The fruit is large, with strong stout spikes.

TILIACEÆ.

GREWIA EXCELSA, Vahl. Small tree of the inner valleys at 1,000 to 3,000 ft. Fl. 6, fr. 8-9.

GREWIA VESTITA, Wall. *Sealpoora*, P.; *Kūnsūng-kūng*, L. L. (2) ²⁰⁻⁴⁰₁₀₋₁₅ of the S. F., M. P. F. d. of Terai and L. H. F. up to 2,000 ft. Fl. 3-5. Very common. Wood grey-white, with numerous fine medullary rays and annual rings marked by a darker colour, strong and tough. Used by Nepalese occasionally for shingles. Leaves used to feed cattle.

GREWIA RAPIDA, Roxb. A small shrub springing up yearly from a perennial root-stock after the jungle fires in the Terai, S. F. and Sv. F. Fl. 3-4, bright yellow.

GREWIA SCABROPHYLLA, Roxb. Small shrub with large leaves and white flowers. Common in the lower S. F. in the Terai, and in the grass lands between the "jhara." Fl. 6, fr. 11.

GREWIA MULTIFLORA, Juss. *Nilay*, P. E. ¹⁵⁻²⁰₁₀₋₁₂ of the M. P. F. d. and K. S. F. in Terai, but commonest along roadsides, in waste places near streams, and in thickets in the southern Terai, e.g. about Siliguri. Fl. 7-8, fr. 9-10. Wood grey-white, soft, much attacked by xylophages.

GREWIA LEVIGATA, Vahl. *Dansagla*, L. E. ²⁰⁻³⁰₁₀₋₁₅ of the Terai, K. S. F. and waste places, and L. H. F. up to 3,000 ft. Fl. 8, fr. 11. Wood white-grey, soft, useless. Recognized from the former, *G. multiflora*, by its much longer leaves and larger flowers; in other respects resembling it.

GREWIA POLYGAMA, Roxb. *Dansagla*, L. Small tree of the L. H. F. up to 3,000 ft. Fl. 5, fr. 7.

ECHINOCARPUS STERCULIACEUS, Bth. *Banj*, P. L. ²⁰⁻¹⁰⁰₁₀₋₄₀ of the M. P. F. w. in Terai and L. H. F. up to 2,000 feet. Fl. 2-3, fr. 11-12. Common round Siveke. Stem cylindrical above, much and deeply buttressed below. Fruit big, armed with very long sharp spines.

ECHINOCARPUS TOMENTOSUS, Bth. *Kaklay*, P.; *Taksor-kung*, L. Large fine tree of the L. and M. H. F. from 2,000 to 5,000 ft. Rather rare. Wood said to be good.

ECHINOCARPUS BARYCARPUS, Bth. *Gobia*, P. E. ⁴⁰⁻¹⁰⁰₁₀₋₃₀ of the M. and U. H. F. from 5,000 to 7,000 ft. Fl. 10, fr. 11-12. One of the commonest, handsomest, and most valuable trees. Bark brown-grey, rough. Wood brown-white, used for house-building, tea-boxes, and to make charcoal, and has lately been in great demand. The tree often begins to branch very soon, and sometimes spreads out into many heads with drooping branches.

ELAEODENDRUM ROBUSTUM, Roxb. *Bepari*, P. E. ²⁰⁻³⁰₇₋₁₅₊₃₋₅ of the M. P. F. w. in Terai Fl. 4-5. Common in the Dalka Jhar.

ELAEODENDRUM LANCEFOLIUM, Roxb. *Bhadras*, P.; *Batrachi*, P.; *Shepkyew-kung*, L. E. ²⁰⁻³⁰₇₋₁₅₊₃₋₅ of the U. H. F. from 6,000 to 8,000 ft. Fl. 8, fr. 3. Common in Darjeeling. Wood yellow-brown, rather soft, used for house-building, tea-boxes, charcoal, &c. Fruit eaten; it resembles a large olive in appearance, and also somewhat in flavour. *S*

ELAEODENDRUM RUGOSUM, Roxb. *Nandiki*, P. E. large tree of the M. P. F. w. in Terai and L. H. F. Fl. 4.

NOTE.—There is another tree with a very big cylindrical stem in the U. H. F. with leaves almost entire and chorate, acuminate, smooth shining, and fruits like those of *E. lanceifolium*, which is called *Bhadras* or *Geophel*; it may belong to this genus.

LINEÆ.

REINWARDTIA TRIGYNA, Planch. *Lalû*, P. A shrub common in M. H. F. from 3,000 to 5,000 ft., especially with a southerly aspect. Fl. bright yellow, 10-1.

REINWARDTIA TETRAGYNA, Planch. *Lalû*, P. Similar to, and found in the same places as, *R. trigyna*. Fl. 10.

MALPIGHIACEÆ.

HIPTAGE MADARLOTA, Gaertn. *Sheupati*, P.; *Tungchirik*, L. Large climber of the L. H. F. with handsome flowers. Fl. 3.

ASPIDOPTERYS ROXBURGHIANA, A. Juss. *Shubung-lara*, P.; *Munkuknyok*, L. Climber of the L. H. F. up to 3,000 ft. Fl. fr. 7-9.

ASPIDOPTERYS NUTANS, Hk. f. *Shubung-lara*, P.; *Simplatrik*, L. Climber of the Terai and L. H. F. up to 3,900 ft. Fl. fr. 7-9.

GERANIACEÆ.

AVERRHOA CARAMBOLA, Linn. *Kamarangs*, H. A small tree cultivated in the Terai for its fruit, large quantities of which are sold in the winter season.

RUTACEÆ.

EVODIA FRAXINIFOLIA, Hk. f. *Kanukpa*, P. *Kanû-kung*, L. ²⁰⁻³⁰₁₀₋₁₅₊₃₋₅ of the M. and U. H. F. from 4,000 to 7,000 ft., chiefly on cleared land. Fl. 5, fr. 8. Wood soft, not used except for temporary huts. Seeds eaten by hill-people.

ZANTHOXYLUM OVALIFOLIUM, Wt. Large shrub or small tree of the M. P. F. w. in Terai and L. H. F. valleys. Fl. 3-4, fr. 10.

for
N° 358-1 *Rain*
Amphel *EV/18*

ZANTHOXYLUM ALATUM, Roxb. *Bayol Timur, P.; Sungkū-kūng, L.* Large shrub or small tree of M. and U. H. F. from 4,000 to 7,000 ft. Fl. 10-11. Bark of stem covered with large conical prickles, that of the branches and the leaves covered with small sharp ones. The whole plant has a very unpleasant smell. Wood soft, yellowish white, close-grained.

ZANTHOXYLUM ACANTHOPODIUM, DC. *Bogay Timur, P.; Timbur, L.* E. ¹⁵⁻²⁰₆₋₈₊₁₋₂ of the M. and U. H. F. from 4,000 to 7,000 ft. Fl. fr. 9-11. Much resembles *alatatum*, but differs in the fruit and in the leaves being much smaller and closer; it has the same unpleasant smell. Wood yellowish white, rather soft.

ZANTHOXYLUM OXYPHYLLUM, Edgew. *Timur, P.; Siritakdangji, L.* Shrub, often climbing, of the U. H. F. Fl. 5. Flowers lilac, large.

ZANTHOXYLUM HAMILTONIANUM, Wall. *Purpuray Timur, P.* A large climbing shrub of the M. and U. H. F. Fl. 5, fr. 10.

TODDALIA ACULATA, Pers. *Meinkara, P.; Saphiji-rik, L.* Large prickly climbing shrub of the M. and U. H. F., from 3,000 to 7,000 ft. Fl. 2, fr. 12. Wood yellow, hard, close-grained. Fruit yellow, like a little orange, eaten by *Lepchas* and *Faharias*.

ACRONYCHIA LAURIFOLIA, Bl. *Paowlay, P.* E. ¹⁵⁻²⁰₅₋₁₀₊₂₋₃ of the M. P. F. *sc.* in Terai, L. and M. H. F., up to 4,000 ft. Fl. fr. 12.

SKIMMIA LAUREOLA, Hook. f. *Chumiani, P.; Timbrayok, L.* Large shrub of M. and U. H. F. from 5,000 to 9,000 ft. Fl. 5, fr. 11. Bark greenish brown, smooth. Wood white, very hard, close-grained, takes a good polish. Medullary rays very numerous and fine. Pores small, arranged in curious small zigzag lines. Used to make hoe and axe handles.

GLYCOSMIS PENTAPHYLLO, Corrén. Large shrub or small tree of the M. P. F. *sc.* and L. H. F. up to 4,000 ft. Fl. 3. (There are several varieties of this, which have been separated and described by S. Kurz in the *Journal of Botany* for February 1876.)

MICROMELUM PUBESCENS, Bl. *Lamani, P.; Kumbang-kūng, L.* E. ¹⁵⁻²⁰₁₀₋₁₅₊₁₋₂ of the M. P. F. *sc.* in Terai and L. H. F. up to 3,000 ft. Chiefly in valleys. Fl. 12, fr. 4.

MURRAYA EXOTICA, Linn. *Smali, P.; Shitsem-kūng, L.* E. ¹⁰⁻¹⁵₆₋₈₊₁₋₁ of the M. P. F. *sc.* in Terai and L. H. F. up to 3,000 ft. Common about Siroko and Dalingkot, but rare west of the Balasan. Fl. 3-8, fr. 10-2. Wood white, very hard, close-grained, somewhat resembling box-wood. Often found in gardens. Flowers white, very sweet-scented.

MURRAYA KÖNIGII, Spreng. Small tree of the Terai forests, L. and M. H. F. up to 6,000 ft. Fl. 3, fr. 7.

CLAUSENA EXCAVATA, Burm. A small plant, which comes up in the Terai from a perennial root-stock at all seasons of the year, chiefly in spring. (In the *Flora Indica* it is described as a tree, but it rarely reaches more than 2 ft. as far as I have seen.)

L. Budrunga Bl.; Bot. H. Ind. i. 495. Tree of the forest of Lowna Hills.

(Walt. Cat. 275)

CLAUSENA WILLDENOVII, W. & A. Madanay, P.; Terhil-nyok, L.; Selenyok, L. Small tree of the M. and U. H. F. from 3,000 to 6,000 ft. Fl. 4-5, fr. 7.

PARAMIGNYA MONOPHYLLA, Wt. Nathanta, P.; Jhunk-kung, L. Large shrub, common in the L. H. F. valleys and up to 3,000 ft. Fl. 3. Wood white, hard, close-grained, heavy, but small. Thorny shrub, much resembling the lime.

CITRUMEDICA, Linn. Kach-kung, L. Different kinds:—Nim-bar, P.; Naitjemi, P.; Binar, P. The citron and lime. Cultivated in the Terai and Hills, even in Darjeeling, at 7,000 ft.

CITRUS AURANTIUM, Linn. Narings; Kamla; Santala, P.; Sibunkung, L. The orange. Cultivated in the inner ranges, giving very good fruit. Large quantities are exported from Sikim every year to the plains. A few fine trees may be seen near Kalimpong and at Gelle.

CITRUS DECUMANA, Linn. Kaffemi, P.; Lumbo-kung, L. The pumelo. Cultivated in the Terai and Lower Hills.

FERONIA ELEPHANTUM, Corrêa. I have seen this once or twice in cultivation in the Terai.

ÆOLE MARMELOS, Corrêa. Bael, P. The bael tree. Cultivated in the Terai.

SIMARUBEÆ.

PICRAMNA JAVANICA, Bl. Tungfir-kung, L. Small tree of the inner valleys in the Hills. Fl. 4-5.

BRUCEA MOLLIS, Wall. A shrub of the L. H. F. Not common. Fl. 4.

OCHNACEÆ.

OCHINA FUMILA, Ham. A small under-shrub of the S. F. and Sv. F. in the Terai, coming up in spring, and especially after jungle fires, from a perennial root stock. Fl. 3, large, yellow, handsome.

BURSERACEÆ.

GARUGA PINNATA, Roxb. Dablabbi, P.; Gia, M.; Malsit-kung, L. ⁶⁰⁻⁸⁰ _{30-40 + 4-6} of the S. F., Sv. F., M. P. F. d. in Terai and L. H. F. up to 3,000 ft. Fl. 4, fr. 8. Wood greyish white, soft, not used, though it would probably do for tea-boxes. It gives a clear gum of little or no value. The leaves are much lopped for fodder. In the Terai forests it is generally small, except in the dry M. P. F., but in the Hills it grows to a very large size. *See - 3 Terai*
See 511 1898

CANARIUM BENGALENSE, Roxb. Goguldhap, P.; Narockpa, L. ²⁰⁻¹²⁰ _{20-30 + 2-4} of the L. H. F. and up to 3,000 ft. Bark hard, thin, rough, with horizontal wrinkles. Wood white, open-grained, soft, *See Rangit of*
See 490-54 Terai
See 511 1898

light, with large medullary rays. Much in request for tea-boxes and shingles, but it rots away very readily, and is hardly as good as "semul." It gives a resin, which is used by Lepcha to burn as incense. A magnificent tree, with a very tall, almost perfectly cylindrical, stem. It has been a good deal cut out, but fine specimens may still be seen, e.g. on the cart road near Tindharia and in the Rangbi Valley.

MELIACEÆ.

MUNRONIA WALLICHII, Wight. A shrub of the L. H. F., with pretty pink flowers. Fl. 4.

MELIA AZEDARACH, Linn. *Bukayun*, H.; *Bukainá*, P. Cultivated near villages in the Terai, and often found, apparently wild, on sites of old villages in the forest. Fl. 12.

(MELIA COMPOSITA, Willd.) *Lahsi*, P.; *Silot-kung*, L. A large tree of the L. and M. H. F. up to 6,000 ft. It has a red wood, with the appearance and odour of Teak. Fruit eaten.

DYSCOTYLUM BINCTARIFERUM, Hook. f. *Katongzu*, L. Large tree of the L. H. F. Fr. 12. Wood red, hard, and close-grained. Fruit large, four-celled, red.

DYSCOTYLUM HAMILTONII, Hiern. *Bauriphal*, P. Large tree of the M. P. F. w. in Terai and L. H. F. Fr. 1. Fruit yellow.

DYSCOTYLUM ALLIACEUM, Bl. *Chaleyachh*, P.; *Sihokmongü*, P. Tree of the M. P. F. w. in Terai and L. H. F. Fl. 12, with a very strong alliaceous odour.

AOULIA EDULIS, A. Gray. *Lati mahua*, P.; *Sinakadang-kung*, L. Tree of the L. H. F. up to 3,000 ft. Fl. 8, fr. 4. Fruit edible.

AMOROA ROHITUKA, W. & A. *Bandiphal*, P.; *Tangarook-kung*, L. E. ²⁰⁻³⁰_{10-15 + 2-3} of the M. P. F. w. in Terai and L. and M. H. F., up to 6,000 ft. Common in second-growth forest, about 6,000 ft. Fl. 4, fr. 12. Wood pink, close-grained, rather soft. Fruit yellow.

AMOROA DECANDRA, Hiern. *Tangarook-kung*, L. Tree of the L. and M. H. F. from 2,000 to 6,000 ft. Fl. 5-6.

HEYNEA TRUOGA, Roxb. *Akhaterwa*, P. L. ²⁰⁻⁴⁰_{10-20 + 2-4} of the S. F. and M. P. F. w. in Terai and L. H. F. up to 4,000 ft. Fl. 4, fr. 8. The seeds give an oil, used for burning by Nepalese.

CEDRELA TOONA, Roxb. *Tuni*, P.; *Simal-kung*, L. There seem certainly to me to be three distinct varieties under this, though in the *Flora Indica* and in *Brands' Forest Flora* they are all put under one head. It will consequently be better to describe them separately, especially as the tree is now being extensively grown both by Government and by planters, and as great care has to be taken to procure the seed of the variety most suited to the locality of the plantation.

No. 1.—Bobich, P. L. ²⁰⁻³⁰_{10-20 + 2-4} of the M. P. F. d. and K. S. F. Fl. 4, fr. 6. Bark brown or greyish brown, smooth, not

probably *D. procum. Hiern* in *R. Ind.* i. 547.

Kung, I. 214 (*Kung* in *Pres. Report*)

Calls it alliaceum)

Wall. Cat. No 78. Terai & Jungal, Pina, Jera.

C. Toona, Rob.

h. 555-62m.
Pres. F.V. 177

name he gives me is a synonym.
I cannot find this name anywhere.

The 8 *Stemmiodes* of *Jacquima*
in the *Genera Plantarum* must
be a misprint for 5.

Justia a curious discolouring
about Cedars. Brandis, however,
I may describe it as *pari-*
pinale. and so it seems
to me: not *pinale*! & the
Genera Plantarum call it

impositumale. & so I presume
does the *Flora Indica*, for it
calls it *pinale*. while the
neighbouring *Genera* are *pari-*
or *abruptly pinale*. Does it
vary? & can you account
for the discolouring?

It is given to *Sagittaria*
for 3 or 4 weeks. The plant
was a collection of *Widdichistia*

exfoliating. Wood pink or pinkish white, with a strong odour,
soft, open-grained, light, said not to be durable. This variety is
common in the forests on the banks of the Balasan, Manjha,
and Meehi rivers. It is very extensively lopped for fodder—
a practice which generally causes the inside of the tree to decay
quickly.

No. 2.—*Tuni*, P. E. (?) ⁴⁰⁻⁶⁰
²⁰⁰⁰⁻⁴⁰⁰⁰ of the L. H. F., up to 4,000 ft.
Fl. 10-11, fr. 2-3. Bark dark brown, rough, but not exfoliating
in scales. Wood pink or red, turning darker when cut up, rather
soft, with a strong odour, but durable. This is probably the best
kind. It is the variety which is being grown at Bamunpokri
plantation. If not grown closely, it is very liable to begin to
branch at an early age, and consequently to produce only a small
quantity of timber big enough for sawing up. It is much
exposed to the attacks of a beetle, the larva of which yearly
eats out the inside pith from young trees, causing the tops to
die off.

No. 3.—*Lepchi*, P. E. ⁸⁰⁻¹²⁰
²⁰⁰⁰⁻⁴⁰⁰⁰ of the M. and U. H. F.
from 5,000 to 7,000 ft. Fl. 7, fr. 11-12. Bark brown or reddish
brown, peeling off in long flakes, giving the stem a shaggy
appearance. Wood dark pink, turning dark red after exposure,
soft, open-grained, but durable; has a fainter odour than Nos. 1
and 2. Leaves much bigger and longer. This is the kind which
is being grown in Rungyrim plantation. Formerly it must
have been exceedingly common in the M. H. F. and lower part
of the U. H. F., to judge by the immense amount of old teak
timber, some of it of very large size, lying on the ground at an
altitude of 4,000 to 6,000 ft. everywhere where Lepchas have
been cultivating. A few fine trees may still be seen in the
Tukdah Reserve, and it is common all over the Dumsong forests.
It is very much lopped to feed cattle.

The wood of all three varieties is much the same, and used
for all purposes—house-building, shingles (big ones for Bhutia
houses), tea-boxes, chairs, tables, &c. It is hollowed into rice-
pounders by the Lepchas. It is used by the Bhutias for wood-
carving work, and is their favourite wood for all purposes of
house-building and furniture. It is very easily grown from seed,
and also coppices well; but plantations should be grown closely,
say at most 5 ft. apart, to prevent too early branching. As for
the best age for transplanting, opinions differ very much;
experience at Bamunpokri and Rungyrim has shown that plants
pricked out once in the nurseries and transplanted when from
one year to eighteen months old have succeeded best, but many
persons are of opinion that the best time is when from three to
six months old only.

NOTE.—The mahogany, *Swietenia Mahagoni*, L., was once planted on a large area near
Sukna, but afterwards all the plants died, probably from fire. It has been tried at
Bamunpokri, but although it grew well at first, it almost invariably died when about
4-6 ft. high. Good specimens may be seen on the roadside near Titalya; but, owing to
their being in the open, they are short and much branched. Besides which, they were grown from
cuttings and not from seed.
L. H. F.

C. micrantha
C. de f. p. d.

Lobelia
glabra, *C. C.*
No. 36 - 38
L. H. F. 10 ft.
L. H. F. 10 ft.

the off.
34 = 1

OLACINEÆ

ERYTHROPALUM SCANDENS, Bl. *Santalingringrik*, L. Climbing
shrub of the L. H. F. valleys. Fl. 5.

LEPIONURUS OBLONGIFOLIUS, Mast. Small tree of the L. H. F.
Fl. 4, fr. 7.

NATSIATUM HERPETICUM, Ham. *Sungoo-rik*, L. A thin, wiry, climbing shrub of the K. S. F. and banks of streams in Terai and along river-beds in the L. Hills. Fl. 12-1.

and along river-beds in the L. class. *Kurz. Malay. P.; Chitlawi, P. (?)*; *Tumbriling-king, L. E.* ^{20-25 x 1-3} of the M. and U. H. F. from 5,000 to 7,000 ft. Common in the forests of Sanchul and Mahalam, and at Dumsong. Fl. ♀, fr. 10-11. Wood yellow-white, rather hard, good, used for house-building about Darjeeling and Kurseong.

ILICINEÆ

ILEX INSIGNIS, Hk. f. *Laruni*, P. (?) E. ²⁹⁻³³
^{10-15 + 5-7} Common in
 the station of Darjeeling, and, though rather rarer, in the forests
 round from 6,000 to 8,000 ft. Fl. 2-3, fr. 11-12. A very pretty
 tree, with large prickly leaves and bright red berries.

Ilex diphyrena, Wall. E. $\frac{30-40}{15-20 \pm 3.4}$ of the U. H. F. from 7,000 to 9,000 ft. Found at Rungbool and on Senchal.

ILEX GODAYAM, Colebr. E. $\frac{40-20}{20-25+5-4}$ of the M. P. F. in the Terai, e.g. in the lower portion of the Dalka Jhar, about Gundha Haga. Fl. 4.

CELASTRINEÆ

EVONYMUS FRIGIDUS, Wall. Straggling shrub of the U. H. F. and R. F. from 7,000 to 10,000 ft. Fl. 5, fr. 8-10. A variety with very long leaves is common about Tonglo.

EVONYMUS ECHINATUS, Wall. *Sann kinü*, P. Shrub, often epiphytic, of the U. H. F. Common about Darjeeling. Fl. 5, fr. 8.

EVONYMUS THEKIFOLIUS, Wall. Shrub, common about Dar-
jeeling. Fl.

MICROTROPIS DISCOLOR, Wall. *Suglim-kung*, L. Large shrub or small tree of the L. and M. H. F. from the Terai to 6,000 ft. Fl. 11, fr. 1.

4. *ORLESTRIUS PANICULATA*, Willd. *Ruglinnik*, L. Large climbing shrub of the Terai, L. and M. H. F. up to 6,000 ft. Fl. 7, fr. 1-2. Bark yellow, corky. Wood yellow-pink, rather curious, consisting of broad medullary rays separated by thin layers of tissue. Annual layers marked by a ring of large sized vessels. It reaches 1-2 ft. in girth.

Ad 5 *Ilex brevifolia* Wall. (? Kf.) = *Harra* P. N° 692-23 Bar. Ell. from
for K. Johnston, late 1894
Wall. Cat. 195. *Karaput* P. *munasi*, *Galsima* Barwa. Wood be any hard,
said to be used for wood etc.

Wall. Cat. 138

Lophopetalum fruticulatum, Wright. Sakku

L $\frac{60-80}{40-50+3-4}$

Walt. Cat 346
Woody, hard, heavy; heart or bright red leaves, not undulate
English gum.

CELAESTRUS STYLOSIA, Wall. *Sakuruglim-rik*, L. Large climbing shrub of the U. H. F. from 6,000 to 8,000 ft. Very common in Darjeeling. Fl. 5, fr. 1-2. Bark yellow, corky. Wood like that of *C. paniculata*.

CELAESTRUS MONOSPERMA, Roxb. *Tumbrang-rik*, L. Large climbing or straggling shrub of the M. H. F. from 3,000 to 6,000 ft. Fl. 5, fr. 8-9.

GYMNOSTORIA THOMSONI, Kurtz. *Phugong-kang*, L. Large shrub of the M. and U. H. F. from 4,000 to 7,000 ft. Fl. 5-6, fr. 1-2.

ELEODENDRON ROXBURGHII, W. & A. *Chikyong-kang*, L. L. $\frac{50-60}{10-20+3-5}$ of the L. H. F. up to 2,000 ft. Not very common. Fl. 7, fr. 12. Bark white-grey, peeling off, when dry, in small horizontal flakes. Wood pinkish white, with numerous small pores arranged very prettily in concentric lines, hard, close-grained, seasons very well, works easily, and takes a good polish.

RHAMNEÆ.

ZIZYPHUS JUJUBA, Lamk. *Baer*, H. P. L. $\frac{10-20}{5-10+2-4}$ Found growing in dense thickets over the S. Terai at and below Siliguri. Very rare in the forests, and then probably only on the sites of old villages. Often cultivated, and then reaches a pretty large size. Berries eaten. Fl. 8, fr. 12-1.

ZIZYPHUS RUFOSSA, Lam. *Rakk Baer*, P. L. $\frac{10-20}{5-10+2-4}$ of the S. F. S. F., and M. P. F. d. in Terai and L. H. F. up to 2,000 ft. Fl. 4, fr. 9-10. Bark black-brown, peeling off in small rectangular scales. Wood red or reddish brown, hard, heavy, but warps very badly; is much attacked by insects even when green.

NOTE.—There are one or two other species, chiefly small and of the lower Terai.

BERCHEMIA FLORIBUNDA, Wall. *Chiduk*, P.; *Rungyong-rik*, L. Large climber of the M. H. F. from 4,000 to 6,000 ft. Fl. 12, fr. 3. Bark outside grey-white; deeply cleft, rough, falls off, leaving a purple-coloured inner bark exposed. Wood yellow, pretty, with numerous medullary rays and large pores; rather heavy, hard. The young leaves are poisonous to cattle.

RHAMNUS NEPALENSIS, Wall. *Achal*, P. Large shrub of L. H. F. up to 3,000 ft. Fl. 2, fr. 11-12.

RHAMNUS VIRGATUS, Roxb. Shrub of the M. and U. H. F., chiefly about 5,000 ft. Fl. 5-6, fr. 9.

GOUANIA LEPTOSTACHYA, DC. *Batwasi*, P.; *Tungcheongmon-rik*, L. Climbing shrub of L. and M. H. F. from the Terai up to 6,000 ft. Fl. 8, fr. 12. The leaves are used by Lepchas to make poultices for sores.

AMPELIDEÆ.

VITIS DISCOLOR, Dalz. *Sanu Puren*, P. Climber of the L. H. F. from 1,000 to 4,000 ft. Fl. 9, fr. 10. Has very handsome,

variegated leaves, and red branches and flowers. Often cultivated in gardens.

VITIS GLAUCA, W. and A. *Pureni*, P.; *Kungchen-rik*, L. Climber of the M. P. F. in the Terai and L. H. F. up to 2,000 ft. Fl. 8, fr. 9-10. Leaves cordate. Stems glaucous.

ho 485 - 109 Jan
Paris 8.11.1918
VITIS REPANDA, W. and A. *Pani-lara*, P.; *Phym-rik*, L. Large climber of the S. F., M. P. F. d. and L. H. F. ridges, climbing over the loftiest trees. Fl. 5. Bark brown, corky. Wood very soft, fibrous, holds a large quantity of water. Leaves large, cordate.

VITIS ADNATA, Wall. *Pani-lara*, P.; *Kungchen-rik*, L. A climber of the Terai and L. H. F. up to 3,000 ft. Fl. fr. 8-12. Leaves cordate, eaten by *Lepchas*.

VITIS BARRATA, Wall. Climber of the Terai. Fl. 5. Stems very hairy.

ho 486 - 91
Paris 8.11.1918
VITIS LANATA, Roxb. *Jarila-lara*, P.; *Mikrum-rik*, L. Climbing shrub of the Terai and L. H. F. up to 3,000 ft. Fl. 4, fr. 6. Bark hard, peeling off in long strips. Wood with fine medullary rays and large pores, rather heavier than that of most kinds. Fruit eaten by *Lepchas*.

VITIS VINIFERA, LINDL. The Vine. Cultivated occasionally by planters in the Terai, where it yields a fair description of fruit.

VITIS CARNOBA, Wall. *Jarila-lara*, P.; *Tukhi-rik*, L. Climber of the L. Hills, up to 2,000 ft. Leaves trifoliate. Fl. 8.

VITIS BRACIOLATA, Wall. Climber of the M. P. F. in the Terai. Fl. 3. Leaves trifoliate.

VITIS HIMALAYANA, Brandis. *Bara churcheri*, P.; *Hlotaghret*, L. A very large climber of the U. H. F. from 5,000 to 10,000 ft., climbing over the highest trees. Fl. 5-6, fr. 9. Leaves trifoliate, wrinkled.

ho 486 - 90 Jan
Paris 8.11.1918
VITIS ELONGATA, Wall. A large climber of the swampy parts of the M. P. F. in the Terai and L. H. F. valleys up to 4,000 ft. Stem rather flattened; younger portions green. Leaves 5-foliate, pedate.

VITIS CAPRIOLATA, Don. *Churcheri*, P. A large climber of the U. H. F. from 6,000 to 8,000 ft., climbing over trees and rocks. Common in Darjeeling. Fl. 5, fr. 10. Very pretty, with small pedate, 5-foliate leaves.

VITIS TRINIFOLIA, W. and A. *Tukbrinyok*, L. Climber of the L. H. F. valleys and up to 4,000 ft. Leaves pedate, 5-foliate, much serrated.

VITIS LANCEOLARIA, Roxb. *Tukhet-rik*, L. Climber of the L. H. F. up to 4,000 ft. Fr. 8. Leaves fleshy, pedate, 5-foliate. Fruit big, rather dry.

VITIS RUMICISPERMA, LAWSON. *Tungroot-rik*, L. Large climber of the M. and U. H. F. from 5,000 to 7,000 ft. Fl. 5, fr. 9. Fruit eaten. Attempts have been made by Darjeeling residents to make wine of it, but with indifferent success. When ripe it is not unpleasant to eat. Leaves 5-foliate.

Churcheri Bara
+ *Manom*

VITIS PEDATA, Vahl. *Tungrootrikup*, *L.* Climber of the Terai and L. H. F. up to 3,000 ft. Fl. fr. 4-5. Leaves pubescent, 5-foliate.

NOTE.—There are several other species, which may be inserted hereafter. They are none of them important.

LEEA MACROPHYLLA, Roxb. *Bulyettra*, *P.*; *Dampantôm-kûng*, *L.* Large herbaceous shrub of the S. F. and Sv. F. in Terai. Fl. 7-8. Leaves simple, very large, cordate, white beneath. The Paharias use the seeds of this to hang round children's necks as a kind of charm to drive away pains in the stomach.

LEEA ALATA, Edgew. *Lal galeni*, *P.*; *Toemangri*, *P.*; *Kantôm-nok*, *L.* Herbaceous shrub of the S. F. and Sv. F. in Terai. Fl. 7, fr. 10. Flower and fruit scarlet. Leaflets rather long, narrow.

LEEA CRISPA, Willd. *Phokri galeni*, *P.*; *Pantôm*, *L.* Large herbaceous shrub of the S. F. and Sv. F. in Terai and dry L. H. F. Fl. 6, fr. 10. Leaves ovate-oblong, deeply serrate. Stems and branches with crisped wings.

LEEA ALATA, Wall. *Lal galeni*, *P.*; *Pantôm*, *L.* Large herbaceous shrub of the M. P. F. in Terai and L. H. F. valleys. Fl. 6, fr. 9. Flowers scarlet. Leaves rather thin, long, acuminate.

LEEA ASPERA, Wall. *Galen*, *P.*; *Pantôm*, *L.* Large herbaceous shrub of the L. H. F. up to 3,000 feet. Fl. 5, white; fr. 6-7, blue. Leaves rough, with rows of short bristles between the veins.

LEEA HIRTA, Roxb. *Galen*, *P.*; *Mangû pantô-kûng*, *L.* Large shrub of the L. H. F. valleys up to 2,000 ft. Fl. 6, fr. 10, yellow or black. Leaves large, scabrous.

LEEA ROBUSTA, Roxb. *Galen*, *P.*; *Pantôm*, *L.* Large shrub, often 10-12 ft. high, of Terai and L. H. F. up to 4,000 ft. Common on dry ridges in the L. Hills under Sâl. Fl. 4-5, fr. 7-9. Leaves very large, with big red bracts. Bark grey, with brown vertical lines. Stem fluted. Pith very large, grooved. Wood hard, with broad medullary rays.

LEEA SUMATRANA, Kurz. *Galen*, *P.*; *Sirispanterr-kûng*, *L.* Large shrub of the Terai and L. H. F. up to 3,000 ft. Fl. 4-5, with long lanceolate bracts and numerous bracteoles. Leaves rough, pubescent, very long, acuminate.

LEEA GIGANTEA, Griff. *Galen*, *P.* E. ¹²⁻²⁵/₃₋₁₀ of the L. H. F. up to 3,000 ft. Found chiefly in valleys. Above Sivoke in the Tista valley many fine specimens may be seen along the road. Fl. 2, fr. 12, black. Leaflets many, small.

LEEA SAMBUCINA, Willd. *Galen*, *P.*; *Pantôm*, *L.* Large shrub of the L. H. F. up to 4,000 feet. Fl. fr. 6-9. Fruit many-seeded, blue, eaten. Leaves rather small, generally crenate serrate.

ho 280-29 Jan
Paris 17. Apr

ho 27-28 Jan
Paris 17. Apr

SAPINDACEÆ.

n/ ALLOPHYLUS ZEVLANICUS, Linn. *Kashiyok, L.* Shrub of the L. H. F. valleys, up to 3,000 ft. This is the var. *grandifolia*. Fl. 7-8, fr. 9-10.

g/ ÆSCULUS PUNDUANA, Wall. *Cherinaugri, P.* L. ⁵⁰⁻⁵⁰_{20-30 + 4-5} of the L. H. F. valleys up to 4,000 and M. P. F. *se* in Terai. (Not found by me in the Darjeeling district, but I have found it at Rajbatkora, in the Western Duars. It is here entered as the Flora Indica and Dr. Brandis gives Sikkim as a locality.) Fl. 3.

SAPINDUS ATTENUATUS, Wall. *Achatta, P.; Sirhootungchir, L.* ¹⁰⁻¹⁵_{5-5 + 1-1} Shrub or small tree of the S. F. and M. P. F. *se* in Terai and L. H. F. up to 3,000 ft. Fl. 2-3, fr. 4-5. It is easily recognized by the dark red flowers and red bi-lobed ellipsoidal fruit.

ACER OBLONGUM, Wall. L. ⁵⁰⁻⁵⁰_{30-40 + 2-7} of the M. H. F. about 4,000 to 5,000 feet. Fl. 11, fr. 1-2. Recognized by the long petioles and entire small oblong leaves, which are glaucous beneath.

Abies - 78
Pinus EU 1878
Sapindus a 5000 ft
ACER LEVIGATUM, Wall. *Thali kabashi, P.; Tungnyok-kang, L.* L. ⁵⁰⁻⁵⁰_{20-40 + 5-12} of the M. and U. H. F. from 5,000 to 9,000 ft. Recognized by small entire lanceolate leaves, not glaucous beneath. Fl. 3-4, fr. 5-6.

ACER HOOKERI, Miq. *Lal kabashi, P.; Pal-kung, L.* L. ²⁰⁻²⁰_{10-15 + 2-4} of the U. H. F. from 7,000 to 10,000 feet. Very common round Darjeeling and on Tonglo, often seen growing from seed deposited in the fork of another tree, and so apparently, though not really, epiphytic. Easily recognized by the red branches and petioles and generally reddish, cordate, very sharply serrate and occasionally, though rarely, 3-lobed leaves. Bark brown, cracked rather deeply. Wood light brown, soft, with a few medullary spots, easily worked.

ACER SIKKIMENSE, Miq. *Palengnyok, L.* L. ²⁰⁻²⁰_{10-15 + 3-4} of the U. H. F. especially in open spaces like round Darjeeling. Fl. 4-5, fr. 5-6. It is easily distinguished by its leaves, which are serrate when young and entire when old. They are long-acuminate, cordate, of a bright green on both sides, and have hairs on the veins of the upper surface and a white tuft in the axil beneath when young. The inflorescence is *spicate racemose, the pedicel being very short*.

ACER CAUDATUM, Wall. *Kabashi, P.; Yalishin, Bh.* L. ²⁰⁻²⁰_{20-30 + 4-5} of the R. F. from 8,000 to 11,000 ft. Fl. 3-4, fr. 10-11. Easily distinguished by sharp, 5-lobed, serrate leaves, with red branches and petioles, and by the bright red fruits with much diverging wings.

ACER THOMSONI, Miq. *Kabashi, P.* L. ²⁰⁻²⁰_{20-30 + 2-10} M. H. F. up to 6,000 feet. Most common at about 4,000 to 5,000 feet, e.g. in the forests round Paingang, Dumsong. Wood white, soft.

Warts at base!
Sapindus detogens. Rila

specimen one of fruit tree in Rila Det. from
W. Manuwa (No. 113) -

Portia P.
h. phanta

Wall: Cat. 10 wood cream - bark with crassinate
bark, rays in narrow bands of flesh colour

Wall: Cat. 8. *Sisilambi, N. near Chirani P.*
Wood varied brown cream colour with a wavy
bark.

Wall: Cat. 9 *Acer sterculiaceum*. Long lay the soft diam. Wood
light, fibre pale cream colour with crassinate bark, rays in
distinct brown ribands: tubes large giving a coarse adhe-
-rance to the wood.

Recognized by the large plane-like leaves and large reddish fruit. Fl. 11-12, fr. 9-10. Wood white, soft. (In the *Flora Indica* the range is given as 7,000 to 9,000 ft., but I have never seen it above 6,000 ft., and it is very common in forests at about 5,000 feet. Can it be *A. Thomsoni*?)

ACER CAMPBELLII, Hk. f. and T. *Kabashi*, P.; *Daom-kung*, L.; *Yatli-kung*, L. L. ⁸⁰⁻¹⁰⁰ U. H. F. from 7,000 to 10,000 ft. Very common. Fl. 4-6, fr. 9-10. Wood light, brownish white, even-grained, works well, is much used for planking in native houses, tea-boxes, &c. The seedlings come up very freely self-sown, provided there is not much shade. It is recognized by the deeply 5-cut leaves and their bright light-green colour and reddish petioles.

DOBINKIA VULGARIS, Ham. *Santi*, P. Shrub of the M. H. F. from 4,000 to 6,000 ft. Fl. 8-9, fr. 10-11.

DODONAEA VISCOSA, Linn. A shrub occasionally used to make hedges in the Terai, but not common.

TURPINIA POMIFERA, DC. *Naypat*, P.; *Singnok-kung*, L. E. ⁵⁰⁻⁶⁰ of the M. P. F. ^{13-20 + 2-4} in Terai and L. H. F. up to 3,000 ft. Fl. 3, fr. 9. Wood grey, rather heavy, close-grained, not used. Flowers in dense terminal panicles. Leaves pinnate, rather large.

TURPINIA NEPALENSIS, Wall. *Thali*, P.; *Margut-kung*, L. E. ⁵⁰⁻⁶⁰ of the M. and U. H. F. from 4,000 to 7,000 ft. Fl. 4, fr. 10. Wood white, rather hard. Has smaller leaves and flowers and a straighter growth than the former. Its leaves are much lopped to feed cattle.

SABIACEÆ.

SABIA LEFTANDRA, Hk. f. and T. *Simali-lara*, P.; *Payong-rik*, L. Straggling or climbing shrub of the M. and U. H. F. from 4,000 to 7,000 ft. Fl. 10-11, fr. 12.

SABIA PARVIFLORA, Wall. *Simali-lara*, P.; *Payong-rik*, L.

Leaves simple	usually leaves serrate	Leaves membranous	<i>M. dillenii</i> ^{folia}
		Leaves coriaceous	<i>M. pungens</i>
Leaves usually entire		Leaves membranous	<i>M. simplicifolia</i>
		Leaves coriaceous	<i>M. blightii</i>
Leaves pinnate	leaflets serrate	Leaves glabrous 6 to 12 pairs	<i>M. pinnata</i>
		Leaves pubescent 3 to 6 pairs	<i>M. blightii</i>
	leaflets entire		<i>M. Amottiana</i>

Recognized by the large plane-like leaves and large reddish fruit. Fl. 11-12, fr. 9-10. Wood white, soft. (In the *Flora Indica* the range is given as 7,000 to 9,000 ft., but I have never seen it above 6,000 ft., and it is very common in forests at about 5,000 feet. Can it be *A. Thomsoni*?)

ACEB CAMPBELLII, Hk. f. and T. *Kabashi, P.; Daom-kung, L.* *Yath-kung, L.* ⁸⁰⁻¹⁰⁰_{40-60 + 10-15} U. H. F. from 7,000 to 10,000 ft. Very common. Fl. 4-6, fr. 9-10. Wood light, brownish white, even-grained, works well, is much used for planking in native houses, tea-boxes, &c. The seedlings come up very freely self-sown, provided there is not much shade. It is recognized by the deeply 5-ent leaves and their bright light-green colour and reddish petioles.

AE/ *DODONÆA VULGARIS*, Ham. *Samb, P.* Shrub of the M. H. F. from 4,000 to 6,000 ft. Fl. 8-9, fr. 10-11.

AE/ *DODONÆA VISCOSA*, Linn. A shrub occasionally used to make hedges in the Terai, but not common.

TURPINIA POMIFERA, DC. *Nagpat, P.; Singnok-kung, L.* ²⁰⁻⁴⁰_{15-20 + 2-4} of the M. P. F. *sc.* in Terai and L. H. F. up to 3,000 ft. Fl. 3, fr. 9. Wood grey, rather heavy, close-grained, not used. Flowers in dense terminal panicles. Leaves pinnate, rather large.

TURPINIA NEFALENSIS, Wall. *Thali, P.; Margut-kung, L.* ²⁰⁻⁴⁰_{15-25 + 3-4} of the M. and U. H. F. from 4,000 to 7,000 ft. Fl. 4, fr. 10. Wood white, rather hard. Has smaller leaves and flowers and a straighter growth than the former. Its leaves are much lopped to feed cattle.

SABIACEÆ.

SABIA LEFTANDRA, Hk. f. and T. *Simali-lara, P.; Payong-rik, L.* Straggling or climbing shrub of the M. and U. H. F. from 4,000 to 7,000 ft. Fl. 10-11, fr. 12.

SABIA PARVIFLORA, Wall. *Simali-lara, P.; Payong-rik, L.* Climbing shrub of the M. H. F. about 4,000 to 5,000 ft. Fl. 3.

SABIA PANICULATA, Edgw. *Kali-lara, P.* A climbing shrub of the L. H. F. Fl. 1. A fine specimen grows just over the spring at Bamunpokri, and it may also be found in the Bamunjhora; I have seen it nowhere else.

SABIA LIMONIAEACA, Wall. Climbing shrub of the U. H. F. *MELIOSMA DILLENIOFOLIA*, Wall. *Siamuns, P.* Tree of the M. and U. H. F. from 5,000 to 8,000 ft. Fr. 9.

MELIOSMA SIMPLICIFOLIA, Roxb. *Kosur, P.; Hingman-kung, L.* ²⁰⁻⁴⁰_{15-20 + 2-4} Very common in the M. P. F. *sc.* in Terai and L. H. F. valleys. Fl. 12-2, fr. 5. Wood reddish brown, with numerous medullary rays, rather hard, but warps much, and is much attacked by xylophages.

MELIOSMA PINNATA, Roxb. *Balay, P.* Large tree of the L. H. F. up to 3,000 ft. Fr. 9.

ho 456 - 5
"Roughly 7000"
ho 686 - 38
"Apogon - 1000"
Paris 5. U. 1878

Guava 4. 22.

ho 649 - 33
"Apogon 1000"
Paris 5. U. 1878

No 361 - 4
Roughly good
Paris E.V. 1898

MELIORMA WALLICHII, Planch. *Nunee-lai*, P.; *Himan-kung*, L.
L. Large tree of the M. and U. H. F. from 5,000 to 8,000 ft.
Fl. 6-7. Common round Darjeeling.

ANACARDIACEÆ.

RHUS SEMIALATA, Murray. *Bhagmili*, P.; *Tukhril-kung*, L.
L. ²⁰⁻³⁰₁₀₋₁₂₊₂₃ of the L. and M. H. F. from 2,000 to 6,000 ft. Fl. 9-10,
fr. 10-11. Very common in old Lepcha cultivations, e.g. in the
Pashok forest above the Great Rangit, where it has come
up in very great profusion. Bark grey, with numerous reddish
brown lenticels. Sapwood white, heartwood grey-white, with a
slight bluish tinge, soft, light. The seeds are eaten by Paharias
and Lepchas. They are also made into a wax, *Omla*, P.

RHUS ACUMINATA, DC. *Ranee-lai*, P.; *Serhagok*, L. L. ¹⁶⁻²⁰₁₀₋₁₂₊₁₃
of the U. H. F. especially in cleared ground, as about the station
of Darjeeling. Fl. 5, fr. 10. Very handsome at any time, but
especially in autumn, when its leaves turn to different shades, from
bright orange to deep scarlet. The juice causes blisters.

RHUS INIGONIS, Hk. f. *Kuyphulai*, P.; *Serh-kung*, L. L. A
tree of the U. H. F. from 6,000 to 8,000 ft., often growing
to 50 ft. high, with a girth of 4-5 ft. Fl. 7, fr. 12. One of the
handsomest trees in the district. Common in Darjeeling. The
juice raises blisters.

MANGIFERA INDICA, Linn. *Am. H.*; *Lower Am.*, P.; *Ambhi*,
L. The mango tree. Cultivated everywhere in the Terai and
Lower Hills up to a considerable elevation; its fruit, however, is
generally very poor. On one or two tea plantations the manager
has grown it very successfully from good grafts, but the ordinary
village mango is not worth eating.

MANGIFERA SYLVATICA, Roxb. *Chuchi Am*, P.; *Katur-kung*, L.
E. ⁴⁰⁻⁶⁰₂₀₋₃₀₊₆₀ of the M. P. F. in Terai and L. H. F. valleys up
to 3,000 ft. Fl. 4, fr. 7. Is very common in the Dalka Jhar and
in the Tista and Great Rangit valleys. Wood good, but very little
if ever used; it might do for tea-boxes, and should be tried.
The fruit is eaten by the Lepchas.

TAPIRIA HIRUTA, Hk. f. *Mashul-lara*, P.; *Romchiling-rik*,
L. Large climbing shrub of the L. H. F. up to 3,000 ft. Fl. 1,
fr. 5.

ODINA WODIER, Roxb. *Bara dabdabbi*, P. L. ⁴⁰⁻⁶⁰₂₅₋₃₀₊₅₋₆ of the
S. F., K. S. F. (common), M. P. F. d. of Terai and L. H. F. up
to 3,000 ft. Fl. 4. Bark dark brown, with small scaly plaits,
which fall off. Wood light rod, with numerous very narrow
medullary rays and large pores, rather regularly distributed; has
a very pretty wavy appearance when cut: it works easily and
polishes well, but is very heavy. A specimen from Bamunpokri

Dabdabbi P.
Kyphulai

Wood grey, very soft light resembling that of *Alnus*.

(*Rhus Buckiamela*) Wall: Cat. 350. *Suberichana* Mura. *Buckiamela P.*
Timber good above, greyish white with marbled lustre, soft light.

Shoko Kathor.

Halloray P.

No 594 - 97 Terai
Paris S.V. 1898

No 661 - 31 Terai
Paris S.V. 1898

(Wall. Cat. 376)

Anacard. P. Gives a skins insoluble gum. Fruit
is pickled & eaten by natives - dec. also eat it
K. M. Mason

proved to be almost the heaviest wood of the district, weighing as much as 73 lb per c. ft.: it had been cut some time, but may not have been sufficiently seasoned. Used by Paharias for cattleyokes. It gives a brown, clear, brittle gum, used for paper-sizing and in native medicine.

SEMECARPUS ANACARDIUM, Linn. fl. *Bhayla, H.; Bhalai, P.; Kongki-kung, L. E.* ²⁰⁻⁴⁰₁₅₋₂₀₊₂₅ of the S. F., Sv. F., and M. P. F. w. of Terai and L. H. F. up to 3,000 ft. Fl. 8, fr. 12. Bark dark brown, exfoliating in roundish scales. Wood dark brown tinged with yellow, with numerous medullary rays, soft. The lower part of the fruit is eaten; the upper part gives a gummy juice, used as marking-ink and sold in the bazars for dhobis' use. It is also used as a vermifuge for sheep and goats by the Paharias.

DRIMYCARPUS RACEMOSUS, Hk. f. *Kogi, P.; Brong-kung, L. E.* ⁴⁰⁻⁶⁰₁₅₋₂₀₊₂₅ of the M. H. F. from 3,000 to 6,000 ft. Fl. 3. Wood said to be strong and good. Is very common in the forests of the front face of the Hills, e.g. about Tindharia.

SPONDISIA MANGIFERA, Willd. *Kanchiling-kung, L. L.* ²⁰⁻³⁰₁₀₋₁₅₊₂₅ of the L. H. F. and valleys of the inner hills up to 3,000 ft. Fl. 5, fr. 7. Wood soft, greyish, cartilagineous.

hu 499-99 Linn
Pam. 5 V. 1978

LEGUMINOSÆ—(1) Papilionaceæ.

PIPTANTHUS NEPALENSIS, D. Don. Large shrub of the Upper Hills from 7,000 to 10,000 ft. Fl. 5, fr. 10. Flowers large, yellow; often seen in gardens in Darjeeling.

CROTALARIA STRIATA, DC. Shrub with yellow flowers; common in waste places in the Terai and Lower Hills. Fl. 8, fr. 12.

CROTALARIA SERICEA, Retz. Shrub, often found in waste places in the Terai and Lower Hills. Fl. 3.

CROTALARIA JUNCICA, Linn. The "sunn" hemp plant; much cultivated in the Terai.

CROTALARIA TETRAGONA, Roxb. *Kengeni, P.; Kotulkaush, P.; Suhitung-rung, L.* Tall shrub, often 6 to 8 ft. high of the Sv. F. in the Terai and L. H. F. on dry slopes. Fl. 10-11, yellow, very handsome; fr. 12-1.

PRIOETROPIS CYTISOIDES, W. and A. *Takpyitmitak, L.* Much branching shrub of the M. Hills, chiefly on old cultivations, from 3,000 to 6,000 ft. Fl. 3, fr. 6. Very common in old cultivations round Kalimpong and Damsong.

INDIGOFEA STACHYODES, Ldl. *Chiringi jhar, P.* Large shrub or small tree, often 10-15 ft. high, of the M. H. F. Found in the inner valleys, such as those of the Rangit and Rumaun, up to 5,000 ft. Fl. 7-8, fr. 9-10.

INDIGOFEA PULCHELLA, Roxb. *Hikpi-kung, L.* Handsome shrub of the undergrowth in the Sal forests of the Tista and Great Rangit valleys from 2,000 to 3,000 ft. Fl. 1-2. Flowers very pretty, pink.

INDIGOFERA COERULEA, Roxb. *Sirisi jhar*, P. Shrub seen once or twice in waste places and by roadsides in the Terai, probably introduced. Fl. 3, fr. 7.

TEPHROSIA CANDIDA, DC. *Bodle-lara*, P.; *Sáhútsúgrúg*, L. Shrub of the L. and M. H. F. up to 3,000 ft. Common. Fl. 8-9, fr. 12. A very handsome plant, with its white flowers and golden pubescence.

MILLETTIA CINEREA, Bth. *Maukap-rik*, L. Large climber of the L. H. F. up to 4,000 ft. Fl. 2-4.

MILLETTIA MONTICOLA, Kurz. Large handsome climber of the U. H. F. about 6,000 to 7,000 ft. Fl. 5. Common round Darjeeling.

MILLETTIA FACHYCARPA, Bth. *Kojulara*, P.; *Brátsúg*, L. Large climber of the L. H. F. up to 4,000 ft. Fr. 6. Roots give a poison used by the Lepchas for killing fish.

MILLETTIA AURICULATA, Baker. *Brá-rik*, L. Large woody climber of the S. F., K. S. F., M. P. F. d. in Terai and L. H. F. up to 3,000 ft. Exceedingly common, especially with Sál. Fl. 6, fr. 12-1.

SEBANIA ÆGYPTIACA, Pers. *Jait*, H. E. ¹⁵⁻²⁵₅₋₇₊₁₋₂. Cultivated in the Terai and L. Hills, very fast growing.

DESMODIUM CERPHALOTES, Wall. *Bodle-kúrú*, P.; *Maniphtyal*, L. Shrub, 4 to 5 ft. high, of the Terai S. F. and L. H. F. up to 2,000 ft. Fl. 7, fr. 1. Recognized by its triquetrous stems, with dense silvery, silky pubescence.

DESMODIUM PULCHELLUM, Bth. Shrub, common in S. F., Sv. F. and M. P. F. d. in Terai and L. H. F. up to 2,000 ft. Fl. 5-6, fr. 7-11. Recognized by its flowers being enclosed in 2-foliate bracts in a long spiciform raceme.

DESMODIUM FLORIBUNDUM, G. Don. Large shrub, common in the L. and M. H. F. up to 4,000 ft., especially in old cultivation in rather dry places. Fl. 10, fr. 12. Recognized by its densely crowded racemes of large blue flowers, big bracts, and silky many-jointed pods.

DESMODIUM CONFERTUM, DC. *Chiptikúrú*, P. Large straggling shrub of the undergrowth in the Sál forests of the Tista and Great Rangit rivers. Fl. 11, fr. 1. Has smaller racemes of flowers and fewer jointed pods than *D. floribundum*.

DESMODIUM LATIFOLIUM, DC. *Chepekúrú*, P. Erect under-shrub of the S. F. and M. P. F. d. in the Terai and L. H. F. to 3,000 ft., especially in Sál forests. Fl. 5, fr. 10. Recognized by its unifoliate, round, cordate leaflets, and erect, unbranching growth.

DESMODIUM POLYCARPUM, DC. *Bolá*, P.; *Tirhyáknyok*, L. Branching shrub, often quite small, of the L. and M. H. F. up to 5,000 ft. Very common. Fl. 8-9. Recognized by its angular, densely hairy stem and small round leaflets.

DESMODIUM OYRANS, DC. *Bolá*, P. Erect-growing shrubby plant, often 4-5 ft. high, of the S. F., Sv. F. and M. P. F.

Gonyo-lara P.
J. H. M. M. M. M. M.

has 2/3rd of Terai
Fl. 8-9, fr. 12

in Terai and L. H. F. up to 3,000 ft. Fl. 7-8, fr. 10-2. Recognized by its two small lateral sensitive leaflets. Very common at Bamunpokri.

Desmodium gyroides, DC. *Bolú*, P. Shrub $\frac{10-15}{25+1-2}$ of the Sv. F., S. F. and M. P. F. *d.* in the Terai, also in L. H. F. up to 3,000 ft. Fl. fr. 9-2. Very common all over the Terai. Recognized by its tall woody growth and bright purple flowers. Side leaflets generally suppressed.

Abrus precatorius, Lindl.; *Abrus pulchellus*, Wall. *Maspoti-lara*, P. Slender climbers of the Terai and L. H. F. up to 3,000 ft. Fl. fr. 10-1.

Erythrina stricta, Roxb.). *Fallidha*, P.; *Kutiang-kung*, L. $\frac{40-60}{20-30+2-4}$ of the K. S. F. in the Terai and banks of rivers in the L. H. F. valleys. Also common in low waste ground near rivers in the Terai. Fl. 1, fr. 11. Wood very soft, spongy. Bark prickly, smooth, grey-green, thickly corky when older. (I think there are two species, and they are probably *E. stricta* and *E. suberosa*, but specimens are difficult to get and very difficult to preserve when procured.)

Erythrina arborescens, Roxb. *Fallidha*, P.; *Rodinga*, P.; *Gyena-kung*, L. $\frac{20-30}{10-15+2-4}$ of the M. and U. H. F. from 5,000 to 7,000 ft. Very commonly planted in Darjeeling. Fl. fr. 1-2. Wood soft, light, useless. It is very handsome when covered with its bright scarlet flowers, but it is rather unsightly when bare of leaves. Any branch or twig will strike root, and felled logs send out branches, which root at once.

Spatholobus roxburghii, Bth. *Debra-lara*, P.; *Torok-rik*, L. A huge climber of the S. F. and M. P. F. *d.* in Terai and L. H. F. up to 3,000 ft. Fl. 8, fr. 1. It often reaches 3-4 ft. in girth. Wood soft, in concentric layers separated by a ring of soft tissue, exuding a copious red astringent gum resembling "kino." Flowers white; fruit red, with usually a drop of gum exuding on either side of the single seed; leaves trifoliate.

Butea frondosa, Roxb. *Palasi*, II.; *Palasi*, P.; *Laho-kung*, L. $\frac{20-40}{10-20+2-4}$ of the Sv. F. in the Terai. Fl. 3, fr. 5-6. Bark grey-brown, soft, spongy. Wood dirty white colour, quite useless. It gives a clear gum, which is rarely used. When in flower it is very handsome, being then a mass of scarlet and black: but otherwise it is a very ugly tree, with a crooked twisted stem and ungainly branches. It is rarely found except in long grass Savannas, such as Tirihana and Khadma, to the north of the Dalka Jhar. A dye is sometimes extracted from the flowers.

Butea minor, Ham.). *Bolatra*, P.; *Namasinglet-kung*, L. Large shrub or climber of the L. H. F. on dry slopes, and only west of the Balasan, towards the Nepal frontier. Leaves very large, silky-tomentose. Fr. 1.

Mucuna imbricata, DC. *Balengra*, P.; *Kowatch*, P.; *Dangyim-rik*, L. Climber of the banks of streams, waste places.

Andra Nsp. name = Bulgetta

ha 668-57 Terai
Parsi S. V. 1878

ha 280-25 Terai
Parsi S. V. 1878

ha 674-27 Terai
Parsi S. V. 1878

ha 445-49 Terai
Parsi S. V. 1878

and M. P. F. d. in the Terai. Fl. 11, fr. 1. Fruit covered with plaits on both sides, and armed with stinging hairs.

MUCUNA *sp. Balengra, P.; Tukyeerik, L.* A huge climber of the M. P. F. *cc.* of Terai (very common in Dalka Jhar) and L. H. F. valleys. Fl. 1-2, fr. 6-7. Fruit long, flat, velvety, covered with dense short stinging hairs.

MUCUNA MACROCARPA, Wall. *Bolengra, P.; Tukyeerik, L.* An enormous climber of the M. and U. H. F. from 4,000 to 7,000 ft. Fl. 5, fr. 8. The biggest climber of the hills, and exceedingly common. A very large one of 3 to 4 ft. girth may be seen at Darjeeling by the side of the road leading from the Club to the bazaar, and it is very common at Puttabong and Lebong. Flowers dirty yellow-white. Fruit very long, rather twisted, and swollen round the seeds. Leaves trifoliate. Wood very soft, spongy.

MUCUNA FRUENS, DC. *Konatch, P.; Kajakop rik, L.* Is an annual, but it is so very common in the Terai and L. H. F., and is found climbing to such a height over big trees, that it is as well to mention it. Fl. 6-7, fr. 1, covered with golden brown very stinging hairs, which cause great irritation. I have never seen it anywhere so common as on the northern boundary of Chenga forest.

PUERARIA TUBEROSA, DC. *Debre-lara, P.; Langom-rik, L.* L. large climber of the K. S. F. and M. P. F. d. in Terai and L. H. F. up to 3,000 ft. Fl. 2-3, blue, in handsome racemes, when the shrub is leafless. Wood soft, spongy.

PUERARIA WALLICHII, DC. *Debre-lara, P.* Climbing shrub of the L. H. F. west of the Balasan, up to 2,000 ft., chiefly with Säl. Fl. 10-11, fr. 1-2.

FLEMINGIA STRITA, Roxb. *Batwasi, P.* Shrub of the undergrowth in S. F. and M. P. F. d. in Terai and L. Hills. Fl. 2. Grows to 6-10 ft. high. Easily recognized by its triquetrous stems and dense racemes with long bracts.

FLEMINGIA STROPHILIFERA, R. Br. *Bolä, P.* Shrub, common in the undergrowth of the S. F. and M. P. F. d. and on waste places in Terai. Recognized by its flowers, enclosed in large semicircular folded bracts.

FLEMINGIA SEMIALATA, Roxb. *Batwasi, P.; Mipitwisk, L.* Large tall shrub of the Terai and L. H. F. up to 4,000 ft. Chiefly common on the hills and in Säl forest. Fl. 9, fr. 12. Flowers pink, in dense racemes. Fruit small, round, with two black seeds.

FLEMINGIA INVOLUCRATA, Bth. A large shrub of the lower Terai, chiefly in the meadows between the Säl jhars. Fl. 11, in dense soft heads, blue.

DALBERGIA Sissoo, Roxb. *Sissü, H. P.* ⁴⁰⁻⁵⁰_{10-20 + 4-6} of K. S. F. in Terai. Fl. 3, fr. 8-11. Bark light brown, exfoliating longitudinally in narrow strips. Wood brown, close-grained, hard, very good; it is chiefly used for making carts, for furniture, doors and windows, and occasionally for beams and planking. The forests of *sissü* are scattered along most of the Terai rivers: it is

No 675-16 Terai
Rangoon 5. 11. 1878

found gregariously on the Tista; partly so, but mixed with khair, in the proportion of 1 to 3, on the Mahanadi; and on the Balasan and Mechi rivers in mixture with a large variety of other trees. The only big timber now available is in the forests of the latter rivers. It is being planted at Bamunpokri, and seems to thrive there, although naturally it is only found on the gravelly lands of the broad beds of the rivers. Seedlings come up self-sown in great abundance, but when once up require a great deal of light. The seeds remain long on the tree. The weight of a few specimens from the Terai (Rakti forest chiefly) gave an average of 45lb per c. ft.

DALBERGIA LATIFOLIA, Roxb. *Sital*; *Sitala*, P. L. $\frac{20-30}{0-10+2-4}$ of the Sv. F. and M. P. F. d. in Terai and L. H. F. up to 2,000 ft. Chiefly common to the west of the Mahanadi. Fl. S, fr. l. Bark grey, peeling off in small flakes. Wood: sapwood white, sometimes very little only, especially in hill specimens; sometimes broad, chiefly in plains specimens: heartwood when first cut dark purple-brown with occasional darker layers, afterwards turning black-brown, hard, heavy. The average of specimens from Bamunpokri gave 50lb per c. ft. Very valuable for furniture and door and window frames. Largely used for "kukri" handles and small articles, such as boxes. It is now only found as a small tree; but, judging from the size of old stumps occasionally seen in the forest, it was formerly found of much larger size, but has been cut out. This, too, seems confirmed by the statements of Nepalese, who assert that only a very short distance on their side of the frontier it is to be found of very large size. Easily propagated by seed.

DALBERGIA FOLIACEA, Wall. *Tutebiri*, P. Large straggling shrub of the M. P. F. w. in Terai; chiefly in the lower parts, e.g. the south of the Dalka Jhar. Fl. 4, fr. l.

DALBERGIA TAMARINDIFOLIA, Roxb. *Damar*, P.; *Tethyaprik*, L.; *Shengrit*, L. Large climbing shrub of the M. P. F. w. and banks of streams in the Terai and L. H. F. valleys to 2,000 ft. Fl. 3, fr. 4-5.

DALBERGIA LANCEOLARIA, Linn. f. *Bander Siris*, P. L. large tree of the K. S. F. and banks of rivers in Terai. Fl. 3. Wood yellowish white, rather heavy. It much resembles a *siris* in appearance.

DALBERGIA STIPULACEA, Roxb. *Tutebiri*, P.; *Garodanal*, M.; *Tón-nyok*, L. Large climbing tree of the S. F., K. S. F. and M. P. F. d. in Terai and L. H. F. up to 3,000 ft. Fl. S, fr. 12-2. Bark dark brown, rough. Wood pink-grey, hard, close-grained, very prettily marked with lines of different colours. The c. ft. weighs 45lb.

DALBERGIA STENOCARPA, Kurz. *Bander Siris*, P.; *Tutebiri*, P.; *Ralphet-khug*, L. L. $\frac{40-60}{20-30+4-8}$ of the L. H. F. up to 3,000 ft. and occasionally in K. S. F. in Terai, as at Sivoke. It is commonest towards the Nepal frontier. A handsome tree. Fl. 5,

ho 492; - 49
572 S - 49
Rakti SV. 1978

ho 494 - 49
Rakti SV. 1978

ho 574 - 72
Rakti SV. 1978

fr. 7. Wood rather soft. This is perhaps the same as *D. hircina*, Bth.

DEKISS CUNEIFOLIA, Bth. L. ⁵⁰⁻⁶⁰₁₅₋₂₀₊₂₋₄. A common tree of the L. H. F. up to 3,000 ft. Fl. 4, fr. 6-7. Very pretty when in flower and young leaf, as it has then golden brown leaves and long racemes of lilac-coloured flowers.

PONGAMIA GLABRA, Vent. *Sadan*, P. Large tree of the L. H. F. I have only seen it in the forests west of the Balasan, viz. Chenga and Lohagarhi. Wood said to be strong and good.

he 601-110 Terai
Panis S.V. 1878 *Cugeinia dalbergioides*, Gordon & Pfl. Terai & L. H. F. wood light brown, hard, resin-grained.

(2) Caesalpiniaceae.

he 100-106 Terai
Panis S.V. 1878 *MEZONEURUM CUCULLATUM*, W. & A. *Sungay*, P.; *Rung-gong*, L.; *Fangkup*, L. Large straggling climber of the M. P. F. in Terai and L. and M. H. F. up to 5,000 ft. Stems covered with corky tubercles, each bearing strong-hooked prickles. Fl. 9, fr. 1. Flowers yellow.

CAESALPINIA BONDUCELLA, Roxb. *Fangkup*, L. Large straggling shrub of the banks of streams in the Terai, chiefly in the lower part, e.g. about Phansidewa, where it forms dense bushes. Fl. fr. 1-3, flowers yellow. Fruit covered with prickles, and bearing hard-shelled grey seeds.

he 667-70 Terai
Panis S.V. 1877 *AUCROCARPUS FRAXINIFOLIUS*, Arnott. *Mandania*, P.; *Madling-kung*, L. L. ¹⁰⁰⁻¹²⁰₆₀₋₈₀₊₅₋₁₂ of the L. H. F. up to 4,000 ft. Chiefly in valleys. Commoner in the Dumsong than in the western forests. Fine trees in the Rungdung and Balasan valleys and round Dalingkot. Fl. 3, fr. 12-2. Wood dark red, hard, strong, easily worked, is now coming into use for tea-boxes, planking, and all purposes. It promises to become very valuable, and, as it is very fast growing, should not be neglected in replanting banks of streams and forests in the Lower Hills, where Sal will not grow. A most beautiful, stately tree, with lofty cylindrical stem and branches, beginning only at a great height. Leaves large bi-pinnate. Flowers orange, in handsome spikes.

he 377-60 Terai
Panis S.V. 1877 *CASSIA FIETULA*, Linn. *Amullas*, H.; *Raj Birji*, P. L. ⁶⁰⁻⁸⁰₄₀₋₅₀₊₁₋₂ of the M. P. F. d. in the Terai and L. H. F. up to 2,000 ft. Fl. 8, fr. 12. Bark brown, peeling off in small rectangular scales, leaving the inner white bark exposed. Wood light red, turning darker with exposure, very hard, heavy (workmen object to using it, as it blunts their tools), has a beautiful grain and planes very well. Annual rings very distinct. Specimens from Bamanpokri gave 64 lb per c. ft. It is much esteemed by the Nepalese. It is often planted for ornament, having long pendulous racemes of yellow fragrant flowers. The fruit is a long cylindrical indehiscent pod, the pulp of which is much used as a purgative. Should

D. cuneifolia Bth = *D. marginata* = *Galedupa* M.
See Walp. Rep. iv. 503. Roxb. Hb. Ind. 114

? *try Millelletia pulchra* Bth Hb. Ind. 115

Omoria glauca
in Lower Hills

Mauson mentions a tree measured in Rohoni R. 11 ft girth at 70 ft from base, where 1st branch went off.

Walt. Cat. 70 Terai, Gwalpora

be grown in regenerating dry mixed forests in the Terai, where Sal will not grow.

CASSIA OBOVATA, Coll. *Tappitayok*, L. A diffuse herbaceous plant from a perennial root-stock; found in all waste places in Terai, and as under-growth in K. S. F. in company with the annual *C. occidentalis*. Fl. 7, fr. 11-12.

BAUHINIA MALABARICA, Roxb. *Kurmai*, Bg.; *Taki*, P. E. ³⁰⁻⁴⁰ of the S. F., Sv. F., M. P. F. d. in Terai and L. H. F. up to 2,000 ft. Fl. 9, fr. 1-2. A small tree with a spreading crown. Wood reddish brown, hard, heavy, not used. The leaves are acid and are eaten, as are also the seeds.

BAUHINIA PURPUREA, Linn. *Amil taki*, P.; *Kachik-kung*, L. ³⁰⁻³⁵ of the M. P. F. d. in Terai and L. H. F. up to 4,000 ft. Common in the inner valleys. Fl. 10-11, fr. 2-3. A handsome tree with two varieties—one with red, the other with white flowers. Wood said to be rather soft, not used. Seeds eaten by Lepchas.

BAUHINIA VARIEGATA, L. *Kachnar*, H.; *Khewairalo*, P.; *Rha-kung*, L. ³⁰⁻³⁵ of the Sv. F. and M. P. F. d. in Terai, but chiefly in L. H. F. up to 2,000 ft. on dry exposures. Fl. 3-4. Wood greyish brown, rather close-grained, easily worked. Is a most beautiful tree when in full flower, having large white azalea-like flowers with usually one red petal. They are eaten by the Paharias. It is leafless when in flower, and is all the more handsome, as this occurs at a season when the country is very much dried up.

BAUHINIA VAILLII, W. and A. *Barta*, P.; *Sungung-rik*, L. A gigantic climber of the S. F., M. P. F. d. in Terai and L. H. F. up to 3,000 ft. Fl. 4, fr. 1-2. The stems often reach 4 ft. or more in girth. Wood very curious, consisting of a quadrangular cross-shaped centre, surrounded by irregular masses of porous wood separated by spongy tissue. The bark of the long climbing shoots is used to make rough ropes. It gives a copious gum, of no use. The fruit is large, broad, softly pubescent, bursting with a loud report to let loose the flat seeds, which are roasted and eaten. The flowers are cream white, very pretty, and the leaves often 12-18 in. long by as much broad. They are used for plates and in the construction of "ghooms," the mat umbrellas used by Paharia coolies in the rainy season. It is the chief big creeper of the Sâl forests.

BAUHINIA ANGUINA, Roxb. *Naiwilli-lara*, P.; *Sukutáng-ráng-rik*, L. A large climber of the M. P. F. v. in Terai and L. H. F. valleys up to 2,000 ft. Its stem has a very curious growth: when young it is twisted alternately one way and the other; as it gets older, it becomes more cylindrical, with a raised ridge round it in the form of the thread of a screw. The bark is used to make ropes, which are very strong.

BAUHINIA (MACROPHYLLA). *Kala khewairaho*, P. A large climber of the L. H. F. about 1,000 to 2,000 ft. Not common.

Ha 270-280 Jm
Pais 5.00 app

Ha 285-288 Jm
Pais 1.00 app

Ha 270-280 Jm
Pais 5.00 app

Ha 271-280 Jm
Pais 5.00 app

Ha 282-283 Jm
Pais 5.00 app

TAMARINDUS INDICA, Linn. *Imli, H.; Tiri, P.* The tamarind tree. Cultivated in villages in the Terai, but sparingly, for its fruit.

(3) Mimoseae.

No 477-48 *Imli*
Rais 5.11.1878

ENTADA SCANDENS, Bth. *Pangra, P.; Tuktokhyem, L.* A very big climber of the M. P. F. d. in Terai and L. H. F. up to 2,000 ft. Fl. 3, fr. 12. Bark rough. Stem much twisted, like the strands of an enormous cable. Wood very soft, porous. The fruit is often two or more feet long, with very big seeds. The Lepchas eat these after long soaking and roasting to extract the poison. They are used by the Paharias in washing the hair.

No 600-59 *Imli*
Rais 5.11.1878

MIMOSA RUBICULIS, Lamk. *Aradi, P.; Sibru-kung, L.* E. (P) $\frac{20-25}{10-15 + 3-4}$ of the Sv. F. and undergrowth in S. F. and M. P. F. d. in the Terai and L. H. F. up to 3,000 ft. Fl. 8-9, fr. 1-2. Bark brown, thin, with scattered prickles. Wood light red, with bands of white or yellowish white, hard, close-grained.

MIMOSA PUBICA, Willd. *Lajima, P.* Small shrub of the Terai, often growing under favourable circumstances to 6 ft. in height. Probably introduced, as it is only found within a short distance of frequented roads.

No 665-66 *Imli*
Rais 5.11.1878

ACACIA CATECHU, Willd. *Khair, L.* $\frac{20-25}{10-15 + 3-4}$ of the K. S. F. in Terai. Fl. 7, fr. 1. Bark dark brown, exfoliating in long narrow strips. Wood red, hard, easily worked, durable. (Specimens examined gave 48-50lb per c. ft., but the wood of old trees is often heavier.) Used for cotton rollers and other purposes by the Nepalese. Is being tried for sleepers, and will probably do well. Makes splendid charcoal, and is one of the best of fire-woods. The Nepalese say the lac insect is found on it. Cutch is rarely extracted here, and does not seem to be so in Nepal; but I have heard of it being occasionally done by the Bhutanese. The stem is often deeply indented, so that even if the tree grew straight it would be difficult to get big scantlings out of it. It will give 6 ft. sleepers though, and without much waste, as there is very little sapwood. The tree grows very vigorously on the Mahanadi and Tista rivers, but on the Balasan and Meechi it is generally mixed with numerous other kinds of trees. The chief forest is that on the Mahanadi.

ACACIA (FERRUGINEA, DC.). *Khaur, P.; Kankar, P.* $\frac{20-25}{10-15 + 3-4}$ of the S. F., Sv. F. and M. P. F. d. in Terai. Bark dark coloured, peeling off in small square scales, leaving the white inner bark very conspicuous. Wood yellowish brown when young, turning dark red-brown when old. Probably the hardest wood in the district; heavy (specimens gave young trees 52lb, old thoroughly seasoned wood 70lb per c. ft.). Medullary rays very numerous, fine, with large pores and very indistinct annual rings. Old logs of large size are often found in the forest; they give

Memorandum by Mr. J. S. Gamble, dated the 27th July 1878, on the different species of Prosopis.

Prosopis, a genus of Leguminous trees of the sub-order *Mimoseae*, contains about 18 species dispersed over the tropical and sub-tropical regions of Asia, Africa and America. Of the five sections which compose the genus—sections whose characters are based to some extent upon the shape and structure of the fruit—three may be noticed:—

- | | | |
|--|--------------|---|
| 1. With the pod smooth or slightly thickened at the seeds | Adenopis | Contains the two Indian species <i>P. spiciopera</i> , the well-known 'Jhand' and <i>P. Stephaniana</i> of the Northern Punjab plains and Western Asia. |
| 2. With the pod smooth, thickened at the seeds so as to be almost jointed, and generally falcate | Algarobia | Contains two of the species now being grown, viz., <i>P. glandulosa</i> of the mountains of Western Texas and <i>P. pallida</i> of South America. |
| 3. With the pod spirally twisted | Strombocarpa | Contains the true 'Mesquit' bean or <i>P. pubescens</i> of Texas and New Mexico. |

The 'Jhand' *P. spiciopera*, Linn., is too well-known to require further notice than is given in the Forest Flora of North-West and Central India.

P. pallida, Kunth; is a native of South America, and has been successfully grown in Ceylon. Its pods are considered of high value as a tanning material, containing, it is said, as much as 90 per cent. of tannic acid. They are known by the name of "Balsamocarpon."

P. glandulosa, Torr.; the 'Mesquit or Algarobia of Texas', is a native of the mountain regions of Western Texas, where it grows into a small tree from 20 to 40 feet high, and with a diameter of 18 inches. It has straight or curved, rather flattened, almost jointed pods, the interior of which is filled with a sweet pulp. The pods, it is believed, are useful for fodder, and are not injurious. It yields an excessively hard and durable timber, with a beautiful grain, and is used for furniture, picket poles, and in the manufacture of charcoal. It also affords a large quantity of gum resembling gum arabic, which exudes from the stem and branches, and has been used as mucilage, in the making of jujubes, and for other purposes.

P. pubescens, Bth.; the 'Screw Bean' or 'Screw Mesquit', is a small tree of Texas, New Mexico and Arizona. It is the 'Tornillo' of the Sonora Mexicans, and is remarkable for its screw-shaped pods. These pods grow in abundant clusters of 8 or 10 upon the same stem, ripen at all times of the year and contain much nutritious saccharine matter. The pods have been said to be valuable as fodder for horses; but a recent communication addressed to the Assistant Director of the Royal Gardens at Kew by Mr. R. Thomson of the Cinchona Plantation, Jamaica, and detailing an experiment he had made which resulted in the death of a horse, shews that great caution is required in their use as fodder for horses. It is suggested, however, that these injurious effects are not noticeable when the beans are given to cattle.

Another species, a native of Jamaica, whose fruits have poisonous properties, is the *P. juliflora*, DC., of the section *Strombocarpa*, though, for other purposes, the tree appears to be useful for planting in some localities, as the plants when once established go on sending up shoot after shoot, and are difficult to eradicate.

Algarobia

No 277-2
Pine 1

No 278
Pine 1

No 279
Pine 1

Abies var. 'Kankas' is *A. Canadensis* var. *A.*
No 280 ¹⁸⁷⁸ Pine 1. 11. 1878.
M. L.

a very fine description of charcoal, but the wood is difficult to cut, as it turns the edges of country axes and spoils a saw. Old "kala-khambas" of trees are found in great quantity on land which has been cleared by Mochis, e.g. at Mohurgong.

Notes.—There may possibly be two species, *Khmer* and *Kambur*. I have put the name *feruginea* doubtfully, as the descriptions of that tree seem to come nearest; but the leaflets are much larger, and indeed about four to five times larger and many times fewer than those of *A. feruginea* in Colonel Beddome's figure. In appearance it resembles *Albizia odoratissima*.

ACACIA CIESIA, W. and A. *Harari*, P.; *Payir-rik*, L.; *Ngram-rik*, L. A large prickly climber of the M. P. F. d. in Terai and L. H. F. up to 3,000 ft. Fl. 8, fr. 3. Bark smooth, grey, used by Lepchas for washing the hair. Stem deeply cleft many times, the ridges twisting upwards like a screw. Wood light yellow, inner hard, outer soft, with numerous fine medullary rays and large pores.

ACACIA CONCINNA, DC. *Toldong*, L. Large, very prickly climbing shrub of the M. P. F. d. and K. S. F. and by banks of streams in Lower Terai. Fl. 3, fr. 1-3. The fruit is thick and fleshy, it is used for washing the hair.

ACACIA PENNATA, Willd. *Tol-rik*, L. A very large climbing shrub of the S. F. and M. P. F. d. in Terai and L. H. F. up to 3,000 feet; climbing over the tallest trees. Very prickly. Fl. 4, fr. 12. Bark reddish brown. Wood reddish, very soft and porous, with large vessels and numerous medullary rays.

ALBIZZIA LUCIDA, Bth. *Ngram-kung*, L. ⁴⁰⁻⁵⁰ of the L. H. F., especially valleys, where it is generally found by the banks of rivers, up to 2,000 ft. Fl. 3, fr. 1-2, easily recognized from other *Albizias* by its very few large leaflets, and from *Pithecolobium* by its straight pod.

ALBIZZIA ODORATISSIMA, Bth. *Siris*, P.; *Tedong-kung*, L. ⁴⁰⁻⁵⁰ of the L. H. F. Not very common. Fl. 5, fr. 1-2. Bark grey-brown, wrinkled. Wood dark reddish brown, strong, hard, heavy (the average of several Bhamunpokri specimens gave 55 lb per c. ft.), is easily worked. A fine timber. Recognized by its tall straight trunk, and small, rather pendulous branches.

ALBIZZIA PROCERA, Bth. *Safed siris*, P.; *Takmur-kung*, L. ⁴⁰⁻⁵⁰ of the K. S. F. and M. P. F. d. in Terai and L. H. F., especially on level spots on the banks of rivers. Fl. 8-9, fr. 1-2. Bark light brown, peeling off in small scales, leaving the yellow inner bark very conspicuous. Wood almost exactly like that of *A. odoratissima*, but much lighter. (Average Terai specimens 36 lb per c. ft.) Occasionally used, I believe, for tea-boxes and in building, and much esteemed by planters for charcoal. It is easily recognized by its tall white stem and big spreading branches. Gives a clear gum, not used.

ALBIZZIA (LEBDEK, Bth.). *Sedong-kung*, L. Tree of the L. H. F. Not common. Has rather large leaflets with reticulated veins. Fl. 7, fr. 11-12.

See 478-47 *Siris*
Bth. 5. 17. 1878

See 478-6-62
Bth. 5. 17. 1878

See 662-28 *Siris*
Bth. 5. 17. 1878

Apu-lau P.
Bark used to poison fish. F.B. Mason

also → *Japira Siris* P.

Wall: Cat. 6 *Tatukera* (Swamp)

Sitlo Siris P. A cat of cement is obtained from it, called
as well as the tree
'*Cāhā*' used in fixing knives & katkai, it is said
to be very strong. F.B. Mason. The *Neelis* grow here and
the *Munani* (or) specimen was *Dalbergia lanceolata* perhaps
this refers to the same

ALBIZZIA (JULIBRISIN, Boivin). *Sedong-kung*, L. Tree of the M. P. F. d. in Terai and L. H. F. Not very common. Has ashy-green foliage, small leaflets, and tomentose racemes. Fl. 4.

ALBIZZIA STIPULATA, Boivin. *Kala virus*, P.; *Singriang-kung*, L. L. ⁴⁰⁻⁵⁰ of the K. S. F. and M. P. F. d. in Terai and L. and M. H. F. up to 5,000 ft. Fl. 4-6, fr. 2-3. Bark greyish black, with deep horizontal folds; outer bark exfoliating in small scales. Wood resembling that of *A. odoratissima* and *A. procera*, but very much lighter (Terai specimens gave 28-30lb per c. ft.) Has been used for tea-boxes, I believe, and for this it would probably do well. It is used by Lepchas for the sheath of their "ban," or long straight knife. Sapwood rather large, decays very rapidly. Easily recognized by its dark thick trunk, horizontal wide-spreading branches, and flat-topped crown. Leaflets very numerous, with big stipules. It gives a very copious gum, used for paper size, which will probably be found to be about the best of the gums in the district.

PITHECOLORIUM ANGULATUM, Bth. *Takpyitnyok*, L. Large tree of the M. P. F. d. in Terai and L. H. F. valleys. Very handsome. Fl. 4.

PITHECOLORIUM BIGEMINUM, Mart. *Takpyit-kung*, L. L. ¹⁵⁻²⁰ of the L. and M. H. F. up to 4,000 ft. Fl. 3, fr. 7. Seeds eaten by Lepchas.

NOTE.—Many ornamental trees and shrubs of this family are also found in gardens, such as the *lucida*, *Scaphanthus vulgaris*, Wimmer; the *lutea*, *Eller Baragana*, L.; and the *lanceolatum*, *Cytisus Laburnum*, L. A few fine plants of *Gastanosperrum Australe* may be seen at Bhampeki, planted, I believe, in 1840 by Mr. Leeds.

ROSACEÆ

PRUNUS PERSICA, Bth. and Hook. f. *Aru*, P.; *Takpo-kung*, L. The peach. Very commonly cultivated in Darjeeling, but does not ripen its fruit sufficiently for eating unless cooked. In the Terai it is capable of being cultivated to a great degree of perfection. Fl. 3, fr. 8-9.

PRUNUS PADDUM, Roxb. *Paddam*, P.; *Kongki-kung*, L. L. ⁴⁰⁻⁵⁰ of the M. and U. H. F. up to 6,000 ft. Common as a small tree in second-growth forest and in some forests at about 6,000 ft., such as Sepoydura, Tukdah, and round Dumsong. Bark grey, smooth, papery when young; when older, rough, hard, reddish brown, peeling off horizontally. Wood red or reddish brown, scented, hard, close-grained, with numerous medullary rays and well-defined annual rings. Weighs about 40-45lb per c. ft. Used to make furniture, for which it is very good. There are two varieties:—

- No. 1.—Very big tree; crimson flowers, appearing in March.
No. 2.—Smaller tree; pink or white flowers, October-November.

Wood of this and '*A. procera*' used by tea planters for stakes.

Hall Cat. 84

This is, I am sure, quite different; perhaps a new species.

229.

Maddenia himalaica, Hook. f. et Th.; Hook. K. 22. H. 28
a small tree 20-30 ft. Sikkim, Lachen R. 8-10000 ft

x Three species in genus 2. 229. H. Ind.

113 *P. Padus*, Linn.

P. nepalensis, Ser.

P. candelata, Ham.

229.

P. glaberrima, Hook. f.

P. montanum, Hook. f. U.S. 9x King. C.

found in the Darjeeling District, Bengal.

35

x *PRUNUS PADUS*, LIND. Likh-aru, P.; *Ithosablot-kung*, L. 6
L. ⁶⁰⁻⁸⁰/₂₀₋₃₀₋₄₀ of the M. and U. H. F. from 6,000 to 10,000 ft.
Fl. 5, fr. 10-11. Fruits eaten by hillmen. Bark black-grey,
smooth, thin. Wood—sapwood large, white; heartwood red-
brown, with numerous medullary rays and pretty grain, polishes
well. It is very common about Darjeeling, and is one of the
first trees to come into new leaf in March. It grows very quickly,
with curious verticillate upright growing branches.

PRUNUS FERRUGINEA, Wall. L. ²⁰⁻³⁰/₁₀₋₁₅₋₂₅ of the R. F. and
F. F. especially about 11,000 ft. Fl. F. fr. 10.

PRUNUS ACUMINATA, Kunt. Small tree of the M. and U.
H. F. to 6,000 ft. Fl. 3, fr. ? Not common.

PRUNUS ~~var.~~ *Kamki*, Bh. L. ²⁰⁻³⁰/₁₀₋₁₅₋₂₅ of the R. F., from
9,000 ft. to 11,000 ft. Found on Tongloos. Wood red, hard, and
close-grained, sweet-scented. Hook. K. 22. H. 315

NOTE.—The plum (*P. communis*, Huds.), cherry (*P. cerasus*, L.), and apricot (*P.
Armeniaca*, L.), have all been, and are still, occasionally cultivated by residents in
Darjeeling and planters. The almond I have never heard of.

PYGEUM ACUMINATUM, Colebr. Tree of the M. P. F. *Hook. K. Ind.*
I have only once seen it on the Panchenai river near Sukna
depôt. H. 318

SPIRÆA CALLOSA, Lal. *Shimbengnyok*, L. Shrub of U. H. F.
7,000 to 8,000 ft., especially in cleared places, e.g. Darjeeling
station. Fl. 7, fr. 1-2. *Hook. K. Ind.*
H. 314

NOTE.—Two or three ornamental species of *Spiræa* are cultivated in Darjeeling.

NEILLIA THYRSIFLORA, Don. *Pukhiong-rik*, L. Shrub of
cleared places in U. Hills, e.g. Darjeeling station, where very
common. Fl. 8-12, fr. 1-2.

RUBUS MOLUCCANUS. *Bipemkanta*, P.; *Sufok-ji*, L. A strag-
gling shrub, of various forms, and found from the plains up to
10,000 ft. Is probably the same as *R. rugosus*, Gm. Easily
known by its 3 to 5-lobed wrinkled leaves. Fruit edible, but
mawkish. Fl. 7-8, fr. 9-10. *Hook. K.*
Ind. J.
320.

RUBUS THOMSONI, Focke. Shrub, diffuse, from 7,000 to
10,000 ft. Leaves trifoliate, green. Fl. 9-10, fr. 11-12.

RUBUS NIVUS, Wall. Shrub of F. F. or, more properly, of
the grass slopes from 10,000 to 12,000 ft. Fl. 10. *Hook. K. Ind.*
325.

RUBUS MACROCARPUS, King. *Palephak*, L. Straggling shrub
of U. H. F. Common in Rungbool plantation. Has an enormous
fruit, often 1 in. to 1½ in. diameter. Easily recognized by this
and by the large flowers and long-tailed sepals. Fl. 5, fr. 8-9.
Fruit eaten by Lepchas.

RUBUS FLAVUS, Ham. *Tola Aselu*, P.; *Kashpen*, L. A large
straggling shrub with yellow edible fruits of very good flavour;
in fact, the two species of *Actinidia* and one or two other *Rubi* are,
with this, the only properly edible wild fruits in the district. Com-
mon from 3,000 to 7,000 ft., especially in old 'joomed' land.
Has a general resemblance to the blackberry. Wood rather hard.

R. Hookeri, Hook. K. 22. H. 324

R. ellipticus, Link. K. 22. H. 326.

Brund
with ~~big~~ medullary rays and reddish brown prickly bark. Fl. 3, fr. 4-5. There is a var. *incanus* with deeply dentate leaves.

RUBUS CALYCINUS, Wall. A small trailing shrub, with red edible berries, found round Darjeeling. Fl. 4-5, fr. 7-8. The "ground raspberry."

RUBUS FULCIFORMIS, Hk. *Kalé Asela*, P.; *Hlotambrik*, L. A straggling thornless shrub, with very handsome trifoliate leaves, silvery beneath. Common about 7,000 ft., especially round Darjeeling, and thence up to Tonglo, 10,000 ft. Fl. 8-9, fr. 10-11.

RUBUS LINEATUS, Rwdt. *Gompé Asela*, P. A large shrub without thorns and with 5-foliate leaves, silvery beneath, like the preceding. It has a red edible fruit. It covers the hillside everywhere about 6,000 to 8,000 ft., where the forest has been cleared, e.g. the Rungbool plantation. Stems up to 2 or 3 in. diameter, of a pink colour, and with bark peeling off in flakes. Fl. 8-9, fr. 10-11.

RUBUS PANICULATUS, Sm. *Naming-rik*, L. Straggling shrub, common from 6,000 to 8,000 ft. Recognized by its simple cordate leaves with yellow tomentum beneath. Fl. 7.

RUBUS ACUMINATUS, Sm. *Soné Asela*; *Naming-rik*, L.; *Siritakdangji*, L. Resembles the preceding, except that the leaves are glabrous and green on both sides. Fl. 7.

RUBUS SIKKIMENSIS, O. Kze. *Pohong*, L. A large straggling thorny shrub, with a big red edible, though rather insipid, fruit. Fl. 4, fr. 6-7.

RUBUS MACULENTUS, Camb. Resembles the preceding, but is much smaller and has yellow fruit. Fl. 2, fr. 5-6.

RUBUS ASPER, Don. A large straggling thorny shrub, 6,000 to 8,000 ft.

RUBUS LASIOCARPUS, Sm. *Kajutalam*, L. A large straggling thorny shrub, very common round Darjeeling. Fruit small, black-glaucous, hairy, and of good flavour. Fl. 4-5, fr. 7-8.

Note.—Both the raspberry and blackberry are occasionally cultivated in Darjeeling.

POTENTILLA FRUTICOSA, Linn. Small stiff-branched shrub, common on rocks on the Singalla range at 11,000 to 12,000 ft., in company with *Rhododendron lepidotus*. It has handsome yellow flowers and silvery foliage.

ROSA SERICEA, Ldl. Small tree or large shrub of R. F. and F. F. above 10,000 ft. Fl. 6, fr. 10. Wood hard, close-grained, with prominent medullary rays, very pretty. Grows to 1 to 1 ft. in girth.

PYRUS COMMUNIS, Linn. The pear is cultivated in the Darjeeling district. It thrives best at about 5,000 ft. elevation, but the fruit is always hard, though good for baking. Fl. 3-4, fr. 9-10. The "apple" I have never seen.

PYRUS VARIOLOSA, Wall. *Liking*, L. ¹⁸⁻²⁰₅₋₁₀₋₂₅. I have only seen one specimen not far from the Tasingthong Monastery at 5,000 ft., and that probably planted. Fl. 3.

Rubus ass. *R. Griffithii*, Hook. f.

R. hamiltonii, Hook. f.

R. ferax Wall. — (?)

R. ciliolatus, Wall.

R. Fendleri, Hook. f.

R. fragrantiss. *Bentleyi*.

R. asperulus, Wt.

probably *R. Andersonii*, Hook. & Th. Ind. II. 333

R. Fockeanus, Kunt.

R. Sikkimensis, Hook. f.

R. biflorus, Don.

O. Kuntze named my specimens *R. avianensis*, Focke,
Hook. & Th. Ind. II. 328

Ind. *R. Sikkimensis*, Hook. & Th. Ind. II. 335 Ind

R. rostrifolius, Smith Hook. & Th. Ind. II. 341

Vicou

add. R. Ind.

R. macrophylla, Ldl.

R. involucrata, Rad.

probably *P. Pithecanthus*, Hook. f.

add - from H. India

P. barcata, Linn.

P. schimianensis, Hook. f.

P. Wallichii, Hook. f.

P. insignis, Hook. f.

P. Griffithii, Hook. f.

P. Thomsoni, King

add

Pyrus baccata

specimens often named sent by
Schubert for Paris E.V. 1878 Nov -
from Chimbhi, Sikkim 12,000 ft.

Hayden P.

W. F. 1878

W. F. 1878

W. F. 1878

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W. F. 1878

W. F. 1878

W. F. 1878

found in the Darjeeling District, Bengal.

37

PYRUS CUSPIDATA, Linn. $\frac{40-50}{20-30+4-6}$ Big tree of R. F. above
9,000 ft. Large specimens may be seen on the Surmonbong spur
below Tongloo. Fl. 2, fr. 11.

PYRUS FOLIOLOSA, Wall. Sometimes a tree, sometimes,
and more often, growing on other trees, like *Ficus* or *Wrightia*,
7,000 to 10,000 ft. Foliage resembles that of *P. aucuparia*, Gertn.
Fl. 5, fr. 7-10.

PYRUS MICROPHYLLA, Wall. L. $\frac{30-35}{5-10+2-3}$ from 9,000 to 12,000 ft.
Much resembles the preceding, but has much smaller leaflets.
It may be a variety. Fl. 2, fr. 9-10.

PYRUS LANATA, Don. Singha, Bh. L. $\frac{40-50}{20-30+4-6}$ Large tree
of R. F. from 8,000 to 10,000 ft. Very easily remarked, even at
a distance, by the shining whiteness of the under surface of the
leaves. Fl. 2, fr. 10. Fruit edible, about $\frac{1}{4}$ in. diameter.

PYRUS ~~?~~ *Tungu-king*, L. L. big tree of U. H. F. from
6,000 to 8,000 ft., resembling the last, but the under surface of the
leaves has a very woolly tomentum. Fl. 2, fr. 9.

PYRUS ~~?~~ *Kumbul-king*, L. L. tree, or more often epiphytic
tree, from seeds left in the branches of other trees by birds, as in
P. foliolosa. Differs from the last three by its almost entirely
glabrous leaves. Found in U. H. F. about 7,000 to 8,000 ft.
Fl. 5, fr. 7-8.

PYRUS INDICA, Roxb. Li-king, L. L. $\frac{30-40}{10-15+4-6}$ of the M. H. F.
from 3,000 to 5,000 ft. Found by me at Mungger, near
Kalimping. Leaves of young plants much divided and almost
glabrous, resembling those of *Crataegus Oxyacantha*. Those of big
trees covered, as well as the stipules, young shoots, and calyx, with
dense white tomentum. Fl. 3, fr. 2. Fruit edible.

PYRUS ~~?~~ L. $\frac{30-40}{10-15+4-6}$ of the M. P. F. in Terai. Found by
me in the Dalka Jhar forest, where it is common. Fl. 2-3, fr. 2.

CRATAEGUS OXYACANTHA, Linn. The Hawthorn. A few good
specimens may be seen in gardens in Darjeeling.

COTONEASTER MICROPHYLLA, Wall. Small prostrate shrub of
F. F. about 11,000 ft. Found on the rocks about Sundukpho.
Fl. 2, fr. 9-10.

PHOTINIA DUBIA, Ldl. Berking, L. E. $\frac{10-20}{3-5+1-2}$ of the U. H. F.
from 5,000 to 7,000 ft. Very common in forests round Dumsong.
Fl. 10-11. Recognized by its shining, deeply crenate leaves.

PHOTINIA INTEGRIFOLIA, Ldl. Shambul-king, L. E. $\frac{10-20}{3-5+1-2}$
U. H. F. from 5,000 to 7,000 ft. Common about Darjeeling and
Dumsong. Fl. 5, fr. 11. Recognized by its smooth undivided leaves.

PHOTINIA ~~?~~ *Yelno*, L. E. $\frac{20-40}{10-20+4-6}$ of the U. H. F. Common
about Darjeeling. Fl. 5, fr. 9-10. Recognized by its large leaves,
serrate above, undivided below, and ferruginously tomentose
beneath and on the shoots and petioles. Bark yellowish, wrinkled,
thin. Wood pink-white, with rather dark medullary rays and
scattered medullary spots, hard, close-grained; does not warp.

Eriobotrya ~~?~~ *celastica*, Walp.

376 - 44
Paris E.V. 1878
Single spec.

Hook. K. Ind. II
376

380 - 44
Paris E.V. 1878
Single spec.

Hook. K. Ind. II
375

Hook. K. Ind. II
375

Hook. K. Ind. II
375

Hook. K. Ind. II
375

Hook. K. Ind. II
375

Hook. K. Ind. II
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Hook. K. Ind. II
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Hook. K. Ind. II
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Hook. K. Ind. II
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Hook. K. Ind. II
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Hook. K. Ind. II
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Hook. K. Ind. II
375

Hook. K. Ind. II
375

ERIOBOTRYA MACROCARPA, Kz. Small tree of the L. H. F. up to 3,000 ft. valleys. Fl. 2, fr. 11.

SAXIFRAGACEÆ.

HYDRANGEA ROBUSTA, Hk. f. and T. Bogoti, P. L. ²⁹⁻³⁰
¹²⁻¹⁵⁺²⁻³ of the U. H. F. Very common about Darjeeling and in the Rungbool and Rungyûm forests as an undergrowth. Very handsome when in flower with its bright blue fertile and large cream-coloured sterile flowers. Fl. 9, fr. 12-1. Wood white, with many fine medullary rays and a pretty grain; hard, close-grained, works easily.

HYDRANGEA VESTITA, Wall. Kulaia, Bh. L. ²⁹⁻³⁰
¹⁶⁻¹⁵⁺²⁻³ of the R. F. from 9,000 to 11,000 ft. Common all round the summit of Tonglo, 10,000 ft. Fl. 5, fr. 8-9.

HYDRANGEA ALTISSIMA, Wall. Sena-kang, L. Small tree, often climbing or epiphytic of the U. H. F. from 6,000 to 8,000 ft. Found in woods round Darjeeling. Fl. 4-5, fr. 8-9.

DICHOEA FERRUGEA, Lour. Baak, P.; Singnamook, Bh.; Geboknah, L. L. shrub E. ⁶⁻¹²
⁹⁺¹¹ of the U. H. F., from 4,000 to 8,000 ft. Fl. 7-8, fr. 12. In many forests it forms the chief undergrowth, and in open lands below 6,000 ft. is exceedingly common mixed with *Musa montana* and *Rubus flaccus*. Bark yellow, peeling off in flakes. Wood yellowish white, hard, with fine medullary rays. The shoots and bark of the roots are made into a decoction and used as a febrifuge by the Paharias. It is a very handsome shrub, either in flower or when covered with its bright dark blue berries. Used also by Bluntias and Lepchas to burn in their religious ceremonies.

ITEA MACROPHYLLA, Wall. Teturdum, L. E. ³⁰⁻⁴⁰
¹⁸⁻²⁵⁺³⁻⁴ in L. H. F. valleys up to 4,000 ft. Fl. 5-6, fr. 11.

RIBES GLACIALE, Wall. Robhay, Bh. A shrub, often epiphytic, generally climbing, from 8,000 to 12,000 ft. Common on Tonglo. Fl. 4-5, fr. 9-10.

NOTE.—The black, red, and white currants, as well as the gooseberry, are occasionally cultivated in Darjeeling.

HAMAMELIDEÆ.

BUCKLANDIA POPULNEA, R. Br. Pipi, P.; Singiang-kang, L. ⁶⁰⁻⁸⁰
²⁰⁻²⁵⁺¹⁰⁻¹⁵ of the M. and U. H. F. from 3,000 to 8,000 ft. Perhaps the most ornamental of the Upper Hill trees, and one of the most valuable for timber. Fl. fr. at all seasons. Easily recognized by its thick poplar-like leaves with big fleshy conspicuous stipules. Bark brown, rough. Wood reddish brown, close-grained, hard, extensively used for planking (for which it is almost as good as Champ) beams and rafters; gives good charcoal.

Portulaca P.

at Johnston

Wall. Cat. 192. A climber

373-47
Paris S. O. 1878
Angla 1890-8

973-46
Paris S. O. 1878
Chamch. 1887
L. Schults

ha 699-31
Paris S. O. 1878
Angla 1890-8
Sipigina

RHIZOPHOREÆ.

CARALLIA INTEGRIRIMA, DC. *Palambat*, P. E. $\frac{68.50}{28.30+4.8}$ of the M. P. F. s. of Terai and in L. H. F. valleys and moist forests up to 4,000 ft. Fl. 2-3. Wood reddish brown, with broad medullary rays, very heavy and close-grained, used for building purposes by Nepalese.

COMBRETACEÆ.

Asa. Bot. Soc.

TERMINALIA BELERICA, Roxb. *Bahera*, P.; *Kanam-kung*, L. $\frac{65.80}{28.30+5.8}$ of the S. F., M. P. F. d. of Terai and L. H. F. ridges and plateaux up to 3,000 ft. Fl. 4, fr. 12-1. Wood yellowish, hard, but not durable; rarely used except for charcoal. The kernels of the fruit are eaten.

As 665 - 16 Jani
Flora S. W. 1878

TERMINALIA CHEBULA, Retz. *Harra*, P.; *Sitam-kung*, L. $\frac{60.30}{28.30+5.4}$ of the S. F., M. P. F. d. of Terai and L. H. F. ridges and plateaux up to 3,000 ft. Not so common as the former. Fl. 4, fr. 12-1. Wood yellow, hard, better than that of *T. belerica*; rarely used except for charcoal. The kernels of the fruit are eaten. The fruits are used as a medicine for sore-throat by the Paharias, who call it "Koki."

As 675 - 16 Jani
Flora S. W. 1878

TERMINALIA TOMENTOSA, W. and A. *Saj*, P.; *Tukor-kung*, L. $\frac{60.10}{28.30+5.12}$ of the S. F. in Terai and (chiefly) in L. H. F. especially in moist places, though often found even on dry ridges. Fl. 8, fr. 2. The wood is black-brown, very hard, and strong if well seasoned. Liable to warp and split very much if cut green. It seems difficult to season, sleepers cut out of logs which had been more than one year warped exceedingly. It is used extensively for house-building, tea factories, &c. Bark greyish black, with deep vertical fissures and smaller horizontal ones, making small prominent squares. The root wood is very hard, and is used occasionally for "kukri" handles.

As 665 - 19 Jani
Flora S. W. 1878

TERMINALIA MYRISTICIFOLIA, Kurz. *Panisaj*, P.; *Sangloch-kung*, L. E. $\frac{105.125}{28.30+12.25}$ or even greater girth. In the valuation survey of the Sivalik Hills in 1873-74 three trees of over 21 ft. girth (14 cubits) were reported. Found in the L. and M. H. F., in the deep valleys of the former, and constantly in the latter, up to 5,000 ft. altitude. A very handsome tree when in full flower or fruit, with its pendent boughs loaded with pink flowers or yellow seeds. The heartwood like that of *saj*, and used for similar purposes, but much lighter in colour, and having bands of all shades of brown and black; the sapwood is white, not broad. It is very much used in the Lower Hills for house-building and tea-boxes, and also makes very good charcoal. The bark is greyish brown, peeling off in vertical flakes, and easily recognized from that of *saj*.

As 570 - 74 Jani
Flora S. W. 1878

felled for

Caraka Kinner-Mukhi

Bark used for straining leather

J. A. Marston

COMBRETUM DECANDRUM, Roxb. *Kali-lara, P.; Pindik, L.*
Large climbing shrub of S. F. and M. P. F. *d.* and *w.* in Terai
and L. H. F. up to 2,000 ft. Stem cylindrical, often very big.
Bark greyish white, corky. Wood brown, rather light, with
numerous fine medullary rays. The young shoots have generally
a delicate lilac tinge. Fl. 1-3, fr. 3-8.

COMBRETUM SQUMOSUM, Roxb. Climbing shrub of the banks
of streams in the Lower Terai. Fl. 1, fr. 4.

COMBRETUM (SAUCOPTERUM, Thw.), *Sanglokar-rik, L.* Climb-
ing, or rather straggling, shrub of the Terai and L. Hills up
to 5,000 ft. Fl. 5, fr. 10-12. Common in waste places and old
cultivations.

MYRTACEÆ.

PSIDIIUM GUAVA, Raddi. *Amrut, H.; Amuk, P.* E. $\frac{20-30}{20-30+1-2}$.
Cultivated in the Terai and Lower Hills. Often found apparently
wild, e.g. in the Bamunpokri plantation.

EUGENIA JAMBOS, Linn. E. $\frac{20-30}{15-15+2-3}$. Cultivated in the Terai.
(In *Brandis' Forest Flora* it is said to be indigenous to the Sikkim
Terai.)

No 666 - 36 Terai
Rain 1887
EUGENIA JAMBOIANA, Lam. *Jaman, P.; Phober-kung, L.*
L. $\frac{40-60}{20-30+4-6}$ of the S. F. of the Terai and L. H. F. up to 2,000 ft.
Fl. 3, fr. 7. Wood reddish brown, hard, close-grained, resemb-
ling Sal, especially in cross section, except that it is of a rather
different colour, but said to be brittle and to warp easily. The
fruit is black, eaten.

The variety *E. caryophyllifolia*, Lam., is found in the L. H. F.
up to 3,000 ft., and is distinct in appearance.

No 524 - 85 Terai
Rain 1887
EUGENIA OBOVATA, Wall. *Kiamou, P.; Jungsong-kung, L.*
E. $\frac{20-40}{20-30+3-4}$ of the S. F. and Sv. F. in Terai, and on dry ridges
in the L. H. F., but scarce. Very common as a small gnarled,
twisted tree in Savannas. Fruit black, eaten. Fl. 5, fr. 7.
Bark, white, smooth. Wood said to be good, heavy and strong,
but not used, the tree being only of small size. The bark,
ground up, is said to be used by Paharias to stop headache; it is
used like smelling-salts.

EUGENIA FORMOSA, Wall. *Bara Jaman, P.; Famaikot, L.*
E. $\frac{20-40}{20-30+4-6}$ of the M. P. F. *w.* and banks of streams in Terai
and L. H. F. valleys. Fl. 4., often 2 in. across and very handsome.
Bark grey-white, smooth, thin. Wood hard, close-grained, rather
lighter coloured than that of the Jaman, and not reddish; heavy,
but not used.

EUGENIA RAMOSISSIMA, Wall. *Jamu, P.* E. $\frac{40-60}{20-30+3-5}$ of the
M. P. F. *w.* in Terai and L. H. F. up to 3,000 ft. Fl. 3, fr. 6.

EUGENIA LANCEIFOLIA, Roxb. E. $\frac{40-60}{20-30+3-5}$ of the M. P. F. *w.*
in Terai (common in Dalka Jhar, especially near rivers,) and
in L. H. F. valleys. Fl. 1.

Kurgii, Dulia

EUGENIA CLAYFLORA, Roxb. *Jamu, P.; Mantel-kung, L.* E. tree or large shrub of the L. H. F. up to 4,000 ft. Fl. 4.

EUGENIA HALSAMEA, Wight. *Archal, P.* E. ¹⁰⁻²⁰₂₋₇ Common in M. P. F. in swampy places and along rivers in the Terai (e.g. Dalka Jhar). Fl. 11, fr. 12-1.

EUGENIA TODDALLEFOLIA, Wight. *Sungnem-kung, L.* E. small tree of the hill forests about 3,000 to 4,000 ft. Fl. 11.

EUGENIA ~~CHALCOPHYLLA~~, ¹⁰⁻²⁰₂₋₇ *Ka. Jamun, P.; Sanom-kung, L.* E. Common tree in the M. H. F. from 3,000 to 6,000 ft.; chiefly in moist places. Fl. 10-11, fr. 2-3. Wood white, hard, close-grained, not used. Bark yellowish white, thin.

EUGENIA [PRACOX], Roxb. *Chumiani, P.; Sunian-kung, L.* E. ¹⁰⁻²⁰₂₋₇ of the M. and U. H. F. from 4,000 to 6,000 ft. Very common in Sepoydura forest above Kurseong. Fl. 12, fr. 3. Wood said to be good; used occasionally for building and for the handles of tools, but more often for charcoal.

NOTE.—There are several other species, but I have only mentioned those I know well and have got named.

CAREYA ARBOREA, Roxb. *Kumbi, P.; Boktok-kung, L.* ⁴⁰⁻⁶⁰_{20-30 + 1-2} of the S. F., Sv. F. and M. P. F. d. of Terai and L. H. F., especially plateaux (like Bamunpokri Hill). Fl. 4, fr. 7. Very common as a small gnarled tree in Savannas, and as a tall big tree in the other forests. Wood dark red, close and even-grained, rather light, works very easily and would make good furniture, but is rarely used except for charcoal. Is being tried for sleepers. Bark grey-brown, falling off in small rectangular scales; inner bark red, fibrous, occasionally used for rough cords.

CAREYA HERBACEA, Roxb. *Chuca, P.* A small shrub or perennial herb of the Sâl forests, flowering in April, coming up best after jungle fires.

NOTE.—Several other Myrtaceae are cultivated in the district, e.g. *Myrtus communis*, L., and *Rhodomyrtus*, about Darjeeling; *Eucalyptus globulus*, Labill., at Rangli, Rangyri, and many tea estates, but it does not thrive well. *Harringtonia acutangula*, Urmson, I have seen at Jalpaiguri; it probably may also be found in the Terai.

MELASTOMACEÆ.

MELASTOMA MALABATHRICUM, Linn. *Chonloy, P.; Tungbram-kung, L.* ⁵⁻¹⁵_{6-11 + 1-2} of the Terai, chiefly near streams in open ground and Lower Hills, up to 6,000 ft. Fl. 4, fr. 11.

OXYSPORA PANICULATA, Wall. ¹⁰⁻¹⁵_{6-11 + 1-2} of the M. H. F. from 4,000 to 6,000 ft. Very handsome shrub. Fl. 8, fr. 1.

OSBECKIA ~~CHALCOPHYLLA~~, Don. *Number-kung, L.* ⁶⁻¹⁰_{4-7 + 1-2} Shrub common in M. and U. H. F. from 4,000 to 8,000 ft. Very pretty shrub, common in Darjeeling. Fl. 7, fr. 10.

OSBECKIA ~~CHALCOPHYLLA~~, Don. Shrub of the L. and M. H. F. from 2,000 to 6,000 ft. Has very large handsome red flowers. Fl. 9-10.

Crimula, Kt., Hook K. No. 517

Stalderia, Walp;

701-19
Pani S.V. 1898
Sphynna 5000'602-34
Pani S.V. 1898
Sphynna 5000'No 626-35 Jan
Pani S.V. 1898

OSBECKIA ANGUSTIFOLIA, Don. Tall shrub, very common in Savannah lands and near streams in the Terai, where it is very conspicuous. Fl. 9-12.

Note.—*Osbeckia Nepalensis*, Hook., with red or white flowers, is common in hillsides and swampy places in Terai and Lower Hills; *Osbeckia (austana)*, Wall., on rocks in the Lower Hills, e.g. on the east-road between Sukna and Chinalati; and *Osbeckia Chinensis*, Willd., in fields and grassy forests in the southern Terai.

LYTHRACEÆ.

WOOD FORDIA FLORIBUNDA, Salisb. *Dahiri*, P.; *Chungkyekdám*, L. Large shrub of the hill sides of the Tista valley. Fl. 3. (A variety of this I have found in the Tista Valley growing to a tree $\frac{40}{27+5+1}$.)

LAWSONIA ALBA, Lam. *Mehndi*, H. A shrub occasionally found in cultivation in the Terai.

LAGERSTROMIA PARVIFLORA, Roxb. *Sida*, M.; *Borderi*, P.; *Borodengri*, P.; *Kundit-káng*, L. L. $\frac{90-80}{30-20+4-6}$ of the S. F., Sv. F., M. P. F. d. of Terai and L. H. F. up to 3,000 ft. Fl. 5, fr. 8-12. Wood light brown, smooth, even-grained, with large pores; used occasionally for house-building and makes good charcoal. Bark gray-white, peeling off in large flakes, is easily recognized in forest. As a small tree it is very common in mixed forests, and as a large one in Síl forests, and especially in the Lower Hills (e.g. the upper plateau at Bamunpokri). It is very quick-growing, either from seed or coppice shoots.

DUABANGA SONNERATOIDES, Buch. *Lampatia*, P.; *Door-káng*, L. E. $\frac{80-100}{30-40+5-10}$ or perhaps even greater girth. Found in L. H. F. especially by the side of rivers, and up to 3,000 ft., occasionally in S. F. and M. P. F. in Terai. Fl. 1, fr. 3-4. One of the hand-somest trees in the district, with its long pendent boughs with opposite leaves and large terminal flowers. Bark light brown, peeling off in small thin flakes. Wood valuable for many purposes, and of late years more employed than any other low-level tree, except perhaps "toon." It is gray-brown, with rings of different shades of brown and yellow, smooth, with a satiny lustre; it is used for beams, planking, tea-boxes, &c.; it is one of the best woods for dug-outs, as it is not liable to warp, and is used by Paharias for cattle-troughs.

PUNICA GRANATUM, Linn. *Anar*, H. The pomegranate. Small tree, occasionally cultivated in Terai and Hills, up to 4,000 ft. Fl. 3.

SAMYDACEÆ.

CASUARIA GLOMERATA, Roxb. *Burgonli*, P.; *Sugeat-káng*, L. E. $\frac{40-60}{20-30+3-4}$ in the M. and U. H. F. from 4,000 to 7,000 ft. In old cultivated lands comes up very often with *Musa*, *Saurauja*, &c., but is generally small; in forests it becomes a big tree. Fl. 3, fr. 6.

(Walt. Cat. 254. *Sida*—*Godfria*.)

Calcutt & Hook. Illustrations of Himalayan plants. Plate xi.

No 666 - 13. *Sida*
Flora S.U. 1878

No 652 - 1. *Sida*
Flora S.U. 1878

691 - 24
Flora S.U. 1878
Chattahoochee 5300

Wood yellowish white, hard, close-grained, with numerous fine medullary rays. Used for building purposes, charcoal, &c.

CASEARIA HAMILTONII, Wall. *Tanki-king*, L. L. $\frac{20-40}{15-20+4-5}$ of the L. H. F. up to 3,000 ft. Fl. ♀, fr. 4.

CASEARIA VARECA, Roxb. L. $\frac{15-20}{6-8+1-1\frac{1}{2}}$ of the M. P. F. *u.* and banks of streams in Terai and in L. H. F. valleys. Fl. ♀, fr. 1.

CASEARIA sp. E. $\frac{15-20}{6-7+1-1\frac{1}{2}}$ Small tree of the M. H. F., chiefly of old cultivations, with big leaves and big yellow fruit. Fr. 8.

probably scandens

PASSIFLOREÆ.

CARICA PAPAYA, Linn. *Papoi*; *Papita*. Cultivated all over the Terai.

DATISCEÆ.

TETRAMELES NUDIFLORA, R. Br. *Maina-kat*, P.; *Payomka-kung*, L. L. $\frac{100-120}{50-80+10-20}$ and perhaps even of greater size. Found in the L. H. F. up to 3,000 ft., and occasionally in M. P. F. in Terai. Very fast-growing. Fl. 4, fr. 5-6. Wood soft, not used; might be tried for tea-boxes. Bark light brown, scaly. The stem is generally very straight and cylindrical above, often much buttressed below. There is one on the Tista valley road, near the Huyen Jhora, which, though not measured, cannot be less than 150 ft. high, with a girth of 30 ft. or more. It is, however, very deeply buttressed. There is another enormous one in the Chenga valley.

ARALIACEÆ.

F
ARALIA FOLIOLOSA, Sonri, P.; *Kajyang-kung*, L. E. $\frac{20-30}{15-25+1-2}$ small tree of the M. H. F. from 3,000 to 5,000 ft. Stem covered with prickles. Fl. 1, fr. ? Very handsome; has somewhat the appearance of a tree-fern.

ARALIA ~~small~~ Sonri, P.; *Kajyang-kung*, L. E. $\frac{20-30}{15-25+1-2}$ in similar places; differs in having much larger leaves and fewer prickles. Fl. 6, fr. 7-8.

PENTAPANAX LESCHERNAULTII, Seem. *Tungking*, Bh. L. $\frac{20-40}{15-20+3-4}$ of the U. H. F. and R. F. from 7,000 to 11,000 ft. Common in Tongloo. Fl. ♀, fr. 10.

PENTAPANAX SUBCORDATUM, Seem. *Mandani*; *Singhatta*, P.; *Sirikhytem-kung*, L. Big climber of the U. H. F. from 5,000 to 8,000 ft. Common round Darjeeling. Fl. fr. 5-6.

PENTAPANAX RACEMOSUM, Seem. *Balleria*, P.; *Prongzamyok*, L. Very big climber of the U. H. F. from 6,000 to 8,000 ft. Common about Darjeeling, and easily recognized by its racemose inflorescence. Fl. 4-5, fr. 5-6.

HELWINGIA HIMALAICA, Hk. f. and T. *Lubbor-kang*, L. Shrub of the U. H. F. from 7,000 to 8,000 ft. Common about Senehal. Fl. 5, fr. 7-8. Recognized by the flowers being clustered on the middle of the midrib of the leaf, like those of *Ruscus*.

HEPTAPLEURUM (ELATUM), Seem. *Chinia*, P.; *Prongzang-kang*, L. E. ⁴⁰⁻⁵⁰₂₀₋₃₀₊₄₋₅ of the U. H. F. from 5,000 to 7,000 ft. Fl. 10, fr. 12.

HEPTAPLEURUM (GLAUCUM), Bth. and Hk. f. *Chinia*, P.; *Hoprongzang-kang*, L. E. ⁴⁰⁻⁵⁰₂₀₋₃₀₊₄₋₅ of the U. H. F. from 6,000 to 8,000 ft. Fl. fr. most seasons. The soft young leaves are eaten by Lepchas.

HEPTAPLEURUM TOMENTOSUM, Ham. *Baloo Chinia*, P.; *Suntong-kung*, L. E. ³⁵⁻⁴⁰₂₀₋₃₀₊₄₋₅ of the U. H. F. and R. F. from 6,000 to 10,000 ft. Common on Tongloo. Fl. 5-7, fr. 9-11. Wood white, soft, shining, not used.

HEPTAPLEURUM VENULOSUM, Seem. *Singhata-lara*, P. Large straggling shrub or climber of L. and M. H. F. from 3,000 to 5,000 ft. Fl. 12-1, fr. 2-3.

TREVESIA PALMATA, Vis. *Kujati*, P.; *Suntong-kung*, L. E. ¹⁰⁻¹⁵₅₋₁₀₊₁₋₃ of the M. P. F. *se.* and banks of streams in Terai and L. H. F. valleys up to 3,000 ft. Fl. 4, fr. 5. Fruit eaten by Lepchas.

HETEROPANAX FRAGRANS, Seem. *Lal Totilla*, P.; *Siriokhtem-kang*, L. E. ¹⁰⁻²⁰₅₋₁₅₊₁₋₃ of the Terai, M. P. F. *d.* and occasionally S. F.; also L. H. F. ridges and dry exposures. Fl. 12-1, fr. 4. The Pahari name is from its resemblance to *Calosanthus*.

BRASSAIOPSIS HAMILA, Ham. *Tilhetter*, P.; *Sungtung-kung*, L. E. ²⁰⁻³⁰₅₋₁₀₊₂₋₃ of the L. and M. H. F. valleys from 1,000 to 4,000 ft. Fl. 2-3, fr. 5. Much branched. Fine specimens may be seen on the zigzags of the road from Pankabari to Kurseong. Leaves used for fodder.

BRASSAIOPSIS HIRPIDA, Seem. *Phota*, P.; *Sungtung-kung*, L. L. (?) ¹⁵⁻²⁰₅₋₁₀₊₁₋₃. Small tree of U. H. F. from 5,000 to 7,000 ft. Fl. 2.

BRASSAIOPSIS mitis, *Mochini*, P.; *Sungtung-kung*, L. L. ²⁰⁻³⁰₅₋₁₀₊₂₋₃ of the U. H. F. from 6,000 to 8,000 ft. The commonest one about Darjeeling, and remarkable for its handsome palmatifid leaves. Fl. 7-8. The fruit is eaten by Lepchas. Wood white, soft, with numerous medullary rays, shining. Leaves used for fodder.

BRASSAIOPSIS FLORIBUNDA, Seem. Tree of the U. H. F. about 6,000 to 7,000 ft. Fl. fr. 4-6.

MACROPANAX UNDULATUM, Seem. *Chinia*, P.; *Prongsam-kung*, L. E. ²⁰⁻²² of the L. and M. H. F. up to 5,000 ft. Fl. 8, fr. 12.

688-26
Bans. 11.11.18
Chattahoochee 1890

HEDERA HELIX, Linn. *Dudela-lara*, P. E. climber of the U. H. F., 6,000 to 7,000 ft., but rare. Fl. 8-9, fr. 10-11. Cultivated about Darjeeling. (I have not seen them, but the wild plant is said to have red berries.)

Very rare at Alcobai planted by h.

NOTE.—There are several other species of *Araliaceae* besides, which require investigation and names.

Bans. in
1890.

CORNACEÆ.

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MARLEA BEGONIIFOLIA, Roxb. *Paletnyok*, L. (in U. Hills.); *Palet-kung*, L. (L. Hills and Terai); *Timil*, P. Small tree. L. ²⁰⁻²² Perhaps the widest ranging of the trees in the district, as it is found from the Terai up to 9,000 ft. In the Terai it is chiefly found in waste lands and in the tangled thickets on the banks of rivers. Fl. 6, fr. 8. Wood white, close grained, not used.

CORNUS MACROPHYLLA, Wall. *Patmoro*, P. Small tree, not common, 3,000 to 6,000 ft. Fl. 5-6, fr.

Wall. Cat. 100

CORNUS CAPITATA, Wall. *Tumbuk*, L. Tree L. ⁴⁰⁻⁵⁰ to 8,000 ft. Not very common. Very handsome when in full flower, with its large cream-coloured bracts. Fine specimens may be seen near the 18th mile of the cart-road, close to Darjeeling, and on the Auckland road. Fl. 5, fr. 7. Wood white, very hard, close-grained; has been tried as a substitute for boxwood.

ACCURIA HIMALAICA, Hk. f. and T. *Singna*, L.; *Tapathyer*, L.; *Phul Amphi*, P. L. shrub or small tree. E. ¹⁰⁻²⁰ from 5,000 to 9,000 ft. Diccious. Fl. 4-5, fr. 9-10. Bark greyish brown, smooth. Heartwood dark grey-brown, black when freshly cut; sapwood grey. Medullary rays very numerous, of all sizes. Annual rings marked by a line of pores. A specimen examined had 45 rings to a mean radius of 2½ in. Wood heavy, hard.

698-58
Bans. 11.11.18
Chattahoochee 1890

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TORRICELLIA TILIIFOLIA, DC. Small tree of U. H. F. 6,000 to 10,000 ft. Fl. 5-6, fr. 8.

CAPRIFOLIACEÆ

PENTAPTYXIS STIPULATA, Hk. f. *Berikura*, P. Large straggling shrub, exceedingly common round Darjeeling. Fl. 4, fr. 6. Wood white, hard, close-grained, with numerous fine medullary rays, and often with a greenish tinge.

LONICERA GLABRATA, Wall. *Bot-lara*, P. Climbing shrub, 5,000 to 7,000 ft. Common round Darjeeling. Fl. 8-9, fr. 11. Sweet-scented. Wood brown, soft.

Calicut & Hoke. Illustrations of Himal. plants. Plate XII

LONGICERA JAPONICA, Thunb. *Duari-lara*, P. Climbing shrub 4,000 to 10,000 ft. Distinguished from the former by its very long corolla tube and soft leaves. Fl. 6, fr.

LONGICERA GRACILIS. Shrub. Not common, only found once by me, viz. at Laha, near Dumsong, 6,000 ft. Fl. 2, fr. 4.

(Wall. Cat. 262)

LEYCESTERIA FORMOSA, Wall. *Tunguk-kung*, L. Shrub with hollow stems and glaucous leaves. Common about Darjeeling, 7,000 ft. Fl. 6, fr. 8.

(Wall. Cat. 263)

VIBURNUM KRUESCHENS, Wall. *Ganad*, P.; *Kancha-kung*, L.; *Dumshing*, Bh. Small tree. L. $\frac{10-20}{2-3+1-2}$ 6,000 to 10,000 ft. altitude. Common in forest of second growth. Fl. 4-5, fr. 6-7. Has many varieties. Wood pinkish white, hard, close-grained, heavy, a little resembling boxwood; would possibly do for wood-carving if well dried and seasoned. Only used by Paharias for house posts.

VIBURNUM CORYLIFOLIUM, Hk. f. and T. Tree $\frac{20-30}{2-15+2-3}$ 8,000 to 10,000 ft. altitude. Found on Sandukpho. Fl. 2, fr. 10.

VIBURNUM INVOLUCRATUM, Wall. *Gorakuri*, P. Small tree or L. shrub of 6,000 to 8,000 ft. Very handsome in full flower. Fl. 7, fr. 9. Found on Senchal.

VIBURNUM CORIACUM, Bl. *Gorakuri*, P. (*baro*). Small tree. E. $\frac{20-30}{2-10+1-2}$ Common in hills from 4,000 to 8,000 ft. Seeds give an oil, which is extracted by the Paharias and used both for food and to burn. Fl. 8, fr. 12.

VIBURNUM PUNCTATUM, Ham. Shrub, 3,000 to 5,000 ft. Not common. Fl. 8, fr. 10. Much resembling the last.

VIBURNUM LUTESCENS, Bl. Forests of Terai and Lower Hills. L., 2,000 ft. in valleys. L. shrub $\frac{8-10}{5+4-1}$ Fl. 1-2, fr. 10. Common at Siveko and in the Dalka Jhar.

SAMBUCUS ADNATA, Wall. *Chirigabang*, P. Shrub, 7,000 to 10,000 ft.

SAMBUCUS JAVANICA, Reinw. *Galeni*, P. L. shrub or small tree $\frac{20-30}{2-2-3}$ Common in second-growth forest, from 4,000 to 8,000 ft. Wood rather soft, white, with numerous fine medullary rays.

RUBIACEÆ.

ha - 38. *Sani* ANTHOCEPHALUS CADAMBA, Bth. and Hk. f. *Kudam*, P.; *Pan-Bui*, 37. *up* door-kung, L. L. $\frac{40-60}{20-30+4-8}$ of the M. P. F. of Terai and L. H. F. up to 3,000 ft. Fl. 7. Wood yellow, light, has occasionally been tried for tea-boxes, &c. Very quick growing.

STEPHOGYNE SP. *Kale*, P.; *Kahkat*, P. Large tree of the L. H. F. Not very common. Wood bright orange-yellow, with pores of darker colour, rather heavy, close-grained. Sapwood of rather lighter colour, often pink; used for planking and other building purposes.

ADINA CORDIFOLIA, Hk. f. and Bth. *Karam*, P.; *Numbong-kung*, L. E. $\frac{40-60}{20-30+2-3}$ of the M. F. P. d. in Terai and L. H. F.

$\frac{20-30}{2-15+2-3}$ *Viburnum foleus* Chumbi. *Plot No. 10-163* *Paris E.V.*

(Wall. Cat. 263. Wood yellow, used for cranes furniture.)

planted in h. Bengal as an avenue tree e.g. the Ganges - Darjeeling Road.

up to 2,000 ft. Fl. 8. Wood yellow, heavy, close-grained; much used for building in the Terai, and in great demand. The tree is very rare east of the Balasau river, but common to the west, in the Balasau, Chenga, and Lohagarhi forests.

UNCARIA FILIX, Bth. *Baii kura*, P.; *Kohuk-rip*, L. A large straggling shrub of the L. H. F. up to 3,000 ft. Fl. 4. It has a pair of large recurved stipules, like buffalo horns, whence the native name.

leaf 21 419.

UNCARIA SESILIPRUCTUS, Roxb. *Kali-lara*, P.; *Pinari*, L. Large climbing shrub of the L. H. F. and inner valleys up to 4,000 ft. Fl. 11, fr. 12-1.

CINCHONA SUCCIRUBRA, Pavon. The species of cinchona chiefly cultivated in the Rungbi plantation, in the Pomong Association's Garden and for ornament at Kodabari, Selim, and elsewhere.

CINCHONA CALIRAYA, Weddell. Also cultivated in the Rungbi plantation.

CINCHONA OFFICINALIS, L. Has been tried at the Rungbi plantation, where specimens may be seen close to the inspection bungalow, but is not generally cultivated.

CINCHONA MICRANTHA, Ruiz et Pavon. This has also been tried, but I believe is not now cultivated.

NOTE.—There are several other species and varieties, I believe; for an account of which, and the system of growth and manufacture, reference may be made to the Government reports and to the *Manual of Cinchona Cultivation in India* by Dr. King, Superintendent of the Royal Botanical Garden, Calcutta.

HYMENOPOGON PARASTICUS, Wall. *Kursinla*, P. Epiphytic small shrub of the M. and U. H. F. from 5,000 to 8,000 ft. Fl. 5, fr. 11. Flowers white, with white bracts.

HYMENODICTYON THYRSIFLORUM, Wall. L. ²⁰⁻³⁰_{25-30 + 4-6} of the S. F., Sv. F. and M. P. F. d. of Terai and L. H. F. (scarce). Common in some Savannas, as at Mohurgong and Champasari, and in the southern S. F., like the Tehsilpur Jhar. Bark brownish grey, corky. Wood soft, white, not used.

HYMENODICTYON FLACCIDUM, Wall. Tree of the L. and M. H. F. up to 5,000 ft. Not very common.

LUCULIA GRATISSIMA, Sweet. *Dowari*, P.; *Sinbran-grip*, L. Large shrub or small tree of the M. H. F. about 4,000 to 6,000 ft. Fl. 10-11. Has very handsome pink long-tubed flowers, which the Paharias and Lepchas, men and women, are fond of wearing. Leaves used in dyeing.

WENDLANDIA CINEREA, DC. *Tilki*, P.; *Mimri*, P. E. ²⁰⁻³⁰_{10-15 + 3-5} of the L. H. F., and occasionally in Sv. F. in Terai, but only close to the hills. Very common at Choklong and in the Chenga forest, where in winter its very light-coloured foliage makes the tree very conspicuous. Fl. 4. Bark brown, with numerous vertical fissures.

leaf 589-92 Benth.
Pavon 501 app

WENDLANDIA (CORIACEA DC.) *Tvigia*, P. E. ²⁰⁻³⁰_{10-15 + 2-3} of the M. P. F. and L. H. F. Fl. 2-3. Common on the Singari Pahar ridge, south of Sivoke. Has lanceolate leaves.

possibly *W. bifaria*.

= *W. exserta*

WENDLANDIA ERIOSTYLIS, DC. Kunt. *P.* Tree of the S. F. and M. F. F. in Terni and L. H. F. Fl. 3.

WENDLANDIA sp. Kunt. *P.*; *Seapah*, L. Common tree of the L. and M. H. F. from 2,000 to 4,000 ft. Fl. 2.

HANNOBIA ~~WALL.~~ *Robinson*, *P.*; *Kichang*, L. E. sub-woody climber of Terni, L. and M. H. F. up to 6,000 ft. Used by the Lepidians as a green dye. The green leaves are put in water and infused, and the cloth to be dyed steeped in the infusion. The Palanians also use it mixed with leaves of *Lecanitis* as a blue dye. It seems to be more as a mordant than it is used than as a regular dye. Leaves eaten by Lepidians.

MIMOSA KACHINENSIS, Wall. *Acaci*, *P.*; *Teachak-ling*, L. Large shrub or small tree of the M. H. F. from 4,000 to 6,000 ft. Fl. 4-6, fr. 8. Flowers orange, calyx with one yellow-white leaf-like lobe.

MIMOSA FRICKIANA, Willd. *Acaci*, *P.*; *Teachak-ling*, L. Large shrub of the L. and M. H. F. from the Terni up to 4,000 ft. Fl. 5-6, fr. 8. Flowers orange, calyx with one yellow-white leaf-like lobe.

AMORPHACEA KACHINENSIS, Wall. *Polemoni*, *P.* Shrub of the L. H. F., damp, and M. H. F., up to 6,000 ft. Fl. 6, fr. 11. Dorsal snow-white.

RANUNCULUS BUNYENENSIS, Lam. *Acaci*, *P.*; *Kichang*, *P.*; *Quadrang*, *X.*; *Pang-ling*, L. E. ¹⁸⁷⁵ of the S. F., S. F. and M. F. F. in Terni and L. H. F. up to 2,500 ft. Fl. 5, fr. 1-2. Wood hard, stem-green, strong, white, with streaks of brown-green, and almost black. Bark brown-grey, peeling off in small round flakes. Flowers rather small. Fruit about 1-1½ inches diameter. The Machis use the fruit to kill fish.

RANUNCULUS KACHINENSIS, DC. *Kunt*, *P.* E. ¹⁸⁷⁵ of the S. F. and S. F. in the Terni. It runs in the summer, but very common in, and characteristic of, *Seapah*. Fl. 5, fr. 1-2. Fruit big, resembling a gourd, eaten by Machis. Flowers large, white, sweet-scented.

RANUNCULUS (RANUNCULUS), Lam. A very prickly shrub of the damp inner forests of the Lower Hills.

RANUNCULUS KACHINENSIS, DC. E. ¹⁸⁷⁵ of the L. H. F. damp inner valleys. Common in the Teda valley beyond the first head above *Seapah*. Fl. 1, small, black.

INDRA CIRCULATA, Hook. *Fern*, *P.*; *Teachak-ling*, L. Small tree of the L. H. F. valleys and M. F. F. in Terni. Fl. 3, fr. 1.

INDRA ACUMINATA, Hook. *Chorip*, *P.* Large shrub of the L. H. F. valleys. Fl. 4, in large white heads, fragrant.

INDRA YONGKONGA, Hook. *Teachak-ling*, L. L. ¹⁸⁷⁵ of the S. F. and M. F. F. of Terni and L. H. F. up to 2,000 ft. Fl. 5-6, fr. 5-10.

Note—*Indra acuminata*, L., may be seen in cultivation in gardens in the Terni.

= *W. tinctoria*

Ans. *W. paniculata* - climber.

Lochnera

Tree, fls. yellow, round.

- *Scutellaria - gypsophylla* *fragrans* *folia* *Kodak* *man*

K. S.

VANQUERIA SPINOSA, Roxb. A small thorny tree found along roadsides in the Lower Terai. Fl. 4, fr. 10-11, resembling a small *guava*.

COFFEA ARABICA, Lindl. The coffee plant. Has been cultivated in the district, and in one case a company was once formed to grow it, but it is now only to be found here and there as specimens.

COFFEA BENGALENSIS, Roxb. Small shrub of the K. S. F., M. P. F. *d.* and waste places in the Terai. Fl. 2-4, white, fragrant; fr. 6-11. The berries are said to be used for coffee by the Mochis and Rajbanshis of the Terai and Western Duars.

MORINDA BRACCTATA, Roxb. *Hurdi*, P.; *Haldi-kung*, L. Large shrub of the Terai and L. H. F. The bark of the roots of this and the next species gives the "Hurdi" dye; it gives a red or yellow colour, and is very largely exported, chiefly from the hills between the Mahanadi and Tista rivers.

MORINDA LANCEOLATA, *d. Dula Hurdi*, P.; *Haldi-kung*, L. *ho - the Semi*
Large shrub of the S. F., M. P. F. in Terai, and L. Hills. Fl. *Rani* *FT. 1978*
3-4. For use see above. *hark a dye*

PSYCHOTRIA VIRIDIFLORA, Rwdt. *Guglat*, P.; *Den-ack*, L. Shrub reaching 4-6 ft. of the M. P. F. *c.* and L. H. F. up to 3,000 ft. Fl. 7-8, fr. 1-4. (There is another species very similar and in similar localities, probably *P. calophylla*, Wall.)

CHARALIA CURVIFLORA, Thw. *Antabi*, L. Shrub. Common in L. and M. H. F. from 2,000 ft. to 6,000 ft. Fl. 6. Leaves eaten by Lepchas.

LASIANTHUS (LUCIDUS), DC. *Chhota Galeoi*, P.; *Kalhet-kung*, L. Small tree of the L. H. F., damp places. Fr. 1-2.

LASIANTHUS sp. *Deomuk*, L. Common shrub of the U. H. F. from 6,000 to 9,000 ft., and round Darjeeling. Very conspicuous with its bright turquoise blue berries. Fl. 5, fr. 9.

PODERIA FETIDA, Willd. *Padebiri*, P.; *Takpedrik*, L. Common small climbing shrub; common throughout the district, from the thickets near Siliguri to above Darjeeling. Fl. 10, fr. 12-1. Flowers red fringed, resembling those of the *Cinchona*. The fruit is used to blacken the teeth by Lepchas and Paharias; this, they say, is as a specific against toothache.

HAMILTONIA SUAVEOLENS, Roxb. *Bainchampa*, P. Large shrub with handsome panicles of blue-lilac flowers, found in L. H. F. with Säl. Fl. 11. (I have only once met with it, and that in the Upper Rilli forest, east of the Tista.)

RUBIA CORDIFOLIA, Linn. *Manjit*; *Phyem*, L. A common small climber of the M. and U. H. F. Mentioned here as it is extensively used for dyeing throughout the district, and as large quantities are annually collected for export.

NOTE.—The species of this family do not yet seem to be perfectly determined. When they are better known, a great number of other trees and shrubs will come into the list and especially in the genera *Wendlandia*, *Morinda*, *Psychotria*, and *Lasiacanthus*, and many of the names here given will probably be altered.

probably *N. elliptica*

Wall

Wall. Cat. 440

ho - the Semi
Rani *FT. 1978*
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Coralisobolus acuminatus

ANDROMEDA OVALIFOLIA, Wall.

Kunghior, L. L. ¹⁸⁻²⁰₅₋₁₀₊₂₋₃ One of the most universally distributed trees in the district, being found from the Tista Valley Sal forests at 2,000 ft. up to Tonglo at 10,000 ft. Common about Darjeeling. Fl. 6-7. fr. 11-12. Bark brown, papery, peeling off in vertical strips. Wood said to be good, but not used.

ENKIANTHUS HIMALAICUS, Hk. f. and T. Small tree of the R. F., about 10,000 to 11,000 ft. Found in Tonglo. Fr. 10-11.

Rev. E. V. 1898
No 976 - 78
Chunabhi N. K. S.
A. J. 1898

Callcut Stokes Illustrations of "Himalayan" plants. Plate xv. B.
"leaves used as a substitute for tea by natives of North-eastern"
- do - Plate xv. B.

Wall. Cat. 19 Agave P. frugosula, Kunze. Wood moderately hard,
crisp, reddish brown

Cholcho
in Schuster 18

GAULTHERIA GRIFFITHIANA, Wight. Small shrub of the U. H. F., chiefly on rocks, from 7,000 to 9,000 ft. Fl. 7.

NOTE.—*G. repens*, Bth., is a little wiry trailing shrub found on rocks about Darjeeling and up to 12,000 ft. Fl. 10-11.

RHODODENDRON ARBOREUM, Sm. *Lal guras*, P.; *Elok*, Bh.; *Elok*, L. E. ²⁰⁻³⁰₅₋₁₅₊₅₋₅ of the U. H. F. and R. F. from 6,000 to 11,000 ft. It is chiefly common in Tongloo, but good trees are found in the Senehal, Gumpahar, and Dumsong forests. Wild as well as cultivated in flakes, leaving the red inner layers exposed. Wood pink-white, hard, close-grained; used for kukri handles, small boxes, etc., and for fuel, for which it is excellent. The flowers are used to adorn temples in Sikkim; they are pink or light crimson coloured.

RHODODENDRON ARGENTUM, Hk. f. *Kali guras*, P.; *Elok-amat*, L. E. ²⁰⁻³⁰₁₀₋₂₀₊₅₋₅ of the U. H. F. and R. F. from 6,000 to 9,000 ft. Common below Tongloo, but not on the summit. Also common in the forests of Senehal and Gumpahar, and on all the ridges of the Dumsong Hills. Wild as well as cultivated in Darjeeling. Fl. 3-4, fr. 10. Bark pink-brown, peeling off in flakes, leaving the red inner layers exposed. Wood pink-white, hard, close-grained; used for kukri handles, small boxes, etc., and for fuel, for which it is excellent. The flowers are used to adorn temples in Sikkim; they are pink or light crimson coloured.

RHODODENDRON FALCONERI, Hk. f. *Kégo*, Bh. E. ²⁰⁻³⁰₁₀₋₂₀₊₅₋₅ of the R. F. and F. F. above 8,000 ft. Very common about Tongloo. Fl. 4-5, fr. 11-12. Bark purple-red beneath, outer bark red-brown, peeling off in flakes. Flowers cream-white. Leaves large, with dense rusty tomentum beneath.

RHODODENDRON BARBATUM, Wall. *Guras*, P.; *Kemoo*, Bh. E. ²⁰⁻³⁰₁₀₋₂₀₊₅₋₅ of the R. F. from 8,000 to 11,000 ft. Common on Tongloo and the whole Singalila range. Fl. 2-3, fr. 10. Bark purple-red, peeling off in flakes. Flowers deep crimson. Leaves green, not silvery beneath.

RHODODENDRON CAMPBELLII, Hk. f. Tree of the R. F. and F. F. above 10,000 ft. Recognized by its leaves having an orange-coloured down beneath, but otherwise like those of *R. arboreum*.

RHODODENDRON FULGENS, Hk. f. *Chimal*, P. Small tree or large shrub, common in Sundukpho, 11,000 ft. Fl. crimson (F) 5, fr. 10.

RHODODENDRON HODGSONI, Hk. f. E. ¹⁰⁻¹⁵₅₋₁₀₊₅₋₅ of the undergrowth of F. F. and open places above 10,000 ft. Does not occur before Sundukpho. Fl. 5, fr. 10-11. Leaves resembling those of *R. argenteum*. Flowers pink-lilac.

RHODODENDRON CINNABARINUM, Hk. f. *Booloo*, P. E. ¹⁻¹⁵₅₋₁₀₊₅₋₅ of the high ridges, very common on Sundukpho. Fl. 4-5, fr. 10. Wood yellow-brown, close-grained, hard. Leaves poisonous.

Wall. Cat. 347. *Ghorans*, *Ghoras*, P., *Suggoo*, N.
348 (white-flowered var.)

Guras
Chimal f. *argenteum*

Puttinga P.
f. *argenteum*

Kurunga P.
f. *argenteum*

Chimal P.
f. *argenteum*

371 - 51
Rangaine group
323 - 41
Pani f. U. 1878
Tangle group

372 - 36
Tangle group
Pani f. U. 1878

369 - 20
Tangle group
Pani f. U. 1878

375 - 22
Tangle group
Pani f. U. 1878

RHODODENDRON LANATUM, Hk. f. *Chimal*, P. Small tree of the high ridges about Suburkum and Phalut. Fr. 10.

RHODODENDRON LEPIDOTUM, Wall. Small shrub, covering the rocks about Sundukpho. Fl. 8-10.

RHODODENDRON VACCINOIDES, Hk. f. Small shrub, common in the U. H. F. about 7,000 to 8,000 ft. Fl. 6-7. Common at Rungbool.

RHODODENDRON DALHOUSIE, Hk. f. *Curus*, P. Shrub, often epiphytic, 6-10 ft. high, of the U. H. F. from 6,000 to 8,000 ft. Fl. 6-7; flowers very large, cream-coloured, sweet-scented.

RHODODENDRON EDGEWORTHII, Hk. f. Shrub, often epiphytic, 4-6 ft. high, of the U. H. F. from 7,000 to 8,000 ft. Fl. 8-9. Large, pure white, sweet-scented.

NOTE.—In Sikkim there are many other species, many specimens of which I have received from Mr. C. B. Clarke, M.A. Education Department, such as *R. campanulatum*, Dec. 11,000 ft.; *maria Eversii*, *R. Wata*, Hk. f. 11,500 ft.; light yellow flowers; *R. pendulum*, Hk. f. 10,000 ft.; *R. glaucum*, Hk. f. 10,000 ft.; *R. Molle*, Hk. f. 11,700 ft.; *R. Thomsonii*, Hk. f. 10,000 ft.; *R. ellipticum*, Hk. f. 10,000 ft.; *R. Griffithianum*, Hk. f. 8,500 ft.; *R. pumilum*, Hk. f. 13,000 ft.; *R. serotinum*, Hk. f. 11,000 ft.; *R. Edgaria*, C. B. C., 11,000 ft.—making 24 species in British and Independent Sikkim.

MYRSINACEÆ

MERA INDICA, A. DC. *Bilawai*, P.; *Purnas-kung*, L. $\frac{4-20}{6-11}$ of the Terai, L. M. and U. H. F. up to 6,000 ft. Fl. fr. at various seasons. Many varieties. (If *M. montana*, A. DC., is separate, then the common shrub or small tree of the hillsides is probably *montana*, and the small round or long deeply-serrate leaved one of the Terai and L. H. F., with short racemes, *Indica*.) Probably, except *Artemisia*, the commonest woody plant in the district, as it is everywhere met with between 3,000 and 6,000 ft. In some places, especially abandoned cultivations, it forms a small coppice-like dense forest, almost alone. The wood is rather hard, close-grained, white, with fine medullary rays.

MERA sp. E. $\frac{10-18}{6-11}$. A shrub or small tree of the U. H. F. about 6,000 ft. I have only seen it in grassy glades on the Laba-Dalingkot road. Fl. 3.

MERA MACROPHYLLA, Wall. *Bopoti*, P.; *Tugon-kung*, L. $\frac{10-20}{6-11}$ of the L. H. F. and old cultivations, up to 5,000 ft. Fl. 5, fr. 10.

MYRSINE SEMISERRATA, Wall. *Bilawai*, P.; *Tungcheong-kung*, L. $\frac{10-20}{6-11}$ of the M. and U. H. F. from 4,000 to 8,000 ft. Fl. fr. 12-3. Wood said to be hard and good.

SAMARA FRONDOSA, King. *ROY*, sp. *Anili-lara*, P.; *Mouk-ganrig*, L. Climber of the U. H. F. from 6,000 to 8,000 ft. Fl. 5, fr. 9. Bark thick, spongy. Wood soft, with large pores and very broad medullary rays. Leaves eaten by *Blutina*.

Make
2
Species

Wall. G. 1. 172

Lamara

EMMETTA RIBES, Benth. Himalchiri, P. E. climber of the M. P. F. w. in Terai and L. H. F. up to 4,000 ft. Fl. 11-12, fr. 4. *Lamara*

EMMETTA ROBUSTA, Roxb. Kalay Bogoti, P. E. ¹⁰⁻¹²₅₋₆₊₁₋₂ Small tree or straggling shrub of S. F. and M. P. F. d. in Terai and L. H. valleys. Fl. 2, fr. 10-11. Seeds eaten by Paharias.

Lamara ~~FLORIBUNDA~~, Walt. Himalchiri, P.; Payongrik, L. E. climber of the M. and U. H. F. from 4,000 to 7,000 ft. Very common round Darjeeling. Fl. 12, fr. 9-10.

Lamara ~~CHUMPATIUM~~ UNDULATUM, A. DC. Amilpati, P. E. big climber of the M. H. F. from 3,000 to 6,000 ft. Fl. 2, fr. 12. Wood yellowish white, hard, with fine medullary rays.

ARDISIA HUMILIS, Vahl. Shrub of the L. H. F. undergrowth. Not common. Fl. 6-7, fr. 11-12.

ARDISIA FLORIBUNDA, Wall. Large shrub of the L. and M. H. F. up to 4,000 ft. Flowers pink, handsome.

ARDISIA ~~CHUMPATIUM~~, Vahl. *Chumlati*, P.; Donyok, L. E. ⁵⁻⁶₁₋₂₊₁₋₂ Small, low, single-stemmed shrub of the M. and U. H. F. undergrowth, from 4,000 to 8,000 ft. Fl. 5-6, fr. 11-12. Very pretty, either with its wax-like flowers in spring or brilliant red berries in winter.

ARDISIA INVOLUCRATA, Kurz. *Chumlati*, P.; Donyok, L. E. ⁵⁻¹⁰₂₋₁₄ of the M. P. F. w. and banks of streams in Terai and L. H. F. up to 1,000 ft. Fl. 6-7, fr. 1-2. Very pretty shrub.

ARDISIA MACROCARPA, Wall. Large shrub of the M. H. F. about 6,000 ft. Fr. 5.

SAPOTACEÆ.

Sarcophora

SARCOPHYTON ARBORISUM, Ham. ^{a Hook f.} Pahar Lampati, P.; Kalyatzo-kung, L. E. big tree of the L. and M. H. F. up to 4,000 ft. Fr. 6. Wood hard, heavy; used to make canoes. Leaves given to cattle.

SIDEROKYLON (ATTENUATUM, DC.). Kalyatzo-kung, L. E. big tree of the L. and M. H. F. up to 4,000 ft. Fr. 10.

BASSIA BUTTRACHA, Roxb. Chooni, P.; Yel-kung, L. E. ⁴⁰⁻⁵⁰₁₅₋₂₅₊₁₋₂ Big tree of the L. H. F. up to 4,000 ft. Fl. 12-1, fr. 5-6. Seeds eaten by Paharias and Lepchas. Wood good, but the tree generally grows very crooked.

NOTE.—Of *Eleagnus* I have never met with any species, but Hooker (Him. Journal) mentions *Diagnos* *Endroparia*, Persoon, as growing in the Tista valley.

STYRACACEÆ.

SYMPLOCOS RACEMOSA, Roxb. *Chumlati*, P.; Palyok-kung, L.; Kaiday, M.; Singyen, Bh. E. ¹⁵⁻²⁰₅₋₁₀₊₁₋₂ of the S. F., Sv. F., M. P. F. d. of Terai, and occasionally up to 7,000 ft. Fl. 11-12, fr. 5-6. Leaves give a mordant used with the Manjit dye.

Crispa,
a DC.

A. crenulata Lodd.
= *A. crenata*, Roxb. hence
the mistake in name.
^{Vahl.}
A. crenulata is *S. Amer.*

Fruit gives an oil. The entire part of the fruit eaten
said to resemble the plantain in flavour. Bark
used as a fish poison. *J.B. Manasse*

SYMPLOCOS CAUDATA, Wall. *Onlia Kharani*, P. E. ¹⁵⁻²⁰₅₋₁₀₊₁₋₂ of the M. P. F. w. and L. H. F. Fl. 1-2.

SYMPLOCOS GLOMERATA, King. *Sanu Hingo*, P. E. ¹⁵⁻²⁰₅₋₁₀₊₁₋₂ of the M. P. F. and banks of streams in Terai and up to 6,000 ft. occasionally. Fl. 3, fr. 7. Wood strong.

SYMPLOCOS SPICATA, Roxb. *Palyok-kung*, L. E. ²⁵⁻³⁰₅₋₁₀₊₁₋₂ of the M. P. F. w. in Terai and up to 5,000 ft. Fl. 1-2. Leaves used in dyeing.

SYMPLOCOS POLYSTACHYA, Wall. Small tree of the M. H. F. about 5,000 ft. Fr. 8.

SYMPLOCOS RAMOSISSIMA, Wall. *Kala Kharani*, L.; *Tung-chong-kung*, L. E. ¹⁵⁻²⁰₅₋₁₀₊₂₋₃ of the M. and U. H. F. from 5,000 to 7,000 ft. Fl. 5, fr. 10.

SYMPLOCOS LUCIDA, Wall. *Kharani*, P.; *Chashing*, Bh. E. ²⁰⁻³⁰₁₀₋₂₀₊₂₋₄ of the U. H. F. from 6,000 to 10,000 ft. Very common about Darjeeling and on Tonglooc. Wood white, soft, not used. Fl. 10.

SYMPLOCOS sp. *Lal Chandan*, P.; *Chandan*, L. E. ¹⁵⁻²⁰₅₋₁₀₊₂₋₃ of the U. H. F. Only seen by me on Thosum La, 8,000 ft. beyond Dumsong, and on Tonglooc. Wood grey, with streaks of red; hard, close-grained. The red part, which is darkest in the root, is ground into a paste by Paharias and used in their religious ceremonies and for caste-marks. Fr. 10.

SYTRAX SERRULATUM, Roxb. *Chamo-kung*, L. E. ¹⁵⁻²⁰₅₋₁₀₊₁₋₂ of the Terai, L. and M. H. F., up to 6,000 ft. Fl. 3, fr. 7. Wood rather soft, but not liable to warp or split; used by Bhutias for prayer poles.

SYTRAX sp. *Chamo-kung*, L. E. small tree of the U. H. F. with much larger flowers and fruit than the preceding. Not uncommon round Darjeeling. Fl. 5, fr. 8.

OLEACEÆ.

OLEA DIOICA, Roxb. *Kala kiamoni*, P.; *Timbernyok*, L. L. tree of the M. P. F. w. in Terai and L. H. F. Not common. Fl. 4.

OSMANthus FRAGRANS, Lour. *Tungtung-kung*, L. E. ¹⁵⁻²⁰₅₋₁₀₊₁₋₂ Small tree of U. H. F. found about Darjeeling. Fl. 8, flowers very sweet-scented, with the scent of apricots.

LIGUSTRUM ROBUSTUM, Hk. f. and T.). *Jams*, P. Small tree of the L. H. F., only once met with. Fl. 8.

JASMINUM ~~obovatum~~, Lindl. Large shrub of about 7,000 ft., not common and perhaps escaped from cultivation. Fl. 5. Flowers yellow, scented.

JASMINUM DISPERNUM, Wall. *Irbo-lara*, P. Climbing shrub of U. H. about 6,000 to 7,000 ft. Common in Darjeeling. Flowers pink-white or lilac, very sweet-scented. Fl. 5, fr. 12.

revolutum, Sims

Walt. Cat. 600

Silings
alpina!

"It is, I think, a *Lanceol* & certainly not *Symplocos* which has inferior fruit"
not by L. King or a specimen sent by *W. Johnston* gathered at Kalaforki 9000 ft.
In Paris E. V. 1878 he 370-55. The wood is not like that of any *Symplocos*
I know. Hk.
Tung Dabshupkhar

probably *virgatum*, Wall.

Chondropseum smilacifolium Wall. A climbing shrub with quadrangular stems and 3-nerved leaves, found in the Saramk forest e.g. Dal ka Phar H. Br. 1.

367-7
Paris E. V. 1878
Roughed 7000

Walt. Cat. 198

JASMINUM LAURIFOLIUM, Roxb. Climbing shrub, common in L. and M. Hills, up to 6,000 ft. Flowers long-tubed, white, sweet-scented. Fl. 6.

JASMINUM PUBESCENS, Linn. *Paringshar*, P. Small much-branched shrub of the Terai and L. H. F. up to 3,000 ft. Fl. 9, white, scented.

NOTE.—There are several other species of *Jasminum* besides, but too small to deserve mention. The blue, *Syringa vulgaris*, Linn. has lately been introduced into Darjeeling Gardens, and the Naini Tal ash, *Fraxinus floribunda*, Wall., is being grown at Ranghool.

APOCYNÆÆ.

ALATONIA SCHOLARIS, R. Br. *Chatian*, Bg.; *Chatian*, P.; *Purbo-kung*, L. E. ⁴⁰⁻⁵⁰₂₀₋₂₅ of the S. F. and M. P. F. d. of the Terai and L. H. F. up to 3,000 ft. Fl. 11, fr. 1. A fine handsome tree, with branches and leaves in whorls. Wood white, soft, even-grained; has been used for tea-boxes, but the tree is not sufficiently common to be much used.

ALATONIA VENENATA, R. Br. *Chatian*, P.; *Purbo-kung*, L. Large shrub (?) of the L. H. F.; only once seen.

TABERNÆMONTANA CORONARIA, Willd. *Asuri*, P.; *Krim-kung*, L. E. ⁶⁻¹⁸₃₋₇ of the M. P. F. w. in Terai and L. H. F. up to 2,000 ft. Wood yellowish white, rather soft, close-grained, polishes well. Bark silvery-grey with whitish big lenticels. Often cultivated also in gardens in the Terai and Lower Hills.

PLUMERIA ACUTIFOLIA, Poir. L. ¹⁵⁻²⁰₅₋₇ Small tree, cultivated in gardens in the Terai. Fine specimens may be seen on the old road at Mattigarha. Fl. 12.

OPHIOXYLON SERPENTINUM, Willd. Small under-shrub of up to 2 ft. high. Common in Terai and L. Hills up to 2,000 ft. Fl. fr. 4-8.

HOLARRHENA ANTIDYSPENTERICA, Wall. *Kirra*, P. (?); *Karingi*, P.; *Dudhali*, M. L. ²⁰⁻³⁰₁₀₋₂₀ of the S. F., Sv. F., M. P. F. d. of Terai and L. H. F. up to 3,000 ft. Fl. 5, fr. 8-9. Wood white, soft, shining. (There are two varieties, *glabra* and *pubescens*.)

HOLARRHENA SP. *Asuri*, P. Small tree of the L. H. F. up to 4,000 ft., with bright scarlet flowers and bluish tinged leaves. Fl. 5, fr. 6-7.

WRIGHTIA TOMENTOSA, Rom and Sch. *Karingi*, P.; *Selen-nyok*, L. L. ²⁰⁻³⁰₁₀₋₂₀ of the M. P. F. d. and L. H. F. up to 3,000 ft. Fl. 5-6, fr. 12-1. Wood yellowish white; said to be good, but small.

ICHNOCARPUS FRAGRANS, Wall. *Dauri-lara*, P.; *Yokhoun-rik*, L. Large climber of the M. and U. H. F. from 4,000 to 7,000 ft. Fl. 6. Gives an Indian rubber-like milk.

NOTE.—There are three other species, as well as two of the section *Apocynum*, which I omit, as I have not the correct specific names. They are all climbers, found at about 1,000 to 6,000 ft.

Wall. Cat. 14
(*Chatian* (Guthrie))

Wall. Cat. 15
(*Dudhali* (Guthrie))

Wall. Cat. 15 has *Wrightia tomentosa* - leaves just indigo. Good beautiful, which also given being near to long than any wood known here. Hal.

See 277-77. 2nd
P. 11. 5. 7. 1898

Wall. Cat. 15

See 690-31. 2nd
P. 11. 5. 7. 1898

CHONEMORPHA MACROPHYLLA, G. Don. *Yokhoun-rik*, L. Large climber of the M. H. F. from 4,000 to 6,000 ft. Fl. 5-6, fr. 1-2. Gives a good sort of caoutchouc. Flowers very handsome, often covering the tops of tall trees with a sheet of white.

BEAUMONTIA GRANDIFLORA, Wall. *Barbari*, P. Large climber of the M. P. F. in Terai, L. and M. H. F. up to 5,000 ft. Bark corky, thick. Flowers big, trumpet-shaped, very handsome. Fl. 2-3.

NOTE.—Besides *Plumeria* a few other species are cultivated in gardens in the Terai and Lower Hills, such as *Nerium oleander*, L.; *Allamanda cathartica*, L.; *Thevetia nerifolia*, Lam.

ASCLEPIADACEÆ.

PERIPLOCA CALOPHYLLA, Falc. *Mas-lara*, P.; *Pargen-rik*, L. Small, pretty, glabrous shrub of the M. and U. H. F. from 3,000 to 6,000 ft. Fl. 3, fr. 7.

CALOTROPIS GIGANTEA, R. Br. *Madar*, H.; *Auk*, P. Shrub, not uncommon in the Terai forests. Fl. 5.

RAPHISTEMMA PULCHELLUM, Wall. *Chongfrik*, L. Handsome flowered small climber of the L. H. F. Fl. 8.

GYMNEA TINGENS, W. and A. Climbing shrub of L. H. F. Fl. 5.

PERGULARIA ODORATISSIMA, Linn. *Simpletbuk*, L. Large climbing shrub of Terai. Fl. 5. Roots eaten by Lepchas.

MARSDENIA TINCTORIA, R. Br. *Kah-lara*, P.; *Ryöm*, L. Climbing shrub of L. H. F. (I have never seen this, but have little doubt that it is the *Ryöm* of the Lepchas, used to give a black or bluish black dye.)

NOTE.—There are many other species, chiefly small climbers.

LOGANIACEÆ.

BUDDLEIA ASIATICA, Lour. *Nexarpati*, P.; *Pondam-king*, L. E. ¹⁰⁻¹² of the Sv. F. and old cultivations in the Terai and L. H. F. up to 5,000 ft. Fl. 12-1. Exceedingly common in old cultivated land, both in Terai and Hills. Very pretty with its long spikes of sweet-scented white flowers.

BUDDLEIA PANICULATA, Wall. *Bejnupati*, P. E. big shrub, rather rare, of about 6,000 ft. altitude. Fl. 3-4.

BUDDLEIA COLVILLEI, Pyraming, Dh. ¹⁵⁻²⁰ of the R. F. about 10,000 ft. Common on Tongloo. Fl. 8, fr. 11. Very handsome with its dark masses of crimson flowers. Wood reddish brown, with fine medullary rays and well-marked small annual rings.

FAGROEA OBOVATA, Wall. *Suna-khari*, P. E. tree or epiphytic tree of the L. H. F. Only once found by me, and that on the Bhutan frontier in the Jaldaka valley. Fr. 3.

Pari longhata *Calicut + Hoshu* *Root of this plant* *Pluch. 1888.*

Back used for ropes but inferior
J.B. Mansson.

Wall Cat. 125. Kalduma, Nani

Eryaibe A climber of the L. H. Forest up to 3000 ft
with handsome flowers. H. 9.

found in the Darjeeling District, Bengal.

57

GARDNERIA OVATA, Wall. Takpadik, L. Climber, not common; found at about 7,000 to 8,000 ft. Fl. 8.

BORAGINÆÆ

CORDIA MYXA, Linn. Bohari, Bg.; Boeri, P.; Nimat-kung, L. ²⁰⁻⁴⁰ of the K. S. F. and M. P. F. d. in Terai and L. H. F. ^{10-20 + 2-4} Also in Lower Terai, isolated in thickets or along streams. Fl. 3, fr. 6. Wood greyish brown, light, soft but durable; used for canoes. Fruit occasionally eaten.

Ha - 26 Semi
Rainy F.V. 1878

CORDIA GRANDIS, Roxb. Asari, P. L. ²⁰⁻³⁰ on the banks ^{10-15 + 2-3} of streams in Terai and L. Hills, especially west of the Balasan. Fl. 9-10, fr. 1.

EHRETIA SEHRATA, Roxb. Chitlay, P. E. ¹⁵⁻²⁰ of the ^{2-10 + 1-2} L. H. F. Fl. 3, fr. 6.

EHRETIA ~~(LEUCO, Roxb.)~~ Boeri, P. L. ⁴⁰⁻⁵⁰ of the M. and ^{20-30 + 3-5} U. H. F. from 4,000 to 7,000 ft. Fl. P. fr. 10. Very common in old cultivated lands in some places, as on the small spur next to, and west of, the old Pashok Gumpa, forming almost pure young forest. Wood yellowish white, rough, hard; used occasionally for building, more often for charcoal. The leaves of young trees are often 9-12 in. long by 6 in. broad.

Probably
same sp.
690 - 24
Rainy F.V. 1878
Chittickhina
5300'

EHRETIA WALLICHIANA, Hk. f. and T. Dowari, P.; Kulet-kung, L. Small tree of the L. and M. H. F. from 2,000 to 6,000 ft. Fl. 5, fr. 6-7. Resembles the next above, but has much smaller leaves, and is found lower down.

TOURNEFORTIA VIRIDIFLORA, Wall. Ampati-lara, P.; Tungrongrik, L. Climber of the Terai and L. H. F. Fl. fr. at most seasons. Wood dark-brown, soft.

CONVOLVULACEÆ

RIVEA ORNATA, Choisy. Climbing shrub of S. F. in the Terai. Commoner in the southern forests and in the meadow land between the Jhars. Fl. 7-8, fr. 12. Seeds eaten.

ARGYREIA (SPECIOSA, Sweet). Kuntun-rik, L. Large climber of the L. H. F. and valleys. Leaves with dense white tomentum beneath. Fl. 10.

ARGYREIA CAPITATA, Choisy. Dangeen-rik, L. Climber of the M. P. F. d., banks of streams and waste places in the Terai, also L. H. F. Fl. 10-11.

ARGYREIA SETOSA, Choisy. Climber in similar places to above. Fl. 10.

ARGYREIA (POMACEA, Choisy). Buri-lara, P. Common climber of banks of streams in K. S. F., S. F. and M. P. F. d. in Terai and L. H. F. Berry bright yellow, ripe 1.

IPOMŒA ATROPURPUREA, Wall. Climber of Terai and L. H. F.

h

PORANA VOLUMINIS, Burm. *Papray-lara*, P.; *Mom-rik*, L. Climber of the L. H. F. up to 5,000 ft. Fl. 10-11. Leaves smooth, thin.

PORANA PANICULATA, Roxb. *Badalpati*, P.; *Kadiçan-rik*, L. Climber of the L. H. F. up to 3,900 ft. Fl. 11-12. Leaves white, tomentose. These two species both climb over tall trees, covering them in the flowering season with a sheet of white.

NOTE.—There are many other species, especially of *Argyria*, which might be mentioned if they were properly determined. *Porana grandiflora* is a showy crimson-flowered climber of the neighbourhood of Darjeeling, flowering in August; and *Ipomoea* (*Quamoclit*) *coccinea* may be seen covering the trees and bushes in the Lower Hills with its brilliant scarlet flowers in November mixed with the white masses of *Porana volubilis* and paniculate, but the real home of *Cucurbitaceae* is in the tangled thickets and waste places near rivers in the Terai, and especially between the Chel and the Marti.

SOLANACEÆ

SOLANUM VERBASCIFOLIUM, Linn. *Durant*, P.; *Sicor-kang*, L. E. ¹²⁻²⁰ ₂₋₁₀₊₁₋₁₃ of the L. H. F. and valleys of inner hills; also occasionally met with in the Terai, chiefly in waste places. Fl. 9, fr. 11-12.

SOLANUM INDICUM, Willd. *Bhi*, P. Large branching thorny shrub; very common in waste places, old village sites, &c., in Terai. Fl. fr. 12-2.

NOTE.—*Solanum crassipetalum* and *Solanum membranaceum* are small shrubs not uncommon in the M. and U. H. F. from 4,000 to 7,000 ft., and the common chili is often found growing into a shrub 6-10 ft. high in old cultivations and on the sites of old villages.

SCROPHULARINEÆ

(Wall. Cat. 449)

WIGHTIA GIGANTEA, Wall. *Lakuri*, P.; *Eop-kang*, L. *L. hugo* epiphytic tree, often far overtopping other big trees. Often found as a tree on its own roots 60 ft. high and 3-4 ft. girth. Fl. 10. Its stem sends out horizontal stem-clasping roots. M. and U. H. F. from 3,000 to 7,000 ft. Wood soft, but does not warp; used by the Lamas to make idols for their temples.

GESNERACEÆ

LEPTOCORNA MULTIFLORA, Bth. *Tungrangmook*, L. Small shrub of the L. H. F., common about Pankabari. Fl. 8.

BIGNONIACEÆ

Sp. 673 - 39 Jani;
No 659 - 25 Jani;
Panic 1848

STEREOPERMUM CHERLONOIDES, DC. *Furari*, P.; *Singgha-kang*, L. L. ⁴⁰⁻⁶⁰ ₂₅₋₃₀₊₁₋₄ Common tree in the S. F. and M. P. F. d. of the Terai and in the L. H. F. up to 2,000 ft. Fl. 4, fr. 11. Wood

Wall. Cat. 49.

greyish white, with very numerous narrow medullary rays, and pores of different sizes, arranged in wavy lines. Used by Paharias for house-building and all purposes, but not yet much sought for in the district. Would probably be good for tea-boxes. Fruit long, curved, angled, smooth. Leaves smooth. Flowers pink-brown, fragrant.

STEREOXILUM SUAVEOLENS, DC. *Parari*, P. (?) ; *Singgen-kang*. L. ⁴⁵⁻⁵⁵₍₁₅₋₂₅₎₊₄ of the S. F. and M. P. F. d. of the Terai and L. H. F. up to 2,000 ft. Fl. 4, fr. 11. Wood not known. Not so common as the former, from which it is easily recognized by the long straight, cylindrical, rough capsule, and rough leaves.

NOTE.—These two trees require further investigation. The flowers of No. 1 are certainly not yellow, as described in Brandis's *Forest Flora*, Kerr's *Preliminary Forest Report of Pegu*, and *Burmah's Flora Indica*. The wood also is described in the books mentioned as "orange-yellow," which it never is in the Darjeeling Terai. — *Stereoxylum* affinis is *Stereoxylum* M.

Calosanthus indica, Bl. *Totilla*, P. L. ²⁵⁻³⁵_{(15-25)+1.5} of the S. F., Sv. F. and M. P. F. d. of Terai and L. H. F. up to 2,000 ft. Fl. 5-6, fr. 12-1. Bark brownish white, gives a green juice when cut. Wood white, light, even-grained, not used. Recognized by its large bi-pinnate leaves, terminal yellowish red racemes, and large flat sword-like fruit.

No 552 - 23 Jani
Pauze S. V. 1878

ACANTHACEÆ.

Thunbergia grandiflora, Roxb. *Chongla fibrik*, L. Large handsome climber of the Terai and L. H. F. Fl. 8.

Thunbergia coccinea, Wall. Large climber of the L. M. *Wall. Cat. 69.* and U. H. F. from 2,000 to 7,000 ft. Fl. 8. Wood soft, fibrous. Stem grey-brown, rough, with swollen nodes.

NOTE.—*Thunbergia lutea*, T. And., is a pretty yellow-flowered, bulbous-rooted climber peculiar to Darjeeling, and *T. fragrans* Roxb., a small white-flowered, scented climber of the undergrowth in the S. F. and L. H. F.

AE *DALACANTHIUS SPLENDENS*, T. And. *Shechin*, P. Small shrub 3-6 ft. high, of the undergrowth in the S. F. of the Terai and L. H. F. up to 2,000 ft. Fl. 12-1. Flowers pink.

E *DALACANTHIUS (NERVOSUS)*, T. And.). *Shechin*, P.; *Topatnuk*, L. Shrub 4-10 ft. of the M. P. F. w. of Terai and L. H. F. valleys. Fl. 12-1. Flowers deep blue.

Barleria cristata, Roxb. A small showy shrub of the L. H. F. dry ridges among Sal. Fl. 10-11. Often found cultivated in gardens as a bush 3-4 ft. high.

Barleria cerulea, Roxb. A small pretty shrub of L. and M. Hills up to 4,000 ft. Fl. 11. Also occasionally found cultivated.

NOTE.—Of the genus *Strobilanthus* there are some eight to ten species, ranging throughout the whole district, from the moist forests of the Terai to the summit of Tongpoo, 10,000 ft. Some few are shrubs, rising to 6 ft. or more in height, e.g. *Strobilanthus* with blue flowers, and *S. pentanatus*, T. And., with blue flowers and thick hairy leaves. *S. monilatus*, Nees, is a pretty blue-flowered shrub with variegated leaves, of about 4,000 ft. *S. discoloratus*, T. And., with dark purple flowers.

Elephantopus pulchellus

Synonym

is very common in Darjeeling. *S. Wallichii*, Nees, and *S. pentstemonoides*, T. And., are found up to 10,000 ft., and *S. auriculatus*, Nees, is a pretty shrub of the undergrowth in the Sal forests of the Tista and Great Rangit. *Adiantum Wallichii*, Nees, resembling *Struthiopteris*, is common in the Lower Hills and valleys up to 4,000 ft.

PHLOGACANTHUS THYRSIFLORUS, Nees. *Sua*, P.; *Shechin*, P.; *Samcher-king*, L. E. $\frac{10-15}{2-3+2-4}$ of the M. P. F. v. and banks of streams in the Terai and L. H. F., especially damp places, up to 2,000 ft. Fl. 1-3. Wood white, hard, heavy, close-grained, with numerous very narrow medullary rays. Flowers flame colour, very handsome.

PHLOGACANTHUS PUBINERVIS, T. And. *Chuntyok king*, L. Shrub of about 6 ft. high of L. and M. H. F. Fl. 1, rather rare.

ADHATODA VASICA, Nees. Large shrub. Only once seen by me, and then probably planted. Fl. 3.

JUSTITIA GENDARUSSA, L. A small shrub of the damp forests of the Terai.

VERBENACEÆ.

CALLICARPA ARBorea, Roxb. *Gochlo*, P.; *Janti*, M.; *Sung-a-king*, L. E. $\frac{20-40}{2-3+2-4}$ of the S. F., Sv. F., M. P. F. d. of the Terai and L. H. F., up to 3,000 ft. Very common in old Mechi or Lepcha cultivations. Fl. 4, fr. 11. Almost universal in the Terai, but most common in dry mixed forests of small trees on good soil and in Savannas. Bark grey-brown. Wood brownish white, of good grain, tolerably heavy; only used for charcoal.

CALLICARPA LANATA, Linn. *Sung-a-king*, L. E. $\frac{20-30}{2-3+2-4}$ of the L. and M. H. F. from 1,000 to 6,000 ft., chiefly and almost entirely in old cultivations. Fl. 7. Distinguished from the first by its leaves having soft white tomentum, while those of *C. arborea* have only a slight short stellate tomentum.

CALLICARPA RUBELLA, Lall. *Sugroo-mook*, L. Large shrub or small tree of the L. and M. H. F. about 3,000 ft. Fl. 6, fr. 10.

CALLICARPA CANA, Linn. Common shrub along roadsides and in waste places in the Lower Terai. Fl. 8, fr. 10.

TECTONA GRANDIS, L. fl., is not indigenous to the district, but is being planted experimentally at Bamunpokri. The plantation was commenced in 1868, and the trees then planted are now 20-25 ft. in height, with a girth of 1-2 ft. A small experimental plantation was also once formed at Mohurgong, and others have been made in the Julpigori Division, at Ramshai Hat and Fallacotta, but none of these have succeeded. It has been tried in the cinchona plantations in the Tista valley, but without success. A few plants grown at the forester's house at Paugatta, west of the Balasan, have however grown very well.

PREMNA INTEGRIFOLIA, Linn. *Gineri*, P. L. $\frac{20-30}{10-15+2-4}$ of the M. P. F. d. of the Terai. The leaves when bruised have an unpleasant smell. Stem often thorny. Bark grey-white. Wood

(Wall cat 203. Katti. P. Alleei. Kew.)

hc 577-401 Jena
Paris 5. 11. 1878

hc 122 - 41 (1-4)
Bamunpokri
Paris 5. 11. 1878

back often gnawed by buffaloes when grazing
J.H. Manson

Walt. Cat. 174. Gambhari Gonspara. Wood light but durable, does not warp.

white, tinted green from the sap when freshly cut, hard, close-grained.

PREMNA LATIFOLIA, Roxb. *Gineri*, P.; *Michappong*, L. L. ¹⁹⁻²⁰ of the K. S. F. and M. P. F. d. in Terai and L. H. F. up to 2,000 ft. Fl. 7. Bark gray white. Wood white or greenish white, hard, heavy, close-grained, with numerous very narrow fine medullary rays; a good kind for rubbing to obtain fire.

PREMNA BAHATA, Wall. *Michapok*, L. Small tree of the S. F. and M. P. F. d. in Terai and L. H. F. up to 2,000 ft. Wood hard, used to obtain fire. Fl. 4.

PREMNA TOMENTOSA, Willd. *Geyheli*, P.; *Sungna-kung*, L. E. ¹⁹⁻²⁰ of the L. H. F. banks of rivers. Fl. 1-2, fr. 6. Bark white, thin; stem very irregularly indented. Wood yellowish white, hard, close-grained, medullary rays very numerous and fine.

PREMNA MUCRONATA, Roxb. *Kola bogoti*, P. Small tree of the L. H. F. up to 3,000 ft. Fr. 6.

PREMNA SCANDENS, Roxb. *Sindri-lara*, P.; *Monkokrig*, L. Large climbing shrub, very common on the banks of streams in M. P. F. w. and in the Lower Terai, making a dense close network of straggling branches.

PREMNA INTERRUPTA, Wall. Large climbing shrub of the U. H. F. from 5,000 to 8,000 ft. Fl. 5-7.

PREMNA RACEMOSA, Wall. Large climbing shrub of the L. and M. H. F. from 2,000 to 5,000 ft. Fl. 5-6.

PREMNA HERBACEA, Roxb., is a small herbaceous plant from a perennial root-stock, coming up after the jungle fires in S. F. and Sv. F. in the Terai, and covering the ground with its rosette-like leaves and small yellow flowers.

GMELENA ARBOREA, Roxb. *Gambari*, P.; *Numbur-kung*, L. E. ¹⁹⁻²⁰ of the K. S. F. and M. P. F. d. in Terai and L. H. F. up to 3,000 ft. Fl. 3. Bark grey or brownish white, exfoliating in small scales. Stem rather irregular, but cylindrical. Wood yellowish white, strong, light, with numerous very fine medullary rays and pores of different sizes, chiefly large. Is very easily worked, and does not warp; is little used, however, in spite of its being one of the best of the Lower Hill woods. The leaves are much lopped to feed cattle.

VITEX HETEROPHYLLA, Roxb. *Neri*, P.; *Markut-kung*, L. E. ¹⁹⁻²⁰ of the L. H. F. up to 4,000 ft. Fl. 7. Wood said to be very good.

VITEX ALTISSIMA, Linn. Tree only found in the southern Sâl forests, such as the Tookria, Sath Bhaia and Tehsilpur Jhara.

VITEX TRIFOLIA, Linn. *Pajpati*, P. Small tree, only found cultivated in the Terai. Used to make hedges. Big specimens may be seen at Mattigarha, on the old road.

CLERODENDRON SERRATUM, Spreng. *Chua*, P.; *Yi-kung*, L. Large shrub of the S. F., Sv. F. and M. P. F. d. of Terai and L. H. F. up to 3,000 ft. Fl. 3-8, light blue.

No 621 - 20 Jan
Paris ED 1878

No 621 - 18 Jan
Paris ED 1878

CLERODENDRON INFORTUNATUM, Linn. *China, P.; Kachungyok, L.* Large shrub of waste places and old village sites in the Terai; occasionally, but rarely, in forest. Fl. 1-3, white tinged with pink.

CLERODENDRON SIPHONANTHUS, R. Br. Tall straight-stemmed shrub of S. F., S. F. and M. P. F. *d.* in Terai and L. H. F. up to 2,000 ft. Recognized by its long-tubed white corolla, blue berries, red calyx, and long narrow leaves.

CLERODENDRON DENTATUM, Roxb. *China, P.; Roldship, L.* Handsome shrub of L. H. F. damp places up to 3,000 ft. Fl. 6-7, bright scarlet.

Note.—I am not quite sure of the name of this, as if it is not *C. verticillatum*, Hook., but both are probably found. Both *Lepchas* and *Fakras* are very fond of the flowers, wearing them in their pagaras.

CLERODENDRON GRATUM, Wall. Straggling shrub of the M. H. F. about 4,000 to 5,000 ft. Fl. 10-11.

CLERODENDRON BRACTEATUM, Wall. *China, P.; Kachungyok, L.* Large shrub or small tree of the L. and M. H. F. from 2,500 to 4,000 ft., chiefly in old cultivations. Fl. 6, fr. 8.

CLERODENDRON COLEROGKIANUM, Welp. *Kachungyok, L. E.* ¹⁵⁻²⁰_{4,000-5,000} of the M. H. F. chiefly second-growth forest, and very common from 3,000 to 6,000 ft. Fl. 8-10, fr. 12. Bark silvery grey. Wood pink-white with bands of yellow, soft, with fine medullary rays and large pores arranged in nearly concentric lines. The whole plant has a strong disagreeable smell. The flowers are white and berries bright turquoise blue. The young leaves are eaten by *Lepchas*.

CLERODENDRON NUTANS, Wall. *Baichua, P.; Tongpo-kung, L.* Shrub of the L. and M. H. F. damp places, from the plains up to 5,000 ft. Fl. 9, fr. 1.

HOLMSKIOIDIA SANGUINEA, Retz. *Sarpattia, P.; Siactachini, L.* Large climbing shrub of Terai, chiefly banks of streams and L. H. F. up to 2,000 ft. Fl. 12-1, very handsome, with scarlet calyx and corolla.

CARTOPTERIS WALLICHIANA, Schauer. *Shechin, P.; Matok-kung, L.* Large shrub of the L. H. F. dry aspects up to 2,000 ft. Fl. 12-1, lilac blue. Bark papery, peeling off in vertical strips. Wood grey-brown, hard, with the scent of cherry wood.

LABIATÆ

TEUCRIUM MACROSTACHYUM, Wall. *Gurupis, P.; Chong-kung, L.* ²⁵⁻³⁰_{5,000-6,000} E. Very common in all old cultivations, graziers' resting-places and cleared spots in the U. H. F. from 5,000 to 8,000 ft. Fl. 2. Has long upright spikes of yellow-white flowers with long stamens, somewhat resembling a "bottle brush" when rather old. A quantity of sweet juice exudes from the flowers, and this is sucked by *Paharia* herdsmen. Bark yellow-brown, corky. Wood yellowish white, hard, close-grained, with very fine narrow

medullary rays but warping very badly; very quick growing. C. B. Clarke, in Linnean Society's Journal, 1876, calls this *Colquhounia* sp.

COLEBROOKIA OPPOSITIFOLIA, Sm. *Dosál*, P. Large shrub of the Sál forests of the Tista and Rangit valleys; occasionally on the outer hills. Fl. 1-2. The down is used by Paharias to extract worms from bad sores on their legs.

AMARANTACEÆ.

DEERINGIA BACCATA, Moq. Climber of the K. S. F. and waste places in the Terai and L. H. F. up to 4,000 ft. Fl. 8, fr. 1. Fruit a red berry.

AERYA SCANDENS, Wall. Large climber of the M. and U. H. F. from 5,000 to 7,000 ft. Fl. 9-10. Covers even tall trees with its masses of handsome flowers and soft whitish leaves. No!

POLYGONACEÆ.

POLYGONUM MOLLE, Don. *Totuge*, P. Large trailing shrub, very common all over the Darjeeling Hills, sending its branches even over big trees. The stems grow to about 1 ft. in girth, the shoots are eaten by Paharias and Lepchas, and resemble rhubarb in flavour. Fl. 6-7, fr. 11-12. Wood white, with many medullary rays and much pith. Stem knotty.

POLYGONUM CRISPATUM, Ham. A handsome shrub of the higher ranges about 10,000 ft. Fl. fr. 10-11.

LAURACEÆ.

CINNAMOMUM TAMALA, Nees. *Singoli*, P.; *Nupar-kung*, L. *Is 575 - 75* *Isai*
E. ¹⁰⁻²⁰₁₀₋₂₀ of M. P. F. v. in Terai and L. H. F. damp localities. *Isai* *S.V. 878*
Fl. 3-4, fr. 7-8. Common in the forests of the valleys of the Mahanadi and Tista, but not much found west of the Mahanadi. Bark brown with white specks, aromatic, largely exported to Lower Bengal under the name of "taj." The tree coppices well and could be made profitable, as the damp forests in which it grows are not generally rich in first class timber. The leaves also are aromatic, and are collected, dried, and sold in the bazaars by the name of "tespat."

CINNAMOMUM OBTUSIFOLIUM, Nees. *Singoli*, P.; *Nupar-* *Is 498 - Is Isai*
kung, L. E. ¹⁰⁻²⁰₁₀₋₂₀ of the M. P. F. v. in Terai, L. H. F. and *Is 693 - 17*
M. H. F. up to 7,000 ft. Bark and leaves aromatic, like the *Isai* *S.V. 1078*
preceding, but not so much used. *Isai* *S.V. 1078*

CINNAMOMUM CAUDATUM, *Kharsoni*, P.; *Sangli-kung*, L. *Is 498*
E. ¹⁰⁻²⁰₁₀₋₂₀ of the L. and M. H. F. from 1,000 to 5,000 ft. Fl. 8, *Isai*
fr. 11.

Wall. Cat. 316. Lichner P. Lanchal leaves.

TETRANTHERA LAURIFOLIA, Jacq. *Suppatnyok*, L. E. tree of L. H. F. up to 3,000 ft. Fl. 8.

TETRANTHERA AMARA, Nees. *Likk Paich*, P.; *Safednyok*, L. E. small tree of U. H. F. about 6,000 ft. Fl. 10.

TETRANTHERA SALICIFOLIA. *Paich*, P. E. small tree of Terai M. P. F. w., especially in damp places and near the banks of streams. Fl. 3.

TETRANTHERA TOMENTOSA, Roxb. *Phusri*, P.; *Phanc-kung*, L. E. ²⁵⁻³⁰_{25-30 + 4.5} of the U. H. F. from 6,000 to 8,000 ft. Fl. 10-11. Wood yellowish white; not much used.

TETRANTHERA SERICEA, Wall. E. small tree of U. H. F. and up to 10,000 ft. Fl. fr. 11.

TETRANTHERA POLYANTHA, Wall. *Siltimber*, P.; *Terkilok-kung*, L. E. ²⁵⁻³⁰_{15-20 + 2.5} of the M. H. F., especially in old cultivated land; from 3,000 to 6,000 ft. it is the commonest species. Bark green. Wood white, tough. Fl. 11-12, fr. 1-2.

TETRANTHERA GLAUCA, Wall. *Sempat*, P. E. small tree of M. P. F. w. in Terai and L. H. F. Fl. 3.

TETRANTHERA MONOPETALA, Roxb. *Ratwanti*, P.; *Kud-mero*, P.; *Suphut-kung*, L. E. ²⁵⁻³⁰_{15-20 + 4.5} of the M. P. F. d. and S. F. in Terai. Not uncommon in Savannas. Fl. 3-4, fr. 6-7. Wood yellowish white; not used.

TETRANTHERA LETA, Wall. *Akhatera*, P.; *Phamlet-kung*, L.; *Chimplet-kung*, L. E. ²⁵⁻³⁰_{10-15 + 2.5} of the M. P. F. w. of Terai and L. H. F. Fl. 12-1, fr. 6—red-coloured.

ACTINODAPHNE OBOVATUM, Hk. f. and T. Muilind, P.; *Pohor-kung*, L. E. ²⁵⁻³⁰_{25-30 + 4.5} of the M. P. F. w. in Terai and L. H. F. valleys up to 2,000 ft. Very handsome with its large often whorled leaves, often 12 to 18 inches long and white underneath, and softly pubescent leaf buds. ~~*Actinodaphne lanuginosa*, Nees, of Brandes's Forest Flora.~~

LITSEA CONSIMILIS, Nees. *Pooteli*, P. E. ²⁵⁻³⁰_{10-15 + 2.5} of the M. and U. H. F. from 4,000 to 8,000 ft. Fl. 2. Wood yellow, close-grained, hard, but light; when planed has a bright lustre, as if polished.

DAPHNIDUM FULCHERRIMUM, Nees. *Sisi*, P.; *Napsor-kung*, L. E. ²⁵⁻³⁰_{25-30 + 4.5} of the U. H. F. from 6,000 to 8,000 ft. Fl. 5, fr. 9-10. Wood white, soft, but does not warp easily; used for building, to make cattle yokes, &c.

DAPHNIDUM ELONGATUM, Nees. *Pocaley*, P.; *Phusri*, P.; *Paich*, P.; *Phamlet*, L. E. ²⁵⁻³⁰_{25-30 + 4.5} of the U. H. F. from 6,000 to 8,000 ft. Fl. 9-10, fr. 5-6. Wood light yellow, soft, light, easily worked, used for building.

APERULA NEESIANA, Bl. *Kirima*, P.; *Terkilok-kung*, L. E. ²⁵⁻³⁰_{25-30 + 4.5} of the U. H. F. from 6,000 to 10,000 ft. Fl. fr. 5-6. Very common about Senechul. Leaves and fruit very aromatic, lemon-scented; the fruit is eaten by Lephas.

Two trees on single are *Daphnidium* probably
Bair. EU. sp. No 384 — 46 in Johnston's list. is one.

no!

no 384 - 11
Bair. EU. sp.
Roughly yes.

no 384 - 13
Bair. EU. sp.
Roughly yes.

PROTEACEÆ.

HELICIA COCHIN-CHINENSIS, Lour. E. $\frac{20-30}{10-15+2-3}$. Found between 2,000 and 4,000 ft. Not common.

HELICIA ROBUSTA, Wall. E. $\frac{20-30}{10-15+2-3}$ between 2,000 and 4,000 ft., chiefly in open ground or in coppice woods of chestnut and *Schima*. Wood pretty, pinkish white with very broad medullary rays; heavy, but not durable. Fl. 6-7, fr. 3-4.

LORANTHACEÆ.

Viscum (ALBUM, L.) Hurchu, P. Parasitic shrub. Not very common. Fl. fr. 12. Found in Darjeeling at 7,000 ft. on maple and other trees.

Viscum ATTENUATUM, DC. *Hurchu, P.* Parasitic shrub. Common in the U. H. F. on many kinds of trees—maple, chestnut, &c. Fl. 12, fr. 5. I found this and the preceding growing together on a maple (*Acer Campbellii*) in Darjeeling in December 1875.

LORANTHUS FARINOSUS, Desr. *Ajca, P.* (name for all kinds). Parasitic shrub. Common in S. F. and M. P. F. in Terai, especially on sâl.

LORANTHUS PENTAPETALUS, Roxb. Parasitic shrub. Common in M. and U. H. F. from 4,000 to 8,000 ft. on maple, oak, chestnut and other trees.

LORANTHUS GRACILIFLORUS, Wall.). Parasitic shrub. Very pretty with its bright crimson flowers. In L. H. F. about 2,000 ft. Found on *Schima*, &c. Fl. 4-5.

LORANTHUS VIRIDIFLORUS, Wall. Parasitic shrub, with banded flowers. M. P. F. and S. F. in Terai. Found chiefly on sâl and *Schima*. Fl. 4.

LORANTHUS LONGIFLORUS, Desr. *Proasti, L.* Large parasitic shrub, with long handsome scarlet flowers. Common in Terai forests on sâl, siris, and other trees, and in L. and M. H. F. up to 6,000 ft. Fl. 5-6.

LORANTHUS GLOIOSUS, Roxb.). Parasitic shrub. Very common on sâl in the Terai forests, especially Sivoko.

LORANTHUS PENTANDRUS, Linn. Large parasitic shrub of about 4,000 to 6,000 ft. alt.

NOTE.—There are many other species, which, it is hoped, may be added hereafter.

SANTALACEÆ.

PYRULARIA EDULIS, A. DC. *Sufkyi-kang, L. I.* $\frac{20-30}{10-15+2}$ of hills from 3,000 to 6,000 ft. Fl. 3, fr. 7. Bark thin, greenish grey. Wood hard, white, with big medullary rays; used by Bhutias to make implements of butter-making. Fruit eaten by the Lepchas.

HENSLOWIA HETERANTHA, Hk. f. *Ajron*, P. Large parasitical shrub, sometimes apparently on its own roots, of the M. and U. H. F. from 4,000 to 7,000 ft. Found on *Quercus*, *Eugenia*, &c. Fl. 3, fr. 7.

ELÆAGNACEÆ

ELEAGNUS LATIFOLIA, L. *Jarila*, P. Occasionally a small tree of about 2 ft. girth, but more generally a rambling thorny shrub. Common about 4,000 to 6,000 ft., but occasionally found on the banks of streams in the Terai. Fl. fr. 3. Fruit edible. Wood yellowish white, hard, with conspicuous medullary rays.

THYMELÆACEÆ

EDGEWORTHIA GARDNERI, Meissn. *Aryili*, P.; *Kaghuti*, P. A large shrub. Not common in the Darjeeling district—indeed only once seen by me at Ging, just below the chapel. In Nepal it is exceedingly common, and is the principal plant used in the manufacture of paper, of which it furnishes the best and whitest description.

DAPHNE PAPYRACEA, Wall. *Kaghuti*, P.; *Gande*, P.; *Dag-shing*, Bh. A large shrub. Very common throughout the forests from 6,000 to 10,000 ft. Fl. 11-2, fr. 5. Fruit red. Wood white, but close-grained and tough. Bark used in the manufacture of paper, of which it gives the common thin yellowish kind. Also for ropes to carry loads, e.g. by sawyers to bring out scantlings from the forests. Exceedingly sweet scented.

DAPHNE (WALLICHII, Meissn.). *Chhola Aryili*, P. A common shrub, from about 5,000 ft. altitude almost down to the plains. Used in the manufacture of paper. Fl. 1-2, fr. 5, black.

DAPHNE (LONGIFOLIA, Meissn.). *Shedbarra*, P. A shrub of hills from 4,000 to 6,000 feet. Fl. 1-2, fr. 11-12, black. Not common. Used in paper manufacture, of which it furnishes the thick, coarse kind.

ARISTOLOCHIACEÆ

ARISTOLOCHIA ROXBURGHIANA, Klotsch. Twining shrub of L. H. F. from 1,000 to 4,000 ft.; stem up to about 3 in. girth. Fl. 5-6, fr. 12-1.

ARISTOLOCHIA SACCATA, Wall. *Munkunjoor*, L.; *Tengalara*, P. Climbing shrub, with stem up to about 3 in. girth from a knotted, swollen rootstock. Terai and up to 6,000 ft. Fl. 3, fr. 7-8. Flowers generally borne on the stem, often in clusters at the root. A very handsome plant.

MYRISTICACEÆ

MYRISTICA LONGIFOLIA, Wall. E. ³⁰⁻⁵⁰_{10-20 x 2-3} of the Terai M. P. F. s. and deep valleys in L. H. F. Wood white; not used. Leaves long, soft, very handsome.

Walt. Cat. 113
Wood light, soft, coarse, of a gray, stony cut.
Little luster; bark finely fibrous

to Paris 1847
1848. Paper.

MYRISTICA (perhaps CORTICOSA). Hk. f. and T. A tree of L. H. F., larger than the preceding. Not common.

EUPHORBIACEÆ.

PHYLLANTHUS ANDERSONI. Latikot, P. E. $\frac{20-30}{10-15+2-3}$ of L. H. F. valleys. Fl. 3, fr.

PHYLLANTHUS MULTIOCLARIS, Müll. Arg. Jagri, P. E. shrub or small tree, chiefly found along roads and streams in the Terai. Seeds with a bright red arillus.

PHYLLANTHUS THOMSONI. Latikot, P. E. $\frac{20-30}{10-15+2-3}$ of Terai and L. H. F. Wood reddish, rather soft, warps easily. Fl. 4-7, fr. 9-10.

PHYLLANTHUS NEPALENSIS, Müll. Arg. E. $\frac{20-30}{10-15+2-3}$ Terai and L. H. F. valleys. Common in Dalka Jhar.

PHYLLANTHUS LANCEOLARIUS, Müll. Arg. Bangikat, P.; Fagiri, L. E. $\frac{20-30}{10-15+2-3}$ Terai and L. H. F. up to 5,000 ft. Also ascending the valleys. Wood red, hard. Fl. 5-6, fr. 9.

PHYLLANTHUS FAGIFOLIUS, Müll. Arg. Paiti, P. E. $\frac{20-30}{10-15+2-3}$ Terai M. P. F. *etc.*, e.g. in Dalka Jhar. Fl. 4. Wood of a yellowish colour, said to be strong.

PHYLLANTHUS BICOLOR, Müll. Arg. Latikot, P.; Tetrikair-kung, L.; Kair-kung, L. E. $\frac{40-50}{10-20+2-4}$ U. H. F. from 5,000 to 7,000 ft. Fl. 6, fr. 9. Wood dark red, very hard and strong, but liable to warp unless very well seasoned.

PHYLLANTHUS EMBLICA, Roxb. Aonia, P.; Suon-kung, P.; Oula, M. L. $\frac{30-40}{10-20+2-3}$ of Terai and L. Hills ascending to 4,000 ft. Fl. 3, fr. 11-12. Fruit eaten. Wood red, hard, with broad medullary rays; not used, as it is only of small size. Fruits edible.

PHYLLANTHUS RETICULATUS, Poir. L. climbing shrub. Very common along the banks of rivers in the Terai, especially the Mahanadi and Balasun. Fl. fr. 4.

There are also several other species of *Phyllanthus* (section *Glochidion*), of which I have not the names; and even those given are liable to have been wrongly named.

SECURINEGA OBOVATA, Müll. Arg. Ikithi, L. Shrub L. $\frac{6-10}{0+1-1}$ of savannah forests in the Terai. Wood white, close-grained, hard. Fl. 8, fr. 3-4. Leaves eaten by Lepchas.

SECURINEGA (LEUCOPYRUS, Müll. Arg.) Achat, P. L. $\frac{15-20}{6-5+1-1}$ on a gravel soil by the banks of rivers in S. K. F., and in bad stony soils up to 4,000 ft., e.g. on the southern face of Latpanchor. Wood hard, white, close-grained, with a satiny lustre when cut; might be tried instead of boxwood. Fl. fr. 6.

MELANTHESOPHIS PATENS, Müll. Arg. Ikithi-kung, L. L. shrub. Common all over the Terai. Fl. fr. 3-4.

no 685 - 30
Pau. S. V. 1878
Sphagnum 5000

no 380 - 81 Pau
Pau. S. V. 1878

Gives a red juice, not used.

F. H. M. H. S. S.

SAUROFUS ALBICANS, Müll. Arg. *Sentunggrang*, L. Shrub. Common in the L. Hills up to 3,000 ft. Fl. fr. 9.

BACCAUREA SAPIDA, Roxb. *Kalabogati*, P.; *Sumbhing-kung*, L. E. ³⁰⁻⁴⁰_{10-12+2.5} of Terai M. P. F. v. and valleys in L. H. F., generally near rivers. Bark used by Lepchas as a mordant in dyeing with manjit or lac (*Reyasu*, L.). Fl. 3-4, fr. 5-6; fruit edible.

BISCHOFFIA JAVANICA, Bl. *Kainjal*, P.; *Sinong-kung*, L. ⁴⁰⁻⁶⁰₂₀₋₃₀₊₄₋₅ L. H. F. valleys and up to 5,000 ft. Occasionally in the Terai near rivers. Very common in the Chenga-Khyriani forests. Fl. 3. Bark greyish brown. Wood dark crimson, red, with a very strong odour of vinegar. It has a wavy grain, caused by the smaller vessels being arranged in rings parallel to the annual layers. Between these rings are scattered vessels which are much larger. The medullary rays are small. Used occasionally for planking, and by Nepalese for window frames, &c.; it deserves to be much better known.

ANTIDESMA DIANDRUM, Tulasens. *Patimil*, P.; *Kantjer*, L. ¹⁰⁻²⁰₅₋₈₊₁₋₂ Terai and L. H. F., not swampy. Fl. , fr. . Leaves eaten; they resemble sorrel. Wood reddish, hard, close grained.

ANTIDESMA BUNIAS, Spreng. *Himalchiri*, P.; *Kantjer*, L. ¹⁰⁻²⁰₅₋₁₀₊₁₋₂ Terai and L. H. F. up to 3,000 ft. Fl. , fr. . Leaves and fruit eaten. Wood reddish, hard.

ANTIDESMA MENASU, Müll. Arg. *Kumbyung*, L.; *Tongcher-kung*, L. ³⁰⁻⁵⁰₁₀₋₂₀₊₂₋₃ Terai M. P. F. v. and L. H. F. valleys. Fl. 8-9, fr. 12-1. Fruit red, eaten by Lepchas. Wood darkish red, close-grained, strong but liable to warp.

APOROSA INDICA, Müll. Arg. ³⁰⁻⁴⁰₁₀₋₂₀₊₂₋₃ Terai M. P. F. v., e.g. Dalkajhar and L. H. F. valleys. Fl. 2-3, fr. 4-5. Wood red brown, hard.

APOROSA LINDELVANA, Wight. *Kagbhalai*, P. E. ³⁰⁻⁵⁰₁₀₋₁₅₊₂₋₃ of the M. P. F. v. in Terai. Fl. 2-3, fr.

CYCLOSTEMON SUBSERILE, Kurz. *Bucay Champ*, P.; *Asura*, P.; E. ²⁰⁻³⁰₅₋₁₀₊₁₋₂ Deep valleys of the outer hills, e.g. near Siveko. Fl. 12-1, fr. 2-3. Wood yellow-brown, said to resemble that of the Magnolias.

BRIEDELIA RETUSA, Sprengel. *Geio*, P.; *Pengji-kung*, L. ⁴⁰⁻⁵⁰₂₀₋₃₀₊₂₋₃ Common in Terai S. F., M. P. F. d., and in L. H. F. up to 3,000 ft. Fl. 8, fr. 10. The stems when young have long sharp conical spines, which disappear as the tree gets older. Bark greyish brown when young, darker and deeply fissured vertically when old. Wood yellowish grey, heavy, durable; used for building carts, cattle yokes, &c.; its leaves are cut to feed cattle.

BRIEDELIA STIPULARIS, Bl. *Loima-lara*, P. A large scandent shrub, attaining 1½ to 2 ft. girth. Fl. 8-9, fr. 12-2. Common in M. P. F. d. and K. S. F. in Terai and in L. H. F. v. up to 3,000 ft. Bark dark brown, deeply fissured. Heartwood very dark brown, hard.

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BRIEDELIA MONTANA, Willd. *Geio*, P. L. $\frac{28-30}{10-12+2.5}$ of L. H. F. up to 4,000 ft. Fl. 1-2, fr. 3. Wood resembling that of *B. retusa*. Leaves used to feed cattle.

BRIEDELIA TOMENTOSA, Bl. *Sibri*, P.; *Montes-kung*, L. E. $\frac{18-20}{6+1+1.5}$ of M. P. F. d. and S. K. F. in Terai and L. H. F. r. up to 2,000 ft. Fl. 9, fr. 10. Wood said to be soft, useless.

CROTON CAUDATUS, Müll. Arg. *Takchabrig*, L. L. climbing shrub, stem reaching often 1 to 1½ ft in girth. Fl. 4-5, fr. 7-8. Found in S. K. F. and M. P. F. d. in Terai, and in hills up to 4,000 ft., but most common in waste places. Wood hard and close-grained, bright yellow, turning to white as it gets older; has a strong odour.

CROTON ORLONGIFOLIUS, Roxb. *Akh*, P. L. $\frac{28-30}{10-20+3.5}$ of the M. P. F. d. and L. H. F. r. up to 2,000 ft. Fl. 1. Wood said to be yellow, hard, and close-grained. It gives a small quantity of gum, used by Paharias to cure sores on the legs.

~~(*Croton retusus*, Roxb.)~~ *Pogantig*, L. Shrub $\frac{4-6}{0+1+1}$ of the M. and U. H. F. Common about Tukdah and Hoom. Fl. 8, fr.

TREWIA RUDEFLOREA, Linn. *Garum*, P.;* *Gamari*, P.;* *Tung-flan-kung*, L. L. $\frac{20-30}{15-20+3.4}$ of M. P. F. d. and S. K. F. in Terai, and to 2,000 ft. in L. H. F., but seems chiefly to be found on roadsides and waste places. Fl. 2-3, fr. 6-7. Wood yellowish white, soft, used to make cattle troughs. The Pahari names [*] seem chiefly to be given from a resemblance of the leaves to those of *Gmelina arborea* and *Adina cordifolia*.

CLEIDION JAVANICUM, Bl. *Palap-kung*, L. E. $\frac{40-50}{15-20+4.5}$ of the L. H. F. valleys up to 1,000 ft. Fl. 1, fr. 6.

MALLOTUS PHILIPPINENSIS, Müll. Arg. *Sindoceria*, P.; *Purua-kung*, L. E. $\frac{20-30}{10-15+2.5}$ of M. P. F. d. and S. F. in Terai and S. F. and L. H. F. up to 4,000 feet in hills. Fl. 7-8, fr. 1-2. Wood reddish brown, hard, close-grained. Fruit covered with a red powder (*kamla*), used as a dye, but rarely. The tree is better known by the old name, *Rottlera tinctoria*, Roxb.

MALLOTUS (HELPERI), Müll. Arg. L. E. $\frac{20-30}{2-10+1.2}$ of M. P. F. w. in Terai; only found by me in the Dalka Jhar.

MALLOTUS ALBUS, Müll. Arg. *Jogi Mallata*, P.; *Numbong-kung*, L. E. $\frac{20-30}{10-15+2.5}$ of L. H. F. valleys in inner hills, and in M. H. F. to 5,000 feet. Fl. 5, fr. 8. Capsule 4-seeded (called *M. tetracoccus* in Kurz's *Burma Flora*). Wood white, soft, much attacked by insects.

MALLOTUS ROXBURGHIANUS, Müll. Arg. *Kamli Mallata*, P.; *Phuri Mallata*, P. E. $\frac{18-20}{5-10+1.1}$ of L. H. F. damp valleys. Fl. 7. Wood hard, white, close-grained, resembles boxwood.

MALLOTUS ORNOPHILUS, Müll. Arg. *Numbongkor*, L. L. $\frac{20-30}{10-15+1.5}$ of U. H. F. from 5,000 to 8,000 ft. Common about Darjeeling. Fl. 7, fr. 9.

Wall. Cat. 106. *Barokhi Gonapara*.

Baliospermum montanum

Wall. Cat. 559

As 599-103. *Barokhi*
Paris Ev. app

MALLOTUS, SP. *Kamli Mallata*, P.; *Namjil*, L. $\frac{1}{2}$ (P) $\frac{10-20}{7-10+1-1\frac{1}{2}}$ of L. H. F. valleys. Common along the Tista river.

MACARANGA (DENTICULATA, Müll. Arg.). *Mallata*, P.; *Numro-kung*, L. E. $\frac{45-60}{10-15+2-4}$. M. H. F. from 3,000 to 6,000 ft. Chiefly, or almost entirely, on land which has been once cleared, and on which it is almost always the first forest crop; thus in some places, e.g. at Hoom-Linding, Tukdah, Pagraingbong and Paingau near Dumsong, forming almost of itself the forest. It is very fast growing. In ten years it grows 40 ft. high with 3 ft. girth; and as its shade is light, it acts as a nurse to better kinds of trees, such as toon, walnut, or chestnut. Fl. 10-11, fr. 4. Leaves not peltate, triangular, ovate acuminate. Wood white, prettily grained, but not durable; would do for tea-boxes. Used for fences for their fields by the Lepchas and Bhutias on account of its long straight stems.

MACARANGA (GUMMIFLUA, Müll. Arg.). *Jogi Mallata*, P. E. $\frac{30-40}{10-20+3-4}$. M. H. F. in similar places to the above, but not so common, and generally on southern slopes. Easily distinguished by its broadly peltate leaves. A copious red clear gum exudes wherever a branch, or even leaf, is cut.

MACARANGA INDICA, Müll. Arg. *Dogdakti*, M.; *Lal Mallata*, P. E. $\frac{20-30}{10-15+2-3}$. Terai M. P. F. and L. H. F. up to 3,000 ft. Wood greyish white, soft, not durable. Fl. , fr. .

MACARANGA, SP. *Sing-kung*, L. L. $\frac{20-30}{10-15+2-3}$. M. H. F., especially old cultivation. Very common about Tukdah and Hoom-Linding. Fl. fr. never seen. The leaves turn a bright golden red before falling in December. They are used by Lepchas to poison fish, and their juice is said to raise blisters if applied to the skin.

ALCHORNEA TILIEFOLIA, Müll. Arg. *Chhota Kagshi*, P. E. $\frac{15-15}{6-7+1-1}$ of the L. and M. H. F. from 2,000 to 5,000 ft. Very common on Latpanchor ridge.

RICINUS COMMUNIS, LABR. *Orer*, P.; *Rajlok-kung*, L. The castor oil plant. E. $\frac{10-15}{7-8+1-1}$. Comes up in great abundance in old cultivations. It is cultivated by Mechis to feed silkworms with the leaves.

JATROPHA CURCAS, LINN. *Bagerendi*, B. H.; *Kadam*, P. E. $\frac{10-15}{6-10+1-2}$. Often found in old village sites, and is used in the Terai for hedges. Wood very soft, white. Seeds used as a purgative.

HOMONAYA HIPARIA, LOUR. *Khola Kus*, P.; *Mongthel-kung*, L. E. small shrub, its stem reaching 6 in. in girth. Common along the beds of the Rangit and Tista rivers during their whole course in the district, but never seen by me on any other of the rivers, such as the Balasun or Mochi. Wood pink-white.

HOMONAYA SYMPHYLLIFOLIA, KURTZ. *Japrikut*, P.; *Ching-kung*, L. E. $\frac{25-40}{10-15+2-3}$ of the damp forests of the L. H. Very common in the Tista valley, especially near Sivoke. Fl. 4, fr. 10. Bark thin, white; peels off in flakes. The section of the stem is very irregular, somewhat resembling that of the hornbeam, but with deeper sinuities. It is one of the hardest woods in the

No 276 - 69 Anai
Baru S. V. 1878

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district, very close-grained, even, works easily, and should be tried as a substitute for boxwood. Bengali boatmen carry it away eagerly when they find it adrift in the Tista to make poles to work their boats up stream. It is said to grow to a very large size in Nepal, where it is used for boats, and is largely sold from depôt. (The statements of the Nepalese may perhaps relate to some other tree, but cannot be verified without specimens.)

OSTODES PANICULATA, Bl. *Mya*, P.; *Bopari*, P.; *Palok-kung*, L. E. $\frac{28-30}{20-30+6-8}$ of M. H. F., ascending to 6,000 ft. and descending to 2,000 ft. Fl. 6, fr. 11. It gives a gum, which is used as a size in the manufacture of paper. The wood is white, soft; not used.

ENCOREBIA BACCATA, Müll. Arg. *Padikot*, P.; *Lal Kain-jal*, P. L. $\frac{40-50}{20-30+4-6}$ of the M. P. F. w. of Terai and L. H. F. valleys. Common in Dalka Jhar and near Sivoke. When in young foliage, in April, has a very handsome appearance, the leaves being then of an orange-red colour. Fl. 4. Wood said to resemble that of *Bischofia javanica*.

EUPHORBIA (NERIIFOLIA), L. L. $\frac{10-20}{2-10+2-3}$. Cultivated as a sacred tree by the Mechi, who guard it most carefully, making a fence round it; consequently it is often found on the sites of old Mechi villages grown into a tree.

EUPHORBIA (POINSETTIA) PULCHERRIMA, Willd., is a shrub with showy crimson floral leaves, not uncommon in gardens.

SARCOCOCCA SALIGNA, Don. *Chilikat*, P. Shrub $\frac{6-8}{10-15+1-4}$ of the U. H. F. from 6,000 to 9,000 ft. Not very common. Fl. 10, fr. 11. Wood hard, like boxwood; used for walking-sticks.

URTICACEÆ.

ULMUS LANCEIFOLIA, Roxb. *Lapi*, P. L. $\frac{20-30}{20-30+5-10}$ of the L. H. F. valleys up to 2,000 feet. Fl. fr. 3.

CRITIS TETRANDBRA, Roxb. *Koomsoong-kung*, L. L. $\frac{20-30}{20-30+5-10}$ of the L. H. F. valleys. Common along the Tista and Great Rangit rivers. Fl. 2, fr.

CELTIS TRINERVIA, Roxb. *Sedongtagla*, L. L. $\frac{20-30}{10-20+3-4}$ (?) of the L. H. F. and inner valleys. Fl. 3-4, fr. 6-7.

SPONIA POLYTORIA, Planch. *Koonil*, P.; *Takvat-kung*, L. E. $\frac{20-30}{10-15+2-3}$. Common in L. H. F., especially in old cultivated land. Fl. 6-7. Wood light, reddish brown with darker coloured medullary rays, soft, easily decaying. The bark is used to tie up the rafters of native houses and to make temporary ropes for all purposes. Distinguished from the next by its leaves being very rough and green beneath.

SPONIA ORIENTALIS, Planch. *Koonil*, P.; *Tagla-kung*, L. E. $\frac{20-30}{10-15+2-3}$. Common in Terai and L. H. F., especially in old cultivations, where it comes up in great quantity. Very fast

ho -
of Rangit valley
Flour. 8.11.1974

Sungoom
- Koonil -

growing. One tree cut down in front of the Sivek resthouse had attained a girth of about 40 in. and a height of 25 feet in five years. Bark grey-brown, rough, with innumerable lenticels. Wood like the preceding, and bark used for the same purposes. Leaves densely covered with soft grey hairs beneath.

(GIRONNIERIA THOMSONI, King.) *Lali*, P. E. $\frac{20-40}{15-20 + 2-12}$ of the U. H. F. from 6,000 to 8,000 ft. Fl. fr. I have never found in spite of constant search. Wood red-brown, close-grained, much used for planking, rafters, &c. (This is the true "Lali" of the Paharias, but in the station of Darjeeling a species of laurel is often called "Lali," viz. *Machilus odoratissimus*.)

GIRONNIERIA, sp. *Siamoon-kung*, L. Tree of the L. H. F. and inner valleys. Fl. fr. 6.

ARTOCARPUS INTERFOLIA, Linn. *Kuttal*, Bg. The jack tree. ? No 548 - 105 dm.
 Cultivated all over the Terai and in the lower part of the hills.
 Wood bright yellow, turning brown with age; very handsome.
 Paris 5.20.1928

ARTOCARPUS LAKOCHIA, Roxb. *Dekha*, Bg. A handsome tree, occasionally found planted near villages in the Terai. Wood similar to the above, but of a much darker colour.

ARTOCARPUS CHAPLASHA, Roxb. *Lut-ter*, P. L. $\frac{30-120}{20-40 + 10-12}$
 Common in the Terai M. P. F. w. (especially the Dalka Jhar)
 and in the L. H. F. and M. H. F. valleys, ascending up to nearly 5,000 ft. Fine specimens may be seen in the Rungjé valley below the cinchona plantation and below Pankabari. A very handsome tree with its tall straight stem and large broad leaves. Fl. 3, fr. ? The wood is bright yellow, turning brown with exposure. Much lighter and looser grained than that of the jack tree, but easily worked and very useful for furniture and planking. It is also used for dug-outs on the Tista river. When young the leaves are often 2 ft. in length and pinnatifid, resembling in shape a huge leaf of *Quercus robur*.
 No 547 - 85 dm.
 Paris 5.20.1928

CUDDANIA JAVANENSIS, Trécul. A large shrub or small tree of the Terai and Duars, chiefly in hedges or isolated in the cultivated portion.
 No Paris 5.11.1878

STREBLUS ASPER, Lour. *Siora*, H. Bg. E. $\frac{30-40}{15-20 + 2-4}$ of the L. H. F. and of the cultivated parts of the Terai near villages. Not common. Leaves very rough. Fl. 3-4, fr. 6-7.

FIGUS BENGALENSIS, Linn. *Bor*, H.; *Kungji-kung*, L.; *Borhar*, P. E. $\frac{20-30}{15-20 + 2}$. The banyan. Wild all over the M. P. F. w. of Terai and L. H. F. and cultivated in the Terai, especially on roadsides. The largest of all the species except, perhaps, the India-rubber fig. It generally grows epiphytically on some other tree, and sends down multitudes of aerial roots from the branches, but less in the forest than in the open. Wood soft, but tough; not used. Recognized by its large, somewhat one-sided, leaves, red fruit and grey horizontally furrowed bark.

FIGUS MYBURENSIS, Roth. *Sunkong-kung*, L. E. 40-50. Generally a large epiphytic tree, but not common, in L. H. F.
 h

This is the plant which gives the Gumbongfong wood, yielding a yellow dye. No *Plectrocnemum spinosum*

W. G. Cat. 431. *Lena Gumbong*

up to 3,000 ft. Fr. 4. Distinguished by its parallel veined soft leaves, generally about 1 ft. long, and large fruit.

FICUS LACCIFERA, Bth. *Yokdung*, L. E. 70-80. Generally epiphytic in the M. P. F. d. of Terai and L. H. F. valleys, e.g. in Sivoke Hills and Pursam Jhora. Very large tree; gives India-rubber, but more sparingly, and of not so good quality as the *F. elastica*.

FICUS ALTISSIMA, Bl. E. epiphytic in the M. P. F. sc. of Terai (e.g. Dalka Jhar). Large tree, gives a milky juice resembling India-rubber.

FICUS OBTUSIFOLIA, Roxb. E. Generally epiphytic. 60-80 ft. (The height of all the epiphytic figs depends, of course, on that of the tree they grow upon.) M. P. F. sc. in Terai and L. H. F. Distinguished by its leaves being similar in shape to those of *F. laccifera*, and having more or less the venation of *F. elastica*. They are sharply cuneate at the base and obtuse at the summit. The fruit is small and dotted with red specks. It gives an India-rubber of inferior quality.

FICUS COMOSA, Roxb. *Kunhip*, L. E. ⁴⁰⁻⁵⁰_{10-20 + 2-4} if on its own roots, but often epiphytic. One of the prettiest of the figs. Distinguished by its small oval parallel-veined leaves and big green fruit. Fr. 3.

FICUS THOMSONI, Miq. Tree, generally epiphytic, of the L. H. F. and inner valleys. Fr. 9. Distinguished by its small fruit, leaves tomentose beneath, and prominent basal nerves not parallel to the remainder.

FICUS ELASTICA, Bl. *Bor*, H. B.; *Lecoa*, P.; *Yok*, L. E., generally epiphytic, of the L. H. F. up to 2,000 ft. Not seen in the plains or in hills west of the Mahanadi, except on that river itself or its tributaries. It is the true Indian India-rubber, but in Darjeeling it is quite at its western limit. There are magnificent specimens in the Tista and Great Rangit valleys, of immense height, with thousands of aerial roots. The trees have not been tapped the last two years, as it was found necessary to give them rest, they having been so much overtapped before that that a large number had died off. It has been very successfully propagated from seed at Bamunpokri, where about one acre has been planted 5' x 5' direct, and some hundreds of plants fixed in the forks of useless trees in rush baskets. Most of these have sent out roots, which may be seen making their way down the stem of the tree; and there is no doubt but that this system of propagation will succeed admirably. The tree may also be easily propagated from cuttings; but these should not be of old wood, but of young fleshy shoots. The best plan to obtain these is to pollard a few branches, and the shoots are then sent out in profusion. The wood is yellowish brown, tough, but not durable. It is not used. The annual rings are very indistinct, owing to the concentric rings of alternate light and dark tissue. The leaves are large, very handsome and easily recognized; the fruit small,

to 500-80
Purs 500-1000

Kabra
Kabra

brown, spotted, oblong—ripe 9-10 The stem is easily recognised in the forests by the reddish brown scurfy stem and aerial roots, and by the strong odour of fresh India-rubber, which is often perceptible from a considerable distance.

FICUS RETUSA, Linn. *Jamu*, P.; *Sitngok*, L. Large tree, generally epiphytic. M. P. F. and S. F. of Terai and L. H. F. Fr. 6. Leaves small, and figs about the size of a small pea.

FICUS INFECTORIA, Willd. *Safed kabra*, P.; *Kunggi-kung*, L. Large tree, generally epiphytic, of the S. F. and M. P. F. d. and w. of Terai and L. H. F. in dryer localities generally. Common in sal forests. Fr. 6. Often planted for ornament in the Terai near villages and on roadsides. Recognized by its long petioled leaves, small fruit, and light grey shining bark.

FICUS CORDIFOLIA, Roxb. *Pakar*. Large tree, generally epiphytic, of S. F. and M. P. F. in Terai and L. H. F. Not very common.

FICUS RELIGIOSA, Linn. *Pipal*, H.; *Pipli*, P. Very large tree, only cultivated near villages and along roadsides in the Terai. Fr. 11-12. Recognized by its poplar-like, long acuminate leaves.

FICUS PISIFERA, Wall. *Lekbani*, P. E. $\frac{20-30}{10-15+2-3}$ of L. H. F. up to 3,000 ft. Fr. 5.

FICUS GEMELLA, Wall. *Dudila*, P.; *Taitpay*, L. E. $\frac{30-50}{10-20+3-4}$ of U. H. F. from 6,000 to 8,000 ft. Fr. 6. Leaves used to feed cattle.

FICUS SCANDENS, Roxb. Trailing shrub growing on rocks from 3,000 to 5,000 ft. Fr. 8.

FICUS FOVEOLATA, Wall. *Dudila-laca*, P.; *Takotrig*, L. large climbing shrub of U. H. F., from 5,000 to 8,000 ft. Very common about Darjeeling. Fr. 5.

FICUS MONTICOLA, Miq. *Dudila*, P.; *Tshithé*, L. L. $\frac{20-30}{10-20+3-4}$ of U. H. F. from 6,000 to 8,000 ft. Fr. 5. Leaves used to feed cattle. Wood said to be strong but not durable.

FICUS CLAVATA, Wall. *Gurlee*, P.; *Siralpd*, L. E. $\frac{10-20}{10-20+1-1}$ of M. P. F. w. in Terai, L. H. F. valleys and M. H. F. up to 5,000 ft. Fr. 2-3. Wood rather heavy. Bark greenish black. Leaves used to feed cattle.

FICUS CYRTOPHYLLA, Karszt., P.; *Takot-kung*, L. L. $\frac{15-20}{10-20+1-1}$ of M. P. F., L. and M. H. F. up to 5,000 ft. Fr. 5. Leaves very rough. Bark used to make ropes by Paharia.

FICUS MACROPHYLLA, Roxb. *Karekan*, P.; *Kundung-kung*, L. E. $\frac{20-30}{10-12+2-3}$ of Terai, banks of streams, L. H. and M. H. F. up to 6,000 ft. Common in abandoned cultivations. Fruit pear-shaped, large, edible. Fr. 4.

FICUS ROXBURGHII, Miq. *Kareto*, P.; *Gusay-kung*, L. E. $\frac{20-30}{10-12+2-3}$ of Terai, L. and M. H. F. up to 5,000 ft. Very handsome with its soft big leaves and reddish edible fruit, covered with golden-coloured hairs. Fr. 8.

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FICUS GLOMERATA, Roxb. Gular, H.; *thumri* P.; *Tchongtay-kung*, L. E. $\frac{30-35}{10-15+2-4}$ of Terai and L. H. F. Not common. Fr. 3, edible; good elephant *charra*.

FICUS (CHITTAGONGA, Mig.). *thumri* P. E. $\frac{15-25}{5-10+1-2}$ of M. P. F., especially banks of streams; in Terai fruit edible.

FICUS (REGIA, Mig.) *Timit*, P.; *Tchongtay-kung*, L. E. $\frac{20-30}{5-10+3-5}$ of L. H. F. and M. P. F. d. in Terai. Fruit edible (perhaps the best of the wild edible kinds). There is a fine tree close to the spring at Bamunpokri.

FICUS HISPIDA, Linn. Fil. *Kharua*, P.; *Taksot-kung*, L. E. $\frac{30-40}{5-15+3-4}$ of M. P. F. d. in Terai and L. H. F. up to 4,000 ft. Very common in waste places, on the banks of streams in the Terai and in abandoned cultivations in hills. Good elephant fodder. Fruit edible. Big trees may be seen at Bamunpokri and Chenga. Easily recognized by its opposite leaves and hollow stems. Fr. 1-2.

FICUS TYRIFORMIS, Hk. and Arn. *Soni dudila*, P.; *Payo-kung*, L. Shrub or small tree. Common all over the district from the Terai to 8,000 ft. Leaves long acuminate, glabrous.

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FICUS CUNIA, Buch. *Kanhya*, P.; *Kanai*, M.; *Sungji-kung*, L. E. $\frac{20-40}{5-15+2-4}$ of Terai M. P. F. d. and L. H. F. up to 2,000 ft. Very common. Fruit edible. Bark used to tie the rafters of native houses. Easily recognized by its unequal semicordate leaves and long leafless racemes of fruit from the lower part of the stem. Fr. 5-6.

No 600 - 20 Jani
Puna 5.11.1918

BOHMERIA RUGULOSA, Wedd. *Dar*, P.; *Sedeng*, L. E. $\frac{20-30}{10-15+3-4}$ of the L. H. F., especially dry exposures. Very common in the upper part of Chenga forest. Fl. 3, fr. 11. Wood much esteemed, dark red, heavy, with fine medullary rays.

BOHMERIA PLATYPHYLLA, Don. *Kamli*, P.; *Dangmoocheket*, L. L. shrub E. of the M. P. F. Terai, L. M. and U. H. F. up to 7,000 ft. The variety *macrostachya* is generally found up to 5,000 ft., above that is found the variety *rotundifolia*, which is common in Darjeeling. Fibre used to make ropes. Fl. 8.

BOHMERIA POLYSTACHYA, Wedd. *Phure kamli*; *Taksur*, L. L. shrub of U. Hills. Common round Darjeeling, 7,000 ft. Fl. 8. Gives a fibre; not used.

BOHMERIA MACROPHYLLA, Don. *Kamli*, P.; *Pua*, E. $\frac{10-15}{6-8+1-4}$ of the L. H. F., especially by banks of streams, often found in K. S. F. in Terai. Fibre used to make ropes and fishing-lines. Fl. 8, fr. 11.

BOHMERIA MALABARICA, Wedd. *Takhet-kung*, L. E. $\frac{10-20}{5-15+3-4}$ of the L. and M. H. F., forming an undergrowth up to 5,000 ft. Fibre used for ropes. Fl. 3.

BOHMERIA HAMILTONIANA, Wedd. *Taksur*, L. E. $\frac{10-20}{6-15+3-4}$ of the L. and M. H. F. up to 5,000 ft. Fibre used for ropes. Fl. 10.

MAOUTIA PUYA Wedd. *Puya*, P.; *Kyinki*, L. E. 6-10. Waste places and abandoned cultivation in Terai and L. Hills up to 4,000 ft. The fibre is extensively used to make ropes, cloth, fishing nets, &c.

FOUZOLIA VIMINEA Wedd. (1) *Chota kooail*, P.; *Kyingshi*, L. E. $\frac{10-20}{8-12+1-2}$ of beds of streams in Terai and in L. H. F. up to 5,000 ft. Common in abandoned cultivations, where it grows into a small tree. Leaves eaten by *Lepchas*. Bark used for ropes. Wood brown-yellow, soft, but heavy. Warps easily.

Lilima, P. (2) This variety is common at 7,000 ft., especially about the station of Darjeeling, and is a large, much branched shrub.

LAPORTIA CRENULATA, Gaudich. *Moringi*, P.; *Sunkroog*, L. E. $\frac{12-20}{2-10+1-2}$ of M. P. F. w. in Terai and L. H. F. up to 4,000 ft. Fl. fr. l. Fibre good for rope, but the preparation has a poisonous effect. Leaves and young shoots have poisonous, stinging hairs, the effects of which are very painful, lasting very long.

URTICA HETEROPHYLLA, Willd. *Uho*, P.; *Kazu*, L. A shrub or shrubby herb of the M. and U. H. F., forming a dense undergrowth in some forests from 3,000 to 8,000 ft. It has very long stinging hairs, the effects of which are, however, not lasting. The fibre is used for ropes, twine, &c., and for coarse cloth, like gunny, to make bags.

VILLEBRUNEA FRUTESCENS, Bl. *Kirma*, P.; *Takbret-kung*, L. E. $\frac{12-20}{6-12+1-1}$ of the M. P. F. w. of Terai and L. H. F. valleys up to 4,000 ft. Fibre used for ropes.

VILLEBRUNEA APPENDICULATA, Wedd. *Lipic*, P.; *Kaphitki*, L. E. $\frac{20-30}{10-15+1-2}$ of the L. H. F. up to 4,000 ft. Fibre used to make ropes, nets, and coarse cloth. It has a brownish colour. Fl. 2-3.

DEBREGEASIA LONGIPOLIA, Wedd. *Tashiar*, P.; *Kamkyem-kung*, L. E. $\frac{20-30}{10-15+2-5}$ of the M. and U. H. F. from 4,000 to 7,000 ft. Wood when old reddish black. Fibre used to make ropes, and fishing-nets.

DEBREGEASIA. *Poorooni*, P.; *Senou-kung*, L. Big climber of the M. and U. H. F. from 4,000 to 7,000 ft. Very hardsome with its big round cordate leaves snow-white beneath. Fl. 5-6, Fruit edible.

CONOCEPHALUS SUAVEOLENS, Bl. *Guleund*, P. Big climber of M. P. F. w. in Terai and L. H. F. valleys. Fl. 2-3.

CONOCEPHALUS, sp. *Kuerit*, P. Big climber of L. H. F. valleys. Fl. 2-3.

MORUS BERRATA, Roxb. *Kimbu*, P.; *Nambyang-kung*, L.; *Singtok*, Bh. L. $\frac{10-20}{20-30+10-15}$ of the L. H. F. valleys and in the inner ranges. Common in the Great Rangit valley. Fl. 3, fr. 9-10. Wood yellowish brown; very good for house-building.

MORUS INDICA, L. *Chota Kimbu*, P.; *Mekrap-kung*, L. L. $\frac{10-20}{6-12+1-2}$ of the valleys and up to 4,000 ft. Very common along the Tista. Fl. 2-3, fr. 9-10. Fruit edible.

See *Rangit* of
the *Bot. Soc. Ind.*
Paris 2. V. 192

CUPULIFERÆ.

Wall.

QUERCUS LAMELLOSA, Sm. Budgrat, P.; Bük, L. 190-120
30-40 + 12-20

The big Darjeeling oak, commonly called "Bük," and found in the U. H. F. from 6,000 to 9,000 ft. Fl. 4-5, fr. 11. Bark grey-brown with rough spots. The wood is hard, heavy, with very broad medullary rays. The sapwood is white, and decays easily; the heart-wood brown, often with bands of an almost black colour, and durable if not too much exposed to wet. When cut in the direction of the medullary rays it is very handsome, and deserves to be more used than it is in cabinet-work. The large vessels are chiefly arranged in wavy lines parallel to the medullary rays, and the annual rings are very indistinct and difficult to count. The wood is used for beams, door-posts, rafters, &c., and it is a very good firewood. It splits well, and is occasionally used for shingles. After an age of about 100 to 120 years the tree generally becomes hollow in the centre, at the same time as it still increases in girth, so that ancient trees of 20 to 30 ft. or more are often found in the old forests. The chief forests west of the Tista, in which this oak predominates, are those on the big spurs of Senehul, Gumpahar, Mahalderam, and Tukdah.

QUERCUS ANNULATA, Sm. Phalat, P.; Siri-kung, L. E. 100-120
30-40 + 12-13

of the U. H. F. from 6,000 to 9,000 ft. Fl. 4-5, fr. 9-10. Bark similar to that of *Q. lamellosa*. Wood also like the wood of that tree, but its colour is more variegated with darker and lighter bands. It is used for the same purposes, but is much more liable to shrink and warp.

QUERCUS ACUMINATA, Roxb. Chhota Arkoula, P. E. 20-40
12-20 + 7-8

of the U. H. F. from 5,000 to 7,000 ft. Not very common, but found with *Q. fagifolia*. Fr. 12-1. Fine specimens may be seen on the Birch Hill Road, Darjeeling. Wood reddish yellow, close-grained, with fine medullary rays and pores in short wavy lines.

QUERCUS SPICATA, Sm. Arkoula, P.; Kucheng-kung, L. E. 40-60
20-40 + 12-13

of the M. P. F. &c. in Terai (Dalka Jhar, common) L. H. F. valleys and M. H. F. up to 5,000 ft. Fl. 3-4, fr. 9-10 of second year. Wood not used. It coppices very freely, is of quick growth, and would probably be worth growing in coppice by planters mixed with chestnut for firewood and charcoal.

QUERCUS FENESTRATA, Roxb. Path-katus, P.; Kashiendang, L. E. 30-40
12-20 + 5-6

of the U. H. F. from 5,000 to 7,000 ft. Not so common as *Q. lamellosa* or *annulata*. Fl. 3, fr. 12-1. It is chiefly found in the forests about 5,000 to 6,000 ft., e.g. at Tukdah and Dumisong.

QUERCUS PACHYPHYLLA, Koiz. Bara-katus, P.; Mousrie-kung, L. E. 40-120
30-40 + 12-13

of the U. H. F. from 6,000 to 10,000 ft. Fl. ? , fr. 11. It is common round Senehul and Gumpahar, but its chief locality is in the forests of the Singaila range, especially round

Quercus Robur The English Oak - has been planted occasionally by planters. E.g. at Gille where it is growing well.

Cathcart states that "the plant. plate xx. leaves hardly perceived through the winter, though the tree is not quite destitute of foliage."

My own opinion is that it is occasionally or terminally deciduous, but the year tree was never seen. I saw also the flowers & fruit it bears. I saw observations.

Wall. Cat. 333

Castanea vesca The Spanish Chestnut. First introduced by Genl Stacey who brought seed. Tree or shrub at Darjeeling planted by W. H. Maclean. Plantations at Kurseong, commenced in 1874 by order of Mr. G. Campbell.

Wall. Cat. No 72
Cotter, Orisi, Makoo Shingale, Nawan.

Curri P.
Ghanta

Wall. Cat. No 62
Pinobal P.
Ghanta

Tongloo. Wood yellowish white, hard, much lighter than that of *Q. lanellata*, with very fine or almost no medullary rays; more durable in water than the wood of *Q. lanellata*, and preferred for palings, shingles, and planking. Fruit in a compact mass, the cups being joined together generally in threes.

QUERCUS LASCELLEFOLIA, Roxb. *Patté katia*, P.; *Siri-kung*, L. E. ²⁰⁻⁴⁰₁₅₋₂₀₊₃₋₄ of the Terai (banks of streams) L. and M. H. F. up 5,000 ft. Fl. 2-3, fr. 9. Wood resembling that of the preceding, with very fine medullary rays. The fruit has thin broad-ringed cups, which are set sideways on the branch, and the kernel has ruminant albumen. It is used as a bait to catch birds, who appear to be fond of it.

CANSTANOPSIS INDICA, A. DC. *Banj katia*, P.; *Kashiora*, L. E. ²⁰⁻⁴⁰₁₅₋₂₀₊₃₋₅ of the M. P. F. w. Terai, L. H. F. and M. H. F. to 6,000 ft., but commonest in the latter. Fl. 11-12, fr. 9-10. Comes up generally on old cultivated lands about 4,000 ft. on dry exposures. Wood greyish white, splits easily, much used for shingles, which may be the reason that so few big trees are ever found. A few may, however, be seen east of the Tista. About Kalimpong it, as well as the next species, are kept standing in the fields and pollarded to be burnt for manure. The fruit is about the size of a filbert, which it rather resembles in flavour.

CANSTANOPSIS TRIBULOIDES, A. DC. *Murá katia*, P.; *Kashiora*, L. E. ²⁰⁻⁵⁰₁₅₋₂₅₊₁₋₅ of the same localities as the preceding. Fl. 3-4, fr. 9-10. Wood greyish brown, with rather broad medullary rays; much used for house-building, shingles, &c. Fruit edible.

CANSTANOPSIS ARGENTEA, Bl. *Kuchiang-kung*, L. L. ? Tree of the M. P. F. w. and banks of streams in Terai and L. Hills.

CANSTANOPSIS RUFESCENS, Hk. f. and T. *Dainé katia*, P.; *Sirikishu*, L. E. ¹⁰⁰⁻¹²⁰₂₀₋₃₀₊₁₀₋₂₀ of the U. H. F. from 6,000 to 8,000 ft. Common about Darjeeling. Fl. 5, fr. 9-10. Wood almost exactly like that of *Q. pachyphylla*, and used for the same purposes. Fruit very long—prickly, the largest of the Darjeeling species; edible.

CORYLUS VERUX, Wall. A small tree of the forests of the Singaila range above 8,000 ft.

Dalné katia
Ex Nawan

No 554-6
Paris F.V. 1878
Roughish

No 576-57
Paris F.V. 1878
Scales single young

BETULACEÆ.

BETULA BHOJPATTRA, Wall. *Tukpa*, Bh. L. ⁴⁰⁻⁶⁰₂₀₋₃₀₊₅₋₆. Found on the Singaila Ridge from 9,000 to 12,000 ft. Some very large specimens below Tongloo on the path to Surmonbong and Kinjalai. Bark white. Wood very close-grained, white and strong.

BETULA ACUMINATA, Wall. *Saver*, P.; *Paying*, P.; *Hosonli-kung*, L. L. ²⁰⁻⁴⁰₂₀₋₃₀₊₂₋₅. Common round Darjeeling, and especially about Birch Hill. Fl. 3-4, fr. 5-6. Bark grey, silvery, papery,

No 581-83
Paris F.V. 1878
Single 12000 ft.

peeling off in horizontal strips and marked with big lenticels. Wood white or slightly brownish white, with numerous medullary rays and broad annual rings; takes a polish; works well. Softer than that of *B. Rhapattia*.

No 678 - 7 Jan.
Paris E.U. 1878

BETULA CYLINDROSTACHYS, Wall. *Sauer, P.; Sungliking, L.* No. 156
20-40 x 8-12
A very large and handsome tree of M. H. F. from 3,000 to 6,000 ft., but found occasionally even in the Terai; it has pendent branchlets. Fl. 12. Wood very hard and good, but not used, though it is better than many other woods in constant use in the district; it is of a reddish colour with a rather twisted grain. Bark pink, peeling off in large flakes and vertically, giving a shaggy appearance to the stem.

No 356 - 51
Paris E.U. 1878
Tukdah 5700'

ALNUS NEPALENSIS, D. Don. *Utis, P.* No. 156
20-40 x 8-12
A large tree of the M. H. F. from 3,000 to 6,000 ft., but often extending still higher up. Common round Darjeeling. Is often found in second growth forest in old cultivations, especially near streams. Fl. 9-10, fr. 12-1. In the forest the bark has a dark green colour, and the tree is easily recognized; in open places it is generally silvery grey, resembling that of the birch. Stem very cylindrical, tall, grows very rapidly. Wood ~~yellow-white, almost orange in the older circles of the annual rings~~, medullary rays broad, each ending in the liber in a horny plate; soft, light, easily worked, does not warp or split; it is rarely used though it deserves to be extensively employed for tea-boxes and for other purposes for which a light wood which does not warp is required.

JUGLANDACEÆ

357 - 80
Paris E.U. 1878
Tukdah 5700'

JUGLANS REGIA, Linn. *Akrot; Kowal king, L.* No. 150
20-40 x 8-12
The walnut. Found in the M. H. F., especially in ravines, between 3,000 and 5,000 ft. altitude. Is now rather scarce, as are most of the trees of the 3,000 to 6,000 ft. zone, that being the zone of Lepcha cultivation; but it has already been planted successfully at Rungbool, and large nurseries are being made at that place and Rungyrim. At the latter place a few old trees still remain, and the walnut will probably succeed admirably. In the Tukdah reserve are many fine trees, especially on the Rungboong Johra and above Mangwa. Fl. 3-4, fr. 9-11. Bark grey, deeply fissured vertically. Wood dark greyish brown, more uniformly and less handsomely marked than the walnut wood in Europe: it also seems lighter and not so close-grained. It is the most valuable wood of the hills, and was very extensively used in house building until its scarcity and the distance at which it had to be sought rendered it too expensive. Many houses, and notably the inspection bungalow at Rungbi, have nearly all their wood work of walnut. It is also occasionally used for shingles by Bhutias, as it splits easily; but for this purpose it is probably not so good as chestnut. The nuts have a very hard shell, but are

No 41 Wall. Cat.

Wall. Cat. 13. Heart pale brownish red, fibre glossy, rays reddish brown very distinct

Light grey-brown. Note! The description was taken from a
 { very freshly cut specimen, and was then correct
 { when the timber is dry it is much lighter
 { grey-brown colour.

not strong! the Paris E.U. 1878 specimens were very handsome.

largely collected. Most of the walnuts, however, sold in Darjeeling or exported to the plains come from the Raja of Sikkim's territory. A remarkable thing is the percentage of good nuts: out of thousands sown at Rangbool scarcely one in a hundred failed to germinate.

ENGELHARDTIA SPICATA, Bl. Mow, Mahua, P.; Suriak-kung, L. ⁶⁰⁻¹⁰⁰
L. ^{20-30 + 5-12}. A very large handsome tree of the M. H. F., spreading down to the plains, and often found even in the Terai (Sukna, Dalka Jhar). Very handsome in the winter, when covered with its long drooping catkins and winged seeds resembling those of the hornbeam. Bark grey. Stem cylindrical. Wood much used for house-building, tea-boxes, &c. It is of a pink-grey colour, and has a satiny lustre. It has fine medullary rays and large vessels, and works easily. It coppices freely, as may be seen in the coppice woods at Nagri, and seedlings come up profusely wherever they get sufficient light and protection from cattle. Fl. 9-10, fr. 11-12.

ho 687-20
Tefung, Duma son
Pani 5.11.1978
ho 653-2
Tefung
Pani 5.11.1978

SALICACEÆ.

SALIX TETRAPERMA, Roxb. Beis, M. H. E. ²⁰⁻³⁰
L. ^{2-10 + 2-3}. Common along streams in the Terai and in swampy places in the hills up to 3,000 ft. I have never seen the male tree. Fr. 12-1.

SALIX BABYLONICA, Lindl. L. ²⁰⁻³⁰
L. ^{10-15 + 4-5}. Extensively planted in the hills, where it grows very fast, especially in wet places. There are fine trees, both in Darjeeling and Kurseong. Propagated from cuttings.

SALIX ~~caudata~~ Watt. Small tree; cultivated about Darjeeling.

POPULUS CHINATA, Wall. Bangikat, P.; Sugribong-kung, L. ⁴⁰⁻⁶⁰
L. ^{20-30 + 2-3} of the M. H. F. and downwards to 1,000 ft. Scarce west of the Tiata, but common in the Dumsong forests. Bark smooth when young; when old, rough with deep vertical fissures. Wood said to be good for planking, but rarely used. In the Siroke Hills very large specimens may be seen. Fl. fr. 3.

ho 970-2
Chitah, Khas
Pakha
ho 970-2
Tiata Valley
Pani 5.11.1978

CONIFERÆ.

PINUS LONGIFOLIA, Roxb. Dhup; Neet-kung, L. E. ⁵⁰⁻⁸⁰
L. ^{10-20 + 2-3}. Only found in dry southern slopes in the inner ranges between 1,000 and 3,000 ft., where the rainfall is comparatively small. There is only one small forest in British territory, viz. Badamtam, between the Rungnoo and Great Rangit rivers, but a few isolated trees also occur in the Reyang forest. On the north side of the Great Rangit and Tiata rivers, in the Raja of Sikkim's territory, it forms large forests, which will probably prove valuable hereafter, though at present there is little or no demand for the wood.

ho
Tiata Valley
Pani 5.11.1978

Salix sp.
from Sikkim. Det.
No gth. by Pani 5.11.1978
Kashish.

Walt. Cat. 366. Pinus, Rhinoc. N. P.

Pinus canbena occurs in Sikkim, up to 1000 ft. H. G. Th.

Walt. Cat 367
Pala-Dhup
P. C. Th.

Fl. 3. fr. 4-5 (after one year). Wood formerly used in Darjeeling for planking and shingles, but its use has for a long time been discontinued. Its quality is very variable; generally it is soft and rots easily, but some specimens which I have seen in Jaipiguri in carpenters' shops have been strong and full of resin. In the forest it is almost always mixed with sal.

PINUS EXCELSA, Wall. This tree is only found planted in Darjeeling for ornament, but it is indigenous to Nepal and Bhutan, and perhaps to Sikkim. It is being grown in the Rungbool nurseries from seed obtained from the North-Western Provinces, and the young seedlings have thriven well so far.

CEDEBUS DEODARA, London. E. Planted in Darjeeling for ornament, but not indigenous, though it is said to have been found in Bhutan by Griffith. It does not thrive well, though a few fine young specimens are to be seen in different gardens. The cause of its failure is, no doubt, due to the heavy rainfall, and to the unsuitability of the clayey soil. Large numbers are being reared in the Rungbool nurseries in prepared beds, and they are doing well so far.

ABIES WEBERIANA, Ldl. *Dumshing, Bh. E.* The Indian silver fir. E. ⁴⁰⁻⁵⁰ _{20-30 + 6-15} above 10,000 feet on the Singalila range. On the tops of the ridges is found generally in scattered clumps; but where it has tolerable shelter, as on the Phallalung spur below Suburkum, it forms dense forest, the trees being very fine, with well-grown straight stems. Its natural reproduction is very good, but the seedlings on the ridges have much difficulty in growing, owing to their being constantly eaten down by sheep. Fine patches of young forest may be seen on Sundukpho, to the east of the summit. On the ridges the number of dry dead trees is very remarkable, the stems having become bleached by the wet and the sun. These have died partly naturally, partly by fires burning the touchwood of the centre of the stem, which has rotted from age; partly by being killed by having the bark cut off by Nepalese and Bhutia graziers to make cattle troughs. The whole of the forests lie on the lands of Cheebo Lama, whose agent has lately introduced strict rules for their protection. The wood is little used, as the forests are so difficult of access; but it is a very good deal, and would be valuable were it possible to bring it into the station. It splits easily, and is used by the Bhutias for shingles, and has occasionally been brought to Darjeeling for that purpose—one house, at least, in the station being roofed with them. It has been grown in Darjeeling for ornament, and appears to succeed well and to be worthy of more extensive introduction.

ABIES SMITHIANA, Forbes. E. *Scheking, Bh.* The Indian spruce. Not found wild within the limits of the district, but is common in Independent Sikkim. Has been introduced into Darjeeling, where a few fine specimens may be seen. It appears to grow quickly.

Wall. Cat. 346

Wall. Cat. 311

— *Gobius Sulah* — *W. Johnston*
Wall. Cat. 309.

No. 1
Chimbi. Tibet
Parsi F.V. 1898
Parsi F.V. 1898

No 359 - 53
Sundukpho 12000
No 96 - 62
Chimbi. Tibet
Parsi F.V. 1898
Parsi F.V. 1898

No 96 - 65
Chimbi. Tibet
Parsi F.V. 1898
Parsi F.V. 1898

(Lam. Cat. Ind)

Calliandra + Nerium Klm of Himal. plants, plate xxv. Lach. } Nepal
 " 8-12000 ft. E. Nepal, Sikkim + Bhutan. " Lar. } Nepal
 Para 2 of ser. to be quoted.

The seeds of this tree were originally brought by Mr. Fortune

Lepi P.
 1878

Shawing Lach 31
 1878

ABIES DUMOSA, Loudon. *Tangshing*, Bh. The Indian hemlock. E. ⁶⁰⁻⁷⁰₁₀₋₂₀₊₁₀₋₁₅ Forms forests in the inner ranges from 8,000 to 10,000 feet below the *A. Webbiana*. The undergrowth in these forests is chiefly small bamboo with rhododendrons and laurels. The wood is said to be rather better than that of *A. Webbiana*, and is used for similar purposes. Old trees are not, however, so liable to get hollow. The best forests of this tree in the district are in the Siri valley. It has been much planted in Darjeeling.

LARIX GRIVETHI, Hk. f. and T. L. The larch is not indigenous to the district, but is found in the adjoining territories of Nepal, Sikkim, and Bhutan. It has not yet been successfully introduced.

CUPRESSUS FUNERIS, Endl. E. *Chandang*, Bh. Planted near monasteries in Sikkim and Bhutan, and extensively in the station of Darjeeling, where it thrives well. It has been grown by the Forest Department in plantation at Dhobi Jhora, near Kurseong, and seems to have succeeded well. A fine big tree may be seen at the Tasingthong Monastery, near Dumsong.

CRYPTOMERIA JAPONICA, Don. E. This handsome tree is now being extensively grown in the district, where it thrives wonderfully. It grows best at an altitude of 3,000 to 5,000 ft., as may be seen from the fine specimens at Soom, Poomong, and elsewhere; but there are also several very fine specimens in Darjeeling. It grows very quickly, often reaching 6 to 8 ft. in height in two years. It is one of the trees planted at Dhobi Jhora plantation, and plants are also being reared in quantity at Rungbool and Rungyrdm. I have not seen the wood, but I have been assured by several gentlemen who have tried it that it is rather soft, but close-grained and easily worked; that for boxes it is exceedingly good; and that it has no resinous smell, like most of the *coniferae*.

THUJA ORIENTALIS, L. E. One of the trees grown in the Dhobi Jhora plantation, also planted about the station of Darjeeling.

JUNIPERUS RECURVA, Ham. E. *Chukbo*, L. E. ²⁰⁻³⁰₁₀₋₁₅₊₂₋₃ from 9,000 to 12,000 ft. It is not uncommon about Sundukpho, but it is chiefly found in Sikkim, whence the twigs and leaves are much exported to burn in temples as incense. Bark red-brown, papery, peeling off in vertical strips. Sapwood white, inconsiderable; wood reddish brown, very fragrant, but not much used. Countings on a section of 9 in. mean diameter gave 164 years of age and a mean annual increment .027 in., thus it is very slow growing.

PODOCARPUS NERIIFOLIA, Don. A small tree of the evergreen forests on the northern slopes of the outer hills. Common in the Sivoke Hills—from the valley to 2,000 ft. Wood said to be hard and close-grained. (1)

TAXUS BACCATA, L. E. *Tsa*, Bh.; *Chongbo*, L. E. ⁶⁰⁻⁷⁰₁₅₋₂₀₊₁₀₋₁₅ Found only on the upper ranges from 8,000 to 10,000. Many

ho 968 - 69
 Chukbo, Bh.
 ho 377 - 52
 Chukbo, Bh.
 Para 2 of ser. 1878

ho 971 - 70
 Chukbo, Bh.
 Para 2 of ser. 1878
 1878

ho 972 - 61
 Rungbool, Darjeeling
 Para 2 of ser. 1878

ho 697 - 60
 Rungbool, Darjeeling
 1878

ho 378 - 52
 Sundukpho, Sikkim
 Para 2 of ser. 1878

It is
 always

302 - 39
 Imphal, Garo
 Para 2 of ser. 1878

fine specimens may be seen on the path from Tongloo to Kinjalja.

The measurements of two were:—

No. 1.—L. 30 ft., G. 20 ft., length to first branch 10 ft.

No. 2.—L. 70 ft., G. 16 ft., length to first branch 30 ft.

Many other *coniferae* have also been introduced and planted in the hills, such as *Pinus Khasya*, Royle; *Juniperus Sabina*; *Cupressus torulosa*, Don; and species of *Podocarpus*, *Thuja*, and *Araucaria*.

CYCADACEÆ

Re 977. 68 Jwai.
Rais 5.11.1898

CYCAS PECTINATA, Griff. E. $\frac{15-16}{4.5+1.5}$. Common in the lower sāl forests of the Terai, such as the Sath Bhaia and Tehsilpur Jhars, also in dry sāl forests of the Lower Hills and the valleys, e.g. at Chenga and Pashok. Fl. 11-12, fr. 12-1. Wood very curious, soft, arranged in concentric rings, separated by white tissue, which, like the central pith, is full of starchy granules.

PALMÆ

ARECA CATECHU, Lindl. *Supari*. Cultivated in the lower part of the Terai, and about Julpiguri. A few well-grown ones may be seen at Garidura, below Pankabari.

ARECA GRACILIS, Roxb. *Khur*, L. E. $\frac{15-15}{5.15+4.5}$. Common in the M. P. F. w. of Terai and valleys of L. H. F. up to 2,000 ft.

WALlichia DENSIFLORA, Mart. *Ooh*, L.; *Tukoru*, P. E. 2-10, with no clear stem. Very common in L. and M. H. F. up to 4,000 ft., especially on rocks under dense forest. Leaves very good for feeding ponies. The midrib of the leaves is used by Paharias to make combs.

Re 978. 69 Jwai.
Rais 5.11.1898

WALlichia DISTICHA, T. And. *Katong*, L. E. $\frac{15-20}{5.10+1.10}$, with distichous leaves joined together at their base by shaggy fibres, which are strong, though not economically used. Wood soft, except a thin (4 in.) circle on the outside, which is hard, brown, with scattered black vascular bundles. The Lepchas eat the pith near the summit of the tree; and as they have to cut it down for that purpose, big ones are gradually getting rare. It is very common in the Sivoke Hills up to 2,000 ft. from the plains to the Ruyem river, and all along as far as the Cart Road, west of which I have never seen it.

Re 979. 66 Jwai.
Rais 5.11.1898

CARYOTA URENS, L. *Rungbong*, P.; *Simong*, L. E. $\frac{20-25}{5.20+2.5}$, with much divided leaves and cuneate leaflets. Wood, outer part very hard, heavy, with broad, black, closely-grown vascular bundles, and easily worked without splitting; inner part soft, with a sago-giving pith. The Lepchas eat this green, but I have never heard of sago being ever extracted by them. It is rare as a big tree in consequence of its being cut down by Lepchas, and I once saw in a small stream running into the Panchenai river

Thakal. P.

Gives a coarse sago which, with the fruit is
eaten by hillmen. F.H. Manson.

(Chibla Khola) no less than three big ones of about 20 feet in height freshly cut, but small ones are common in all the L. H. F. and occasionally up to 4,000 ft.

CALAMUS SCHIZOSPATHUS, Griff. *Rong*, L. E. ²⁰⁻⁴⁰_{10-20 + 1-4}. Erect growing, the commonest cane in the L. H. forests and up to 3,000 ft. The canes are useless.

CALAMUS FLAGELLUM, Griff. *Rabi Bet*, P.; *Reem*, L. E. climber common in M. P. F. *sc.* (Dalka Jhar and Singari Puhar forests especially) and L. H. F. up to 3,000 ft. Canes soft, only used for tying. Leaves resemble those of the preceding, but differ in that the thorns of *C. schizospathus* are in horizontal semicircular whorls on the rachis, while those of *L. flagellum* are vertically arranged, and alternately long and short.

CALAMUS LEPTOSPADIUM, Griff. *Dangri Bet*, P.; *Lat*, L. E. climbing, common in the valleys of the L. H. F., especially in very damp places along rivers, where it forms a tangled thicket. The canes are thin and useless. Recognized easily by its narrow feathery foliage, which is very pretty.

CALAMUS MONTANUS, T. And. *Gouri Bet*, P.; *Kuc*, L. E. climber of about 3,000 to 6,000 ft. The best species of cane in the district, but very rare now west of the Tista. In the Chel and Neora valleys east of the Tista it forms dense thickets mixed with *Plectocomia*. I have also seen a few above Pomong and Hoom-Landing, and seedlings may constantly be met with, though after about 6 ft. in height they are eagerly sought for to make walking-sticks. This is the cane which is chiefly employed in the construction of bridges, and it is the best for chair-making.

CALAMUS MACRACANTHUS, T. And. *Phokori Bet*, P.; *Ruttee*, L. E. climber of the M. P. F. *sc.* of Terai (Singari Puhar near Sivoke) and L. H. F. Canes thick, long, strong; but as they are not very common, rarely used. Easily recognized by its broad leaflets and green-coloured stems, which lose their lower leaves quickly.

CALAMUS INERMIS, T. And. *Dangri Bet*, P.; *Brook*, L. Climber, good for most purposes, but chiefly cut to make the big thick alpenstock walking sticks sold in Darjeeling. I have never seen this cane, but mention it as it is often spoken of by Lephas and described by Dr. Anderson, from whose account in the Journal of the Linnean Society (Palms of Sikkim) the names of the different canes here mentioned are obtained. It is now rare, and collectors cannot always find specimens.

CALAMUS ~~lanceolatus~~ ^{White} *Bet*, *By*. Climber; only found in marshy places in the southern Terai south of the big sal forests. Found by me at the edge of the Sath Bhaia Jhar. Common on the roadside between Titalya and Kishenganj, and in the Western Duars.

CYMBOPATHES JENKINSONIANUS, Griff. E. climber. The commonest species in the Terai M. P. F. *sc.*, but only seen by me in two forests, viz. the Dalka Jhar and Singari Puhar M. P. F. near Sivoke. Canes very long, rather soft, used to make baskets.

Royleanus Griff.

Ro 1007 - 111
Ravi 5.11.1878

Ro 1016 - 60
Ravi 5.11.1878

Ro - 58
Ravi 5.11.1878

PLECTOCOMIA HIMALAYANA, Griff. *Tekri Bot. P.*; *Rensol*, L. E. climber of the M. and U. H. F. from 4,000 to 7,000 ft. Exceedingly common. Canes soft; useless, except sometimes for tying fences and for rough baskets.

LIVISTONA JERKINIANA, Griff. *Talaingom, L.*; *Purbong, L.* E. ²⁰⁻³⁰_{15-25 + 5-3} of the L. H. F. between the Tista river and the Cart Road. The only fan-palm of the district except *Licuala peltata*, which is said to have been once found. Big specimens are scarce, but may still be seen in the forests at the back of the big precipice above Sivoke. Young trees, about 6 to 10 ft. high, are not uncommon in the valleys of the Tista and Mahanadi. Wood very soft, useless. Leaves often 3 feet in diameter; used by Lepchas to thatch their houses, for which purpose they are very good. They may also be seen used as umbrellas.

COCOS NUCIFERA, L. A few specimens of the coconut may be seen planted near villages in Terai. There is a good sized one behind the thana at Nuxelbari.

PHENIX ACULIS, Roxb. E., stemless, with a large bulbous-looking rootstock, occasionally reaching 2 to 3 ft. in height in the lower Terai. Very common in the sal forests of the Tista and Great Rangit valleys, e.g. Badamtam and Pashok. Occasionally found in the sal forests of the Terai, e.g. Sivoke, also in the open grass lands of the southern Terai and Duars. Fruit eaten by Lepchas.

PHENIX RUFICOLA, T. And. *Schiap, L. E.* ¹⁵⁻²⁰_{10-15 + 11-3} of the L. H. F. of the Tista and Mahanadi valleys; not seen west of the latter river. It generally grows on rocks, and especially on the very steep cliffs on both sides of the Tista above Sivoke. The interior of the stem is eaten by Lepchas, but without cooking.

PANDANEÆ.

PANDANUS (PURCATUS, Roxb.) Bor-kung, L. E. ²⁰⁻³⁰_{15-25 + 1-4} with numerous thick soft aerial roots from the lower part of the stem. Found common all over the L. H. F. up to 3,000 ft. Outer wood hard, with satiny white vascular bundles, closely set; inner wood soft, useless.

PANDANUS (POTIDUS, Roxb.) E. shrub with densely matted stems and roots. Common in M. P. F. w., as in the Dalka Jhar.

NOTE.—Two or three species of *Musa*, or wild plantain, are common throughout the district up to 6,000 ft. elevation; and one of the *Stelemanaceae*, *Alpinia satana*, Rose, forms a dense growth, rising to 10 or 15 ft. high in damp swampy places in the Terai. They are all much used as elephant fodder. Some of the species of *Smilax* grow into woody-stemmed climbers.

GRAMINEÆ.

ARUNDINARIA (FALCATA, Nees.) Titi nigala, P.; *Prongnok, L.* Small thin bamboo with caespitose, generally annual stems. Nodes swollen. Sheath long, thin, glabrous. Found in the

Sarika P.
Hymenocallis

probably Arundinaria racemosa

Lama baso P.

F. H. Mansoa

M. H. F. about 5,000 to 6,000 ft. Used for many small purposes, such as mats, baskets, house-tying, &c.

THAMNOCALAMUS (SPATHIFLORUS, MUNRO). *Prong, L.*; *Begoba, Bh.* A small bamboo with caespitose stems. The halm is yellow, hard, and the branches red, with long thin sheaths. Common on the Singalila ridge from Tongloo 10,000 ft. up.

THAMNOCALAMUS (FALCONERI, HK. f.). *Maling, P.*; *Phyeum, L.* The commonest of the small hill bamboos. Found everywhere in the U. H. F. from 5,000 to 9,000 ft. Used for hedges in Darjeeling. Grows 15 to 20 ft. high. Leaves in semi-whorls; very dense and close. Halms as well as sheaths roughly pubescent. Used to make mats for roofing and for floors, to tie houses, &c. The leaves are the chief food for ponies in Darjeeling.

(THAMNOCALAMUS, sp.). *Koor-maling, P.*; *Phyeum, L.* Resembles the preceding, but the leaves not in such dense whorls. Found in U. H. F., and used for the same purposes as *Maling*.

BAMBUSA (BALCOOA, ROXB.). *Bleeng, L.* The large village bamboo of the Bengali villages in the Terai. Yellowish, halms strong, with only a slight hollow in the middle. Grows to a great height. Used for every purpose in the Terai, and is the best for house-building, but should be seasoned in water before use.

BAMBUSA SUTANS, WALL. *Maklbans, P.*; *Mahla, L.* A large graceful bamboo of the L. and M. H. F. from 1,000 to 5,000 ft. Not very common. The halm is of large diameter, with a broad hollow part, but the wood is hard.

DENDROCALAMUS HAMILTONII, NEES et ARNETT. *Pao, L. ka - 53 ka.*
The common forest bamboo of the L. H. F. up to 3,000 ft. Covers large tracts in the lower hills, and especially in the Tista valley, where it grows in sal forests to the great damage of the sal. It often reaches 6 to 8 inches in diameter, and the halms have very thick walls when old. It grows very straight to 40 or 50 ft. occasionally. It is used for all purposes, for water-vessels, house-building, fences, mats, baskets, &c. It is used by the Department to float heavy logs. Its young shoots, which appear in June, are eaten, and make a very good vegetable.

Pao - 53 ka.
Pao - 53 ka.
PACHYSTACHYUM PICHYSTACHYUM, B. FILLING. *P.*; *Paphok, L.* A middle-sized bamboo of the L. and M. H. F. up to 4,000 ft. Common in the damp forests of the Lower Hills. The halms are soft, with thin walls. They are preferred for tying houses, and are among the best for baskets and mats, especially those used in tea factories.

Singhani, P.; *Pagjiokpa, L.* A medium-sized caespitose bamboo, with glaucous stems, of the L. and M. H. F. from about 2,000 to 5,000 ft. Not very common. Fine clumps of it may be seen planted in the Bhutia Busti at Darjeeling.

CEPHALOSTACHYUM CAPITATUM, MUNRO. *Gobia, P.*; *Payong, L.* A very common medium-sized bamboo of the L. M. and U. H. F.

from 2,000 to 6,000 ft. It is new (1877), only just coming up afresh as it flowered and died off in 1874. The halms are yellow coloured, strong, and hard, and are preferred by the Lepchas for making bows and arrows. The leaves are excellent fodder. In some places, such as in the valleys of the Chel and Neora, it covered in 1874 large tracts of country almost alone.

NOTE.—There are several other kinds, for instance *Papirang*, L., a very large bamboo of the Hills, at about an elevation of 3,000 to 4,000 ft.; but many of them are very likely not yet named, owing to the difficulty in obtaining flowers. During a residence of nearly five years in the district, I have only obtained flowers of two kinds, one of which, *Dendrocloosus Hamiltonii*, flowers almost yearly. Some of the grasses of the Terai and Lower Hills, such as *Arundo donax*, &c., grow very large, and are used for many purposes,—thatch, fodder, mats, baskets, &c.

FILICES.

ALSOPHILA LATEBROSA, Hk. *Unyo, Pakpa, P.; Pashien*, L. E. ²⁰⁻³⁰₁₅₋₂₀₊₂₋₃ of the M. H. F. from 4,000 to 6,000 ft. This is the common kind of tree fern seen round Darjeeling. The Lepchas eat the soft part of the interior of the stem.

ALSOPHILA CONTAMINANS, Wall. *Pakjit*, L. E. ²⁰⁻³⁰₁₅₋₂₀₊₂₋₃ of the L. H. F. up to 4,000 ft. Recognized by the leaves being glaucous beneath.

ALSOPHILA SCOTTIANA, Baker. Tree fern of the M. H. F. Rare. Occasionally branched. Found, I believe, now only in one spot near Rungbi.

ALSOPHILA GLABRA, Hk. E. ¹⁰⁻¹⁵₅₋₁₀₊₁ of the M. P. F. *nc.* in Terai (common in the Dalka Jhar) and L. H. F. valleys.

HEMILTILIA DECIPiens, Scott. E. ¹⁰⁻²⁰₅₋₁₅₊₁₋₂ of the M. H. F. Rare. I have only once seen it, near Kalimpong.

NOTE.—There are several other large-growing ferns, of which should be mentioned *Asplenium vivida*, Hoffm., and *Diplazium polygodoides*, Mett.; the former common throughout the district in damp ravines, the latter of the U. H. forests.

THR END.

[Extracted from the LINNEAN SOCIETY'S JOURNAL.—BOTANY,
vol. xvii.]

ON
THE SOURCE

OF

THE WINGED CARDAMOM OF NEPAL.

BY

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SOME years ago, the late Mr. Daniel Hanbury asked me to inquire into the botanical origin of the large brown winged Cardamom, commonly sold in the bazaars of Northern India, and occasionally imported into England, and which has been regarded by Dr. Pereira, in his great work on *Materia Medica*, as the produce of *Anomum maximum*, Roxb.

A few weeks prior to Mr. Hanbury's lamented death, I sent him the result of my inquiries; but it reached too late to be used by him, and I now therefore put it on record myself.

Dr. Pereira appears to have been led to adopt the view just alluded to, chiefly because the Cardamom imported from Calcutta and the fruit of *Anomum maximum* are both winged. He certainly did not adopt it from any previous authority.

A. maximum, although it was named by Roxburgh, is not indigenous to India, but to Java. Roxburgh himself mentions this fact in his description of the plant ('*Flora Indica*,' ed. Carey, i. 42). He concludes his description with the remark, "the seeds possess a warm pungent taste, not unlike that of Cardamoms, but by no means so grateful;" but he does not mention the fruit as being sold in Indian bazaars as a Cardamom. Concerning the Indian species which he named *Anomum aromaticum*, Roxburgh states (*l. c.* p. 45) that it is "a native of the valleys" on the eastern frontier of Bengal, and that "the capsules are carefully gathered by the natives and sold to druggists, who dispose of them for

7/8
Bromelia

medicinal and other purposes, where such spices are wanted, under the name of *Morung Elachi*, or *Cardamon*." Roxburgh therefore (since he mentions no other) appears to have considered the large brown Cardamon of the Calcutta bazaar the produce of a single species, and that species *A. aromaticum*. In the 'Hortus Suburbanus Calcuttensis' (published twenty-five years after the first edition of the 'Flora Indica' appeared), Voigt quotes Roxburgh's statement that the *Morung Elachi* of the bazaars is the produce of *Anomum aromaticum*; but he also mentions a second species (*Anomum subulatum*, Roxb.) as the source of a bazaar Cardamon called the *Bungali Elachi*, and he gives the Khasia hills as its home. Roxburgh, in describing *A. subulatum*, says nothing of its fruit being sold as a Cardamon. He moreover states (and correctly) that it is a native of the Morung Mountains (i. e. of the outer ranges of the Nepal Himalaya), and not of the Khasia hills as Voigt states. Both plants were in cultivation in the Calcutta Botanic Garden in Roxburgh's day; and there are still in the Garden library MS. drawings of both made under his direction, and named in his handwriting. *A. aromaticum* seems to have ripened its fruit in the Garden in Roxburgh's time; for he both describes it in the 'Flora Indica' and figures it in the MS. drawing just alluded to. But Roxburgh appears never to have seen the fruit of *A. subulatum*; for he neither describes it in the 'Flora Indica,' nor figures it in his drawing, which was subsequently published in his *Coromandel Plants* (t. 277). The plants of *A. subulatum* which I have grown have ripened fruit abundantly. Hence I am able now to state that the fresh fruit is about the size of a nutmeg, irregularly obovate, flattened antero-posteriorly, having 15 to 20 irregularly dentate-undulate wings, which extend from the apex downwards for two thirds of its length; apex depressed and crowned by the persistent 3-cleft perianth-tube, which rather exceeds the ripe fruit in length; irregularly 3-celled, many seeded; seeds surrounded by a sweetish pulp.

Roxburgh was very well informed on economic botany, so much so that since he wrote very little has been added to our knowledge of the uses of Indian plants. It is therefore, I think, a fair conclusion, either that the fruit of *Anomum subulatum* was not sold in Calcutta as a Cardamon in Roxburgh's time, or that he confounded the fruit of this species with that of *A. aromaticum*, and regarded them as one. The conclusion to which Mr. Hanbury came, after going into the matter with his accustomed thoroughness ('Phar-

macographia,' 1874, p. 588), was, as regards *A. maximum*, that in Java "its fruits are sold for the sake of their agreeable edible pulp," and that "we do not know whether the dried fruits or the seeds are ever exported;" and as regards the *North-Indian Cardamoms*, that there are two sorts, the Bengal Cardamon afforded by *A. aromaticum*, and the Nepal Cardamon, the fruit "of a species of *Anomum* that has not yet been identified with any published description."

Having, in order to settle the source of the North-India Cardamoms, procured from the Morung Mountains and from the plains of Eastern Bengal living plants of the species of Cardamon respectively cultivated in those districts, and having grown these at the Government Cinchona-plantation in Sikkim, I was able a week or two after the 'Pharmacographia' appeared, to put Mr. Hanbury in possession of complete specimens, and of a drawing of a plant producing the Nepal Cardamon, and to identify it with Roxburgh's *A. subulatum*. Regarding the identification, Mr. Hanbury wrote as follows:—

29th November, 1874.

"The drawing of *A. subulatum*, and also the specimens, are now in my possession, and are very acceptable. I took the drawing to Kew three days ago, hoping to compare it with one of Roxburgh's; but I failed; for the Roxburgh collection contains no representation of the plant, and the Kew Herbarium has no specimen. There is, however, no doubt regarding the correctness of your determination."

The source of the Nepal Cardamon may thus be regarded as definitely settled.

This Cardamon is pretty extensively cultivated by the inhabitants of Eastern Nepal, and also by a few of the Nepalese who of late years have settled in British Sikkim. It is essentially a swamp-plant, and therefore comes in usefully as a crop for irregular patches of ground by the sides of streams which are unsuitable for any ordinary cultivation except that of rice, than which it is more profitable. This species does not appear to be found in the Khasia hills; so that Roxburgh was right and Voigt was wrong as to its home.

ADDITIONS AND CORRECTIONS

- Page 1, line 16 from below, for 'GREWLETOG' read 'GREWLETOLOA'.
 " 4, 10, for 'ASTIDO CARTA' read 'ASTIDOCARTYA'.
 " 5, 4 from below, for 'CRATOYA' read 'CRATETAL'.
 " 7, 7, for 'Patulum' read 'patulum'.
 " 10, " from below, for 'Kashleg-king' read 'Kashleg-king'.
 " 14, " 8, for 'Zalatum' read 'Z. alatum'.
 " 23, for 'Timbernyok' read 'Timbernyak'.
 " 16, 17, for 'Hk. fl.' read 'Hk. fl.'.
 " 17, 18, for 'Lapshi' read 'Lahshi'.
 " 21, 19, for 'Lota' read 'LEITA'.
 " 22, 2, for 'Kantierog' read 'Kantierog'.
 " 23, 14, for 'DOBROK' read 'DOBROK'.
 " 16, 6, for 'DODOKHA' read 'DODOLVA'.
 " 26, 6 from below, for 'Tirkynmyok' read 'Tirkynmyok'.
 " 27, 12 after ' rarely used 'add' in the Darjeling district, but which is exported from other parts of India as a medicine under the name of 'kino'.
 " 28, lines 22 and 26, for 'Debeli-lara' read 'Debeli-lara'.
 " 33, line 10, for 'CESIA' read 'CESIA'.
 " 34, 26, for 'GASTANOPERNUM' read 'GASTANOPERNUM'.
 " 35, 11, for 'ACUMINATAS' read 'ACUMINATA'.
 " 21, for 'Lal' read 'Ldl'.
 " 28, after 'MUSCULOSA' read 'LAIN'.
 " for 'Saphki' read 'Siphaki'.
 " 36, 13 from below, for 'lepidotus' read 'lepidotum'.
 " 41, 12, for 'PRIMOEX' read 'PRIMOEX'.
 " 43, 13 from below, for 'NOLOLOSA' read 'FOLIOLOSA'.
 " 4 from below, for 'in' read 'on'.
 " 45, 11, for 'BRODOLIOLOSA' read 'BRODOLIOLOSA'.
 " 10 from below, for 'TRILOLOSA' read 'TRILOFILA'.
 " 47, 5, for 'Kakuk-rig' read 'Kakuk-rig'.
 " 29, for 'with white bracts' read 'with whitish floral leaves'.
 " 48, lines 13 and 17, for 'MCWENDIA' read 'MCWENDIA'.
 " 51, line 18 from below, for 'PADERIA' read 'PADERIA'.
 " 62, lines 2 and 3 from below, for 'MONKYOG-rig' read 'Monkyog-rig'.
 " 53, line 23, for 'S-20' read 'S-28'.
 " 54, 14 from below, for 'Timbernyok' read 'Timbernyak'.
 " 56, 8 from below, for 'COVILLET' read 'Hk. fl. and T.'.
 " 3 from below, for 'FAGORIA' read 'FAGORIA'.
 " 57, 4, for 'LEVIS' read 'LEVIS'.
 " 59, lines 31 and 34, for 'DEDALACANTHUS' read 'DEDALACANTHUS'.
 " line 17, for 'Mankabrig' read 'Mankabrig'.
 " 63, " from below, for 'Nepurgibing' read 'Nepurgibing'.
 " 3 from below, after 'CATADUM' read 'Nees'.
 " 65, 4 from below, for 'Torkilzab-king' read 'Torkilzab-king'.
 " 1, omit the word 'perhaps'.
 " 68, 9, after 'THOMSON' add 'Müll. Arg.'.
 " 69, 20, for 'Kantier' read 'Kantier'.

Page 70, line 7, for 'Tukchabrig' read 'Tukchabrik.'

" 71, " 6 from below, after 'Jagrikat' read 'Bajadanti.'

" 72, " 13, for 'EXCOCARIA' read 'EXCOCARIA.'

" after line 18, add 'EXCOCARIA SERIFERA, Müll. Arg. the
" Tallow Tree," is often found planted for ornament in the
" Terai and lower hills.'

" 75, line 8, for 'Kangji-kang' read 'Kangji-kang.'

" 78, to the description of 'Quercus lamellata,' add 'Acorns very
large, the cups often two to three inches in diameter,
and composed of broad annular rings; in some years
extremely abundant, in others very scarce.'

" to the description of 'Quercus annulata,' add 'Acorns small;
the cups shallow, surrounded by small thin annular rings.'

" to the description of 'Quercus spicata,' add 'Acorns rather
flattened, on shallow scaly cups, several together on a
long upright spike.'

" 79, line 4, for 'fruit' substitute 'Acorns large, deeply bedded in
scaly cups.'

" 88, for 'saccharum' read 'Saccharum.'

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NOTE.—The Lepcha prefix *Hio* means Hill, and the suffix *kung, ding or ngul*, and *rik*, mean respectively *tree*, *softwooded shrub or climber*, and *climber*. The Pukia prefix *Dalia*, *Saw*, and *Tala*, are equivalent to *plains*, *small* and *big*.

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Convolvulaceae

ADDITIONS AND CORRECTIONS.

- Page 1, line 16 from below, for 'GHEWIEIFLORA' read 'GHEWIEIFLORA.'
 " 4, " 10, for 'ASPIDO CARTA' read 'ASTIDOCARYA.'
 " 5, " 4 from below, for 'CRATGEYA' read 'CRATEYA.'
 " 7, " 7, for 'Patalum' read 'patulum.'
 " 10, " from below, for 'Kankhyen-kung' read 'Kankhyen-kung.'
 " 14, " 9, for 'Zalatum' read 'Z. alatum.'
 " 23, for 'Timbernyok' read 'Timburnyok.'
 " 10, " 17, for 'Hock f.' read 'Hk. fl.'
 " 17, " 18, for 'Layuk' read 'Lahuk.'
 " 21, " 19, for 'LOTA' read 'LETA.'
 " 22, " 2, for 'Kautiernyok' read 'Kautiernyok.'
 " 23, " 14, for 'DOBINGEA' read 'DOBINGEA.'
 " 16, for 'DOBONGEA' read 'DOBONGEA.'
 " 6 from below, for 'Tirkynkayok' read 'Tirkynkayok.'
 " 27, " 12 after " rarely used 'add' in the Darjeeling district, but which is exported from other parts of India as a medicine under the name of " 'kino.'
 " 28, lines 22 and 20, for 'Debre-lara' read 'Belari-lara.'
 " 33, line 10, for 'CUEL' read 'CUEL.'
 " 34, " 26, for 'GASTANOSPERMUM' read 'GASTANOSPERMUM.'
 " 35, " 11, for 'ACUMINATES' read 'ACUMINATA.'
 " 21, for 'Lal' read 'Lal.'
 " 28, after 'MOLOCCANUS' read 'LINN.'
 " 36, " 13 from below, for 'Sipkyi' read 'Sipkyi.'
 " 41, " 12, for 'PRECOX' read 'PRECOX.'
 " 43, " 13 from below, for 'NOLIDIOSA' read 'FOLIOLOSA.'
 " 45, " 11, for 'BROGNIETOLIA' read 'BROGNIETOLIA.'
 " 10 from below, for 'TILIEFOLIA' read 'TILIEFOLIA.'
 " 47, " 6, for 'Kakuk-rig' read 'Kakuk-rik.'
 " 20, for 'with white bracts' read 'with whitish floral leaves.'
 " 48, lines 12 and 17, for 'MESSENDA' read 'MESSENDA.'
 " line 18 from below, for 'PAGREYA' read 'PAGREYA.'
 " 62, lines 2 and 3 from below, for 'Munkyou-rig' read 'Munkyou-rik.'
 " 53, line 23, for 'E-19' read 'E-19.'
 " 54, " 14 from below, for 'Timbernyok' read 'Timburnyok.'
 " 50, " 8 from below, after 'COLVILLE' read 'Hk. f. and T.'
 " 3 from below, for 'FAGREYA' read 'FAGREYA.'
 " 57, " 4, for 'LEVIS' read 'LEVIS.'
 " 59, lines 31 and 34, for 'DIEDALACANTHUS' read 'DIEDALACANTHUS.'
 " 61, line 17, for 'Mankat' read 'Mankat.'
 " 63, " from below, for 'Napsongkung' read 'Napsongkung.'
 " 3 from below, after 'CAUDATUM' read 'Nees.'
 " 65, " 4 from below, for 'Tirkiluk-kung' read 'Tirkiluk-kung.'
 " 68, " 1, omit the word 'perhaps.'
 " 9, after 'THOMSONI' add 'Müll. Arg.'
 " 69, " 20, for 'Kautier' read 'Kautier.'

Monthly General Meeting, held on Monday the 12th of
November, 1877.

W. H. COSWELL, Esq., in the Chair.

BARK CLOTH FROM THE GARO HILLS.

The Secretary submitted a specimen of bark called "Sapong" which he had received from Dr. J. C. Shaw of Mysore, in person, in the early part of the year, and called attention to the following particulars regarding it, and certain specimens of bark cloth from the Garo Hills, with which he had been favored by the Secretary of the Economic Museum:

Letter from Mr. H. H. Locke, dated 13th September, 1877.

"In April last you sent me a piece of bark from the Garo Hills bearing an Assamese name 'Sapong,' and you asked whether I had any such bark specimens here and whether I could give you their botanical names.

"I told you in reply that we had one or two specimens from the Garo Hills, that they had come to us with vernacular Assamese names only, which up to that time I had been unable to find any mention of in the various botanical works I had referred to, and that the Deputy Commissioner had been asked to give us what information he could as to the botanical names of the trees yielding these barks, or to send specimens of the leaves, flowers, and fruits.

"We have lately received from Mr. Damant, the Deputy Commissioner of the Garo Hills, a reply to these enquiries, together with leaves of five plants. Although leaves only have been sent Dr. Kurz

finds that they belong to genera and species so well known to him that he has no hesitation in naming them. I append hereto an extract from Mr. Damant's letter, and in the margin against the different Assamese names you will find written (in red ink) the botanical names as assigned by Dr. Kurz.

"3. 'The name "Sapong," which your specimen here does not occur among those given by Mr. Damant, but if you will send the piece in bark to me again with such information as you can give as to the precise locality from which it originally came, I will ask Mr. Damant if he can enlighten us about it.'

Extract from a letter from G. H. Damant, Esq., C.S., Officiating Deputy Commissioner of the Garo Hills, to the Secretary to the Central Committee of Management for the Economic Museum, Calcutta, dated Teer Garo Hills, 16th August, 1877:—

"The Mhow (or Man) tree grows to the height of about 40 feet, and, as I am informed, found in the plains as well as in the hills. The plainmen use it, when small, principally for the ridge poles of their houses, as it has a long straight trunk which can be easily curved while green. The trunk is bare of branches, three-fourths of its length. The young wood at the tips of the branches is covered with brown bristles similar to those on the leaf but rather longer; as the sapling increases in height the small lower branches are said to drop off. Bark is smooth. The tree is said to be deciduous and bears in August flowers and berries (not edible), three on a foot stalk at the tips of the young wood.

"The Quak is also said to be deciduous. It is known to plainmen by the name of Ololeand Salus, is sturdy in appearance, and grows to about 4 feet in girth, height from 20 to 40 feet; bare of boughs up to about 15 feet. The first set of branches, either 2 or 3 are, thrown out almost horizontally at the same height from the

Ficus triloba.

Sterculia villosa.

Artocarpus Lacucha.

Phakram called by plainmen the Jigini

Trema orientalis.

Morinda angustifolia.

around the tree; 2 or 6 feet farther up, another similar set. The boughs on these grow irregularly and are crooked. At their tips there are clusters of 10 or 12 leaves. Bears red flowers in April and May. Fruit (not edible) resembles a small round currant plantain and 4 or 6 of them are borne in a bunch at the tip of the branches.

4. "The *Strain* is known to plainmen by the name of Chama or Chumba; height 60 to 70 feet; bark smooth and ash colored.

Trunks somewhat straight and bare of branches to three-fourths of its height. Grows to a large size from 2 to 4 feet in diameter, foliage dense. Bears in the month of May a nearly round fruit, 4 to 5 inches in diameter with a rim resembling that of jack fruit and contains seeds somewhat similar; said to be deciduous.

5. "Phakram called by plainmen the Jigini height 22 to 30 feet. Trunk straight or nearly so, about 10 or 12 inches in diameter. Bare of boughs about half way up. Above that rather slender and long boughs grow out nearly horizontally about 1 or 2 feet above one another from different sides of the tree. On the smaller branches there are twice growing out right and left in a horizontal direction, about 6 or 8 inches apart, on which small flowers and berries are borne directly on the base of each leaf stem in the month of March. The berries are about the size of small "dial," and 3 of them are attached to each stalk.

6. "I send a specimen leaf from a *Chenung* or *Chengnung* sapling. This *Morinda angustifolia* tree does not appear to be obtainable in great numbers near this station, and I have not come across a large tree. The largest is said to be about 6 inches in diameter at thickest part. The boughs are thrown out in pairs one on each side of the tree. The lower ones drop off as the tree increases in size, leaving the stem bare about half way up.

7. "At this time of the year neither flowers nor fruit are obtainable of any of the trees above referred to, except the flowers of the *Mhow* which will be sent to you shortly. The product called "Asphalt" is obtained from the bark of the *Strain* and *Phakram* trees, and is not the same as a tree.

In a subsequent letter, dated 6th November, Mr. Locke adds as follows:—

"In continuation of my letter to you of the 13th September last I have much pleasure in sending you such further information, as I have been able to get, regarding the specimen of bark cloth from the Garo Hills called "Sapong," presented to your Society by Dr. J. C. Shaw.

"2. I sent the specimen to Mr. Damant (Deputy Commissioner of the Garo Hills) for inspection, and he writes concerning it as follows:—

"The bark cloth sent by you for identification is undoubtedly the product of the 'Phakram' tree referred to in my letter No. 740 of 15th August 1877. 'The bark is known to plainmen on the Mysore, single side (who purchase it from the Garo) by the name of Opaning. In the South Eastern portion of this District the bark is called "Simphak." In other parts it goes by the name of "Amphak" or "Hampak," but the name of "Sapong" is apparently unknown here.

"The bark is removed from the trees by the Garos in the early part of the cold weather."

"3. I return your piece of 'Sapong' herewith. If your Society is not forming a regular collection of such things, would they have any object in placing this specimen in this museum, where it can be put beside other similar bark cloths."

Ordered—That the piece of "Sapong" be transferred to the Economic Museum, with the best thanks of the Society for the information afforded.

- Page 70, line 7, for 'Tukchabrig' read 'Tukchabrig'.
" 21, " 6 from below, after 'Jagrat' read 'Bajadanti'.
" 72, " 13, for 'EXCOCARIA' read 'EXCOCARIA'.
" " after line 18, add 'EXCOCARIA' BERBERIA, Müll. Arg., the 'Tallow Tree,' is often found planted for ornament in the Terai and lower hills.
" 75, line 8, for 'Kongji-kung' read 'Kongji-kung'.
" 78, to the description of 'Quercus lamellosa,' add 'Acorns very large, the cups often two to three inches in diameter, and composed of broad annular rings; in some years extremely abundant, in others very scarce.'
" " to the description of 'Quercus annulata,' add 'Acorns small; the cups shallow, surrounded by small thin annular rings.'
" " to the description of 'Quercus spicata,' add 'Acorns rather flattened, on shallow scaly cups, several together on a long upright spike.'
" 79, line 4, for 'fruit' substitute 'Acorns large, deeply bedded in scaly cups.'
" 88, for 'saccharum' read 'Saccharum'.

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*History of the introduction of the Medicinal Ipecacuanha Plant
into Bengal.* By G. KING, M. B. F. L. S.

IN March, 1866, Dr. Hooker, of Kew, entrusted to me a single plant of *Cephaelis Ipecacuanha*, which in the following month I made over in good health to Dr. Anderson, late Superintendent of the Botanical Garden, Calcutta. This plant was retained in the Botanical Garden, and every effort was made to propagate it by artificial means since it showed no tendency to yield seed. By 1868, this plant had been increased to nine; but as the climate of Calcutta did not appear to suit *Ipecacuanha*, three of these nine plants were sent to the Cinchona Plantation in Sikkim, in the hope that in one of the low hot valleys there, a more suitable locality might be found. From the date of their arrival in Sikkim, the history of these three plants and their offspring becomes the history of the experiment, as the cultivation in Calcutta was then practically abandoned, although resuscitated for a short time in 1872, when Dr. Henderson acted as Superintendent. Propagation by stem-cuttings proved a very slow process indeed; moreover, about half of the young plants so raised having perished by an accident, the total stock on 31st

March, 1871, amounted to only five plants. These plants had excellent roots, and the success of root propagation having been discovered both in the Edinburgh Botanical Garden and at Rungbee, as many cuttings as possible were taken from the roots of these five plants, so that by the end of August, in the same year, the stock at Rungbee amounted to three hundred plants.

2. In September, 1871, eleven plants were received from the Royal Botanical Garden, Edinburgh, great attention having been there given to the cultivation of this valuable plant at the request of His Grace the Duke of Argyll, then Secretary of State for India. During 1872, further supplies of plants (amounting in all to 369) were received from the same source and from Messrs. Lawson, the eminent Scotch nurserymen. In December, 1872, Dr. Henderson brought out from Kew and Edinburgh, a further consignment of 128 plants, part of which were retained in Calcutta. In the meantime propagation had been steadily carried on in Sikkim, and at 31st March, 1873, the total numbers amounted to 6,719 at Rungbee and about 500 in Calcutta. At 31st March of the present year, the stock stood as follows:

Planted outside, experimentally	...	...	292
Rooted plants, potted off and planted in frames	...	...	13,000
Cuttings, rooted and unrooted	...	...	50,000
Total			63,292

3. The recent success in propagating has been entirely due to the discovery that this plant, unlike most others, can be propagated freely by root-cuttings, while from the slowness of the plant's growth, materials for stem-cuttings are yielded very sparingly. Propagation has all along been carried on in glass-covered frames and at an elevation of about 3,000 feet above the sea. Our efforts have naturally been confined hitherto to increasing the number of plants, so as to get a

sufficiently large stock for experiment with the view of determining the conditions under which *Ipecacuanha* can be grown as a crop. The work has been carried on by the Cinchona Establishment, and very little, if any, special expenditure has been incurred on its account.

4. When this experiment in acclimatization was first begun, very little was known regarding the plant and the conditions required for its growth. We have now learnt from experience that it is a humble creeping under-shrub of peculiarly slow growth, that it apparently requires a thoroughly tropical climate, by which I mean a pretty equal day and night temperature, the absence of a decided cold season and an atmosphere pretty steadily and thoroughly saturated with moisture. We have proved that it cannot stand exposure to a hot sun, and that it is apparently impatient of stagnant moisture at its roots. We do not as yet know what sort of soil best promotes the development of the root (the medicinal part) but experiments are now going on with the view of settling this point.

5. As already stated, what remains to be done is to find out how to grow *Ipecacuanha* profitably as a crop. As a first step towards this, patches of plants have been put out at different elevations and under different conditions as to soil, moisture, and shade. We have not even now a sufficiency of large enough plants to do this on a large scale, for it must be remembered that the great majority of the plants above returned are still tiny things, under two inches high, and which, with their slow rate of growth, will not be much more than double that height a year hence.

6. In conclusion I would remark that no part of Sikkim has a tropical climate, that of the bottom of the lowest valleys being no more than sub-tropical. It may therefore be found necessary to afford the plants, during the cold season at any rate, some cheap and rough kind of shelter.

August, 1874.

Memara Bay 30. Jan. 1879

My dear Mr. Hooker

Replying to the inquiry in
your letter of 26. ulto about
Adrian Mendis' experiments
on the strength of Ceylon timber
I am informed by his son in the
P. H. Department that they were
commenced in 1846. and
continued for nine years
the result being published by
him in 1855.

Yours sincerely
Ralph Fortnum

was bluebook India office p 247.

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find out Paulownia imperialis when planted etc

07168 photo 84-1

