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DESCRIPTIVE LIST

OF THE

FOREST FLORA OF EAST-
CENTRAL MADRAS

With Key

BY

C. E. C. FISCHER

Conservator of Forests

MADRAS

PRINTED BY THE SUPERINTENDENT, GOVERNMENT PRESS

1923

PRICE, 1 rupee 6 annas

JB (I) - 211
N231



INTRODUCTORY NOTE.

I am quite conscious that in this compilation will be found many errors and other shortcomings, but, probably, it would never have been completed by me if attempt had been made to eliminate these defects entirely. As I believe that the work will be found to fulfil a useful purpose and supply a distinct want, I have decided to prepare it for publication without further delay. I hope that those making use of it will note down all errors and defects so that eventually a corrected and amplified edition may be produced. With this object in view it is requested that suggestions may be sent to the Sylvicultural Research Officer for the Madras Presidency.

As it may be useful to others who undertake the compilation of similar lists and to anyone undertaking to correct this one, it is advisable to place on record some of the reasons for the defects.

Firstly, my own general notes were not made originally with any idea of such a compilation and it was only when I came to prepare it that I discovered how defective they were in certain important directions. Though some observations were subsequently made and utilized I had to depend mainly on published floras. These, again, are not prepared for any such purpose and they also are lacking in much of the information that would have been very useful; moreover, they are intended to cover extensive regions and do not allow (in fact cannot allow) sufficiently for local variations.

For these reasons I have endeavoured as far as possible to use for the artificial key only the factors that are least liable to variation and to select the simplest outstanding features of difference rather than a multiplicity of minor ones. This method has, necessarily, the defects of its qualities and has led, perhaps, to more imperfection than otherwise would have been the case; a point, however, which I must leave to others to decide.

It is intended that the list should be used *in the field* with the living plants in view and with a wide selection of parts for the comparison of details, for the references are to *average* features and not to the extremes, even when limits are given between maxima and minima. It is intended that the species should be run down by means of the artificial key and then checked by a reference to the short description in the second part and to the vernacular name. The latter, however, must be used with caution as vernacular names often vary considerably from place to place. Also people questioned are very apt to give any name that occurs to them rather than admit ignorance; this is particularly so in the case of forest subordinates who fear that they may be blamed for such ignorance. Further, the person questioned is not infallible and may have confused two species. The vernacular names, for the most part, are those I have myself noted after careful investigation, but I have in some instances taken those given by Mr. Gamble in one of the works quoted later.

I wish to warn users of the list, and this applies to all scientific investigators, against one very fatal tendency and that is *jumping to conclusions*. Few things are so subversive of correct identification as a preconceived notion. This is my own experience;

the conception arrived at before a proper examination has cost me on occasion much trouble and time.

The list covers primarily the III Forest Circle as constituted in 1922, i.e., the Nellore, Cuddapah, Chittoor and Chingleput civil districts and the northern part of the North Arcot district. It should, however, serve also for the II Circle and parts of the IV Circle: indeed, with this object I have included some species known to occur in the II Circle though not reported from the III Circle.

All trees known to grow wild in the III Circle have been included and also some that are only cultivated. The two bamboos growing wild and important shrubs and the more important climbers have been included. Unfortunately, I have not found it possible to include *all* shrubs and climbers; to have done so would have made the work too voluminous and complicated. The fact of incompleteness is, however, a very serious defect since it is possible that the one species that it is sought to identify may be omitted and the enquirer is left in doubt whether his failure is due to his own fault, error in the book or omission. The enquirer cannot tell whether the shrub or climber he sees is an important one or not until he knows its identity. There must be a compromise, however, between comprehensiveness and facility in usage. I do not suppose that I have achieved the golden mean but that has been the aim.

I must here admit that the distinction between trees and shrubs is somewhat arbitrary and many will differ from my classification. All that I can say is that I have made the distinction according as they have *impressed me in the region*. In such cases if the plant sought is not found under one class it should be sought under the other. In at

least one such case the species has been included in both divisions.

With certain species I have found it impossible to frame a clearly worded distinction in the key, e.g., certain *Grewias*; in that event I have grouped them together and the descriptive portion must be resorted to for the final distinction.

For the sake of brevity and the saving of space only the numbers of the species have been entered in the key, these numbers, of course, are the serial numbers in the descriptive portion.

Unless otherwise stated, the features mentioned always refer to mature plants or parts, especially is this so in the case of dimensions, presence or lack of hairs, colours and the description of the bark.

The periods of flowering and fruiting are from my own notes. They must not be taken as absolute as they are apt to vary greatly with the season and the locality.

I have adopted the nomenclature given in Mr. Gamble's "Flora of the Presidency of Madras" up to part IV and for the rest that in Mr. T. Cooke's "Flora of the Bombay Presidency"; where the names differ from those in Sir J. Hooker's "Flora of British India," the latter are added within brackets.

The following published botanical works have been consulted:—

1. A Manual of Indian Timbers by J. S. Gamble, C.I.E., F.R.S.
2. Flora of the Presidency of Madras, by the same author.
3. Flora of the Presidency of Bombay, by T. Cooke.
4. Flora of British India, by Sir J. Hooker, F.R.S., etc., and other botanists.

GLOSSARY OF TERMS USED.

<i>acuminate</i>	...	suddenly narrowed and then continued into a more or less prolonged point.
<i>bifarious</i>	...	arranged on two sides in one plane.
<i>caducous</i>	...	falling off early.
<i>cartilaginous</i>	...	like cartilage or parchment.
<i>caudate</i>	...	tailed, with a long drawn out point.
<i>coriaceous</i>	...	of the consistence of leather; tough.
<i>corlate</i>	...	heart-shaped; of the base of a leaf when the base is strongly indented and the two lobes are rounded.
<i>corymb</i>	...	an inflorescence of which the branches start at different points but all reach the same level.
<i>crenate</i>	...	with regular but blunt or rounded teeth.
<i>cuneiform</i>	...	wedge-shaped.
<i>cuspidate</i>	...	<i>acuminate</i> but the point still more distinct from the rest.
<i>cyme</i>	...	a branched inflorescence of which the central flowers open first.
<i>deciduous</i>	...	falling and not remaining more or less permanently in place.
<i>decussate</i>	...	leaves in opposite pairs and each pair at right angles to the pair above and below.
<i>denticulate</i>	...	with small pointed teeth.
<i>digitate</i>	...	several leaflets diverging from the same point, from a supposed likeness to the fingers of a hand.
<i>distichous</i>	...	parts regularly arranged one above another in two opposite rows, one on each side of the main axis.
<i>drupe</i>	...	a fruit with an outer succulent part and an inner hard one.
<i>emarginate</i>	...	with the apex distinctly indented.
<i>ensiform</i>	...	narrowly tapering to a fine point.
<i>epiphytic</i>	...	a plant growing upon another without being parasitic.
<i>falcate</i>	...	curved like the blade of a scythe.
<i>ferruginous</i>	...	the colour of iron rust.

<i>fulvous</i> ...	...	dull yellow; tawny.
<i>fuscous</i> ...	...	dingy or smoky brown.
<i>glabrous</i> ...	...	quite devoid of hairs of any kind.
<i>glaucous</i> ...	...	pale bluish-green, often with a fine bloom
<i>gregarious</i> ...	...	occurring in groups of the same species.
<i>hoary</i> ...	...	with very short hairs not readily perceptible but giving a general whitish hue.
<i>imparipinnate</i> ..	...	compound leaves with an odd number of leaflets.
<i>lanceolate</i> ...	...	3 or 4 times as long as wide, widest near the base and tapering to the apex; resembling the blade of a lance.
<i>linear</i> ...	...	at least 4 times as long as wide.
<i>membranous</i> ...	...	thin like a membrane; not stiff.
<i>muco</i> ...	...	a fine somewhat stiff point.
<i> mucronate</i> ...	...	the midrib of leaf prolonged beyond the apex of the blade.
<i>oblong</i> ...	...	2 to 4 times as long as wide with more or less straight sides.
<i>ovate</i> ...	...	egg-shaped.
<i>palmate</i> ...	...	see <i>digitate</i> .
<i>panicle</i> ...	...	an inflorescence with the axis divided into branches each bearing 2 or more flowers.
<i>paripinnate</i> ...	...	compound leaves with an even number of leaflets; equal on both sides.
<i>petate</i> ...	...	when the first division of a leaf is 3 foliate and the outer divisions are again forked; supposed resemblance to the foot of a bird.
<i>peltate</i> ...	...	shield-shaped. A peltate leaf; when the stalk is attached to the under surface and not to the edge of the blade.
<i>petiolule</i> ...	...	the stalk of a leaflet.
<i>pinna, pinnae</i> ...	...	the primary division of a 2-3-compound leaf.
<i>pinnate</i> ...	...	of leaflets succeeding each other on both sides of the main stalk; resembling the arrangement in a feather.
<i>pinnatisect</i> ...	...	cut into segments pinnately arranged.
<i>pubescent</i> ...	...	with soft short hairs.
<i>puberulous</i> ...	...	slightly <i>pubescent</i> .
<i>raceme</i> ...	...	an inflorescence in which the flowers are borne on stalks on an undivided axis.
<i>reniform</i> ...	...	kidney-shaped; a leaf that is broader than long and rounded.
<i>retuse</i> ...	...	the apex very obtuse and slightly indented.
<i>revolute</i> ...	...	with the margin rolled outward.

<i>rachis</i> ...	...	the common main stalk of a compound leaf or of an inflorescence.
<i>rufous</i> ...	...	brownish-red.
<i>rugose</i> ..	...	wrinkled or marked with irregular raised or depressed lines.
<i>serrate</i> ...	...	with regular pointed teeth, like the edge of a saw.
<i>sessile</i> ...	...	without stalk.
<i>spadix</i> ...	...	a form of <i>spike</i> met with in palms.
<i>spike</i> ...	...	an inflorescence in which the flowers are <i>sessile</i> on an undivided axis.
<i>stellate</i> ...	...	with the parts spreading out like the rays of a star.
<i>stipule</i> ..	...	the appendages sometimes found at the base of the leaf stalk or at the joints of a stem.
<i>tendrils</i> ...	...	special slender organs helping a climbing plant to support itself.
<i>terete</i> ...	...	rounded and not angular in section.
<i>thyrs</i> ...	...	a <i>cyme</i> arranged in a narrow pyramidal <i>panicle</i> .
<i>tomentose</i> ...	...	short, soft, dense, matted hairs.
<i>truncate</i> ...	...	the end cut off square.
<i>turgid</i> ..	...	swollen, distended.
<i>umbel</i> ...	...	when several branches start at the same point and are all about the same length.

ABBREVIATIONS

a. = apex	nd. = nerved
ab. = above	num. = numerous
ac. = acute	ob. = obtuse
acm. = acuminate	obl. = oblong
al. = alternate	obv. = obovate
b. = base	op. = opposite
bel. = below	or. = orbicular
bk. = bark	ov. = ovate
brd. = broad or broader	p. = petiole
cau. = caudate	par. = parallel
co. = coriaceous	pb. = pubescent or pubescence
com. = compound	pel. = pellucid
con. = connate	pd. = petioled
cor. = cordate	pl. = petiolule
cre. = crenate	pin. = pinnae
dis. = distichous	pint. = pinnate
dot. = dotted	pr. = pair
el. = elliptic	r. = round
en. = entire	rd. = rounded
Eng. = English	s. = simple or simply
fol. = foliate	sc. = scale
gb. = glabrous	ser. = serrate
gd. = gland	ses. = sessile
h. = hair or hairy	sm. = small
hd. = hooked	smr. = smaller
l. = leaf or leaves	sp. = spine or spiny
lan. = lanceolate	st. = stipule or stipular
lg. = long or longer	stp. = stipulate
lo. = lobe	str. = straight
lod. = lobed	Tel. = telugu
lt. = leaflet	th. = thorn
m. = margin	tom. = tomentose
mem. = membranous.	un. = under
n. = nerve	us. = usually
nar. = narrowed	

These abbreviations will be found at little irksome, perhaps, but they are essential for the sake of economy of space and handiness; had the words been entered in full it would have made the key cumbersome and far less handy.

DESCRIPTIVE LIST OF THE FOREST FLORA OF EAST-CENTRAL, MADRAS.

PART I

KEY.

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I.—TREES.

	No.
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A l. s.	396
AA l. com.	
a l. 1-pint.	
b stem smooth; b. of p. not sp.	397
bb stem covered by l. bases; b. of p. sp.	392
aa l. 2-pint	391
2. trees other than Palms—	
A juice limpid (AA on page 19).	
a thorny (aa on page 3).	
b l. s. (bb on page 2).	
c l. op.	
d l. penni nd.	
e bk. pale, p. very sm.	253
ee bk. dark, p. $\frac{1}{2}$ —1 $\frac{1}{2}$ " lg.	
f l. ac. or acm.; st. cuspidate	256
ff l. ob.; st. not cuspidate	249
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d l. with pel. oil gd. (dd on page 2)	68,
	69 and 70

KEY

	No.
dd l. without oil gd.	
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f l. 3-nd at b.	239
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gg l. un. 2" lg., b. rd.	
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ff l. quite gb.	
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gg l. ov., rd. or ac.	25
bb l. com.	
c l. digitate	
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g l. 3-fol.	
h p. winged; lt. co., obv.	67
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gg l. 5- or more-fol.	
h p. & rhachis jointed; lt. cre.	66
hh p. & rhachis not jointed; lt. en.	71
ff lt. not gd.-dot.	
g lt. obv., un. 2" lg.	
gg lt. rd.-ov., over 3" lg.	121
h l. gb.	
hh l. densely pb. bel.	137
	138

KEY

	No.
dd l. 2-pint.	
e lt. 1 pr. only	197
ee lt. several pr.	
f bk. white with thin papery sc.	182
ff bk. not white nor with papery sc.	
g tree markedly flat-topped.	177
gg tree not markedly flat-topped.	
h pin. 1 or 2 pr.	170
hh pin. 3 or more pr.	
i th. hd.	
j pin. 15 to 20 pr.	183
jj pin. 3 to 6 pr.	184
ii th. str.	
j bk. yellowish, smooth	181
jj bk. dark, rough.	
k l. un. 1½" lg.; p. un. ½" lg.	
l lt. 8—12 pr., un. 1/10" lg., pb.	178
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kk l. over 1½" lg.; p. 1/2" lg.	179
aa not thorny.	
b l. minute, practically absent	387
bb l. conspicuous.	
c l. whorled.	
d l. finely acm.	328
dd l. ob.	327
cc l. not whorled.	
d trees of tidal marshes. (dd on page 4).	
e a. of l. ob.	
f l. ses.	215
ff l. pd.	
g l. obv.	200
gg l. obl.	201
ee a. of l. not ob.	

KEY

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g l. el., brd. : lg.-mucronate	198
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g l. digitate	35
gg l. not digitate.	
h l. 3- or more nd. at b. (hh at page 7).	
i l. lod. (ii at page 5).	
j l. 2-lod.	
k l. un. $2\frac{1}{2}$ " lg.	166
kk l. over 3" lg.	
l lo. con. almost to a.	165
ll lo. con. about $\frac{1}{2}$ length of l.	167
jj l. palmately lod.	
k l. gb. bel.	
l l. brd. than lg.	40
ll l. not brd. than lg.	217
kk l. not gb. bel.	
l p. un. 3" lg.	34
ll p over 4" lg.	
m lo. of l. shortly-cau.	38
mm lo. of r. lg.-acm.	39

KEY

ii l. not lod.	No.
j l. with gd. bel.	
k gd. bright red	361
kk gd. not red	363
jj l. without gd.	
k bk. rapidly turning brown after stripping.	
l l. gb. bel.	295
ll l. not gb. bel.	296
kk bk. not turning rapidly brown after stripping.	
l l. hard and stiff (ll at page 6).	
m n. from b. of l. reaching nearly to a.	
n l. oblique	369
nn l. not oblique	370
mm n. from b. of l. not over $\frac{1}{2}$ length of l.	330

KEY

	No.
ll l. not hard and stiff.	
m l. m. en.	
n l. gb. bel.	
o l. 3-nd at b.	217
oo l. 5-7-nd. at b.	
p young parts with peltate sc.	33
pp no peltate sc.	37
nn l. not gb. bel.	
o p. over 1" lg.; ph. stellate.	36
oo p. un. 1" lg.; pb. not stellate	239
mm l. m. not en.	
n l. oblique.	
o n. from b. of l. reaching to $\frac{1}{2}$ length of l.	371
oo n. from b. of l. not reaching to $\frac{1}{2}$ length of l.	
p l. rugose ab.	47
pp l. not rugose ab.	52
nn l. not oblique.	
o l. white bel.	
p p. over $2\frac{1}{4}$ " lg.	359
pp p. un. $1\frac{1}{4}$ " lg.	46
oo l. not white bel.	44
	and 45

KEY

No.

hh l. not 3- or more-nd. at b.	
i l. m. not en. (ii at page 9).	
j l. with prominent par. n.	
k l. 12" lg. or more, gb. bel.	1
kk l. un. 12" lg., not gb., bel.	
l l. pb. only on n. bel.	2
ll l. densely brown tom. bel.	
m fruit brown velvety.	209
mm fruit gb.	208
jj l. not prominently or par. nd.	
k bk. conspicuously white and smooth	207
kk bk. not conspicuously white and smooth.	
l p. and young shoots with r. silvery sc.	358
ll sc. absent.	
m l. not gb. bel. (mm at p. 8).	
n l. pel.-dot.	232
nn l. not pel.-dot.	
o l. not dis., lan.	388
oo l. dis., obl.	
p secondary n. raised, ferruginous pb. bel.	43
pp secondary n. obscure, not ferruginous bel.	42

KEY

	No.
mm l. gb. bel.	
n l. distinctly pd.	
o n. of l. very num., slender.	
p l. mem.	76
pp l. co.	35 ^a
oo n. of l. not very num., not slender.	
p n. 10-13 pr.	223
pp n. not more than 8 pr.	24
nn l. ses. or nearly so.	
o l. thick.	
p l. pel.-dot.	365
pp l. not pel.-dot.	224
oo l. thin.	
p n. close, regular	78
pp n. not close, irregular	77

KEY

	No.
il l. m. en.	
j l. gb. (jj at page 11).	
k a. of l. ac. or acm. (kk at page 10).	
l l. pel.-dot.	
m twigs with st. lines	365
mm twigs without st. lines	233
ll l. not pel.-dot.	
m l. aromatic at least when young.	
n bk. dark, rough	122
nn bk. light, smooth	27
mm l. not aromatic.	
n l. mem.	
o l. dis.	3
oo l. not dis.	
p bk. grey, scaly	299
pp bk. dark, not scaly	271
nn l. co.	
o bk. smooth, grey, evil smelling when first cut	368
oo bk. rough, dark, not evil smelling.	
p lower l. sub-op., us. with 1 or 2 gd. at b. bel.	
q l. co.: fruit 3-winged	211
qq l. nearly mem.: fruit not winged	206
pp l. all al., without gd.	
q l. at least twice as lg. as brd.	
r n. of l. un. 10 pr.	267a
rr n. of l. 10 or more pr.	
s n. of l. 15-20 pr.	128
ss n. of l. 10-12 pr.	353
qq l. not twice as lg. as brd.	
r n. of l. 12-15 pr., un. $\frac{1}{4}$ " apart	30
rr n. of l. 8-10 pr., $\frac{1}{4}$ — $\frac{1}{2}$ " apart	31

KEY

	No.
kk a. of l. ob.	
l l. aromatic	219
ll l. not aromatic.	
m bk. light- or greenish-grey	213
mm bk. dark.	
n l. un. 1" lg., close set	342
nn l. over 1" lg., not close set.	
o l. glaucous	212
oo l. not glaucous.	
p l. nar. at b.	
q l. un. 2" lg.	59
qq l. over 2" lg.	
r p. 1½" or more lg.	205
rr p. un. 1½" lg.	
s n. prominent, 10-15 pr.	
t bk. rough; l. not over 2" brd.	125
tt bk. smooth; l. over 2" brd.	123
ss n. not prominent, less than 10 pr.	
t l. thin, sub-mem.	268
tt l. co.	
u l. thickly co.	
v l. ov.	8
vv l. lan.	9
uu l. not thickly co.	
v young shoots gb.	
w l. sub-ses	354
ww l. distinctly pd.	270
vv young shoots not gb.	269
pp l. not nar. at b.	
q shoots pb.	268
qq shoots gb.	
r n. 12 or more pr.	
s l. stp.	30
ss l. ex-stp.	125
rr n. less than 12 pr.	
s p. 1" or more lg.	31
ss p. un. ¾" lg.	
t l. at least twice as lg. as brd.	344
tt l. or. or about as lg. as brd.	340

KEY

	No.
jj l. pb. bel.	
k bk. corky	5
kk bk. not corky.	
l a. of l. ob. (ll at page 12).	
m l. scabrous.	
n l. sub-op.	293
nn l. quite al.	300
mm l. not scabrous.	
n b. of l. ac.	
o young parts olive-green tom.	21
oo young parts not olive-green tom.	
p l. not co.	345
pp l. co.	
q p. ½" or more lg., with 2 gd. at a.	210
qq p. un. ½" lg., no gd.	272
nn b. of l. rd. or cor.	
o n. 10 or more pr.	
p n. str., regular	337
pp n. irregular.	
q l. m. cartilaginous	127
qq l. m. not cartilaginous	124
oo n. un. 10 pr.	
p l. nar., rusty pb. bel: n. 4-5 pr.	272
pp l. brd., not rusty, n. 5-7 pr.	352

KEY

	No.
ll a. of l. ac. or acm.	
m l. dis.	
mm l. not dis.	345
n l. mem.	
o p. us. with gd. at a. bel.	206
oo p. without gd.	/
p l. rd. at b.	7
pp l. ac. at b.	271
nn l. more or less co.	
o l. gd.-dot.	329
oo l. not gd.-dot.	
p p. with 2 gd.-at a.	211
pp p. without gd.	
q n. 4-5 pr.	272
qq n. 6-10 pr.	273

KEY

No.

ff l. op.	
g st. conspicuous, inter- or intra-petio- lar, often con. (gg on page 14).	
b l. ses.	252
hb l. distinctly pd.	
i l. not gb. bel.	
j l. co.	240
jj l. mem.	
k l. rd. or cor. at b.	241
kk l. nar. at b.	
l l. nearly as brd. as lg.	249
ll l. at least twice as lg. as brd.	
m p. un. $\frac{3}{4}$ " lg.	259
mm p. 1" lg. or more	243
ii l. gb.	
j l. co.	
k twigs quadrangular	254
kk twigs rd. or slightly compressed.	
l st. rd., caducous	204
ll st. with a tail more than $\frac{1}{2}$ its length, persistent	257
jj l. mem.	
k st. con., sheathing	258
kk st. free, not sheathing.	
l twigs very stout; st. brd.-ov.	249
ll twigs not very stout, st. obl.- spathulate	242

KEY

	No.
gg st. none or minute, not inter- or intrapetiolar or con.	
h l. 3-5-nd. at b.	
i twigs white woolly: p. 1" or more lg.	360
ii twigs gb.: p. 0- $\frac{1}{2}$ " lg.	
j bk. black, rough: l. nearly ses.	294
jj bk. pale, smooth: l. distinctly pd.	293
hh l. not 3-5-nd. at b.	
i l. pb. or tom. bel.	
j l. dis., sub-ses.	
jj l. not dis., distinctly pd.	230
k twigs sharply quadrangular: l. 12" or more lg.	
kk twigs r.: l. un. 12" lg.	313
l l. stellate-h. ab., aromatic	
ll l. gb. ab., not aromatic.	315
m l. rugose and shining ab., grey or buff bel.	323
mm l. not rugose or shining ab., not grey or buff bel.	
ii l. gb. bel.	317
j branchlets drooping: l. tasting of mustard	279
jj branchlets not drooping: l. not tasting of mustard.	
k l. gd.-dot. and aromatic.	
l l. over 1" brd.	220
ll l. un. 1" brd.	221
kk l. not gd.-dot. nor aromatic.	
l trees of tidal marshes.	231
ll trees not of tidal marshes.	
m l. dis.	
mm l. not dis.	230
n a. of l. ob.	
o twigs sub-quadrangular	
oo twigs rd.	227
p bk. smooth, shining, with raised corky dots	
pp bk. rough, not shining, no raised corky dots.	277
q l. obv., 1-2 $\frac{1}{2}$ " lg., always en.	94
qq l. ov. or el., 2 $\frac{1}{2}$ -6" lg. us. ser.	98
nn a. of l. not ob.	
o most of the l. ser.	
oo l. quite en.	278
p l. decussate	
pp l. not decussate	331
	226, 275 and 276

KEY

	No.
ee l. com.	
f l. s.-com. (ff on p. 18).	
g l. 2-fol.	162
gg l. more than 2-fol.	
h l. palmately or digitately com.	
i l. gb.	12
ii l. pb. bel.	
j l. us. 3-fol.: lt. ses. or nearly so.	
k lt. pb. ab.	321
kk lt. gb. ab.	320
jj l. us. 5-fol.: lt. distinctly pd.	322
hh l. pinnately com.	
i l. 3-fol.	
j lt. gb. ab.	
k lt. cor. at b.	135
kk lt. nar. at b.	
l a. of l. ac. or acm.	13
ll a. of l. ob. or retuse	87
jj lt. not gb. ab.	
k p. 1 $\frac{1}{2}$ -2" lg.	135
kk p. 4-6" lg.	140
ii l. 5 or more fol.	
j l. imparipint. (jj at page 17).	
k lt. en. (kk at page 16).	
l l. op. (ll at page 16).	
m lt. gb.	
n lt. co.	274
nn lt. mem.	
o lt. cau.	308
oo lt. not cau.	306
mm lt. pb. bel.	
n a. of lt. ac. or acm., lt. 7-9, over 3" lg.	309
nn a. of lt. ob., lt. 5-7, un. 2" lg.	307

KEY

	No.
ll l. al.	
m lt. op.	
n n. num., str., par., with a strong intramarginal one	129
nn n. not num. or str., no strong intramarginal one.	
o a. of lt. ob.	79
oo a. of lt. not ob.	
p bk. bright green with papery flakes; lt. cau.	81
pp bk. not green nor with papery flakes; lt. not cau.	
q lt. 5-7.	
r lt. brd., distinctly pd.	148
rr lt. nar.-lan., sub-ses.	86
qq lt. 7-11	126
mm lt. al.	
n lt. urf. $1\frac{1}{2}$ " lg., us. at least 9.	
o lt. gb.: wood white enclosing rings of bk. tissue	145
oo lt. pb. bel.: wood yellowish, no enclosed bk. tissue	143
nn lt. over $1\frac{1}{2}$ " lg., 3-7.	
o lt. co., shining ab.; n. num.	
p lt. us. 3, ov. or sub-or.	146
pp lt. 5-7, obl.	147
oo lt. not co. nor shining; n. few	142
kk lt. not en.	
l lt. 7-11	82
ll lt. 13 or more.	
m a. of lt. ob.	79
mm a. of lt. not ob.	
n pl. $\frac{3}{4}$ " or more lg.	74
nn pl. $o-\frac{1}{4}$ " lg.	
o lt. deeply toothed, shining	83
oo lt. cre., not shining	80

KEY

	No.
jj l. paripint.	
k trees of tidal marshes	88
kk trees not of tidal marshes.	
l lt. gd.-dot.	73
ll lt. not gd.-dot.	
m lt. deeply toothed	74
mm lt. en.	
n lt. oblique at b.	
o lt. gb. bel.	
p lt. 8-30, ac.	91
pp lt. 6-12, ob.	89
oo lt. not gb. bel.	
p lt. ob., un. $1\frac{3}{4}$ " lg.	157
pp lt. not ob., over 2" lg.	
q lt. 4-6, pb.	119
qq lt. 10-16, velvety	90
nn lt. not oblique.	
o lt. ac.	
p lt. 8-16	156
pp lt. 4-6	117
oo lt. ob.	
p lt. at most $1\frac{1}{2}$ " lg.	163
pp lt. at least 2" lg.	
q lt. 12 or more	159
qq lt. 4-8.	
r lower lt. smr. than upper.	118
rr all lt. approximately equal	117

	No.
ff l. 2 or 3-pint.	
g l. op.	
h bk. corky; lt. cre. or sinuate	304
hh bk. not corky, lt. en.	
i rhachis of l. cylindric	305
ii rhachis of l. angular	310
gg l. al.	
h l. without gd.	
i lt. velvety bel.	90
ii lt. gb.	84
hh l. with gd. on p. and rhachis.	
i lt. gb. bel.	130
ii lt. pb. bel.	
j lt. at least $\frac{3}{4}$ " lg. and over $\frac{1}{4}$ " brd.	
k lt. $\frac{1}{2}$ " brd. or more.	
l lt. very ob., often truncate or emarginate	191
ll lt. sub-ac., not truncate nor emarginate	194
kk lt. un. $\frac{1}{4}$ " brd.	192
jj lt. not more than $\frac{1}{4}$ " lg. and un. $\frac{1}{4}$ " brd.	
k pin. 4-12	193
kk pin. 12-40.	
l midrib of lt. very close to upper m.	196
ll midrib of lt. nearly median	195

AA juice not limpid.	
a juice red or yellow.	23
b l. palmate	
bb l. not palmate.	29
c n. par., very num.	28
cc n. not par., not very num.	
aa juice milky.	
b thorny.	334
c l. large: over 6" lg.	
cc l. none or very sm.	335
d branches str.	336
dd branches twisted	
bb not thorny.	332
c l. minute or none	
cc l. at least $1\frac{1}{2}$ " lg.	285
d l. whorled	
dd l. not whorled.	
e l. op. (ee at page 20).	287
f l. gb.	
ff l. not gb.	288
g l. tom.	384
gg l. hispid.	

KEY

	No.
ee l. al.	
f l. 3- or more nd. at b. (ff at page 21).	
g l. hispid or scabrid.	
h l. rhomboid, co.	374
hh l. ov., mem.	384
gg l. neither hispid nor scabrid.	
h a. of l. cau.	
i tail lg., us. curved at end	380
ii tail sm., str.	382
hh a. of l. not cau.	
i l. pb. or tom. bel.	
j young parts rusty or grey tom.; p. with a gd. at a.	376
jj young parts not rusty or grey tom.; p. without gd.	375
ii l. gb.	
j l. mem.	385
jj l. co.	
k p. over 1" lg.	381
kk p. un. 1" lg.	and 383
l a. of l. ob.; n. 5-6 pr.	378
ll a. of l. acm.; n. 7-10 pr.	379

KEY

21

	No.
ff l. not 3- or more nd. at b.	
g l. scabrid	372
gg l. not scabrid.	
h trees of tidal marshes.	
i l. nearly ses.	261
ii l. distinctly pd.	
j l. 5-10" lg. with an intramarginal n.	283
jj l. 2-4" lg., no intramarginal n.	366
hh trees not of tidal marshes.	
i ultimate twigs thick.	
j a. of l. ob.; p. un. $\frac{1}{4}$ " lg.	262
jj a. of l. ac. or acm.; p. over $\frac{1}{4}$ " lg.	
k m. of l. cre-ser.	367
kk m. of l. en.	284
ii ultimate twigs slender.	
j l. hard, shining at least ab.	
k n. 7-8 pr.	386
kk n. over 10 pr.	
l a 'banian-like' tree with aërial roots	377
ll not 'banian-like,' no aërial roots.	
m a. of l. rd. or emarginate	266
mm a. of l. acm.	265
jj l. not hard or shining ab.	
k l. brd., thick	263
kk l. linear-lan., thin	264

KEY

	II.—BAMBOOS.	No.
1. thorny	.	
2. not thorny	.	399
	.	400

III.—SHRUBS.

1. juice milky (2 at page 23).		
A thorny.		
a l. none or very sm. and fleshy	.	333
aa l. conspicuous, not fleshy.	.	
b l. al.	.	373
bb l. op.	.	
c l. gb.	.	281
cc l. pb. bel.	.	282
AA not thorny.		
a l. white cottony bel.	.	290
aa l. not white cottony bel.	.	
b l. brd. mem.	.	286
bb l. nar., rigid	.	289

KEY

No.

2 juice limpid.

A thorny. (AA at page 25).

a l. represented by sc. or sp. 234,
235, 236 & 237

aa l. conspicuous, not sc. or sp.

b l. s. (bb at page 24).

c palm-like; l. lg., nar., spirally arranged . 398

cc not palm-like, l. not lg. and nar., not
spirally arranged.

d l. al. (dd at page 24).

e l. pb. bel.

f l. en. 18

ff l. ser.

g th. strong; l. us. 1" lg. 103a

gg th. slender; l. us. un. $\frac{3}{4}$ " lg. 104

ee l. gb. bel.

f l. 3-7-nd. at b.

g l. en. 17

gg l. not en.

h th. single, str. 26

hh th. twin, l. hd. and the other str. . 107

ff l. not 3-7-nd. at b.

g th. st.

h th. hd. 16

hh th. str. 18

gg th. not st.

h l. en. rd.

i l. co., at b. 92

ii l. not co., nar. at b.

j l. 1" lg. or more, rigid 96

jj l. us. un. 1" lg., mem. 347

hh l. minutely cre. 97

	No.
dd l. op.	
e st. none or minute.	
f th. all over the branchlets; l. aromatic	312
ff th. st. or ending branchlets; l. not aromatic	
g th. hd.	109
gg th. str.	
h th. axillary; l. decussate	280
hh th. ending branchlets; l. not decussate.	
i twigs quadrangular	299
ii twigs r.	318
ee st. conspicuous, inter or intrapetiolar.	
f l. quite gb.	
g l. us. un. $1\frac{1}{2}$ " lg.; st. triangular, acm.	255
gg l. over $1\frac{1}{2}$ " lg.; st. with a lg. point.	248
ff l. more or less pb. bel.	
g l. us. un. $6\frac{1}{2}$ " lg. and $\frac{3}{4}$ " brd.	246
gg l. us. over and $1\frac{1}{2}$ " lg. and $\frac{3}{4}$ " brd.	247
bb l. com.	
c l. 2-fol.	
cc l. more than 2-fol.	75
d palm-like; l. s.-pint.	
e lt. folded lengthwise	393
ee lt. flat.	
f stem hardly any; m. of lt. revolute	390
ff stem large; m. of lt. flat	389
dd not palm-like; l. 2-pint.	
e rhachis of pin. brd. and flat	155
ee rhachis of pin. not brd. and flat.	
f sp. ending branchlets	171
ff sp. st., twin.	
g some of the sp thick, hollow; the pr. con. at b.	185
gg sp. all slender, none hollow or con.	
h sp. not over $\frac{1}{2}$ " lg.	176
hh sp. us. over $\frac{3}{4}$ " lg.	178

AA not thorny.

a l. s. (aa at page 29).	
b l. al. (bb at page 28).	
c l. 3-or more nd. at b. (cc at page 26).	
d l. us. lod.	164
e l. 2-lod.	32
ee l. 3-lod.	
dd l. not lod.	356
e l. with silvery sc.	
ee l. without sc.	
f l. gb.	112
g l. cor at b.	
gg l. not cor at b.	
h l. el.-obl., b. rd., not shining	49
hh l. lan., b. ac., shining ab.	55
ff l. not gb. bel.	
g l. scabrous ab.	
h bk. grey-green, very smooth	297
hh bk. not grey-green nor very smooth.	
i aromatic; l. with 2 gd. at b.	357
ii not aromatic; l. without gd.	56
gg l. not scabrous.	
h l. 3-nd. at b.	48
	50, 53 and 57
hh l. 5-nd. at b.	
i l. very grey tom. bel.	51
ii l. not grey tom. bel.	
j l. not oblique; n. regular, appearing concentric	54
jj l. oblique, n. not regular. nor appearing concentric	41

KEY

	No.
cc l. not 3 or more nd. at b.	
d l. with or. sc. bel.	364
dd l. without sc.	
e l. gd. or pel.-dot.	
f twigs scarred; l. us. over 5" lg.; p. stout, channelled	260
ff twigs not scarred; l. us. un. 4" lg.; p. slender, not channelled.	
g l. co., shining ab.	4
gg l. mem., not shining	6
ee l. not gd. or pel.-dot.	
f twigs with num. twin, spiral hooks	58
ff twigs without hooks.	
g l. rough h. ab.	301
gg l. gb. ab.	
h l. dis. (hh at page 27).	
i a struggling hedge-row shrub	341
ii erect shrubs.	
j l. at end of twigs largest (jj at p. 27)	346

KEY

27

No.

jj l. all similar.	343
k l. num., close-set	
kk l. not particularly num., not close-set.	
l bk. yellow, smooth; calyx much enlarged in fruit	348
ll bk. greyish-brown, rough; calyx not enlarged	349
hh l. not dis.	120
i l. mem.	311
j l. gb., ob. acm.	
jj l. silky bel.,	
ii l. co.	
j l. shining ab.,	
k l. nar. at b. $\frac{1}{4}$ -1" lg.	267
kk l. rd.-cor, at b., $1\frac{1}{2}$ " or more lg.	351
jj l. not shining ab.	
k n. prominent, nearly str.	338
kk n. obscure, not conspicuously str.	
l l. un. $1\frac{1}{2}$ " lg., ob.	15
ll l. over 2" lg., ac. or acm.	355

	No.
bb l. op.	
c st. conspicuous.	
d l. pb. bel.	244
dd l. gb. bel.	
e n. of l. 20-30 pr.	250
ee n. un. 20 pr.	
f l. pd.	245
ff l. ses.	251
cc st. none or minute.	
d shrub of tidal marshes	325
dd not in tidal marshes.	
e l. gd.-dot.	
f l. ses., velvety ab.	228
ff l. pd., gb. ab.	
g l. un. 2" lg. On the plains near the coast	222
gg l. over 3" lg. On the hills.	362
ee l. not gd.-dot.	
f l. aromatic.	
g l. nearly as lg. as brd., pb.	316
gg l. much longer than brd., nearly gb.	314
ff l. not aromatic.	
g l. pb. bel.; bk. very smooth	218
gg l. gb. bel.; bk. not conspicuously smooth.	
h l. co., shining ab.; flowers blue	225 and 226
hh l. not co. nor shining flowers not blue.	
i twigs quadrangular	229
ii twigs r.	318

aa l. com.	
b lt. gd.-dot.	
c lt. cre.	65
cc lt. en.	
d lt. 3-7.	
e a. of lt. emarginate	63
ee a. of lt. not emarginate	62
dd lt. 11-25	64
bb lt. not gd.-dot.	
c l. digitate	319
cc l. not digitate.	
d l. 3-fol.	
e lt. gb.	14
ee lt. not gb.	
f twigs whitish; lt. hoary tom.	116
ff twigs yellowish-brown; lt. ferruginous tom.	115
dd l. more than 3-fol.	
e lt. coarsely ser.	85
ee lt. en.	
f bk. thick, corky.	
g lt. silvery pb. bel.	132
gg lt. not silvery bel.	150
ff bk. thin, not corky.	
g st. ear-shaped with a lg. tail	158
gg st. not ear-shaped or tailed.	
h l. imparipint.	
i plant 1-2 feet high; n. of l. str., par.	133
ii plant 4-6 feet high; n. of l. not str. and par..	131
hh l. paripint.	
i lt. 20-30	160
ii lt. 8-12	161

IV.—CLIMBERS.

1 l. s. (2 on page 32).

A thorny.**a** l. 3- or more nd. at b. 105**aa** l. not 3- or more nd. at b.**b** sp. st.**c** a. of l. lg.-mucronate 20**cc** a. of l. not mucronate 19**bb** sp. not st.**c** th. from the old wood, slightly curved only 93**cc** th. axillary, hd. 326**AA** not thorny.**a** stem sharply quadrangular; often leafless. 110**aa** stem not sharply quadrangular, always leafy**b** l. lod.**c** l. 2-lod. 168**cc** l. 3-5-lod. 111**bb** l. not lod.**c** l. al. (**cc** at page 31).**d** l. gb. bel. (**dd** at page 31).**e** l. 3-5-nd. at b. (**ee** at page 31).**f** bk. corky; l. 4-8" lg. 10**ff** bk. not corky; l. 1-3" lg. 11**ee** l. not 3- or more nd. at b.**f** l. oblique; n. prominent bel. 102**ff** l. str.; n. not prominent bel.**g** l. glaucous 22**gg** l. not glaucous.**h** twigs with num. lenticular warts 95**hh** twigs not warted 101**dd** l. pb. bel.**e** l. 3-5-nd. at b. 111**ee** l. not 3- or more nd. at b.**f** l. or. or reniform, silky bel. 302
and 303**ff** l. obl. or oby., pb. bel. 339**cc** l. op.**d** l. 3-nd. at b. 291
and 292**dd** l. not 3- or more nd. at b.**e** l. gb. bel.**f** n. prominent bel.**g** l. co. 60**gg** l. mem. 216**ff** n. not prominent bel.**g** l. us. over 3" lg., rd. at a. 100**gg** l. us. un. 3" lg., ac. or acm. at a. 99**ee** l. not gb. bel.**f** l. m. en. 214**ff** l. m. ser. 324

2 l. com.	No.
A not thorny (AA on page 33).	
a l. digitate.	238
aa l. not digitate.	
b l. 3-5-fol.	
c lt. gb. bel.	113
cc lt. not gb. bel.	
d lt. mem., densely silvery-grey bel.	136
dd lt. co., finely silky bel.	139
	and 141
bb l. more than 5-fol.	
c l. pedate	114
cc l. not pedate.	
d l. 2-pint.	169
dd l. 1-pint.	
e lt. op.	
f lt. mem.	134
ff lt. rigidly sub-co.	149
ee lt. al.	144

AA thorny.	No.
a palm-like canes	394
	and 395
aa not palm-like canes.	
b l. 3-fol.	61
bb l. 2-pint.	
c l. over 8" lg.	
d lt. over 1" lg.	
e st. pint	151
ee st. none	152
dd lt. un. 1" lg.	153
cc l. un. 7" lg.	
d gd. on p. and rhachis.	
e lt. over 25 pr.	
f lt. close set and overlapping.	
g lt. ob., gb. bel.	188
gg lt. ac., slightly pb. bel.	189
ff lt. not close set or overlapping	190
ee lt. not over 25 pr.	
f lt. gb. bel., 12-25 pr.	186
ff lt. pb. bel., 10-12 pr.	187
dd p. and rhachis without gd.	
e l. un. 1" lg.	175
ee l. over 1" lg.	
f pin. 8 pr.	154
ff pin. un. 8 pr.	
g lt. 10-15 pr.	174
gg lt. 4-8 pr.	
h pin. 3-5 pr. 3-4" lg.	172
hh pin. 5-7 pr., 2-3" lg.	173

[The keys style has been set in accordance with author's request.]

PART II.—DESCRIPTIVE.

I.—DILLENACEÆ.

1. *DILLENIA PENTAGYNA* Roxb. Tel. *Chinnakalinga*, *Parudu*. A medium-sized tree. Bark smooth, grey or pale brown; red within. Leaves oblong-lanceolate, prominently ribbed, glabrous; 1 to 2 feet long. Flowers in fascicles from tubercles on the old wood, yellow; about 1 inch diameter; in the hot season. Fruit covered and concealed by the fleshy calyx, about 1 inch diameter; at the end of the hot season. In hilly tracts, not common.

2. *DILLENIA BRACTEATA* W. Tel. *Kaltek*. A medium-sized tree. Leaves coriaceous, oblong, pubescent on the nerves below; 3 to 8 inches long. Flowers in few-flowered, terminal racemes, white; $2\frac{1}{2}$ inches diameter; about February.

On dry hills above 1,000 feet in the North Arcot and Chingleput districts; very abundant in the Kambakkam hills in the latter, where it often grows in large, pure, circular clumps.

II.—ANONACEÆ.

3. *POLYALTHEA CERASOIDES* Hook. f. & T. Tel. *Gutti*. A fair-sized tree. Bark rough, grey. Leaves oblong-lanceolate; 3 to 6 inches long. Flowers axillary, 1 to 3 together, greenish; about $\frac{1}{2}$ inch diameter; May to September. Fruit consisting of a number of red, stalked carpels about $\frac{1}{3}$ inch diameter; September to January.

In all the districts from about sea-level to 3,000 feet or more; rare in the driest parts, common in the valleys.

4. *POLYALTHEA KORINTI* Hook. f. & T. Tel. *Ellidabba*. A shrub. Leaves coriaceous, ovate to elliptic-oblong, shining above, pellucid-dotted; 2 to 4 inches long. Flowers solitary from tubercles on the trunk, greenish; from March in damp localities but usually during the rains. Fruit something like that of the last species; November to March.

Not common, mainly in the valleys from sea-level to 600 feet.

5. *POLYALTHEA SUBEROSA* Hook. f. & T. Tel. *Chilka-duduga*. A small tree. Bark thick, corky, brown. Leaves oblong, puberulous below; $2\frac{1}{2}$ to 5 inches long. Flowers 1 or 2 from extra-axillary woody tubercles. Fruit purple.

In hill forests in the valleys, especially in the Nallamalai hills.

6. *ANONA SQUAMOSA* Linn. Eng. *The Custard-apple*. Tel. *Sita-pandu*. A shrub. Bark thin, grey. Leaves oblong to elliptic, pellucid dotted; $1\frac{1}{2}$ to 4 inches long. Flowers solitary, petals thick, yellowish-white; May to June. Fruit is the well-known edible custard-apple; usually in the early hot season, but at various times.

Not indigenous but run wild and very abundant in dry tracts.

7. *SACCOPETALUM TOMENTOSUM* Hook. f. & T. A medium-sized tree. Bark deeply cracked, dark. Leaves ovate-oblong; 4 to 7 inches long. Flowers one to many together, leaf-opposed, greenish, 1 inch diameter; in the hot season. Fruit as in *Polyalthea*; 1 inch long, purple; about August. Somewhat resembling *Polyalthea cerasoides* but more tomentose.

In the hills.

8. *ALPHONSEA MADRASPATANA* Bedd. A small evergreen tree. Leaves thick, coriaceous, lanceolate to oblong, glabrous, shining; $1\frac{1}{2}$ to 4 inches long. Flowers extra-axillary, fascicled, small, greenish; in the hot season. Fruit ovoid, tomentose, yellow; August to September.

In ravines up to about 2,500 feet; not common.

9. *ALPHONSEA SCLEROCARPA* Thw. Tel. *Pulusu-mamidi*. A small evergreen tree. Leaves thick, coriaceous, glabrous; 2 to $3\frac{1}{2}$ inches long. Flowers extra-axillary, fascicled, small; in the hot season. Fruit ovoid, bony and warted, yellow; August and September. In similar situations as the last species.

III.—MENISPERMACEÆ.

10. *ANAMIRTA COCCULUS* W. & A. A large, climber. Bark vertically furrowed, light grey. Leaves sub-coriaceous, broad ovate, cordate or truncate at base, usually 5-nerved, glabrous; 4 to 8 inches long. Flowers in branched panicles; about November. On dry hills up to about 3,500 feet, not common.

11. *PACHYGONE OVATA* Miers. Tel. *Peddu-dusari*. A fair-sized climber. Leaves triangular-ovate, thick, coriaceous, 3 to 5-nerved, glabrous, shining above; 1 to 3 inches long. Flowers in axillary racemes, small, scented; in the early hot season. Fruit yellowish, about $\frac{1}{3}$ inch diameter, the seed bent into the shape of a horse-shoe; in the late hot season. Widespread and common, from the coast line to about 3,000 feet.

IV.—CAPPARIDACEÆ.

12. *NIEBURHIA APETALA* Dunn. (N. *LINEARIS* DC.) Tel. *Pilli-adugu*. A small tree. Bark thin,

granular, brown. Leaves 3 to 5-foliate, leaflets thick from linear to ovate, glabrous; $1\frac{1}{2}$ to 3 inches long. Flowers in few-flowered, terminal or axillary racemes, greenish-purple; March to August. Fruit ovoid, about $\frac{1}{2}$ inch diameter. In dry tracts, not common. The wood includes bark tissue as in, *Dalbergia paniculata*.

13. *CRATÆVA RELIGIOSA* Forst. Tel. *Uskia-man, Voolemara*. Often a quite large tree but usually small. Bark horizontally wrinkled, fairly thick, grey. Leaves 3-foliate; leaflets lanceolate to obovate, glabrous; 2 to 6 inches long. Flowers in terminal or axillary many-flowered corymbs, large, white with long purple stamens; during the hot season. Fruit globular, 1 to 2 inches diameter; during the rains. Usually near streams in all districts, but also on dry stony hills (Gandikota in Cuddapah). Often planted. From sea-level to about 1,500 feet.

14. *CADABA TRIFOLIATA* W. & A. Tel. *Nallagara*. A shrub. Bark thin, somewhat rough, brown. Leaves 3-foliate (sometimes 1, 2 or 4); leaflets lanceolate or ovate, glabrous, shining above; $1\frac{1}{2}$ to 3 inches long. Flowers in few-flowered terminal or axillary corymbs, about 2 inches diameter, with 2 large petals and conspicuous white stamens; March to September. Fruit like a narrow, blunt chili, red; during the rains. Usually in fairly damp, sheltered valleys (Balapalli and Mamandur in Cuddapah and Chittoor) but also on dry laterite soils (Nellore); from about 70 to 700 feet. The wood includes bark tissue.

15. *CADABA INDICA* Lam. Tel. *Cheyikaduta*. A rambling shrub. Bark slightly rough, brown. Leaves elliptic-oblong, glabrous; $\frac{3}{4}$ to $1\frac{1}{2}$ inches long. Flowers in few-flowered terminal racemes, small,

greenish; January to October. Fruit like that of the last species; during the rains. Very common everywhere on fairly good soil; from sea-level to about 3,000 feet.

16. *CAPPARIS SEPIARIA* Linn. A straggling thorny shrub. Bark thin, brown. Leaves sub-coriaceous, oblong or obovate, glabrous, shining; $\frac{3}{4}$ to $1\frac{1}{2}$ inches long. Flowers in umbels, small, greenish; May to July. Fruit globose, about $\frac{1}{4}$ inch diameter, black; September to December. Very common in dry forests; from sea-level to 3,000 feet.

17. *CAPPARIS STYLOSA* DC. (*C. DIVARICATA* Hook f. & T.) Tel. *Remidi*. A large thorny shrub. Bark thick, rough, deeply cleft, brown. Leaves narrow oblong, 5 to 7-nerved, glabrous; $1\frac{1}{4}$ to $2\frac{1}{2}$ inches long. Flowers axillary, solitary, reddish, fairly large; about June. Fruit globose, 2 inches diameter, warted, scarlet. In dry forests, often on black-cotton soil; up to 2,500 feet.

18. *CAPPARIS BREVISPIA* DC. (*C. ZEYLANICA* Wall). A large thorny shrub. Leaves coriaceous, elliptic to broadly lanceolate; $1\frac{1}{2}$ to $2\frac{1}{2}$ inches long. Flowers axillary, solitary, fairly large, white marked with reddish-brown; January to April. Fruit ovoid, smooth; 2 inches diameter. Abundant in the Chingleput plains, not common elsewhere and not above 600 feet.

19. *CAPPARIS ROXBURGHII* DC. Tel. *Araidonda*. A strong woody climber, thorny or not. Leaves oblong or obovate, glabrous, shining; $1\frac{1}{2}$ to $2\frac{1}{2}$ inches long. Flowers in axillary or terminal few-flowered corymbs, white; in the hot season. Fruit globose, $1\frac{1}{2}$ to $2\frac{1}{2}$ inches diameter, purple. In the plains near the coast.

20. *CAPPARIS ZEYLANICA* Linn. (*C. HORRIDA* Linn f.) Tel. *Atonda*. A very thorny woody climber. Bark

thick, rough, yellowish-brown. Leaves elliptic-oblong, glabrous, shining above; 1 to 3 inches long. Flowers white, turning reddish-purple; January to March. Fruit globose, reddish-brown, $1\frac{1}{2}$ inches diameter; during the rains. Very common in the dry tracts, from sea-level up to about 2,500 feet.

21. *CAPPARIS GRANDIS* Linn. F. Tel. *Guli*. A small tree, thorny or not. Bark rough, corky, deeply cleft and irregularly cracked, brown. Leaves elliptic obovate, more or less velvety green; 1 to $2\frac{1}{2}$ inches long. Flowers usually solitary, supra-axillary, greenish; during the late hot season. Fruit globose, $1\frac{1}{2}$ inches diameter, red-brown.

In hilly country, not common.

22. *MÆRUA ARENARIA* Hook f. & T. A woody climber. Bark thin, yellow. Leaves elliptic-oblong, glaucous; 1 to 3 inches long. Flowers numerous, in corymbs, greenish; from December to March. Fruit elongated, twisted and knotted, pale brown; about June. Bark tissue included in the wood. Common in open forests from 500 to 2,500 feet.

V.—BIXACEÆ.

23. *COCHLOSPERMUM GOSSYPIUM* DC. Eng. *The Hill-cotton tree*. Tel. *Kanda-gogu*. A fair-sized tree. Bark thick, fibrous, deeply furrowed, brown, red within. Leaves palmately 5-lobed, white tomentose below; 3 to 7 inches diameter; petiole long. Flowers in terminal few-flowered panicles, 3 to 4 inches diameter, golden yellow; in the early hot season when the tree is leafless. Fruit rounded, leathery, 2 to 3 inches diameter, dark brown; the seeds covered with white cottony fibres; May and June. Common on dry, stony hill sides from 800 to 3,000 feet.

24. *SCOLOPIA CRENATA* Clos. A small, usually thorny tree. Bark smooth, reddish-grey. Leaves ovate, margins usually with minute glandular teeth; 2 to 6 inches long. Flowers in many-flowered axillary panicles, pale pink; during the hot season.

Above 2,000 feet, not common.

25. *FLACOURTIA RAMONTCHI* L.' Herit. Tel., Kanregu, Peddapuliellaki. A small thorny tree. Bark smooth, grey. Leaves elliptic, crenate or serrate, glabrous; $1\frac{1}{2}$ to 3 inches long. Flowers in small racemes, small; March and April. Fruit rounded, small, purple; May and June.

From about sea-level to the highest hill tops.

26. *FLACOURTIA SEPIARIA* Roxb. Tel. Pullercka, Pulileka, Pulregu. A thorny shrub. Bark thin, exfoliating in irregular narrow strips, grey. Leaves elliptic or obovate, crenate, stiff, glabrous; $\frac{1}{2}$ to 1 inch long. Flowers axillary, solitary or a few together, very small; August to January. Fruit rounded, small; during the hot season. Common in scrub forest in the plains and in the dry hills up to 4,000 feet.

VI.—PITTOSPORACEÆ.

27. *PITTOSPORUM FLORIBUNDUM* W. & A. A. small tree, the twigs emit a sharp resinous smell when peeled. Bark thin, light greenish-grey with large horizontal lenticels. Leaves lanceolate or oblong-lanceolate, glabrous, shining above; 3 to 6 inches long. Flowers in many-flowered terminal corymbs, yellowish-green; about May. Fruit round, small. In the hills at about 4,000 feet.

VII.—GUTTIFERÆ.

28. *GARCINIA SPICATA* Hook. f. & T. G.) *OVALIFOLIA* Hook f.). Tel. Pidathi, Adiviponnu.

A moderate-sized evergreen tree. Bark thick, smooth, horizontally wrinkled, olive-green or brownish. Leaves coriaceous, approximately orbicular; 2 to 4 inches long. Flowers in short axillary racemes, numerous, small; during the rains. In the coastal tracts—Shriharikota, etc.

29. *CALOPHYLLUM INOPHYLLUM* Linn. Tel. Puna. A medium-sized, ornamental tree. Bark smooth, dark-grey or blackish-brown. Leaves coriaceous, broadly elliptic with numerous close nerves, glossy; 4 to 7 inches long. Flowers white with golden yellow stamens, scented, in few-flowered axillary or terminal racemes, about 1 inch diameter. Fruit spherical, about 1 inch diameter. Not indigenous, planted as an ornamental tree.

VIII.—DIPTEROCARPACEÆ.

30. *SHOREA TALURA* Roxb. Tel. Jalari. A large tree. Bark grey with longitudinal fissures. Leaves elliptic-ovate, nerves 12 to 15, close-set, glabrous; $2\frac{1}{2}$ to 6 inches long. Flowers in many-flowered axillary panicles, white, scented; in the hot season. Fruit winged with the persistent calyx lobes; May to July.

In the hills from about 800 feet to the highest elevations.

31. *SHOREA TUMBAGGAIA* Roxb. Tel. Thamba. A large tree, much resembling the last. Bark with deep vertical fissures, dark-grey. Leaves very like those of the last species but the nerves fewer and further apart, usually more than $\frac{1}{4}$ inch. Flowers and fruit very like the last and at about the same season.

In similar localities as *S. Talura* but more gregarious and limited. Found mainly in the

Kambakkam Hills of Chingleput, the Veligondas and Seshachalams from 600 to about 4,000 feet.

IX.—MALVACEÆ.

32. *HIBISCUS PLATANIFOLIUS* Sw. (*H. COLLINUS* Roxb.). Tel. *Adavi-patti*, *Kandagang*. A large shrub. Leaves palmately 3-lobed, 4 to 6 inches diameter. Flowers axillary, solitary, pink with a dark centre, 3 inches diameter; during the rains. Fruit a rounded capsule covered with brown hairs; soon after the flowers and persisting till March. In hilly tracts from 500 to 2,500 feet.

33. *THESPESIA POPULNEA* Cav. Eng. *The Indian-tulip tree*, *Portia*. Tel., *Gangareni*. A fair-sized evergreen tree. Bark thick, rough, deeply vertically fissured, exfoliating in irregular longitudinal scales, grey, fibrous and pink with white stripes within. Leaves cordate, 5 to 7-nerved at base, glabrous; 3 to 6 inches long. Flowers axillary, solitary, 2 to 3 inches diameter, yellow fading to pink. Fruit rounded, about 1 inch diameter, brown. Probably not wild in the region but often planted as an avenue tree.

34. *KYDIA CALYCINA* Roxb. Tel. *Konda-patti*, *Peddapotri*. A medium-sized tree. Bark peeling in irregular flakes, grey. Leaves palmately 7-nerved, 3 to 7 lobed, glabrous above, tomentose below; 3 to 6 inches long; petioles 1 to 2 inches long. Flowers in many-flowered terminal panicles, white; October to December. Fruit a small capsule appearing to be winged through the persistent sepals closing over it. In dry hills from 2,000 to 4,000 feet.

35. *BOMBAX MALABARICUM* DC. Eng. *The Silk-cotton tree*. Tel. *Buraga*. A large tree. Bark

bearing prickles when young, when older thick, vertically furrowed, light grey, red within. Leaves digitate; leaflets lanceolate or ovate, frequently caudate, glabrous; 3 to 7 inches long. Flowers large, red; March and April. Fruit a woody capsule, spindle-shaped, 3 to 5 inches long, the seeds covered with white silky fibres; about June.

In all districts from 100 to 2,500 feet, not very abundant.

X.—STERCULIACEÆ.

36. *STERCULIA GUTTATA* Roxb. A medium-sized evergreen tree. Bark much cracked; shoots stellately downy. Leaves obovate-oblong, glabrous above, stellately pubescent below; 5 to 8 inches long; petiole 1 to 2 inches long. Flowers in axillary racemes, $\frac{3}{4}$ inch diameter, yellow spotted with purple; about November. Fruit of 1 to 5 follicles, 3 inches long, orange coloured. Possibly not found in the area but occurs in the Sandur Hills of Bellary.

37. *STERCULIA POPULNIFOLIA* Roxb. (*S. POPULIFOLIA* Roxb.). Tel. *Delibuda*. A small tree. Bark thick, fibrous, grey. Leaves palmately 7-nerved, 3 to 5 lobed, rounded-cordate; 3 to 4 inches long; petioles 2 to 6 inches long. Flowers in axillary and terminal panicles, scarlet. Fruit inflated, papery. Usually among rocks.

38. *STERCULIA URENS* Roxb. Tel. *Yerra-poliki*. A large tree. Bark thick, smooth, white, greenish or pinkish white, exfoliating in thin papery flakes. Leaves palmately 5-lobed, velvety below; 8 to 12 inches diameter; petioles 5 to 9 inches long. Flowers in many-flowered terminal panicles, small, yellowish, viscous; February and March. Fruit of 4 to 6 woody ovoid follicles, red; with stinging bristles.

On dry stony slopes and among rocks from 1,000 to 2,500 feet.

39. *STERCULIA VILLOSA* Roxb. A large tree. Bark very fibrous, with corky warts, grey or brown. Leaves palmately 5-lobed, velvety below; 10 to 18 inches diameter; petioles 6 to 15 inches long. Flowers in many-flowered terminal panicles, pink; about January. Fruit similar to that of the last species but without stinging bristles. Possibly not to be found in the region.

40. *FIRMIANA COLORATA* R. Br. (*STERCULIA COLORATA* Roxb.). Tel. *Kunchi-poliki, Karaka*. A small tree, usually crooked. Bark fissured, grey. Leaves usually 3-lobed but sometimes unlobed, 3 to 5-nerved at base; 4 to 8 inches diameter; petioles 4 to 12 inches long. Flowers in many-flowered terminal panicles, scarlet; in April and the tree is then very conspicuous as it is leafless. Fruit of papery follicles that open before maturity; ripe in May. In dry hills, especially among rocks, from 2,000 to 4,000 feet.

41. *HELICTERES ISORA* Linn. Tel. *Gubathada*. A large shrub. Sometimes confused with *Grewia tiliaefolia*. Bark fibrous, grey. Leaves bifarious, obovate or nearly orbicular, stellately hairy; 3 to 5 inches long. Flowers axillary, solitary or a few together, narrow, about $1\frac{1}{2}$ inches long, red becoming bluish or lead coloured when fading; August to December. Fruit of 5 follicles twisted together and resembling a rope, about $2\frac{1}{2}$ inches long; January to March. In hilly tracts, not usually in the drier parts, from 400 to 1,500 feet.

42. *PTEROSPERMUM SUBERIFOLIUM* Lam. Tel. *Thada, Naraoddu*. A moderate-sized tree. Leaves distichous, oblong or obovate-oblong, usually

irregularly angled near the apex, tomentose and cream coloured below; 2 to 4 inches long. Flowers axillary, solitary or a few together, white, scented, $1\frac{1}{2}$ to 2 inches diameter; about September. Fruit a woody capsule, $1\frac{1}{2}$ to 2 inches long, dark-brown; seeds winged at one end; in the cold season. From the coast (Shriharikota forests) up to about 3,000 feet, especially near streams.

43. *PTEROSPERMUM HEYNEANUM* Wall. Tel. *Thada*. A moderate-sized tree very similar to the last. Leaves oblong, usually angled near the apex, grey pubescent below with rusty pubescence on the veins; 4 to 6 inches long. Flowers and fruit as in the last species and at the same season. In similar situations as the last but less frequent in the plains.

44. *ERIOALÆNA HOOKERIANA* W. & A. Tel. *Narbotku*. A moderate-sized tree. Bark thin, grey. Leaves chartaceous or coriaceous, rounded, cordate, irregularly toothed, pubescent below; 4 to 5 inches diameter. Flowers in axillary cymes, yellowish, $1\frac{1}{2}$ to 2 inches diameter, with multifid involucre bracts; about September. Fruit a woody, tubercled capsule, about 1 inch diameter; about October. In the hills, especially on dry slopes from 1,500 to 4,500 feet.

45. *ERIOALÆNA QUINQUELOCULARIS* Wight. Very similar to the last species and distinguished by the involucre bracts being entire or only toothed and the capsules not being tubercled. In similar situations but possibly not found in the region; it occurs in the Sandur Hills.

46. *ERIOALÆNA LUSHINGTONII* Dunn. Very similar to the last two species but the leaves are membranous and very white below; the involucre bracts are multifid. So far reported only from the Nallamalais.

47. *GUAZUMA TOMENTOSA* Kunth. Eng. *The Bastard Cedar*. Tel. *Devadari*. A moderate-sized tree. Bark fibrous, rough, brown. Leaves obliquely cordate, rugose, tomentose; 2 to 5 inches long. Flowers in large terminal or axillary panicles, small, bright-yellow. Fruit globose, woody, tubercled, red or purple and resembling a small mulberry.

A foreign tree much planted in avenues, etc.

XI.—TILIACEÆ.

48. *GREWIA DAMINE* Gaertn. (G. *SALVIFOLIA* Heyne) A large shrub. Bark very rough, dark. Leaves ovate oblong or lanceolate, base oblique, 3-nerved, usually serrate, densely hairy below; $1\frac{1}{2}$ to 2 inches long. Flowers in small axillary umbels, yellow; during the rains. Fruit $\frac{3}{4}$ inch diameter, pubescent; during the cold season. In the Nallamalais and elsewhere in the hills at about 1,000 feet.

49. *GREWIA ORIENTALIS* Linn. (G. *COLUMNARIS* Sm.). A large straggling shrub. Bark dark-brown. Leaves elliptic-oblong, toothed, base 3-nerved, glabrous below; 2 to 3 inches long. Flowers in terminal or axillary cymes, white; May to August. Fruit $\frac{3}{4}$ inch diameter; July to December. Common from near sea-level to 2,000 feet.

50. *GREWIA RHAMNIFOLIA* Heyne (G. *ORIENTALIS* W. & A.). A large straggling shrub. Leaves ovate, toothed, glabrous except on the nerves below; 1 to 3 inches long. Flowers in many-flowered axillary cymes 1 to 2 inches diameter, white; during the cold season. Fruit $\frac{1}{2}$ inch diameter, wrinkled, yellow; February to June. In the lower hills.

51. *GREWIA ROTUNDIFOLIA* Juss. (G. *ORBICULATA* Rottl.). Tel. *Jana*. A large shrub or small tree. Leaves rounded, velvety above, white tomentose below, finely toothed; 1 to 2 inches long. Flowers in extra-axillary cymes, small yellow; in the hot season. Fruit globose, small; during the rains. Very common in scrub forest in the plains and on dry slopes up to 2,000 feet.

52. *GREWIA TILICEFOLIA* Vahl. Tel. *Charachi, Peddajana*. A fair-sized tree. Bark rough, grey on young, dark-brown on old trees. Leaves ovate, often lobed at the apex, tomentose below, 6-nerved at base; 3 to 5 inches long. Flowers in axillary umbels, small, yellow with reddish stamens; April to August. Fruit globose, small, smooth, reddish; during the rains. A common tree from 1,000 to 4,000 feet.

53. *GREWIA FLAVESCENS* Juss. (G. *PILOSA* W. & A.) A large shrub or small tree. Bark smooth, dark-grey. Leaves ovate, 3 to 5-nerved at base; 2 to 4 inches long. Flowers yellow; September to November. Fruit $\frac{1}{3}$ inch diameter, yellowish-brown; December to March. Fairly common from 300 to 2,500 feet.

54. *GREWIA VILLOSA* Willd. A shrub. Leaves with 5 well-marked radiating ribs from the base, the marginal teeth tufted with hairs, the transverse veins regular and appearing concentric, velvety below; $1\frac{1}{2}$ to 4 inches diameter. Flowers in small axillary or leaf-opposed cymes, yellow; during the rains. Fruit globose, $\frac{1}{2}$ inch diameter, yellowish-red; soon after the flowers.

In dry forests up to about 1,500 feet.

55. *GREWIA DISPERMA* Rottl. (G. *LÆVIGATA* Vahl.). Tel. *Thegalla*. A large shrub or small

tree. Bark thin, dark-grey. Leaves lanceolate, sharply toothed, glabrous, shining above, 3-nerved at base; 2 to 4½ inches long. Flowers in axillary umbellate cymes, white; July to December. Fruit glabrous, smooth, yellow; August to January. In the plains scrub forests and on dry slopes up to about 1,000 feet.

56. *GREWIA ASPERA* Roxb. (*G. ABUTIFOLIA* Mast.). A shrub. Leaves roundish ovate, scabrous above, often lobed at the apex, 3-nerved at base; 3 to 4½ inches long. Flowers in axillary umbellate cymes, white; April to July. Fruit ½ inch diameter, fleshy; during the rains. In hill tracts from 1,000 to 4,000 feet.

57. *GREWIA HIRSUTA* Vahl. A small shrub. Bark brown. Leaves distichous, ovate or lanceolate, toothed, densely villous below, oblique and 3-nerved at base; 2 to 3 inches long. Flowers in axillary umbellate cymes, small, white; February to August. Fruit globose, ½ inch diameter, wrinkled, yellow; soon after the flowers. Common in forest undergrowth from 1,000 to 4,000 feet.

XII.—LINACEÆ.

58. *HUGONIA MYSTAX* Linn. Tel. *Kaki-bira*, A rambling shrub or small tree with twin spiral hooks on the branchlets. Bark thick, corky, deeply fissured in old plants, yellowish-white. Leaves elliptic-obovate, glabrous; 1½ to 3 inches long. Flowers at the extremities of short branchlets, 1 to 1¼ inches diameter, bright yellow; June to February. Fruit a globose red berry ⅜ inch diameter; soon after the flowers. Common in scrub jungle and open dry forest from near sea-level to 3,000 feet.

59. *ERYTHROXYLON MONOGYNUM* Roxb. Tel. *Gatherai*, *Devadaru*. A small tree. Bark thick, rough, dark-brown. Leaves obovate, glabrous, shining above; 1 to 2 inches long. Flowers axillary, solitary or fascicled, small, white; June to January. Fruit a red, oblong berry, ⅓ inch long; soon after the flowers. Common in scrub and open hill forest from 400 to 2,500 feet.

XIII.—MALPIGHIACEÆ.

60. *HIPTAGE MADABLOTA* Gaertn. Tel. *Adavi-puttanji*. A large climbing shrub. Bark thin, brown. Leaves coriaceous, elliptic-oblong, glabrous, shining above; 4 to 7 inches long. Flowers in terminal or axillary racemes, ½ to ¾ inches diameter, with four white and one coloured (red and yellow) petals, scented; March to September. Fruit with 1 large and 2 smaller wings, brown. In hill forests, especially near streams, from 1,000 to 4,500 feet.

XIV.—RUTACEÆ.

61. *TODDALIA ASIATICA* Lam. (*T. ACULEATA* Pers.). A slender, very thorny shrub. Bark thin, green when young, brown later. Leaves 3-foliate, prickly; leaflets coriaceous, elliptic or obovate, glabrous; 1 to 3½ inches long. Flowers in terminal or axillary cymes or panicles, very small, white; August to February. Fruit a small yellow berry; at the same time as the flowers. In dry forests from 600 to 2,500 feet.

62. *GLYCOSMIS COCHINCHINENSIS* Pierre. (*G. PENTAPHYLLA* Corr.). Tel. *Gunji*, *Gonji*. A shrub with a pronounced unpleasant smell when crushed. Bark thin, light greyish-yellow. Leaves usually 5-foliate, but at times 1 to 7, leaflets oblong-lanceolate, glabrous; 2 to 8 inches long. Flowers in

small axillary panicles, whitish; practically throughout the year. Fruit a globose berry, smooth, pinkish-white or cream coloured, the outer skin appearing transparent. Common in sheltered positions as undergrowth, especially near villages, from 200 to 3,000 feet.

63. *MURRAYA EXOTICA* Linn. Tel. *Narra-gunji*. A large evergreen shrub or small tree. Bark thin, dark-grey or brown. Leaves 3 to 7-foliate; leaflets ovate-elliptic or rhomboid, glabrous, shining, oblique at base; $1\frac{1}{2}$ to 3 inches long. Flowers usually axillary and solitary, $\frac{3}{4}$ inch long, white, scented; February to August. Fruit an ovoid, red berry, $\frac{1}{2}$ to $\frac{3}{4}$ inch long, smooth. In hill tracts, especially near streams; 2,000 to 4,000 feet.

64. *MURRAYA KENIGII* Spreng. Eng. *The Curry-leaf plant*. Tel., *Karivepaku, Karepaku*. A shrub with very aromatic leaves. Bark thin, grey, with shallow netted fissures. Leaves imparipinnate, 11 to 25-foliate; leaflets extremely oblique at base, ovate, glabrous, dotted with black points; $\frac{3}{4}$ to 2 inches long. Flowers in many-flowered terminal corymbs, small, white; during the rains. Fruit a globose berry, rough with glands, black. In hill tracts as undergrowth in forests from 500 to 1,500 feet.

65. *CLAUSENA WILLDENOVII* W. & A. A large shrub. Leaves imparipinnate, 5 to 15-foliate; leaflets ovate, base very oblique, pubescent; 2 to 4 inches long. Flowers in axillary racemes, small, greenish-white, scented. Fruit ovoid, $\frac{1}{2}$ inch diameter, greenish, edible.

66. *LIMONIA CRENULATA* Roxb. (L. *ACIDISSIMA* W. & A.). Tel. *Munukudu, Tor-elaga*. A small thorny tree. Bark thin, corky, shallowly vertically fissured, light-brown. Leaves 5 to 9-foliate, with

an articulated, winged petiole and rhachis; leaflets trapezoid-ovate, crenulate, glabrous; 1 to 2 inches long. Flowers in small axillary racemes, small, greenish. Fruit a globose berry, $\frac{1}{2}$ inch diameter, black, shining, very acid. Common but scattered in hill forests from 1,000 to 2,500 feet.

67. *LIMONIA ALATA* W. & A. Tel. *Nalla-munukudu, Adavi-nimma*. A small tree. Bark thin, smooth, dark-brown. Leaves 3-foliate, the petiole usually narrowly winged; leaflets coriaceous, obovate, shining, glabrous; $1\frac{1}{4}$ to $2\frac{1}{2}$ inches long. Flowers in small terminal or axillary panicles, white; during the hot season. Fruit globose, resembling a small lime, 1 inch diameter, green; during the rains. Fairly common in plains forests and up to 1,600 feet.

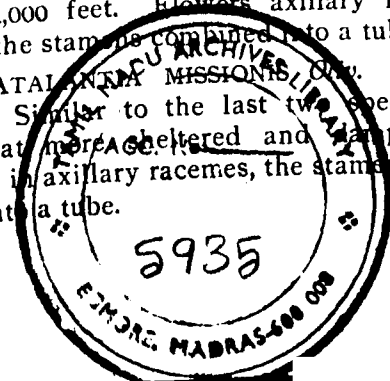
68. *ATALANTIA MONOPHYLLA* Corr. Tel. *Munukudu, Adavi-nimma*. A small thorny tree. Bark thin, slightly rough, reddish-brown, yellow within. Leaves unifoliate, coriaceous; leaflet elliptic, glabrous; 1 to 3 inches long. Flowers in axillary fascicles, white, the stamens combined into a tube; October to March. Fruit like a small green lime; soon after the flowers. Common from little above sea-level to 3,000 feet.

69. *ATALANTIA RACEMOSA* W. & A. Tel. *Adavi-nimma*. Very similar to the last species and found in similar situations but at higher elevations up to 4,000 feet. Flowers axillary in racemose cymes, the stamens combined into a tube.

70. *ATALANTIA MISSIONIS* Oliv. Tel. *Adavi-nimma*. Similar to the last two species but in somewhat more sheltered and damp localities. Flowers in axillary racemes, the stamens not combined into a tube.

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71. *FERONIA ELEPHANTUM* Corr. Eng. *The Wood-apple tree*. Tel. *Velaga, Viliam, Biliam*. A large thorny tree, young ones particularly so, usually with horizontal branches. Bark thick, rough, deeply vertically fissured, dark grey-brown, nearly black. Leaves 3 to 9-foliate, smelling strongly of aniseed or liquorice; leaflets rigid, opposite, obovate or cuneate, glabrous, shining; 1 to 2 inches long. Flowers in lateral or terminal panicles, reddish-green; March and April. Fruit globose, woody, 2 to 2½ inches diameter, grey, the pulp is edible; during the rains and cold season.

In dry open forests from sea-level to about 2,500 feet.

72. *ÆGLE MARMELOS* Corr. Eng. *The Bael tree*. Tel. *Maradu*. A small or medium-sized thorny tree. Bark thick, outer part soft with irregular flakes, grey. Leaves 3-foliate; leaflets membranous, lanceolate, glabrous; 1½ to 3 inches long. Flowers in axillary panicles, greenish-white, scented. Fruit globose, about 2½ inches diameter, with an edible pulp; March to August. In dry forests from 600 to 2,500 feet.

73. *CHLOROXYLON SWIETENIA* DC. (Under *Meliaceae*). Eng. *The Satin-wood tree*. Tel. *Billu, Billudu*. A medium-sized tree. Bark very thick, very corky, deeply furrowed, yellowish-grey. Leaves 20 to 40 foliate; leaflets oblong, oblique, glabrous; ¼ to 1¼ inches long. Flowers in axillary and terminal panicles, white; March and April. Fruit a 5-valved woody capsule, ¾ inch long; seeds winged; at the end of the hot season. Common in dry forest from sea-level to 3,000 feet.

XV.—SIMARUBACEÆ.

74. *AILANTHUS EXCELSA* Roxb. Tel. *Peddaman*. A large tree. Bark rough, light greyish-brown. Leaves large, 16 to 30-foliate, ovate-lanceolate, margins with large teeth, oblique, glabrous; 3 to 6 inches long. Flowers in large terminal and axillary panicles, small; about January. Fruit winged, 1 to 2 inches long; during the hot season. In open woods from near sea-level to 4,000 feet, not abundant.

75. *BALANITES ROXBURGHII* Planch. Tel. *Gara, Gari*. Usually a small, but sometimes a medium-sized, thorny tree. Bark thin, grey. Leaves 2-foliate; leaflets elliptic or obovate, almost sessile; ¾ to 1½ inches long. Flowers in few-flowered axillary cymes, small, greenish-white, scented. Fruit woody, oblong; 1½ to 2 inches long, brown; December to January. In dry open forests, especially on black cotton soil where it is apt to become gregarious.

XVI.—OCHNACEÆ.

76. *OCHNA SQUARROSA* Linn. Tel. *Sunnari*. A small tree. Bark thin, smooth, brown. Leaves thin, elliptic to obovate, finely serrate, veins numerous and parallel, glabrous, shining; 2 to 5 inches long. Flowers in short racemes from the old wood, 1½ inches diameter, bright yellow, scented; about April. Fruit of several ovoid, black carpels which are smooth and about ¼ inch long; about August.

At low elevations, not common.

77. *OCHNA BEDDOMEI* Gamble. Tel. *Sitti-mugi, Moghi, Jetta-moghi, Kukka-movi*. A small tree; the twigs marked with the scars of fallen leaves. Bark rough, dark-grey; red within. Leaves oblong

or obovate-oblong, almost sessile, nerves irregular; $2\frac{1}{2}$ to 8 inches long. Flowers in few-flowered racemes from the old wood, $1\frac{1}{2}$ to 2 inches diameter, bright yellow; March and April. Fruit ovoid, smooth, black, shining, $\frac{3}{8}$ inch long; April and May. Abundant on rocky hills from 600 to 4,500 feet.

78. *OCHNA GAMBLEI* King. Very similar to the last species and difficult to distinguish from it. The leaves are smaller and more rounded with more numerous and regular nerves. I have seen it only on the Kambakkam Hills in Chingleput, at about 400 feet, in the North Vellore Hills at 800 feet and the Lankamalais of Cuddapah at about 1,000 feet.

XVII.—BURSERACEÆ.

79. *BOSWELLIA GLABRA* Roxb. (*B. SERRATA* Roxb. VAR. *GLABRA*). Tel. *Guggilapu-man*, *Andugu*. A large tree, yielding a fragrant gum-resin. Bark thick, yellowish-white, exfoliating in thin flakes. Leaves 17 to 31-foliate; leaflets opposite, lanceolate, practically entire, glabrous; 1 to $2\frac{1}{2}$ inches long. Flowers in axillary racemes, yellowish with a crimson disk, scented; March and April, when the tree is leafless. Fruit 3-angled; just before the rains. In dry rocky forests from 800 to 3,500 feet.

80. *GARUGA PINNATA* Roxb. Tel. *Garuga*. A fair-sized tree. Bark thick, soft, exfoliating in large irregular scales, grey or brown. Leaves 13 to 21-foliate; leaflets opposite, lanceolate, crenate, oblique; $2\frac{1}{2}$ to 6 inches long. Flowers in much-branched axillary panicles, yellow; March and April. Fruit ovoid, $\frac{3}{4}$ inch long, smooth, black, edible; just before the rains. Widespread and common but not usually gregarious, from near sea-level to 4,000 feet.

81. *COMMIPHORA CAUDATA* Engl. (*PROTIUM CAUDATUM* W. & A.) Tel. *Konda-ragu*, *Metta-mamidi*, *Konda-mamidi*. A medium-sized tree with aromatic leaves. Bark thin, smooth, exfoliating in papery flakes, green or brown. Leaves 3 to 7-foliate; leaflets broad-ovate, long pointed, glabrous, shining; 2 to 3 inches long. Flowers in few-flowered terminal panicles, small, greenish; February to April. Fruit globose, $\frac{1}{2}$ inch diameter, green; May to August. Common in dry forests and rocky slopes from near sea-level to 3,000 feet.

82. *PROTIUM SERRATUM* Engl. (*BURSERA SERRATA* Coleb.) Tel. *Chitreka*. A fair-sized evergreen tree. Leaves imparipinnate; leaflets 7 or more, opposite, ovate, serrate. Flowers in short branched panicles, small. Fruit globose or ovoid, fleshy, $\frac{3}{4}$ inch diameter. In ravines, not abundant.

XVIII.—MELIACEÆ.

83. *AZADIRACHTA INDICA* A. Juss. (*MELIA AZADIRACHTA* Linn.) Eng. *The Nym tree*, *Margosa*. Tel. *Yepa*, *Vepa*. A large tree. Bark thick, rough, vertically furrowed, dark grey or brown. Leaves pari or imparipinnate; leaflets 9 to 16, lanceolate, very oblique, margins with large teeth, glabrous, shining above; 1 to 3 inches long. Flowers in axillary many-flowered panicles, white, scented; March to May. Fruit ovoid, smooth, fleshy, $\frac{1}{2}$ inch long, yellow; about August. Very common in dry forests from sea level to 1,000 feet. Also much planted.

84. *MELIA COMPOSITA* Willd. (*M. DUBIA* Hiern). Tel. *Turaka vepa*. A large tree. Bark smooth, dark-brown. Leaves 2 or 3-pinnate; leaflets 5 to 11 per pinna, opposite, broad ovate to ovate-lanceolate, glabrous; $\frac{3}{4}$ to 3 inches long. Flowers in

large, branched, many-flowered, axillary panicles, greenish-white, scented. Fruit ovoid, 1 to $1\frac{1}{2}$ inches long, yellowish, with milky juice. In hill tracts, not common.

85. *CIPADESSA BACCIFERA* Miq. (C. FRUTICOSA Bl.) Tel. *Hanumantha-biri, Chend-bera, Perudona*. A large shrub. Bark thin, reddish-brown. Leaves 7 to 13-foliate; leaflets opposite, elliptic-lanceolate, with deep teeth, glabrous excepting the nerves; $1\frac{1}{2}$ to 3 inches long. Flowers in axillary panicles, white; April to September. Fruit a globose, red berry, about $\frac{1}{3}$ inch diameter; August to March. Mainly in hill tracts from 500 to 4,000 feet. Common.

86. *AGLAIA ROXBURGHIANA* Hiern VAR. *BED-DOMEI*. Tel. *Yerra-aduga*. A small tree. Bark smooth, light-brown. Leaves 5 to 7-foliate; leaflets narrow-lanceolate; 2 to 6 inches long. Flowers in axillary panicles, very small, greenish-white. Fruit a globose berry, $\frac{1}{2}$ inch diameter. In hilly tracts, rare.

87. *WALSURA PISCIDA* Roxb. Tel. *Yerra-valuda, Walasura*. A medium-sized evergreen tree. Bark thin, cracked into rectangular pieces, greyish-brown. Leaves 3-foliate; leaflets sub-coriaceous, elliptic-oblong, glabrous, shining above; 2 to $3\frac{1}{2}$ inches long. Flowers in small axillary or terminal panicles, white or yellowish; February to April. Fruit globose or ovoid, about $\frac{1}{2}$ inch diameter, tomentose, light yellow; during the rains. In dry deciduous as well as evergreen forests, from sea-level (Shriharikota) to 3,000 feet.

88. *XYLOCARPUS OBOVATUS* A. Juss. (CARAPA MOLUCCENSIS Bedd.). A moderate-sized evergreen tree. Bark thin, exfoliating in irregular flakes grey. Leaves 2 or 4-foliate; leaflets oblong-obovate

to elliptic, glabrous; 3 to 4 inches long. Flowers in few-flowered, axillary panicles, $1\frac{1}{2}$ to $2\frac{1}{2}$ inches long, white. Fruit globose, about the size of an orange. In coastal swamps.

89. *SOYMIDA FEBRIFUGA* A. Juss. Tel. *Somi*. A fairly large tree. Bark thick; of young trees with numerous large horizontal lenticels, light-grey; of older stems irregularly cracked into scales without lenticels, dark-brown, red within. Leaves 6 to 12-foliate; leaflets thick, bluish-grey, elliptic or oblong; 2 to $4\frac{1}{2}$ inches long; the petioles often red. Flowers in large terminal or axillary, many-flowered panicles, white, scented; March and April. Fruit a 5-valved, woody capsule; $1\frac{1}{2}$ to $2\frac{1}{2}$ inches long; seeds winged; about July. In dry, usually open, forests, from 100 to 1,500 feet.

90. *CHUKRASSIA TABULARIS* A. Juss. (CHIK-RASSIA). Tel. *Godlaiyapa, Madagari-vembu*. A large tree. Bark deeply cracked, reddish-brown; red and fibrous within. Leaves 10 to 16-foliate; leaflets ovate, oblique, velvety; 2 to 5 inches long; the young leaves reddish. Flowers in terminal panicles, yellowish white, scented; May and June. Fruit a 3 or 4-valved, woody capsule, $1\frac{1}{2}$ to $2\frac{1}{4}$ inches long; seeds winged; following soon after the flowers. In dry hilly tracts at about 4,000 feet. (Horsleykonda).

91. *CEDRELA TOONA* Roxb. Eng. *The Toon-tree* or *Red cedar*. A large tree. Bark thin, reddish-brown. Leaves 8 to 30-foliate; leaflets lanceolate, entire, oblique, glabrous 2 to 6 inches long. Flowers in large, drooping, many-flowered panicles, white, honey-scented. Fruit a 5-valved, woody capsule, $\frac{3}{4}$ to 1 inch long. In hill tracts in moist valleys. Rare, if it occurs at all in the region.

XIX.—OLACACEÆ.

92. *XIMENIA AMERICANA* Linn. Tel. *Naggiri*, *Naggara gandanam*, *Urauehra*. A small thorny tree; the young leaves often reddish and smelling of prussic acid when crushed. Bark deeply, vertically cracked, grey. Leaves coriaceous, elliptic or sub-orbicular, shining; 1 to 2 inches long. Flowers in axillary or terminal racemes, whitish, scented; about January. Fruit an ovoid, orange coloured plum, about 1 inch long, edible; August to November. In hill forests from 600 to 2,500 feet.

93. *OLAX SCANDENS* Roxb. Tel. *Kurupodu*. A more or less thorny scrambling shrub. Bark deeply, vertically cleft, grey. Leaves elliptic or elliptic-oblong, glabrous; 2 to 3½ inches long. Flowers in axillary racemes, white, scented; August to March. Fruit globose, ¾ inch diameter, all but the apex enclosed by the enlarged calyx; during the cold season. Common in the coastal forests and also in valleys up to 2,500 feet.

XX.—CELASTRACEÆ.

94. *PLEUROSTYLIA WIGHTII* W. & A. Tel. *Peddalli*, *Piyari*. A medium-sized or small evergreen tree. Bark thin, rough, tessellated into small squares, dark-grey, almost black. Leaves obovate to oblong-lanceolate, glabrous; 1 to 2½ inches long. Flowers in small terminal and axillary paniculate cymes, small, white; May to September. Fruit ovoid, ¼ to ½ inch long, white; September to January. In dry forests from 100 to 2,500 feet. Not abundant.

95. *CELASTRUS PANICULATA* Willd. A large climbing shrub. Bark smooth, corky, yellowish-brown; that of the young branches usually with

numerous pale lenticular warts. Leaves broadly ovate or obovate, crenate in the upper portion and entire near the base, glabrous; 2 to 4 inches long. Flowers in terminal and axillary cymes or panicles, small, white; hot season. Fruit a globose 3-valved capsule, bright yellow, the brown seeds enveloped in a scarlet aril and remaining in the capsule after it opens on the plant; during the rains. Common in deciduous forests from 1,000 to 4,500 feet.

96. *GYMNOSPORIA EMARGINATA* Law. Tel. *Godetichippa*. A large thorny shrub, the thorns often bearing leaves and flowers. Bark thin, somewhat corky, whitish-grey. Leaves coriaceous, obovate, entire, apex emarginate, glabrous; 1 to 2 inches long. Flowers in axillary fascicles, white; November and December. Fruit a globose 3-valved capsule; January to March. In dry deciduous forests from sea-level to 2,000 feet.

97. *GYMNOSPORIA MONTANA* Benth. Tel. *Danti*, *Dantari*. A large shrub, thorny or not, the thorns often bearing leaves and flowers. Bark rough with small rounded scales, dark-grey. Leaves coriaceous, obovate, minutely crenate, apex rounded, glabrous; 1 to 2 inches long. Flowers in axillary cymes, white; September to December. Fruit a globose 3-valved capsule, ⅓ inch diameter, purple; during the cold season. In dry forests from sea-level to 3,000 feet.

98. *ELÆODENDRON GLAUCUM* Pers. Tel. *Nerdi*, *Neredi*, *Nirija*. A medium-sized evergreen tree. Bark thin, exfoliating in small rectangular scales, dark-grey. Leaves coriaceous, elliptic or ovate or obovate, serrate, often very deeply, glabrous; 2 to 4 inches long. Flowers in axillary cymes, small

white; June to November. Fruit obovoid, $\frac{1}{3}$ to $\frac{1}{2}$ inch long; during the cold season. In dry forests from 400 to 4,000 feet.

XXI.—HIPPOCRATEACEÆ.

99. HIPPOCRATEA INDICA Willd. A large climbing shrub. Leaves membranous, elliptic, glabrous; $1\frac{1}{2}$ to 3 inches long. Flowers in axillary, branched cymes, minute, yellow; during the hot season. Fruit of 3 separate flattened carpels 1 to $1\frac{1}{2}$ inches long; seeds winged; at the end of the hot season. In dry forests up to 2,000 feet.

100. HIPPOCRATEA OBTUSIFOLIA Roxb. A large climbing shrub, very similar to the last species. Bark rough, vertically furrowed corky, grey; yellow within. Leaves coriaceous, elliptic-ovate or obovate, glabrous; $2\frac{1}{2}$ to 5 inches long. Flowers in axillary paniculate cymes, small; hot season. Fruit and seeds similar to those of the last species, a little bigger; during the rains. In the coastal sandy tracts and up to 600 feet.

XXII.—RHAMNACEÆ.

101. VENTILAGO MADERASPATNA Gertn. Tel. *Surulu*, *Surabi*, *Surati-chekka tiga*. A large climbing shrub with terete twigs. Bark dark-grey, with vertical cracks that expose the inner vermilion surface. Leaves oblong-lanceolate or elliptic-ovate usually entire, glabrous, shining above; 2 to 6 inches long. Flowers in axillary and terminal panicles, small, greenish-white, with an unpleasant smell; January to March. Fruit rounded, $\frac{1}{3}$ inch diameter, with a wing $1\frac{1}{2}$ to 2 inches long, brown; June to August. In all districts from 100 to 2,500 feet.

102. VENTILAGO CALCULATA Tul. Tel. *Surulu*, *Surati-chekka tiga*. A large climbing shrub similar to the last species but the leaves rather larger, more crenate or serrate, always somewhat hairy and the twigs somewhat angular. Not as abundant or widespread as the last species.

103. ZIZYPHUS JUJUBA Lam. Tel. *Regu*, *Renga*. A small thorny tree. Bark irregularly cracked, dark-grey, nearly black. Leaves ovate, elliptic or sub-orbicular, 3-nerved at base, glabrous above, fuscous tomentose below; 1 to $2\frac{1}{2}$ inches long. Flowers in small axillary clusters or cymes, greenish-yellow; about November. Fruit a globose drupe, $\frac{1}{2}$ inch diameter, yellow or orange coloured, edible; December and January. In all districts near villages and in dry forests, often gregarious, from sea-level to about 2,500 feet.

103-A. ZIZYPHUS JUJUBA Lam. var. FRUTICOSA Haines. A small, very thorny shrub, similar to the last but smaller in every way. Flowers and fruit during the cold season. In the plains on stony open lands and on laterite soils.

104. ZIZYPHUS NUMULARIA W. & A. A very thorny shrub similar to the last variety but slightly larger and with weaker thorns. Bark grey. Leaves grey-pubescent below. In dry scrub forest, common on black cotton soil from near sea-level to about 2,500 feet.

105. ZIZYPHUS CENOPLIA Mill. Tel. *Pariki*. A large, very thorny climber. Bark rough, with scattered thorns on the stem seated on large conical, woody warts, grey or grey-brown. Leaves distichous, ovate or ovate-lanceolate, 3-nerved denticulate, oblique, densely rufous silky below; 1 to $2\frac{1}{2}$ inches long. Flowers in small, axillary,

panicled cymes; May to November. Fruit a globose drupe, $\frac{1}{4}$ inch diameter, black, edible; August to February. Common in all districts, especially in dry zones from sea-level to 4,000 feet.

106. *ZIZYPHUS XYLOPYRUS Willd. Tel. Gotti.* A small thorny tree. Bark thick, exfoliating in oblong scales, grey or reddish-brown. Leaves sub-orbicular, serrate, 3-nerved and oblique at base, glabrous above, yellowish tomentose below; $1\frac{1}{2}$ to 3 inches long. Flowers in small, dense, axillary, panicled cymes; June to September. Fruit globose, woody, $\frac{3}{4}$ to 1 inch diameter, tomentose; during the cold season. In all districts, abundant in dry, low forests up to 3,500 feet.

107. *ZIZYPHUS HORRIDA Roth.* A very thorny shrub or small tree, thorns broad. Leaves broad elliptic or sub-orbicular, crenate, glabrous except on the nerves below; $\frac{3}{4}$ to $1\frac{1}{2}$ inches long. Flowers in axillary, branched cymes. Fruit globose, woody, about $\frac{1}{2}$ inch diameter. In dry scrub forest.

108. *ZIZYPHUS RUGOSA Lam.* A small thorny tree. Bark rough, dark. Leaves coriaceous, elliptic, base 3-nerved and cordate, oblique, glabrous above, fulvous tomentose below; 2 to 5 inches long. Flowers paniculate on terminal branches, greenish-white; March and April. Fruit a globose drupe, $\frac{1}{4}$ to $\frac{1}{3}$ inch diameter, white; May to July. In dry hill tracts from 2,500 to 4,500 feet.

109. *SCUTIA MYRTINA Kurz. (S. INDICA Brogn.). Tel. Gariki, Pariki, Korinda.* A large thorny shrub, sometimes straggling. Bark rough, somewhat corky, brown. Leaves coriaceous, orbicular, elliptic or obovate, shining above; $\frac{3}{4}$ to $1\frac{1}{2}$ inches long.

Flowers in small axillary fascicles, small, white; February and March. Fruit globose, smooth, white, $\frac{1}{4}$ inch diameter; August and September. In dry and fairly moist forest from sea-level to 4,000 feet.

XXIII.—VITACEÆ.

110. *CISSUS QUADRANGULARIS Linn. (VITIS QUADRANGULARIS Wall.). Tel. Nalleru.* A rambling shrub with fleshy, quadrangular stems and simple tendrils. Leaves triangular, ovate, glabrous about $2\frac{1}{2}$ inches long. Flowers in cymes opposite the leaves, greenish; January to July. Fruit globose, $\frac{1}{4}$ inch diameter, red. February to September. Common in dry tracts from sea-level to 1,000 feet.

111. *AMPELOCISSUS TOMENTOSA Planch. (VITIS OMENTOSA Heyne.).* A large climbing vine with forked tendrils. Leaves simple or 3-lobed or 3-foliate (rarely 5), with white, cobwebby wool; 4 to 12 inches diameter; petiole 2 to 4 inches long. Flowers in leaf-opposed cymes, the peduncle bearing a tendril, small, scarlet; August and September. Fruit globose, $\frac{1}{3}$ inch diameter; about November. In hill forests from 1,000 to 4,000 feet.

112. *CISSUS PALLIDA Planch. (VITIS PALLIDA W. & A.).* An erect shrub, rarely climbing. Bark partly smooth and partly rough, corky, brown. Leaves ovate or orbicular, glandular-serrate, glabrous; 3 to 6 inches diameter; petioles 2 to 5 inches long. Flowers in leaf-opposed, compound, umbellate cymes; May to August. Fruit sub-globose, $\frac{1}{3}$ inch diameter; during the rains and cold seasons. On dry hills from 1,000 to 4,000 feet.

113. *TETRASTIGMA LANCEOLARIUM Planch. (VITIS LANCEOLARIA Roxb.).* A large climber

with simple tendrils, flattened stem and lenticellate branches. Leaves 3 or 5-foliate, leaflets petioled, oblong-lanceolate, irregularly serrate, glabrous; 3 to 5 inches long. Flowers in axillary cymes. Fruit globose, $\frac{1}{2}$ inch diameter, cream coloured. In the hills.

114. *CAYRATIA PEDATA* Juss. (*VITIS PEDATA* Vahl.). A large climbing shrub with forked tendrils. Leaves 7 to 11-foliate; leaflets lanceolate, serrate, usually pubescent; 2 to 5 inches long. Flowers in axillary cymes; September to November. Fruit globose, $\frac{1}{3}$ inch diameter, cream coloured; December to February. In the hills, 1,000 to 4,000 feet.

XXIV.—SAPINDACEÆ.

115. *ALLOPHYLUS RHEEDII* Radlk. (*A. COBBE* Bl. in part). Tel. *Salli-kunkudu*. A large shrub. Bark with corky lenticels, dark-grey. Leaves 3-foliate; leaflets serrate, end one obovate, lateral ovate, ferruginous tomentose; 3 to 6 inches long. Flowers in axillary thyrses longer than the leaves, white; during the rains. Fruit globose, $\frac{1}{2}$ inch diameter, red; during the cold season. In the hills.

116. *ALLOPHYLUS SERRATUS* Radlk. (*A. COBBE* Bl. in part). Tel. *Salli-kunkudu*. Very similar to the last species but the flower thyrses shorter than the leaves and the latter hoary tomentose. More common and widespread than the last, from sea-level to 2,500 feet.

117. *LEPISANTHES TETRAPHYLLA* Radlk. (*HEMIGYROSA CANESCENS* Thw.). Tel. *Korivi*, *Kotta*. A moderate-sized evergreen tree. Bark furrowed, brown. Leaves 4 or 6-foliate; leaflets oblong-lanceolate, glabrous, shining; 3 to 5 inches long. Flowers in axillary or extra-axillary

racemes or panicles, white; March and April. Fruit sub-globose or somewhat 3-angled, $\frac{1}{2}$ to 1 inch diameter, velvety, yellow; May and June. In the denser forests especially along stream banks, 600 to 2,500 feet.

118. *SCHLEICHERA TRIJUGA* Willd. Tel. *Pulusu*, *Pusuka*. A large tree. Bark thick, exfoliating in small, irregular, rounded plates, grey. Leaves usually 6-foliate (rarely 4 or 8); leaflets elliptic or elliptic-oblong, nerves numerous, glabrous; 2 to 9 inches long; young leaves, bright red. Flowers in axillary or extra axillary racemes, white or yellowish; March to May. Fruit ovoid, smooth or with a few soft spines, $\frac{3}{4}$ inch long; May and June. In deciduous forest with fairly good soil from 100 to 4,000 feet.

119. *SAPINDUS EMARGINATUS* Vahl. (*S. TRI-FOLIATUS* Hiern.). Eng. *The Soap-nut tree*. Tel., *Kunkudu*. A fair-sized tree. Bark rough, scaly, grey. Leaves 4 or 6-foliate, oblong, apex usually emarginate, softly pubescent below; 2 to 6 inches long. Flowers in terminal and axillary panicles, white; January and February. Fruit of 1 to 3 ovoid or globose drupes, yellow; during the hot season. Widespread in dry forests from near sea-level to 2,500 feet.

120. *DODONEA VISCOSA* Linn. Tel. *Bandari*. A shrub. Bark thin, grey. Leaves oblanceolate, glabrous, shining; $1\frac{1}{2}$ to 4 inches long. Flowers in axillary or terminal racemes or panicles, greenish-yellow; October to December. Fruit membranous, compressed, with a wide wing all round, $\frac{1}{2}$ to $\frac{3}{4}$ inch long, orange-brown; December to February.

Common nearly everywhere from sea-level to 4,000 feet.

XXV.—ANACARDIACEÆ.

121. *RHUS MYSORENSIS* Heyne. Tel. *Sundhari*, *Mullu-sundhari*. A small thorny tree. Bark thin, exfoliating in very small irregular scales, brown, branches and twigs covered with small corky warts. Leaves 3-foliate; leaflets obovate, sinuate-toothed, the terminal considerably larger than the lateral, softly pubescent; $\frac{1}{2}$ to $1\frac{1}{2}$ inches long. Flowers in terminal and axillary panicles, small, whitish; October to December. Fruit small, globose, shining, brown; January and February. In dry stony tracts from sea-level to 2,500 feet.

122. *MANGIFERA INDICA* Linn. Eng. *The Mango tree*. Tel., *Mamidi*, *Mamadi*. A large ever-green tree. Bark thick, rough, with numerous small fissures and scales, dark-grey, nearly black. Leaves coriaceous, oblong or oblong-lanceolate, glabrous, shining; 5 to 10 inches long. Flowers in terminal panicles, greenish-white, with a disagreeable smell; January to April. Fruit fleshy, ovoid, 3 to 4 inches long, yellow; May and June. In ravines in the hills and planted elsewhere.

123. *ANACARDIUM OCCIDENTALE* Linn. Eng. *The Cashew-nut tree*. Tel. *Jidi-mamidi*. A small tree. Bark rough, light-brown. Leaves coriaceous, obovate or elliptic, glabrous; 4 to 6 inches long. Flowers in terminal panicles, yellow streaked with pink; November and December. Fruit a curved nut about 1 inch long seated on the greatly enlarged, fleshy disk and peduncle which resembles an apple; during the cold season. An American tree much planted, especially on sandy soils and sometimes run wild.

124. *BUCHANANIA LANZAN* Spreng. (B. *LATIFOLIA* Roxb.). Tel. *Morali*. A medium-sized tree.

Bark thick, rough, tessellated in prominent small squares, dark-grey, often nearly black. Leaves thickly coriaceous, broadly oblong; 5 to 10 inches long. Flowers in terminal and axillary panicles, small, greenish-white; September to February. Fruit about $\frac{1}{2}$ inch diameter, oblique, black; during the hot season. In hill tracts from 600 to 4,500 feet. Not abundant.

125. *BUCHANANIA ANGUSTIFOLIA* Roxb. Tel. *Sara*, *Pedda-morali*. A medium-sized tree, resembling the last but far more abundant. Bark thick, rough, tessellated with deep irregular cracks, black-brown. Leaves thinly coriaceous, linear-oblong to elliptic-lanceolate, glabrous; 3 to 6 inches long. Flowers in terminal and axillary panicles; March and April. Fruit globose, $\frac{1}{2}$ inch diameter, smooth, remaining green in the hills, bright red and with a bitter-sweet, edible pulp in the low plains of Chingleput, kernels of the nut edible (*Sara-pappu*); April and May. Common in nearly all dry forests from sea-level to 3,000 feet.

126. *ODINA WODIER* Roxb. Tel., *Gumpuni*, *Gumpini*. A fair-sized tree. Bark thick, smooth, grey or ashy. Leaves 7 to 11-foliate; leaflets ovate-oblong, glabrous, shining; 3 to 6 inches long. Flowers in terminal racemes, yellowish-purple; March and April, when the tree is leafless. Fruit ovoid, small, red; May and June. In all dry forests from 200 to 2,500 feet. Planted as an avenue tree.

127. *SEMECARPUS ANACARDIUM* Linn. Eng. *The Marking-nut tree*. Tel., *Jidi*, *Jiri*. A moderate-sized tree with an acrid, blistering juice. Bark rough, exfoliating in very irregular patches, dark-brown. Leaves coriaceous, obovate-oblong,

glabrous above, grey pubescent below, nerves numerous 6 to 12 inches long. Flowers in terminal panicles, greenish-white; March to September. Fruit obliquely ovoid, 1 inch long, black, seated on the small enlarged fleshy disk; October to December. In dry hill tracts from 2,000 to 4,500 feet.

128. *NOTHOPEGIA BEDDOMEI* Gamble (N. *COLEBROOKIANA* Bl. in part). Tel. *Nallali, Konda-mamadi*. A fair-sized tree, but often remaining small, with a black, acrid, blistering juice. Bark rough, exfoliating in irregular flakes, dark-brown. Leaves coriaceous, lanceolate, glabrous; $2\frac{1}{2}$ to 5 inches long. Flowers in axillary racemes, greenish white; March to May. Fruit globose, $\frac{1}{2}$ inch diameter, striate, purple; April to June. In the hills above 3,000 feet, not abundant.

129. *SPONDIAS MANGIFERA* Willd. Tel. *Avadi-mamadi*. A fair-sized tree. Bark smooth, grey. Leaves 7 to 11 foliate, oblong or elliptic-oblong, main nerves numerous and joined by a strong one along the margin, glabrous, shining; 3 to 7 inches long. Flowers in terminal panicles, pinkish-green. Fruit ovoid, about $1\frac{1}{2}$ inches long, yellow. In hill tracts in more or less moist forests up to 2,000 feet.

XXVI.—MORINGACEÆ.

130. *MORINGA CONCANENSIS* Nimmo. Eng. *The Horse-radish tree*. Tel., *Konda munga*. A fair-sized tree. Bark thick, soft, corky, pale. Leaves 2 pinnate; leaflets 8 to 12 per pinna, broadly elliptic or sub-orbicular, rhachis articulated, glabrous; $\frac{1}{2}$ to $1\frac{1}{2}$ inches long. Flowers in axillary panicles white veined with red. Fruit a 3-valved, 3-angled capsule, 1 to $1\frac{1}{2}$ feet long. Not common, greatly resembles the cultivated species.

XXVII.—LEGUMINOSÆ.

131. *INDIGOFERA PULCHELLA* Roxb. Tel. *Siralli, Konda-vempalli*. A shrub. Bark thin, smooth, dark-grey. Leaves 13 to 21 foliate; leaflets opposite, elliptic-oblong, thinly hairy; $\frac{1}{2}$ to 1 inch long. Flowers in axillary racemes, $\frac{1}{2}$ to $\frac{3}{4}$ inch long, purple-red; September to February. Fruit a straight, cylindric pod 1 to $1\frac{3}{4}$ inches long; December to April. In open, dry, hill forests from 1,300 to 4,500 feet.

132. *MUNDULEA SUBEROSA* Benth. Tel. *Yerri billu*. A shrub. Bark thick, furrowed, corky, yellow. Leaves 17 to 23-foliate; leaflets coriaceous, oblong-lanceolate, glabrous above, silvery-silky below; 1 to $1\frac{1}{2}$ inches long. Flowers in terminal racemes, pink or white, about 1 inch long; May to October. Fruit a flattened pod, 3 to 4 inches long, with 3 to 8 seeds, covered with golden-brown hairs; June to January. In dry rocky hills from 600 to 3,000 feet.

133. *TEPHROSEA PURPUREA* Pers. Tel. *Vempalli*. A small woody shrub. Bark thin, light-brown. Leaves 11 to 21-foliate; leaflets opposite, oblanceolate, glabrous above, silky-hairy below; $\frac{1}{4}$ to $\frac{3}{4}$ inch long. Flowers in terminal or leaf-opposed racemes, red; practically at all seasons. Fruit a linear, horny pod, about $1\frac{1}{2}$ inches long; practically at all seasons. Very common on waste lands: road-sides, fields, etc., and in open forest, on all kinds of soils from near sea-level to 2,500 feet.

134. *MILLETTIA RACEMOSA* Benth. Tel. *Galuga*. A large climbing shrub. Bark soft, brown. Leaves 11 to 15-foliate; leaflets opposite, membranous, oblong or obovate-oblong; 2 to 3 inches long. Flowers in axillary or terminal racemes, whitish. Fruit a linear pod 4 to 8 inches long, compressed

between the seeds. In dry hill forests at low levels. Rare.

135. *OUGEINIA DALBERGIOIDES* Benth. Tel. *Tella-motuku*. A moderate-sized tree. Bark thin, with regular longitudinal and horizontal cracks, light brown, sometimes with bluish patches. Leaves 3-foliate; leaflets rigidly coriaceous, the terminal rounded, the lateral obliquely ovate, base cordate; 3 to 6 inches long. Flowers in racemes from the axils on the old wood, white or pinkish. Fruit a linear, flat pod of 2 to 5 more or less distinct joints. In hill tracts from 2,000 to 4,000 feet, not common.

136. *MUCUNA PRURITA* Hook. (*M. PRURIENS* Bak.) Eng. *The Cowhage* or *Cow-itch*. Tel. *Piliadagu-kaila*. A climber with irritant hairs. Leaves 3-foliate; leaflets membranous, rhomboid-ovate, the lateral very oblique at base, pubescent above, densely, silvery-hairy below; 3 to 5 inches long. Flowers in large, axillary, pendant racemes, 1 to 1½ inches long, purple, the calyx furnished with irritant brown bristles; about November. Fruit a curved, cylindrical pod densely covered with brown irritant bristles, 2 to 3 inches long; during the cold season. Widespread but not at all common; usually in somewhat damp places.

137. *ERYTHRINA INDICA* Lam. Eng. *The Coral-tree*. A moderate-sized tree, the young stems and branches armed with prickles. Bark smooth, shining, exfoliating in thin, paperly flakes, yellowish. Leaves 3-foliate; leaflets membranous, broadly rhomboid-ovate, glabrous; 4 to 6 inches long. Flowers in axillary or terminal racemes, 2 to 2½ inches long, bright-red; January to March while the tree is leafless. Fruit a cylindric pod, 5 to 12 inches long, constricted between the seeds;

during the hot season. Probably not indigenous, but only planted.

138. *ERYTHRINA SUBEROSA* Roxb. Tel. *Mullumodugu*. A moderate-sized tree, armed with yellowish-white prickles. Bark thick, corky, with deep irregular, vertical fissures, light-grey; fibrous within. Leaves 3-foliate; end leaflet rhomboid-ovate, the lateral broadly, obliquely ovate-cordate, glabrous above, densely pubescent below; 4 to 6 inches long. Flowers in axillary and terminal racemes, 1½ to 2 inches long, scarlet. Fruit a cylindric pod 5 to 6 inches long, constricted between the seeds. In dry hill forests, 1,200 to 4,000 feet.

139. *SPATHOLOBUS ROXBURGHII* Benth. A very large woody climber. Bark rough, much fluted and with horizontal ridges, dark-brown. Leaves 3-foliate; leaflets sub-coriaceous, broadly elliptic, the lateral very oblique, glabrous above, silky or nearly glabrous below; 3 to 6 inches long. Flowers in large terminal panicles, pink or bright red; September to November. Fruit a flat pod 3 to 6 inches long with a single seed at the apex and the base wing-like; December and January. In hill tracts up to 2,500 feet probably confined in our region to the Nallamalais.

140. *BUTEA FRONDOSA* Koen. Eng. *The Flame of the forest*. Tel. *Moduga, Modugu*. A moderate-sized tree. Bark fibrous, exfoliating in small irregular pieces, exuding a red juice which hardens to a red gum, grey. Leaves 3-foliate; leaflets coriaceous, broadly obovate the lateral smaller and oblique, glabrous above, silky below; 4 to 6 inches long; petioles 3 to 6 inches long. Flowers in axillary or terminal racemes 1½ to 2 inches long, the calyx velvety green, the corolla orange; February to April when the tree is leafless. Fruit a flattened pod 5 to

8 inches long with a single seed at the apex the remainder forming a wing; during the late hot season. Abundant in open forest from sea-level to 2,500 feet.

141. *BUTEA SUPERBA* Roxb. Engl. *The Flame of the forest*. A large woody climber, otherwise very like the last species. Bark thick, very fibrous, dark-brown and yielding a red gum. Leaves, flowers and pods as in the last and at the same seasons but the flowers more flame coloured. Probably not occurring in the region but possibly to be found in the Cuddapah Nallamalais as it is in the Kurnool portion of those hills.

142. *DALBERGIA LATIFOLIA* Roxb. Eng. *The Rosewood tree*. Tel. *Jittegi*. A medium-sized tree, rarely large in the region. Bark rough with irregular short cracks, exfoliating in thin fibrous flakes, dark-grey. Leaves 5 to 7-foliate; leaflets alternate, broadly ovate to orbicular, glabrous; $1\frac{1}{4}$ to $2\frac{1}{2}$ inches long. Flowers in axillary or extra-axillary panicles, small, white; during the rains. Fruit a flattened pod, $1\frac{1}{2}$ to 3 inches long, brown; in the hot season. In hill forests from 1,000 to 3,000 feet.

143. *DALBERGIA LANCEOLARIA* Linn. f. Tel. *Patsasri*. A fair-sized tree. Bark smooth exfoliating in thin round patches, grey. Leaves 7 to 11-foliate; leaflets alternate, elliptic to ovate-oblong, rarely orbicular, glabrous above, puberulous below; $\frac{3}{4}$ to $1\frac{1}{2}$ inches long. Flowers in axillary and terminal panicles, pinkish or bluish-white. Fruit a flat pod $1\frac{1}{2}$ to 4 inches long; during the rains and cold seasons. In dry forests from 1,000 to 2,000 feet.

144. *DALBERGIA VOLUBILIS* Roxb. A large woody climber. Bark thin, brown. Leaves 11 to 13-foliate, alternate, coriaceous, obovate or obovate-oblong, glabrous; 1 to 2 inches long. Flowers in

axillary or terminal panicles, white or pale-blue. Fruit a flat pod 2 to 5 inches long. In plains forest. Not seen by me in the region.

145. *DALBERGIA PANICULATA* Roxb. Tel. *Patsari*. A fairly large tree closely resembling *D. Lanceolaria*. Bark smooth, with many horizontal cracks exfoliating in rounded flakes, light grey, often with lighter, almost white patches and sometimes yellowish. Leaves 9 to 13-foliate; leaflets sub-coriaceous, oblong or elliptic, glabrous; $\frac{3}{4}$ to 1 inch long. Flowers usually in terminal but also in axillary, panicles, white or bluish-white; May and June. Fruit a flat pod, $1\frac{1}{2}$ to $2\frac{1}{2}$ inches long; October to February. A common tree in dry and moist forests from sea-level to 3,000 feet. The wood includes concentric rings of bark tissue.

146. *PTEROCARPUS SANTALINUS* Linn. f. Eng. *Red Sanders*. Tel. *Chandanam*. A medium-sized, now rarely large, tree. Bark very thick, rough, deeply and irregularly cracked, blackish-brown. Leaves 3 to 5-foliate; leaflets alternate, coriaceous, broadly ovate to orbicular, slightly emarginate glabrous, shining; $2\frac{1}{2}$ to $5\frac{1}{2}$ inches long. Flowers in axillary racemes, small, yellow; September to November. Fruit a round, flat pod with a broad wing all round: January and February. In the hilly tracts of Cuddapah, Kurnool, Nellore and Chittoor Districts and in the Kambakkam hills of Chingleput. From 500 to 2,500 feet. Very gregarious.

147. *PTEROCARPUS MARSUPIUM* Roxb. Eng. *The Gum-kino tree*. Tel. *Yegi*. A large tree. Bark with long vertical cracks, grey. Leaves 5 to 7-foliate; leaflets alternate, coriaceous, elliptic-oblong to ovate, apex obtuse, glabrous, shining; $2\frac{1}{2}$ to 4 inches long. Flowers in terminal panicles, yellow;

September to November. Fruit a rounded, flat pod with a broad wing all round; January and February. In hill tracts from 600 to 3,000 feet. Fairly common.

148. *PONGAMIA GLABRA* Vent. Eng. *The Indian Beech-nut*. Tel. *Kanuga*. A large evergreen tree. Bark soft, covered with tubercles, greyish-brown. Leaves 5-foliate (sometimes 7 or 9); leaflets opposite, ovate, glabrous; 3 to 7 inches long. Flowers in axillary racemes, white, pink or bluish; March to June. Fruit a woody, flattened, oblong pod, $1\frac{1}{2}$ to 2 inches long; January and February. On the banks of tidal rivers, on the coast and on stream and tank banks inland up to above 3,000 feet.

149. *DERRIS SCANDENS* Benth. Tel. *Mainaputiga*, *Nalla-tiga*. A woody climbing shrub. Bark with many lenticels, some round, others long and horizontal, greenish-grey, shining. Leaves 9 to 19-foliate; leaflets opposite, coriaceous, elliptic-oblong, oblong-lanceolate or obovate-oblong, glabrous and shining above, somewhat pubescent below; 1 to 2 inches long. Flowers in axillary racemes, white; July and August. Fruit a flattened pod, 1 to 3 inches long; August to October. Widespread and abundant from 500 to 2,500 feet.

150. *SOPHORA INTERRUPTA* Bedd. A large shrub. Bark corky. Leaves 19 to 29-foliate; leaflets elliptic, glabrous above, slightly pubescent below; $\frac{3}{4}$ to $1\frac{1}{4}$ inches long. Flowers in terminal racemes or panicles, yellow. Fruit a 4-winged, jointed pod. In hill tracts from 2,000 to 3,000 feet. Not common.

151. *CÆSALPINIA CRISTA* Linn. (C. *BONDUCELLA FLEM*), Tel. *Gutsa*, *Getsakai*. A very thorny, straggling shrub. Bark smooth, lightbrown. Leaves 2-pinnate; pinnæ 12 to 16; leaflets 12 to 18 per pinna,

membranous, elliptic-oblong, glabrous above, somewhat pubescent below; $\frac{3}{4}$ to $1\frac{1}{4}$ inches long. Flowers in large terminal and extra-axillary racemes, about 1 inch long, yellow; September to October. Fruit an oblong pod, 2 to 3 inches long, covered with long wiry prickles, with 1 or 2 globular, lead-coloured seeds; August to November. In hedges and on open ground near villages, especially near the coast.

152. *CÆSALPINIA JAYABO* Mayen. (C. *BUNDUC Bak.*). Tel. *Gutsa*, *Getsakai*. Very like the last species but the leaves without stipules and the leaflets a little larger.

In similar situations. Both plants are introductions from America.

153. *CÆSALPINIA SEPIARIA* Roxb. A straggling thorny shrub. Bark corky with corky excrescences bearing strong thorns, yellowish-white. Leaves 2-pinnate; pinnæ 10 to 20 pairs; leaflets 16 to 24 per pinna, oblong; $\frac{1}{2}$ to $\frac{3}{4}$ inch long. Flowers in terminal and axillary racemes, yellow; January to March. Fruit a turgid, beaked pod, 3 to 4 inches long; May to September.

In hedges and open places up to 4,000 feet.

154. *PTEROLOBIUM INDICUM* A. Rich. Tel. *Sikai*, *Yerra-sikai*, *Walaikaduda*. A very thorny climbing shrub. Bark thin, with conical woody excrescences bearing prickles, grey. Leaves 2-pinnate; pinnæ 8 to 16; leaflets 12 to 16 per pinna, membranous, oblong, glabrous; $\frac{1}{3}$ inch long. Flowers in axillary and terminal racemes, small, white; May to October. Fruit a 1-seeded pod ending in an oblong or curved wing, red; December to March. Very common and troublesome in all dry forests up to 3,000 feet.

155. *PARKINSONIA ACULEATA* Linn. A small thorny tree or large shrub. Bark very thin, with numerous narrow, horizontal lenticels, brown. Leaves 2-pinnate but appearing simply pinnate; pinnæ 2, with a flattened rhachis; leaflets numerous, oblanceolate-oblong, glabrous, very small. Flowers in axillary racemes, about 1 inch diameter, yellow; January to March. Fruit a linear pod, constricted between the seeds, 3 to 4 inches long; March to August. Introduced and run wild in dry localities, often on black cotton soil, from sea-level to 2,000 feet.

156. *CASSIA FISTULA* Linn. Eng. *The Indian Laburnum*. Tel. *Rela*. A biggish tree. Bark smooth, greyish-green when young, rough and dark reddish-brown when older. Leaves 8 to 16-foliate; leaflets coriaceous, opposite, ovate or ovate-oblong, glabrous; 2 to 5 inches long. Flowers in large, pendulous, axillary or terminal racemes, 1½ inches diameter, bright yellow; May and June. Fruit a linear pod, 1 to 2 feet long, black; ripening in the cold season and persisting on the trees till about May.

In deciduous forest from sea-level to 3,000 feet.

157. *CASSIA MARGINATA* Roxb. Tel. *Sima-rela*. A medium-sized tree. Bark deeply cracked, brown. Leaves 20 to 40-foliate; leaflets membranous, oblong, oblique, glabrous; ¾ to 2 inches long. Flowers in axillary racemes, about 1 inch diameter, rose-coloured; June to November. Fruit a linear pod about 1 foot long, black; July to January. Probably not really wild further north than Chittoor, but planted as an ornamental tree.

158. *CASSIA AURICULATA* Linn. Tel. *Tangedu*. A shrub. Bark thin, smooth, grey with scattered,

irregular reddish-brown lenticels. Leaves 16 to 24-foliate; stipules large; ear-shaped; leaflets membranous, close-set, oblong-ovate; ¾ to 1 inch long. Flowers in terminal and axillary racemes, up to 2 inches diameter, bright yellow; throughout the year. Fruit a flat pod, 3 to 5 inches long, brown; throughout the year. Common on waste land and in open forest up to 2,500 feet.

159. *CASSIA SIAMEA* Lam. Tel. *Sima-tangedu*. A fair-sized tree. Bark smooth, grey. Leaves 12 to 24-foliate; leaflets oblong, glabrous; 1 to 2 inches long. Flowers in large, terminal, erect panicles, about 1 inch diameter, yellow; June to November. Fruit a flat pod 6 to 9 inches long, reddish-brown; September to January. An introduced tree now run wild in many places from sea-level to 2,500 feet.

160. *CASSIA MONTANA* Heyne. Tel. *Konda-tangedu*, *Paggedi-tangedu*. A shrub, never very robust. Bark smooth, with small lenticels in horizontal lines, dark-grey. Leaves 20 to 32-foliate; leaflets oblong; 1 to 1½ inches long. Flowers in axillary racemes and terminal panicles, yellow; July to October. Fruit a flat pod, 3 to 5 inches long, dark-brown; September to January. On dry stony slopes from 400 to 2,500 feet.

161. *CASSIA GLAUCA* Lam. VAR. *SUFFRUTICOSA* Prain (C. *SUFFRUTICOSA* W. & A.). Tel. *Paggedi-tangedu*. A shrub. Bark thin, smooth, grey. Leaves 8 to 12-foliate; leaflets ovate or elliptic-oblong; 1½ to 3 inches long. Flowers in axillary racemes, 1 inch diameter, yellow; September to December. Fruit a flat pod 6 to 8 inches long; during the cold season. In hill tracts from 1,000 to 3,000 feet.

162. *HARDWICKIA BINATA* Roxb. Tel. *Yepi*. A large, graceful tree. Bark thick, rough with irregular vertical cracks, exfoliating in narrow flakes, dark-grey. Leaves 2-foliate; leaflets coriaceous, oblong, glabrous, sub-sessile; 1 to 3 inches long; the young leaves tinged with red. Flowers in axillary and terminal panicles, small, white; January to March. Fruit a flat pod 2 to 3 inches long, pale-brown; July and August. On dry hills from 300 to 3,000 feet.

163. *TAMARINDUS INDICA* Linn. Eng. *The Tamarind tree*. Tel., *Chinta*. A very large evergreen tree. Bark thick, rough with longitudinal cracks, dark-grey or brown. Leaves 20 to 40-foliate; leaflets rather close-set, sub-sessile, oblong, glabrous; $\frac{1}{3}$ to $1\frac{1}{4}$ inches long. Flowers in terminal racemes, $\frac{1}{2}$ inch diameter, pink with yellow stripes; May to July and sometimes up to November. Fruit a thick, fleshy, usually curved pod 3 to 8 inches long, yellowish-brown; January to April. Widespread, both wild and much planted from sea-level to 4,000 feet.

164. *BAUHINIA VARIEGATA* Lam. Tel. *Mandari*. A small tree. Bark vertically cracked, grey. Leaves sub-coriaceous, 2-lobed for about $\frac{1}{3}$ of their length, 9 to 11-nerved. Flowers in terminal, rarely axillary, racemes, large, white with one petal variegated; during the hot season. Fruit a flat pod 6 to 12 inches long. On rocky hills and also cultivated for its handsome flowers. Not abundant.

165. *BAUHINIA RETUSA* Ham. Tel. *Nirpa*. A moderate-sized tree. Bark thick, rough with vertical cracks, dark-brown. Leaves coriaceous, very shortly 2-lobed, 9-nerved, glabrous; 4 to 6 inches

long. Flowers in terminal racemes, small, yellow with purple streaks. Fruit a flat pod 5 to 6 inches long. In hill forests. Rare.

166. *BAUHINIA RACEMOSA* Lam. Tel. *Ari*. A small tree, usually crooked. Bark very rough, with deep vertical cracks, blackish. Leaves coriaceous, 2-lobed for about $\frac{1}{3}$ their length, 7 to 9-nerved, white and somewhat tomentose below; $\frac{3}{4}$ to 2 inches long. Flowers in terminal and leaf-opposed racemes, small, white or pale-yellow; March and April. Fruit a narrow, flat pod, often twisted and curved, 9 to 12 inches long. Light-brown; August to February.

Common in dry deciduous forests from sea-level to 4,000 feet.

167. *BAUHINIA PURPUREA* Linn. A moderate-sized tree. Bark thick, ashy to dark-brown. Leaves sub-coriaceous, 2-lobed for about $\frac{1}{2}$ their length, 9 to 11-nerved, glabrous; 4 to 5 inches diameter. Flowers in terminal and axillary, few-flowered racemes, large, white or rose, scented; during the cold season. Fruit a broad, flat pod, 6 to 12 inches long; during the cold season.

In deciduous forests, not very common.

168. *BAUHINIA VAHLII* W. & A. Tel. *Adda-tiga, Madappa*. A very large climber; stems often fluted. Bark horizontally waved, brown. Leaves sub-coriaceous, 2-lobed for about $\frac{1}{3}$ their length, 11 to 15-nerved, fulvous hairy below; 4 to 10 inches diameter. Flowers in terminal racemes, 1 inch long, white. Fruit a woody, flat, velvety pod, 9 to 18 inches long; about August. In hill forests, possibly confined in the region to the Nallamalais hills.

169. *ENTADA SCANDENS* Benth. A very large climber with a thick, spirally-twisted stem. Bark

rough, brown. Leaves 2-pinnate; pinnæ 4 to 6; leaflets coriaceous, oblong, glabrous, shining; 1 to 3 inches long. Flowers in axillary spikes, small, yellow. Fruit a flat, woody pod 1 to 3 feet long and 3 to 4 inches broad, indented between the large, flattened seeds, brown; December to May. In the Nallamalais hills of Kurnool, possibly not occurring in the region.

170. *PROSOPIS SPICIGERA* *Liun.* Tel. *Jammi.* A medium-sized very thorny tree; often with round insect galls on the leaflets and rachises. Bark rough, with deep, vertical, irregular furrows, grey. Leaves 2-pinnate; pinnæ usually 4; leaflets 14 to 24, oblong, glabrous $\frac{3}{8}$ to $\frac{5}{8}$ inch long. Flowers in axillary spikes and terminal paniced spikes, yellow; February and March. Fruit a cylindric pod 4 to 8 inches long, much constricted between the seeds; May to July. In dry localities and on black-cotton soils in the plains up to about 700 feet.

171. *DICHOSTACHYS CINEREA* *W. & A.* Tel. *Veluturu.* A large thorny shrub or small tree. Bark thin, deeply vertically fissured, exfoliating in thin flakes, light-brown or grey. Leaves 2-pinnate; pinnæ 16 to 28; leaflets 24 to 40, very close-set, linear, oblique, sessile; minute. Flowers in spikes on axillary branchlets, very small, the upper flowers yellow, the lower red; practically throughout the year. Fruit a flat, twisted pod, 2 to 3 inches long, brown; usually in the cold season. Common in dry scrub forest and on stony slopes from sea-level to 3,500 feet.

172. *MIMOSA POLYANCISTRA* *Benth.* Tel. *Parikai.* A very thorny straggling shrub. Leaves 2-pinnate; pinnæ 6 to 10; leaflets 8 to 10 per pinna, oblong to obovate; $\frac{1}{4}$ inches or less long.

Flowers in globose, axillary, solitary or fascicled heads, small, pink; August and September. Fruit a thin, flat, jointed, prickly pod; November and December. In hill tracts from 1,000 to 2,000 feet.

173. *MIMOSA PRAINEANA* *Gamble.* Tel. *Parikai.* Very like the last species. Leaves 2-pinnate; pinnæ 10 to 14; leaflets 14 to 16, close-set, oblong; $\frac{1}{3}$ inch long or less. At somewhat lower elevations.

174. *MIMOSA RUBICAULIS* *Lam.* Tel. *Parikai.* Very like the last two species. Leaves 2-pinnate; pinnæ 10 to 12; leaflets 20 to 30 per pinna; about $\frac{1}{2}$ inch long.

175. *MIMOSA HAMATA* *Willd.* Tel. *Parikai.* Very like the last 3 species. Leaves 2-pinnate; pinnæ 6 to 10; leaflets 14 to 16 per pinna, oblong; minute.

176. *ACACIA FARNESIANA* *Willd.* Tel. *Kusturi.* A thorny large shrub or small tree. Bark rough, light-brown. Leaves 2 pinnate; pinnæ 8 to 16; leaflets 20 to 40 per pinna, coriaceous, linear-oblong, sub-glabrous; $\frac{1}{4}$ inch or less long. Flowers in globose heads fascicled on axillary nodes, light-yellow, scented; October. Fruit a cylindric pod 2 to 3 inches long, brown.

Planted and occasionally run wild but not abundant.

177. *ACACIA PLANIFRONS* *W. & A.* Eng. *The Umbrella tree.* A small thorny tree with spreading branches forming a flat top. Bark with large horizontal markings, greyish-brown. Leaves 2-pinnate; pinnæ 6 to 12; leaflets 10 to 20 per pinna, linear; $\frac{1}{8}$ inch or less long. Flowers in globose heads in axillary fascicles, white or yellowish. Fruit a sub-cylindric pod about 2 inches long. Occasionally planted; not wild in the region.

178. *ACACIA CAMPBELLII* Arn. Tel. *Pi-tumma*, *Pika-tumma*, *Marmati*. A fair-sized tree or a small bush, very thorny. Bark with numerous lenticels, dark-brown. Leaves 2-pinnate; pinnæ 10 to 20; leaflets 16 to 24 per pinna, ovate-oblong, minute. Flowers in small globose heads, yellow, scented; February and March. Fruit a narrow, flattish, curved, pointed pod, about 3 inches long, brown; March to July. In dry tracts, common on laterite and kunker soils, very abundant and gregarious in parts of the Nellore district from 50 to 700 feet.

179. *ACACIA ARABICA* Willd. Eng. *The Babul tree*. Tel. *Nalla-tumma*. A moderate-sized thorny tree, rarely without thorns. Bark rough, dark-brown. Leaves 2-pinnate; pinnæ 8 to 18; leaflets 20 to 50 per pinna, linear-oblong, glabrous; $\frac{1}{8}$ to $\frac{1}{4}$ inch long. Flowers in globose axillary, fascicled heads, bright yellow; July to October. Fruit a flat pod much constricted between the seeds, grey; December to March. Common on black-cotton soil up to about 1,000 feet.

180. *ACACIA EBURNEA* Willd. Tel. *Burra-tumma*, *Pottasara*. A small tree with large, ivory-white thorns. Bark rough, dark-grey. Leaves 2-pinnate; pinnæ 4 to 14; leaflets 10 to 16 per pinna, linear, glabrous; $\frac{1}{10}$ to $\frac{1}{8}$ inch long. Flowers in globose axillary heads, purple with yellow stamens; about March. Fruit a papery, flat pod, 3 to 6 inches long. In the plains. Rare in the region.

181. *ACACIA LEUCOPHLOEA* Willd. Tel. *Tella-tumma*. A small or large thorny tree. Bark smooth, yellowish-grey when young, rough and almost black when old. Leaves 2-pinnate; pinnæ 10 to 30; leaflets 24 to 60 per pinna, crowded, linear-oblong, nearly glabrous; $\frac{1}{8}$ to $\frac{1}{4}$ inch long. Flowers

in small globose heads in large terminal panicles, white or yellowish; June to November. Fruit a thin, flat, usually curved pod, 4 to 8 inches long brown; January to March. Very common in dry deciduous forest, from sea-level to 2,500 feet.

182. *ACACIA SUMA* Buch-Ham. A fair-sized thorny tree. Bark thin, exfoliating in papery flakes, white or greyish. Leaves 2-pinnate; pinnæ 20 to 60; leaflets 60 to 100 per pinna, close-set, linear, nearly glabrous; about $\frac{1}{4}$ inch long. Flowers in axillary spikes, white; May to August. Fruit a flat pod, 3 to 5 inch long; July to February. In deciduous forest, usually in the vicinity of water, mainly found in the southern limits of the region from 1,000 to 2,000.

183. *ACACIA SUNDRA* DC. Tel. *Sandra*. A small thorny tree. Bark rough, vertically furrowed, brown. Leaves 2-pinnate; pinnæ 4 to 10; leaflets 40 to 80 per pinna, linear-oblong, glabrous; $\frac{1}{8}$ inch long. Flowers in axillary spikes, white; July to November. Fruit a thin, flat pod, 2 to 3 inches long, brown; November to January. Very common in open dry forests, on stony and kunker soils, from sea-level to 2,000 feet.

184. *ACACIA FERRUGINEA* DC. Tel. *Ausandra*. A moderate-sized thorny tree. Bark thick, rough, much cracked into irregular oblong scales, dark-grey with at times a brownish tinge. Leaves 2-pinnate; pinnæ 6 to 12; leaflets 20 to 40 per pinna, sub-coriaceous, linear-oblong, glabrous; $\frac{1}{10}$ to $\frac{1}{5}$ inch long. Flowers in axillary spikes, white September to October. Fruit a thin, flat pod, 3 to 4 inches long, brown; during the cold season. In dry forests from 800 to 2,500 feet; not abundant.

185. *ACACIA LATRONUM* Willd. Tel. *Bursala, Boggili, Pottasara*. A very large thorny shrub; some of the thorns hollow, white and very thick; the shrub often markedly flat-topped. Bark thick, very rough, vertically cleft, dark reddish-brown. Leaves 2-pinnate; pinnae 4 to 10; leaflets 12 to 30, sub-coriaceous, linear, glabrous; $\frac{1}{8}$ to $\frac{1}{4}$ inch long. Flowers in fascicled, axillary short spikes, white, scented; March to August. Fruit a flat, bean-shaped pod, 1 to $1\frac{1}{2}$ inches long, dark-brown; June to February. Very common on poor, dry, stony soils from sea-level to 1,500 feet.

186. *ACACIA CONCINNA* DC. Tel. *Shigakui*. A very thorny climbing shrub. Leaves 2-pinnate; pinnae 8 to 16; leaflets 24 to 50 per pinna, linear; $\frac{1}{4}$ to $\frac{1}{2}$ inch long. Flowers in axillary heads also forming terminal panicles, white. Fruit a thick, fleshy pod becoming wrinkled and dry when mature, 3 to 5 inches long, brown. In hill forests, not abundant.

187. *ACACIA CÆSIA* Willd. (A. *INTSIA* W. & A.) Tel. *Pariki Korinda*. A thorny, climbing shrub; stem usually 5-fluted. Bark pale-grey. Leaves 2-pinnate; pinnae 8 to 12; leaflets 16 to 24 per pinna, oblong-falcate; about $\frac{1}{2}$ inch long. Flowers in globose heads in terminal panicles, white; May to December. Fruit a narrow, flat, pod, 4 to 6 inches long, brown; July to March. In hill forest from 300 to 400 feet.

188. *ACACIA PENNATA* Willd. Tel. *Sannai-pariki*. A large thorny climber. Bark horizontally cracked, reddish-brown. Leaves 2-pinnate; pinnae 16 to 36; leaflets 80 to 100 per pinna, linear, oblique, sessile, glabrous; $\frac{1}{5}$ to $\frac{1}{3}$ inch long. Flowers in globose heads in large terminal panicles, white,

scented; May to September. Fruit a narrow, flat pod, 4 to 8 inches long, brown; November to February. In dry hill forests, from 1,000 to 4,000 feet.

189. *ACACIA CANESCENS* Grah. (A. *PENNATA* Willd. VAR. *CANESCENS*). Tel. *Gubba-korinda*. Very similar to the last species; the leaflets are smaller and slightly pubescent below and the pods smaller and less thickened on the margin. In the same localities.

190. *ACACIA TORTA* Craib. (A. *INTSIA* W. & A. VAR. *CÆSIA* Bak.) A large very thorny climbing shrub. Leaves 2-pinnate; pinnae 20 to 24; leaflets 50 to 80 per pinna, oblong-falcate, pubescent below; $\frac{1}{5}$ to $\frac{1}{3}$ inch long. Flowers in globose heads in terminal panicles, white or pink; May to June. Fruit a narrow, flat pod, 5 to 6 inches long; December to March. In dry hill tracts from 600 to 4,000 feet.

191. *ALBIZZIA LEBBECK* Benth. Tel. *Dirisinam*. A large tree. Bark rough with numerous short irregular cracks, brownish. Leaves 2-pinnate; pinnae 4 to 8; leaflets 10 to 18, elliptic-oblong, oblique, glabrous above, pubescent below; 1 to $1\frac{3}{4}$ inches long. Flowers in globose heads, axillary or forming terminal panicles, rather large, white, scented; March to April. Fruit a broad, flat pod, 5 to 12 inches long, light-brown; September to March, remaining long on the tree. Fairly common from near sea-level to 1,000. Also extensively planted as an ornamental tree.

192. *ALBIZZIA ODORATISSIMA* Benth. Tel. *Chinduga*. A fair-sized tree. Bark granular, irregularly cracked, grey with darker patches. Leaves 2-pinnate; pinnae usually 8; leaflets 16 to 30, obliquely-oblong, slightly pubescent above, more so

below; $\frac{3}{4}$ to $1\frac{1}{8}$ inches long. Flowers in globose heads in terminal panicles, white, scented; March to May. Fruit a flat pod 4 to 8 inches long, narrower than of last, dark brown; during the cold season. In deciduous hill forests from 600 to 4,000 feet.

193. *ALBIZZIA THOMPSONI* Brand. Tel. *Kondala*. A large tree. Leaves 2-pinnate; leaflets oblong, slightly falcate; about $\frac{1}{2}$ inch long. Flowers in globose heads, pale-yellow with pink anthers. Fruit a flat pod, red. In the Cuddapah district up to about 3,000 feet, not abundant.

194. *ALBIZZIA PROCERA* Benth. Tel. *Tella-chinduga*. A large spreading tree. Bark thick, smooth, with longitudinal lines, exfoliating in small rounded flakes, yellowish or greenish-white or grey; pink within. Flowers in globose heads in terminal panicles, rather small, greenish-white. Fruit a narrow, flat pod, 4 to 8 inches long brown; about March. In hill forests, especially near streams, and not reaching to very high elevations.

195. *ALBIZZIA AMARA* Boiv. Tel. *Sikireni*. A moderate-sized tree. Bark smooth, dark-grey. Leaves 2-pinnate; pinnæ 12 to 30; leaflets 20 to 60, close-set, sessile, linear-oblong, glabrous-above, somewhat pubescent below; $\frac{1}{4}$ to $\frac{1}{3}$ inch long. Flowers in axillary, globose heads, pinkish-white, scented; March to July. Fruit a narrow, flat pod, 4 to 7 inches long, brown; September to March. Common in dry forests from near sea-level to 4,000 feet.

196. *ALBIZZIA MARGINATA* Merr. (A *STIPULATA* Boiv.) Tel. *Konda-chiragu*. A fair-sized tree. Bark vertically wrinkled and horizontally furrowed, grey. Leaves 2-pinnate: pinnæ 14 to

40; leaflets 60 to 90, linear-oblong, falcate, glabrous above, pubescent below; $\frac{1}{4}$ to $\frac{1}{3}$ inch long. Flowers in globose heads in small panicles, white with pink anthers. Fruit a narrow, flat pod, 5 to 7 inches long, pale-brown. In hill forests up to about 3,000 feet, not abundant.

197. *PITHECOLOBIUM DULCE* Benth. A large thorny tree. Bark with numerous light coloured lenticels, both horizontal and vertical and running in lines, grey. Leaves 2-pinnate; pinnæ 2; leaflets 2, sub-coriaceous, obovate-oblong, glabrous; 1 to 2 inches long. Flowers in globose axillary heads white; November to March. Fruit a twisted, leathery pod with an edible aril; during the hot season. Introduced from America, widely planted and run wild at low elevations.

XXVIII.—RHIZOPHORACEÆ.

198. *RHIZOPHORA MUCRONATA* Lam. Tel. *Uppu-ponna*. An evergreen tree with aerial roots and usually with conical excrescences rising from the terrestrial roots. Bark with vertical clefts, fairly smooth between, brown. Leaves coriaceous, elliptic, glabrous, black dotted below; 3 to 8 inches long. Flowers in small axillary cymes, calyx yellow, petals white. Fruit ovoid-conical, $1\frac{1}{2}$ inches long, germinating while still on the tree and forming a cylindrical radicle that often reaches 2 feet in length before falling. In salt marshes and backwaters along the coast.

199. *RHIZOPHORA CANDELARIA* DC. (R. *CONJUGATA* Hensl.) Very like the last species but smaller, with smaller leaves and the cymes 2 flowered. Leaves coriaceous, elliptic-lanceolate glabrous, dotted below; 3 to 6 inches long. In the same localities.

200. *CERIOPS ROXBURGHIANA* Arn. Tel. *Gath-arū*. A small evergreen tree with aerial roots and forming conical excrescences from the terrestrial roots. Bark rough, exfoliating in blackish flakes, reddish-brown. Leaves coriaceous, obovate-oblong, glabrous; 2 to 4 inches long. Flowers in axillary cymes, white. Fruit about $\frac{1}{2}$ inch long, germinating on the tree and forming a cylindric, angled radicle 1 foot long before falling, reddish-brown. In tidal swamps along the coast.

201. *KANDELIA RHEEDII* W. & A. Tel. *Thuvarakandan*. A small tree forming aerial roots. Bark spongy, exfoliating in smooth flakes, reddish-brown. Leaves elliptic-oblong, glabrous, shining above, reddish-brown below; $2\frac{1}{2}$ to 5 inches long. Flowers in axillary cymes, white. Fruit $\frac{1}{2}$ to 1 inch long, germinating on the tree and forming a slender cylindric radicle 6 to 15 inches long before falling. In tidal forests along the coast.

202. *BRUGUIERA CONJUGATA* Merr. (B. *GYMNO-RHIZA* Lam.) Tel. *Thuddu-penna*. A fair-sized evergreen tree forming aerial roots and excrescences on the terrestrial roots. Leaves coriaceous, elliptic or elliptic-oblong, glabrous; 3 to 6 inches long. Flowers axillary, solitary, large, calyx orange-yellow, petals white. Fruit obconic, under 1 inch long, scarlet, germinating on the tree and forming a grooved, spindle-shaped radicle up to 1 foot long before falling. In tidal forests on the coast.

203. *BRUGUIERA CYLINDRICA* W. & A. (B. *CARYOPHYLLOIDES*, Bl.) Tel. *Varada*.—A small tree, similar to the last species. Bark thin, dark-brown. Leaves coriaceous, elliptic-lanceolate, glabrous, shining above; $2\frac{1}{2}$ to 4 inches long. Flowers in axillary cymes, small, white. Fruit

oblong-ovoid, under $\frac{1}{2}$ inch long, germinating on the tree and forming a slender, cylindric radicle up to 6 to 8 inches long before falling. In tidal coast forests.

204. *CARALLIA INTEGERRIMA* DC. Tel. *Nirpanasu, Karalli*. A moderate-sized tree, sometimes forming aerial roots. Bark thin, dark-grey. Leaves coriaceous, broad-elliptic, obovate-oblong or oblong-lanceolate, glabrous, shining above; 2 to 4 inches long. Flowers in short axillary cymes, white; January and February. Fruit a globose berry, about $\frac{1}{4}$ inch diameter, red; about May. In hill forests and descending low down along streams from 200 to 3,000 feet.

XXIX.—COMBRETACEÆ.

205. *TERMINALIA BELERICA* Roxb. Tel. *Thaudra*. A fair-sized or large tree. Bark smooth, vertically cracked, grey or bluish-grey; white or reddish within. Leaves coriaceous, broadly elliptic or elliptic-obovate, glabrous; 4 to 8 inches long; petioles 2 to 4 inches long. Flowers in slender, axillary spikes, greenish-yellow, with an unpleasant smell; March to May. Fruit rounded, $\frac{1}{2}$ to 1 inch diameter; August and September. Common but scattered in most deciduous forests, especially near streams, from sea-level to 4,000 feet.

206. *TERMINALIA CHEBULA* Retz. Eng. *The Myrabolam*. Tel. *Karaka*. A small or moderate-sized tree. Bark with numerous shallow, vertical cracks, dark-brown. Leaves elliptic-oblong, $2\frac{1}{2}$ to 6 inches long; petioles $\frac{1}{2}$ to 1 inch long. Flowers in terminal, often paniced, spikes, yellowish-white; March and April. Fruit obovoid, up to $1\frac{1}{2}$ inches long yellowish-green; March to August. In deciduous hill forest from 900 to 4,000 feet.

207. *TERMINALIA ARJUNA* W. & A. Tel. *Yerra-maddi*. A large tree, stems often buttressed. Bark smooth, exfoliating in thin flakes, pinkish-grey. Leaves oblong or elliptic-oblong, glabrous; 4 to 6 inches long; petioles $\frac{1}{4}$ to $\frac{3}{8}$ inch long. Flowers in axillary spikes or terminal racemes, yellowish, with an unpleasant smell; April and May. Fruit ovoid, 1 to $1\frac{1}{2}$ inches long, with 5 short wings, brown; June to January. Along streams in deciduous forests from 500 to 4,000 feet. Often planted in topes and avenues.

208. *TERMINALIA TOMENTOSA* W. & A. (*T. TOMENTOSA* W. & A. VAR. *TYPICA*). Tel. *Maddi*, *Nalla-maddi*.—A fairly large tree. Bark very thick, deeply, vertically fissured and with short horizontal cracks, dark-grey. Leaves coriaceous, elliptic-oblong, yellowish-brown hairy below; 3 to 8 inches long; petioles $\frac{1}{4}$ to $\frac{3}{8}$ inches long. Flowers in axillary spikes or terminal panicles, dull yellow; July and August. Fruit elliptic, $1\frac{1}{2}$ to 2 inches long, with 5 large wings, glabrous, dark-brown; January to March. In dry hill forests from 1,000 to 4,500 feet.

209. *TERMINALIA CORIACEA* W. & A. (*T. TOMENTOSA* W. & A. VAR. *CORIACEA*). Tel. *Maddi*, *Nalla-maddi*.—Very similar to the last and hitherto confounded with it and with *T. crenulata*. Leaves elliptic-ovate or elliptic-oblong, yellowish-brown velvety below; 4 to 9 inches long; petioles about $\frac{1}{2}$ inch long. Fruit yellowish-brown velvety. In the same situations.

210. *TERMINALIA GELLA* Dalz. A fair-sized tree. Very little known. Leaves coriaceous, ovate or ovate-oblong, brown pubescent; up to about 5 inches long. Flowers in dense spikes. Fruit ovoid, brown tomentose, unwinged. Possibly not to be

found in the region but known to occur in the Ramandrug Hills of the Bellary District up to 3,000 feet.

211. *TERMINALIA PANICULATA* Roth. Tel. *Nalla-Pulaga*. A fair-sized tree. Bark rough, exfoliating in flat flakes, dark-grey or grey-brown. Leaves coriaceous, oblong, more or less pubescent below; 4 to 9 inches long. Flowers in terminal panicles, yellowish-white; June to September. Fruit small, with 3 wings of which 2 are much smaller than the 3rd red; November to January. In deciduous hill forest from 600 to 3,000 feet.

212. *TERMINALIA PALLIDA* Brand. Tel. *Tella-karakai*. A medium-sized tree. Leaves coriaceous, thick, glaucous, broadly ovate, glabrous; 3 to 5 inches long. Flowers in axillary spikes. Fruit obovoid. 1 to $1\frac{1}{2}$ inches long, faintly 5-ribbed; February to April. In the Kurnool, Cuddapah, Chittoor and Chingleput districts (possibly also in the Nellore district) on dry rocky hills from 2,000 to 4,500 feet.

213. *ANOGEISSUS LATIFOLIA* Wall. Tel. *Yellama*, *Siriman*, *Chiruman*.—A tree growing to a large size under favourable conditions. Bark thin, smooth, with shallow depressions caused by exfoliations, whitish-grey often with lighter patches. Leaves elliptic to sub-orbicular, glabrous; 2 to 4 inches long. Flowers in small, axillary, globose heads, small, yellowish; August to October. Fruit hard, compressed, beaked, about $\frac{1}{5}$ inch long, with narrow wings along the two edges, dark-brown; December to March and occasionally on till June. In all deciduous forests from sea-level to 4,000 feet.

214. *CALYPTERIS FLORIBUNDA* Lam. Tel. *Pottengi*, *Bandi-murududu*.—A large straggling, often

climbing shrub. Bark very thin, smooth, light brown. Leaves ovate-lanceolate or elliptic-oblong tomentose; 3 to 5 inches long. Flowers in axillary racemes and terminal panicles, yellowish-green March to July. Fruit narrow-ovoid, $\frac{1}{2}$ inch long 5-ribbed, crowned by the persistent enlarged calyx about August. In forest areas, usually near streams from 100 to 1,000 feet.

215. LUMNITZERA RACEMOSA Willd. Tel. *Kadiri, Kadivi*. A small evergreen tree. Bark thick rough, hard, brown. Leaves coriaceous, oblanceolate or obovate, sessile, glabrous; 1 to $2\frac{1}{2}$ inches long. Flowers in axillary or terminal racemes white; about September. Fruit elliptic-oblong, $\frac{1}{2}$ inch long, woody, crowned by the small persistent calyx lobes; about October. In tidal swamps.

216. COMBRETUM OVALIFOLIUM Roxb. Tel. *Yada-tiga*. A large climber. Bark thin, smooth light-brown. Leaves elliptic or elliptic-lanceolate glabrous; 2 to 4 inches long. Flowers in axillary paniced spikes, white; February and March. Fruit ellipsoid, $\frac{3}{4}$ inch long, with 4 wide papery wings placed crosswise; June to August. In diciduous forest, especially near streams; 200 to 2,000 feet.

217. GYROCARPUS AMERICANUS Jacq. Tel. *Kumara-poliki*. A fair-sized tree. Bark thin, smooth, greyish-white with a silvery lustre. Leaves broadly ovate, often deeply lobed, 3-nerved, glabrous; 4 to 6 inches diameter. Flowers in dense terminal cymes, small, white; January to March. Fruit, globose or ovoid, $\frac{1}{2}$ to $\frac{3}{4}$ inch diameter, with 2 wings about $2\frac{1}{2}$ inches long, light brown; June and July. Common in dry stony hill forests and occasionally in the plains; from sea-level to 4,000 feet.

XXX.—MYRTACEÆ.

218. PSIDIUM GUAJAVA Linn. Eng. *The Guava tree*. Tel. *Jama*. A small tree. Bark thin, very smooth, greenish-grey. Leaves ovate or oblong, sub-sessile, glabrous above, pubescent below; 3 to 4 inches long. Flowers axillary, solitary or a few together, large, white; May to September. Fruit globose, fleshy, yellow, edible. Planted and cultivated for its fruit and in places run wild.

219. SYZYGium ALTERNIFOLIUM Walp. (EUGENIA ALTERNIFOLIA Wight). Tel. *Movi, Moghi*. A fair-sized tree. Leaves coriaceous, broadly ovate or sub-orbicular, glabrous; 4 to 8 inches long. Flowers in lateral cymes, yellowish-white; March and April. Fruit globose, about $\frac{1}{2}$ inch diameter, reddish; June and July. In the hill tracts of Kurnool, Nellore, Cuddapah and Chittoor districts and in the Kambakkam Hills of Chingleput. From 1,600 to 4,500 feet.

220. SYZYGium JAMBOLANUM DC. (EUGENIA JAMBOLANA Lam.) Tel. *Neredu*. A large tree. Bark smooth with shallow depressions caused by exfoliation, light-grey with large darker patches. Leaves coriaceous, lanceolate, elliptic or broadly ovate-elliptic, glabrous, shining above; 2 to $4\frac{1}{2}$ inches long. Flowers in extra-axillary, paniced cymes, white, scented; May to August. Fruit broadly ovoid $\frac{1}{3}$ to 1 inch long fleshy, red or purple, edible; August to September. Common in plains and hills, especially near streams, from sea-level to 4,000 feet.

221. SYZYGium HEYNEANUM Wall. (EUGENIA HEYNEANA Duth.). A large shrub or small tree. Bark grey. Leaves oblong lanceolate, glabrous, shining above; 3 to 4 inches long. Flowers in

lateral cymes, small, white. Fruit obovoid, $\frac{1}{2}$ inch long, crowned with the cup-like calyx tube. Resembling the last species but the leaves narrower and with less regular nerves and the flowers smaller. In river beds and along streams, possibly not found in the region.

222. *EUGENIA BRACTEATA*, Roxb. Tel. *Kundanneredu, Gotti*.—An evergreen large shrub or small tree. Bark smooth, yellowish-grey. Leaves subcoriaceous, elliptic or ovate, glabrous, shining above; $1\frac{1}{2}$ to $2\frac{1}{2}$ inches long. Flowers in axillary fascicles, about $\frac{1}{2}$ inch diameter, white; April to December. Fruit globose, about $\frac{1}{3}$ inch diameter, yellow; August to January. On coastal sandhills and in dry evergreen scrub forest not far from the sea; rarely above 100 feet.

XXXI.—LECYTHIDACEÆ.

(under *Myrtaceæ*)

223. *BARRINGTONIA ACUTANGULA* Gaertn. Tel. *Pottasara*.—A medium-sized tree. Bark thick, rough, dark-brown. Leaves ovate-oblong or elliptic with a narrowed base; 2 to 6 inches long. Flowers in axillary or terminal racemes, pink to dark-scarlet, scented; August to October. Fruit ovoid and bluntly quadrangular, about $1\frac{1}{2}$ inches long; August to November. Fairly frequent near the coast, rarer inland. Along streams and near swamps. From sea-level to 600 feet.

224. *CAREYA ARBOREA* Roxb. Tel. *Dudippi*. A fair-sized tree. Bark thick, with vertical and diagonal cracks, exfoliating in narrow flakes, dark-grey; fibrous and reddish within. Leaves broadly obovate, nearly sessile, glabrous; 6 to 12 inches long. Flowers in axillary racemes or interrupted spikes, large and showy, yellowish-white; about

March. Fruit globular, 2 to 3 inches diameter, green; April and May. In deciduous forest from 200 to 3,000 feet.

XXXII.—MELASTOMACEÆ.

225. *MEMECYLON UMBELLATUM* Burm. (M. *EDULE* Roxb. VAR. *RAMIFLORA*.) Tel. *Alli*. A large shrub. Leaves coriaceous, ovate or ovate-elliptic, glabrous, shining above; under 2 inches long. Flowers in axillary, umbellate cymes along the branches, small, blue; July to September. Fruit a small yellow berry; September to January. In coastal tracts and on the lower hill slopes. This species has been much confused with the next.

226. *MEMECYLON EDULE* Roxb. Tel. *Alli, Peddalli*. A large evergreen shrub. Bark thin, corky, rough, vertically cleft, light-brown. Leaves coriaceous, ovate, glabrous, shining above; 2 to 4 inches long. Flowers in lateral umbellate cymes along the branches, a beautiful blue; March to September. Fruit a globose berry. $\frac{1}{4}$ inch diameter, black-purple, edible; July to January. On dry hills and in dry evergreen forest up to 4,000 feet.

227. *MEMECYLON LUSHINGTONII* Gamble. A small tree. Bark rough, almost black. Leaves elliptic or elliptic-lanceolate, glabrous, shining above; 1 to 2 inches long. Flowers fascicled on lateral or axillary tubercles along the branches, white turning pale blue, small; April and May. Fruit a globose berry, $\frac{1}{5}$ inch diameter, yellow; June and July. In hill tracts not common, but fairly abundant at Horsleykonda at about 4,000 feet.

XXXIII.—LYTHRACEÆ.

228. *WOODFORDIA FRUTICOSA* Kurz. (W. *FLORIBUNDA* Salisb.) Tel. *Serini*. A large shrub,

with quadrangular twigs. Bark very thin, exfoliating in thin scales, grey. Leaves decussate, subcoriaceous, with black or red dots below, sessile, ovate-lanceolate, velvety above; 2 to $3\frac{1}{2}$ inches long. Flowers in axillary racemes, rarely solitary, scarlet. Fruit an ellipsoid capsule. On dry hills and in rocky places, not very common.

229. *LAWSONIA INERMIS* Linn. (L. ALBA Lam.) Eng. *Henna*. Tel. *Gorantaku*, *Gorinti*. A woody shrub, twigs quadrangular. Bark thin, greyish-brown. Leaves elliptic or broadly lanceolate; $\frac{1}{2}$ to $1\frac{1}{2}$ inches long. Flower in terminal panicles, small white, scented; June to September. Fruit a globose capsule, brown; July to October. Cultivated and run wild in dry rocky places from near sea-level to 1,200 feet.

230. *LAGERSTROEMIA PARVIFLORA* Roxb. Tel. *Chinangi*, *Guggilama*, *Gulla-karaka*, *Nallagurka*. A fair-sized tree. Bark rough, vertically cracked, exfoliating in long irregular strips, light-brown to dark-grey; reddish within. Leaves sessile or nearly so, distichous, elliptic oblong, glabrous above, whitish, sometimes tomentose, below; 2 to 4 inches long. Flowers in axillary racemes and terminal panicles, white or pinkish April to June. Fruit an ellipsoid capsule, woody, about $\frac{3}{4}$ inch long; November to February. In hilly tracts from 300 to 3,600 feet.

XXXIV.—SONNERATIACEÆ.

(under *Lythraceæ*.)

231. *SONNERATIA APETLA* Buch.-Ham. Tel. *Kayalanki*. A moderate-sized evergreen tree. Bark smooth, with horizontal oval lenticels, shining, black. Leaves coriaceous, thick, oblong-lanceolate,

glabrous; 2 to 4 inches long. Flowers terminal, solitary or 2 or 3 together, large, fruit a sub-globose berry, $\frac{3}{4}$ inch diameter. In coastal mangrove swamps.

XXXV.—SAMYDACEÆ.

232. *CASEARIA TOMENTOSA* Roxb. Tel. *Chilakaddudi*. A small tree. Bark thick, brittle, pale. Leaves oblong, pubescent or tomentose below: $2\frac{1}{2}$ to 7 inches long. Flowers in axillary fascicles, greenish-white; about September. Fruit ellipsoid, $\frac{3}{4}$ inch long, 3 valved, the seeds embedded in scarlet pulp; during the cold season. In deciduous forest from 600 to 4,000 feet.

233. *CASEARIA ESCULENTA* Roxb. A small tree. Leaves thinly coriaceous, elliptic-oblong to elliptic-lanceolate, glabrous; 3 to 6 inches long. Flowers; in clusters in the axils of present or fallen leaves; about October. Fruit ellipsoid, $\frac{3}{4}$ inch long, orange-yellow; the seeds covered by a lacerated scarlet aril; about November. In coastal forests (Shrihrikota).

XXXVI.—CACTACEÆ.

234. *OPUNTIA MONACANTHA* Haw. Eng. *Prickly-pear*. Tel. *Nagadari*. A thorny, leafless, green shrub with segmented stems. Flowers solitary on the segments of the stem, yellow with a red tinge; October to February. Fruit a pear-shaped, thorny berry, red; during the cold season. Occasional, not widespread like the next species.

235. *OPUNTIA DILLENII* Haw. Eng. *Prickly-pear*. Tel. *Nagadari*. Very similar to the last. Flowers yellow; more or less all the year round. Introduced and run wild in most localities. The commonest of the prickly-pears.

236. *OPUNTIA ELATIOR* Mill. Eng. *Prickly-pear*. Tel., *Nagadari*. Very like the last but much larger in all respects, attaining 20 feet or more in height with a stem nearly 1 foot diameter. Flowers yellow changing to rose-pink. Rare in most districts but very common in parts of the North Vellore division.

237. *OPUNTIA COCCINELLIFERA* Mill. A nearly thornless, leafless, green shrub with segmented stems. Flowers rose-coloured, smaller than in the other species; January. Fruit similar to the others but smaller. Planted here and there, rarely run wild, but to be seen wild along the Pernambet-Venkatagiri Ghat road in the North Arcot district.

XXXVII.—ARALIACEÆ.

238. *SCHEFFLERA VENULOSA* Harms. (*HEPTAPLEURUM VENULOSUM* Seem). A large straggling or climbing shrub, often starting epiphytically. Bark smooth, shining, grey. Leaves 3 to 7 foliate; leaflets palmately arranged, coriaceous, elliptic-oblong, glabrous; 3 to 4 inches long, common petiole 3 to 9 inches long; petiolules 1 to 2 inches long. Flowers in terminal panicles, greenish-yellow; April to June. Fruit sub-globose, 5 angled, small.

In hilly forest from 1,500 to 4,000 feet.

XXXVIII.—ALANGIACEÆ.

(under *Cornaceæ*).

239. *ALANGIUM SALVIFOLIUM* Wang. (*A. LAMARCKII* Thw.) Tel. *Udaga*. A small, rarely large, tree, sometimes bearing spines. Bark fibrous, orange-yellow when young, grey later. Leaves narrowly oblong or ovate-lanceolate, 3-nerved, glabrous above, pubescent on the nerves below; 3 to 6 inches long. Flowers in axillary fascicles,

about $\frac{1}{2}$ inch long, white, strongly scented; February and March. Fruit a globose berry, $\frac{1}{2}$ to $\frac{3}{4}$ inch long, purplish-red; May to July. In dry regions in the plains and hills; common near villages; from sea-level to 3,000 feet.

XXXIX.—RUBIACEÆ.

240. *ANTHOCEPHALUS INDICUS* A. Rich. (*A. CADAMBA* Miq.) Tel. *Kadambai*. A large tree. Bark with numerous, regular, longitudinal fissures, exfoliating in small, rectangular scales, dark-grey. Leaves coriaceous, elliptic-oblong, glabrous and shining above, usually pubescent below; 5 to 12 inches long. Flowers in terminal, solitary, globose heads 1 to $1\frac{3}{4}$ inches diameter, small, orange-coloured, scented. Fruit aggregated into a fleshy, globose mass, 2 inches diameter, yellowish or orange. Along river banks in hill tracts, not very common.

241. *ADINA CORDIFOLIA* Hook. f. Tel. *Rudraganapu*. A large tree. Bark thick, soft, rough grey. Leaves orbicular-cordate, pubescent below; 4 to 10 inches diameter. Flowers in solitary or paniced globose heads, small, scented, yellowish; during the cold season. Fruit a cluster of small, narrow capsules; March and April. In deciduous forests from 800 to 4,000 feet; not abundant.

242. *MYTRAGYNE PARVIFOLIA* Korth. (*STEPHEGYNE PARVIFOLIA* Korth.) Tel. *Battaganapu*, *Nir-kadambai*. A large tree. Bark smooth, with shallow depressions due to exfoliation, light-grey. Leaves elliptic, sub-orbicular or obovate, glabrous 2 to 5 inches long. Flowers in terminal, solitary, globose heads, greenish-yellow, scented; June to August. Fruit similar to that of the last species;

during the cold season. In deciduous forests usually near streams, from 300 to 4,000 feet.

243. *HYMENODICTYON EXCELSUM* Wall. Tel. *Dudippa*. A fair sized tree. Bark thick, exfoliating in soft, irregular scales, grey. Leaves ovate-elliptic, pubescent; 4 to 9 inches long, petioles 1 to 3 inches long. Flowers in axillary and terminal panicles, with large, conspicuous, convex bracts, greenish-white, scented; September and October. In deciduous, hill forests from 80 to 2,500 feet.

244. *WENDLANDIA TINCTORIA* DC. A small tree. Bark rough, fibrous, reddish-brown. Leaves usually opposite, rarely in whorls of 3, elliptic-lanceolate, somewhat pubescent below; 3 to 6 inches long. Flowers in terminal, panicle cymes, white, scented; March and April. Fruit a small, globose capsule. In dry hill tracts, 1,000 to 3,000 feet.

245. *CHOMELIA ASIATICA* O. Kze. (*WEBERA CORYMBOSA* Willd.) Tel. *Kummi*, *Kommi*, *Murikommi*. An evergreen shrub. Leaves coriaceous, oblong-lanceolate, glabrous and polished above; 3 to 6 inches long. Flowers in terminal cymes, white, scented; January to June. Fruit a globose berry about $\frac{1}{4}$ inch diameter, black; about August. Common in all dry forests from sea-level to 4,500 feet.

246. *RANDIA DUMETORUM* Lam. Tel. *Manga*, *Chinna-manga*. A large thorny shrub, rarely a small tree. Bark grey. Leaves obovate; 1 to $1\frac{1}{2}$ inches long. Flowers solitary at the end of short, leafy branchlets, about 1 inch diameter, white, scented; February to September. Fruit a globose berry, slightly ribbed, about $\frac{3}{4}$ inch diameter, smooth, yellowish; June to February. In dry deciduous and evergreen forests from sea-level to 3,000 feet. Has been generally confused with the next species.

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247. *RANDIA BRANDISII* Gamble. A thorny small tree or large shrub. Very like the last species but larger in all particulars and more pubescent. Leaves elliptic or obovate; $1\frac{1}{2}$ to 3 inches long. Fruit 1 to $1\frac{1}{2}$ inches diameter. Up to 4,000 feet.

248. *RANDIA MALABARICA* Lam. A thorny shrub. Bark rough with deep vertical fissures, brown. Leaves coriaceous, elliptic-oblong or oblong-lanceolate, glabrous; $1\frac{1}{2}$ to $2\frac{1}{2}$ inches long. Flowers in leaf-opposed cymes, white fading to yellow, scented; February to June. Fruit globose, about $\frac{1}{4}$ inch diameter, dark-red or black, seeds orange-coloured; September to February.

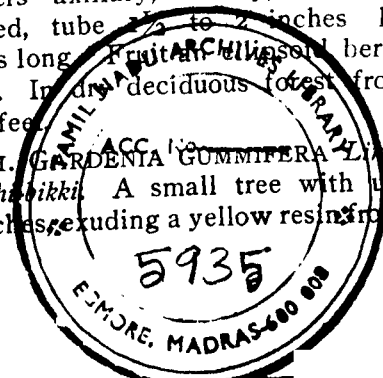
In dry deciduous forest from 300 to 2,500 feet.

249. *RANDIA CANDOLLEANA* W. & A. Tel. *Peddamanga*. A small tree, occasionally thorny. Bark rough, brown. Leaves orbicular or obovate, glabrous or velvety; 3 to 4 inches long. Flowers in axillary cymes, white; during the rains. Fruit a globose berry, about $\frac{3}{4}$ inch diameter; during the cold season.

On dry hills from 400 to 2,500 feet.

250. *GARDENIA LUCIDA* Roxb. Tel. *Yerri-bikki*. A small tree or large shrub exuding a yellow resin from the leaf buds. Bark smooth, exfoliating in irregular flakes, greenish-grey. Leaves elliptic-oblong, glabrous, shining; $2\frac{1}{2}$ to 6 inches long. Flowers axillary, solitary, white turning yellow, scented, tube $2\frac{1}{2}$ to 2 inches long, lobes $1\frac{1}{2}$ inches long. Fruit an ellipsoid berry, $\frac{3}{4}$ inch diameter. In dry deciduous forest from sea-level to 2,000 feet.

251. *GARDENIA GUMMIFERA* Linn. f. Tel. *Bikki*, *Manchi-bikki*. A small tree with usually twisted branches, exuding a yellow resin from the leaf buds.



Bark smooth, greyish-brown. Leaves sessile or nearly so, elliptic-oblong or obovate-oblong, glabrous, shining; $1\frac{3}{4}$ to $2\frac{3}{4}$ inches long. Flowers axillary, 1 to 3 together, white, about $1\frac{1}{2}$ inches long; March and April, also seen in November. Fruit an ellipsoid berry 1 to $1\frac{1}{2}$ inches long; May and June. In dry deciduous forest from sea-level to 4,000 feet.

252. *GARDENIA LATIFOLIA* Ait. Tel. *Pedda-bikki*. A small, or medium-sized tree, exuding a yellow resin. Bark smooth, with round depressions due to exfoliation, greenish-grey. Leaves sub-sessile, broadly elliptic or obovate, glabrous or somewhat pubescent; 4 to 8 inches long. Flowers axillary, solitary or 2 together, white fading yellow, scented, tube 2 to $2\frac{1}{2}$ inches long, lobes 2 inches diameter; May to July. Fruit a globose berry, about 2 inches diameter brown, edible; November to May. In dry deciduous forests, especially among rocks from sea-level to 4,000 feet.

253. *GARDENIA TURGIDA* Roxb. Tel. *Yerri-bikki*. A thorny small tree or large shrub. Bark smooth, exfoliating in thin, irregular flakes, bluish-grey, green within. Leaves sub-sessile, obovate, glabrous or pubescent below; $1\frac{1}{2}$ to 3 inches long. Flowers from the young, leafless shoots, white, $\frac{3}{4}$ to 1 inch long. Fruit globose, woody, 2 to 3 inches diameter; during the cold season. In dry deciduous forest, especially on rocky hills and on laterite and kunker soils.

254. *PLECTRONIA DIDYMA* Kurz. (*CANTHIUM DIDYMUM* Gaertn.) Tel. *Nalla-balas*. A moderate-sized evergreen tree. Bark rough, with many vertical furrows, exfoliating in longitudinal strips, dark-grey. Leaves coriaceous, ovate-lanceolate or

narrowly oblong-lanceolate, glabrous, glossy above; 2 to 3 inches long. Flowers in axillary cymes, white, scented, $\frac{1}{4}$ inch long; January to June. Fruit a globose berry, $\frac{1}{3}$ inch diameter, black; about June. In dry deciduous and evergreen forests from sea-level to 3,000 feet.

255. *PLECTRONIA PARVIFLORA* Bodd. (*CANTHIUM PARVIFLORUM* Lam.) Tel. *Balas*. A thorny shrub. Bark thick, rough with vertical, somewhat corky ridges, grey or light-brown. Leaves ovate, obovate or sub-orbicular, glabrous, whitish below; $\frac{3}{4}$ to $1\frac{1}{2}$ inches long. Flowers in many-flowered, axillary cymes, white; May to September. Fruit rounded, somewhat compressed, yellow, edible; August to January. Common in dry deciduous scrub forest from near sea-level to 3,500 feet.

256. *VANGUERIA SPINOSA* Roxb. A small thorny tree. Bark smooth, dark. Leaves elliptic-oblong, glabrous; 2 to 5 inches long. Flowers in axillary fascicles, small, white. Fruit globose, 1 inch diameter, yellowish, edible. In dry forests at low elevations; not common.

257. *IXORA PARVIFLORA* Vahl. Tel. *Gorivi*. A small, evergreen tree. Bark exfoliating in irregular rounded scales, dark-brown. Leaves sub-sessile very coriaceous, oblong, or elliptic, glabrous, shining above; 3 to 5 inches long. Flowers in many-flowered, terminal cymes, white, strongly scented; February to June. Fruit rounded somewhat compressed, $\frac{1}{4}$ inch diameter, black; April to August. In deciduous and dry evergreen forest from sea-level to 4,000 feet.

258. *MORINDA ANGUSTIFOLIA* Roxb. A small tree. Leaves obovate, oblanceolate or lanceolate, glabrous; 5 to 10 inches long. Flowers in axillary or

terminal simple paniced, umbellate heads, white. Fruit aggregated by the fusing of the fleshy enlarged calyces. Possibly not found in the region but occurring in the Kurnool Nallamalais.

259. *MORINDA TINCTORIA* Roxb. Tel. *Maddi*. A moderate-sized tree, branchlets quadrangular. Bark corky, brittle, with numerous deep, longitudinal cracks, brown or grey. Leaves elliptic to oblong-lanceolate, glabrous or tomentose; 3 to 6 inches long. Flowers in globose heads as in the last, white, scented; June to November. Fruit as in the last species, $\frac{3}{4}$ inch diameter; August to January. In dry forests, often near habitations, from sea-level to 2,500 feet.

259-A. *MORINDA TINCTORIA* VAR. *STENO-PHYLLA*. Very like the type but with narrowly linear-oblong, tomentose leaves; 6 inches long and 1 inch wide.

XL.—MYRSINACEÆ.

260. *ARDISIA SOLANACEA* Roxb. (A. *HUMILIS* A. DC.) Tel. *Konda-maiyur*. A large shrub. Bark smooth, brown. Leaves sub-coriaceous, rather thick, obovate or oblanceolate, glabrous; 4 to 6 inches long. Flowers in axillary corymbs, pink $\frac{3}{4}$ inch diameter, slightly scented; April to September. Fruit nearly globose, fleshy, purple-black; October to December. Usually in damp places up to 4,000 feet.

261. *ÆGICERAS CORNICULATUM* Blanco. (Æ. *MAJUS* Gaertn.) Tel. *Mada, Dudumara*. A small tree. Bark smooth, grey. Leaves coriaceous, obovate, glabrous, shining; 2 to $3\frac{1}{2}$ inches long. Flowers in terminal or leaf-opposed umbels, white; about September. Fruit narrow, cylindric, curved about $2\frac{1}{2}$ inches long, cinnamon-brown; about October. In tidal swamps.

XLI.—SAPOTACEÆ.

262. *ISONANDRA VILLOSA* Wight. Tel. *Adavi-munda-mamidi*. A medium-sized tree with thick twigs. Leaves broadly obovate, nerves parallel, glabrous; $2\frac{1}{2}$ to $3\frac{1}{2}$ inches long. Flowers in axillary clusters, small, white; August and September. Fruit an ellipsoid berry.

In the Veligondas and Kambakkam Hills between 1,000 and 2,000 feet. Possibly also in other similar tracts.

263. *BASSIA LATIFOLIA* Roxb. Tel. *Ippa*. A fairly large tree. Bark thick, vertically cracked, ex-foliating in thin scales, dark-grey. Leaves coriaceous, elliptic or elliptic-oblong, glabrous; 3 to 9 inches long. Flowers crowded in fascicles near the ends of the branches, white or creamy, fleshy, with an unpleasant smell. Fruit ovoid, fleshy, 1 to 2 inches long, greenish.

In hill forests from 1,000 to 2,000 feet, not very abundant.

264. *BASSIA LONGIFOLIA* Linn. Tel. *Ippa*. A fair-sized tree. Bark thick, slightly furrowed, dark yellowish-grey. Leaves thin, linear-lanceolate, glabrous; 3 to 5 inches long. Flowers crowded in clusters near the ends of the branches, yellowish, fleshy, with an unpleasant smell; February and March. Fruit similar to that of the last species; about July. A tree from the West Coast of India planted in topes and as an avenue tree.

265. *MIMUSOPS ELENGI* Linn. Tel. *Pogoda, Pogoda*. A small evergreen tree. Bark rough, deeply cracked with vertical and transverse fissures, grey. Leaves elliptic, glabrous, shining; $2\frac{1}{2}$ to 4 inches long. Flowers axillary, solitary or

in few-flowered fascicles, white, scented; April to August. Fruit ovoid, fleshy, 1 inch long, yellow.

In dry evergreen and deciduous forest from 600 to 4,000 feet.

266. *MIMUSOPS HEXANDRA* Roxb. Tel. *Pala*. An evergreen small tree or large shrub. Bark thin, smooth, pale-grey. Leaves coriaceous, obovate or oblong, glabrous above and shining, pale below; 2 to 4½ inches long. Flowers axillary, solitary or in few-flowered fascicles, white; September to January. Fruit ovoid, about ¾ inch long, reddish-yellow; February and March.

One of the commonest species in the coastal scrub forests.

XLII.--EBENACEÆ.

267. *MABA BUXIFOLIA* Pers. Tel. *Uti*. A bushy shrub. Bark thin, grey to black. Leaves coriaceous, obovate; under 1 inch long. Flowers axillary, 1 to 3 together, very small, white; March to June. Fruit a globose berry, 1/5 inch diameter, red; August and September.

Common in dry evergreen forest from sea-level to 3,000 feet.

267-A. *MABA BUXIFOLIA* Pers. VAR. *ANGUSTIFOLIA*. A small evergreen tree. Leaves elliptic, 1½ to 3 inches long. The flowers and fruit similar to those of the type but slightly larger. Flowers April and May. Fruit June to August. In dry hill forest from 3,500 to 4,500 feet.

268. *DIOSPYROS MONTANA* Roxb. Tel. *Goragotidi*. A moderate-sized tree, often bearing spines. Bark thin, rough when old, exfoliating in small scales, grey or greyish-black. Leaves ovate-oblong or elliptic, glabrous; 2 to 4 inches long. Flowers

axillary, males in small panicles, females solitary small, white; May and June. Fruit globose, 1 to 1½ inches diameter, reddish-brown; August and September. In dry hill forests from 600 to 4,000 feet; commoner southwards.

269. *DIOSPYROS EMBRYOPTERIS* Pers. A medium-sized evergreen tree. Bark smooth, dark-grey, almost black, with a green tinge. Leaves coriaceous, oblong or oblong-lanceolate, glabrous, shining above; 4 to 11 inches long. Flowers axillary, males in cymes, females usually solitary and larger; during the hot season. Fruits globose, 2 to 3 inches diameter, yellow, scurfily tomentose. In hill forests, usually near streams; not abundant.

270. *DIOSPYROS EBENUM* Kan. Tel. *Nalluti*, *Nallavaradu*, *Nallamanu*. A large tree. Bark finely, longitudinally cracked, dark-grey. Leaves subcoriaceous, elliptic-oblong or oblong-lanceolate, glabrous, shining above; 2 to 6 inches long. Flowers axillary, male in few-flowers cymes, females solitary and larger, greenish-white; March and April. Fruit globose, ¾ inch diameter, the thickened and enlarged calyx forming a woody, wavy cup at its base, yellow; about August. In hill tracts, usually in the valleys from 400 to 3,000 feet. Abundant at Bolapalli in the South Cuddapah division and in Mamandur and the Nagapatla hills in Chittoor.

271. *DIOSPYROS SYLVATICA* Roxb. A moderate-sized tree. Bark thin, smooth, exfoliating in irregular rounded flakes, dark-grey with lighter patches; within yellow, rapidly becoming brown on exposure. Leaves membranous, elliptic, glabrous, shining above; 3 to 5 inches long. Flowers axillary, male in few-flowered cymes, females

solitary and larger, small, white; during the hot season. Fruit globose, $\frac{1}{2}$ to $\frac{3}{4}$ inch diameter, dark-green; September to November. In hill tracts from 1,500 to 2,500 feet, rare except in the south.

272. DIOSPYROS CHLOROXYLON *Roxb.* Tel. *Ulinda, Wullinda.* A moderate-sized tree, somewhat thorny. Bark deeply, vertically cleft, exfoliating in small, rectangular, corky scales, dark-brown, almost black. Leaves sub-coriaceous, thin, elliptic, obovate or elliptic-oblong, rusty tomentose below; 1 to 3 inches long. Flowers axillary, male in few-flowered clusters, females solitary, small, white; May to September. Fruit globose, $\frac{1}{3}$ inch diameter, yellow, edible; November to March.

In dry evergreen and deciduous forest from sea-level to 3,500 feet.

273. DIOSPYROS MELANOXYLON *Roxb.* Tel. *Tuki Tumaki.* A moderate-sized tree. Bark rough, cleft into small rectangular plates, greyish-black and showing the black inner bark through the clefts. Leaves coriaceous, elliptic or elliptic-oblong, pubescent below; $2\frac{1}{2}$ to 6 inches long. Flowers axillary, male in few-flowered cymes, females solitary and larger, small, white; April to June. Fruit globose, 1 inch diameter, yellow; August to February. Very common and gregarious in most open forests, especially on kunker soils, from sea-level to 3,500 feet.

XLIII.—OLEACEÆ.

274. SCHREBERA SWIETENIODES *Roxb.* Tel. *Muvula-man, Makkam.* A large tree. Bark thick, exfoliating in thin, irregular scales, light-grey. Leaves 7 to 9-foliate; leaflets opposite, ovate, glabrous, oblique; 2 to 4 inches long. Flowers in terminal cymes, $\frac{1}{2}$ inch long, yellowish-brown,

scented at night. Fruit a pear-shaped, woody capsule, 2 inches long, 2 valved; seeds winged; about March. In deciduous hill forest from 1,000 to 3,000 feet, not abundant.

275. LINOCIERA MALABARICA *Wall.* Tel. *Punnagaru.* A small, evergreen tree. Leaves coriaceous, elliptic-oblong, glabrous; 2 to 5 inches long. Flowers axillary, in few-flowered fascicles, small, white, scented; February to April. Fruit an ellipsoid drupe $\frac{1}{3}$ inch long, purple; about July. In dry evergreen forests from 600 to 2,000 feet.

276. LINOCIERA INTERMEDIA *Wight* VAR. *ROXBURGHII* *C. B. Clarke.* A small evergreen tree. Bark light yellowish-brown. Leaves coriaceous, elliptic-oblong, glabrous; 3 to 5 inches long. Flowers in axillary or extra-axillary, many-flowered panicles, small, white, scented; during the hot season. Fruit as in the last species. In dry hill tracts up to 4,000 feet.

277. LINOCIERA PURPUREA *Vahl.* Tel. *Nellidabba.* A small evergreen tree. Leaves coriaceous, obovate-oblong, glabrous 2 to 3 inches long. Flowers in axillary panicles, small, white, scented; January to September. Fruit an ellipsoid drupe $\frac{1}{2}$ inch long, about September. In dry evergreen forest, common in the plains of Nellore and Chingleput from sea-level to 3,500 feet.

278. OLEA DIOICA *Roxb.* A moderate-sized tree. Bark smooth, grey. Leaves coriaceous, thin, elliptic-lanceolate, glabrous 3 to 5 inches long. Flowers in axillary or leaf-opposed panicles, white; during the hot season. Fruit an ellipsoid drupe $\frac{1}{2}$ inch long, purple; early in the rains. In hill tracts, rare.

XLIV.--SALVADORACEÆ.

279. *SALVADORA PERSICA* Linn. Tel. *Peddaragogu*. A small evergreen tree with drooping branches, the leaves tasting of mustard. Bark thin, rough, grey. Leaves somewhat fleshy, elliptic, lanceolate or ovate, glabrous, glaucous; $1\frac{1}{2}$ to $2\frac{1}{2}$ inches long. Flowers in axillary and terminal panicles, small, greenish-yellow; January and February. Fruit a globose drupe $\frac{1}{8}$ inch diameter, red; about March. In dry localities, mostly near habitations from sea-level to 1,000 feet.

280. *AZIMA TETRACANTHA* Lam. Tel. *Uppilichettu*. A straggling, evergreen, thorny shrub with rigid, quadrangular branches. Bark rough, light-brown. Leaves rigid, elliptic or sub-orbicular, glabrous, shining; $\frac{1}{2}$ to $\frac{3}{4}$ inch long. Flowers in axillary panicles, small, greenish-white or yellowish; February to April. Fruit a globose berry $\frac{1}{2}$ inch diameter, white, edible; May and June. Common in open dry forests and in open places near habitations from sea-level to 2,500 feet.

XLV.--APOCYNACEÆ.

281. *CARISSA CARANDAS* Linn. Tel. *Kallikai*. A large, evergreen, thorny shrub. Bark exfoliating in square flakes, yellowish-brown. Leaves coriaceous elliptic or obovate, glabrous, shining; $1\frac{1}{2}$ to 3 inches long. Flowers in terminal cymes, white, $\frac{1}{2}$ inch long; February to September. Fruit an ellipsoid berry, $\frac{1}{2}$ to 1 inch long, purplish-black, edible; about September. In open forests and scrub jungle from 800 to 2,500 feet.

282. *CARISSA SPINARUM* Linn. Tel. *Kallikai*. Very much resembling the last species but smaller. Bark thin, fibrous, light yellowish-grey. Leaves

coriaceous, elliptic, glabrous 1 to $1\frac{3}{4}$ inches long. Flowers in terminal cymes, white, $\frac{1}{4}$ to $\frac{3}{8}$ inch long, scented; about March. Fruit sub-globose, $\frac{1}{4}$ inch diameter, purple-black, edible; about July. Common in open scrub jungle from 600 to 2,300 feet.

282-A. *CARISSA SPINARUM* Linn. VAR. *HIRSUTA* Tel. *Kalli, Chinnakalivi*. Very similar to the type but much more pubescent. Very common in the low scrub forests of the Nellore and Chingleput plains. From sea level to 2,500 feet.

283. *CERBERA ODALLAM* Gaertn. A moderate-sized, evergreen tree with whorled branchlets marked with leaf scars; juice milky, acrid and poisonous. Leaves coriaceous, lanceolate, oblanceolate or oblong-lanceolate, glabrous, shining; 5 to 10 inches long. Flowers in terminal cymes, large, white with yellow throat, scented. Fruit a sub-globose drupe, 2 to 4 inches long. In tidal swamps.

284. *PLUMERIA ACUTIFOLIA* Poir. Eng. *The Pagoda Tree*. A small, fleshy tree with thick, scarred branches which bear leaves at the ends and only during the rains. Bark thick, smooth, exfoliating in small flakes, grey. Leaves coriaceous, elliptic-lanceolate, glabrous; 8 to 10 inches long. Flowers in terminal cymes, large, white with a golden throat, highly scented; March to September. It does not set fruit in India and is propagated by cuttings. An American tree, planted and run wild in dry rocky localities.

285. *ALSTONIA SCHOLARIS* R. Br. Tel. *Eda-pala*. A fair-sized, evergreen tree with whorled branches. Bark somewhat rough, lenticellate, dark-grey. Leaves whorled, coriaceous, oblong-lanceolate or obovate, glabrous, whitish below; 4 to 8 inches

long. Flowers in sub-terminal cymes, small, greenish-white. Fruit a pair of cylindric follicles, 12 to 24 inches long. Rare.

286. *HOLARRHÆNA ANTIDYSENTERICA* Wall. Tel. *Kolamukki*. A large shrub or small tree. Bark rough, exfoliating in small irregular flakes, brown. Leaves membranous, sessile or nearly so, broadly ovate or elliptic; 4 to 8 inches long. Flowers in terminal cymes, white, $\frac{1}{2}$ inch long; during the hot season. Fruit a pair of slender, linear follicles 8 to 15 inches long; February and March. Fairly common in open forest and as undergrowth up to 2,500 feet.

287. *WRIGHTIA TINCTORIA* R. Br. Tel. *Repallai, Pala*. A moderate-sized tree. Bark smooth, scaly, light-brown. Leaves elliptic-lanceolate or oblong-lanceolate, glabrous; 3 to 6 inches long. Flowers in terminal cymes, white, $\frac{1}{2}$ inch diameter, scented; March to May. Fruit a pair of slender, linear follicles joined at the tips only, 10 to 20 inches long; during the cold season. Very common in dry deciduous and open forest and near villages from sea-level to 3,000 feet.

288. *WRIGHTIA TOMENTOSA* Roem & Sch. Tel. *Tella-Pala*. A small tree. Bark thick, corky, grey. Leaves elliptic-oblong, tomentose; 3 to 6 inches long. Flowers in erect, terminal cymes, white, 1 inch diameter. Fruit compressed-cylindric with a groove on either side where the two follicles are united throughout their lengths, 6 to 12 inches long. In the hills, usually in moister and damper localities than the previous species, from 1,000 to 2,000 feet.

289. *NERIUM ODORUM* Soland. Eng. *The Oleander*. A large shrub. Leaves coriaceous rigid, linear-lanceolate, glabrous; 4 to 6 inches long. Flowers in terminal cymes, dark-red, pink or pure-white

$1\frac{1}{2}$ inches diameter, strongly scented. Introduced from North India and run wild especially along streams.

XLVI.—ASCLEPIADACEÆ.

290. *CALOTROPIS GIGANTEA* R. Br. Tel. *Jilledu*. A shrub with flocculent white tomentum. Bark corky, deeply vertically cleft, light yellowish-white. Leaves sessile or nearly so, thick, broadly elliptic-oblong or obovate-oblong, glaucous, white tomentose below; 4 to 18 inches long. Flowers in lateral, umbellate cymes, purplish or white, $1\frac{1}{2}$ to 2 inches diameter, the petals somewhat fleshy and curled February to September. Fruit thick, fleshy follicles $3\frac{1}{2}$ to 4 inches long and 2 inches diameter at base. Common and conspicuous in open waste places from sea-level to 2,500 feet.

XLVII.—LOGANIACEÆ.

291. *STRYCHNOS COLUBRINA* Linn. Tel. *Palla mushti-tiga, Malla-tiga*. A fairly large climber. Bark smooth. Leaves coriaceous, elliptic or elliptic-lanceolate, 3-nerved, glabrous, shining above; 3 to $4\frac{1}{2}$ inches long. Flowers in axillary cymes, small, white; November to March. Fruit a globose berry $\frac{2}{3}$ inch diameter, black; August to November. In deciduous forest from near sea-level to 800 feet.

292. *STRYCHNOS LENTICELLATA* A. W. Hill. Very similar to the last species but the leaves not so strongly 3-nerved, the branchlets conspicuously lenticellate and with certain floral differences.

In similar localities from 100 to 500 feet.

293. *STRYCHNOS NUX-VOMICA* Linn. Tel. *Mush*; A moderate or fair-sized tree, sometimes bearing axillary spines. Bark thin, smooth, yellowish-grey or dark-grey. Leaves coriaceous, broadly elliptic,

5-nerved, glabrous, shining; $2\frac{1}{2}$ to 6 inches long. Flowers in terminal cymes, greenish-white with an unpleasant acrid smell; about March. Fruit a globose berry, 1 to 3 inches diameter, orange-red; October to March. Common, very abundant in places, in all kinds of forests from sea-level to 3,000 feet.

294. *STRYCHNOS POTATORUM* Linn. f. Eng. *The Clearing nut*. Tel. *Chilla*. A small tree. Bark thick, corky, very deeply and narrowly, vertically cleft forming thin, brittle ridges, black or brownish-black. Leaves nearly sessile, sub-coriaceous, 3 or 5-nerved, ovate or elliptic, glabrous, shining; 2 to 3 inches long. Flowers in axillary cymes, greenish-white; May and June. Fruit a globose berry $\frac{3}{4}$ inch diameter, black; during the rains. In dry deciduous forests from 200 to 1,500 feet.

XLVIII.—BORAGINACEÆ.

295. *CORDIA MYXA* Linn. Tel. *Nakkeru, Adavi-irriki*. A moderate-sized tree. Bark thick, rough with shallow longitudinal wrinkles and furrows, grey or brown. Leaves broadly ovate, glabrous below, somewhat scabrous above; $2\frac{1}{2}$ to 5 inches long. Flowers in terminal and axillary panicles, small, white; March to May. Fruit an ovoid drupe, $\frac{1}{2}$ to 1 inch long, pinkish-cream coloured; the pulp very mucilaginous and used for making bird-lime; July and August. In open forests, especially near water, from sea-level to 4,000 feet.

296. *CORDIA WALLICHII* G. Don. (*C. OBLIQUA* Willd. VAR. *WALLICHII*). Tel. *Gottava*. A moderate-sized tree. Leaves orbicular-ovate, fulvous or white tomentose below; 4 to 5 inches long. Flowers in terminal or lateral cymes, $\frac{1}{2}$ inch

long, white. Fruit ovoid, 1 inch long; May and June. In deciduous forest from 1,200 to 4,000 feet not abundant.

297. *CORDIA FULVOSA* Wight Tel. *Pakavirriki*. A small tree. Bark thin, very smooth, greenish-white. Leaves ovate-oblong or sub-orbicular, scabrous above, fulvous tomentose below; $2\frac{1}{2}$ to 6 inches long. Flowers in terminal and axillary cymes, creamy-white, $\frac{1}{2}$ inch long; August to November. Fruit an ovoid drupe, $\frac{1}{2}$ inch long, yellow; January to March.

In dry deciduous forests from sea-level to 3,000 feet.

298. *CORDIA ROTHII* Roem & Sch. A small tree. Bark longitudinally furrowed, grey or brownish-grey. Leaves oblanceolate-oblong, rough above somewhat pubescent below; $2\frac{1}{2}$ to 4 inches long. Flowers in terminal and axillary cymes, small, white; about April. Fruit an ovoid drupe, $\frac{1}{2}$ inch long, yellow or reddish-brown, edible. In dry forests, not abundant.

299. *EHRETIA LEVIS* Roxb. Tel. *Adavi-poka*. A moderate-sized tree. Bark grey. Leaves elliptic-oblong or obovate, glabrous; $2\frac{1}{2}$ to 5 inches long. Flowers in axillary and terminal cymes, white; February and March. Fruits a nearly globose, small drupe, black.

In dry deciduous forests from 500 to 2,500 feet.

300. *EHRETIA ASPERA* Roxb. Tel. *Nellidabba*. A small tree or large shrub. Leaves elliptic-oblong or obovate, rough above, hairy below; 1 to 3 inches long. Flowers in lateral or terminal cymes, white; September to November. Fruit a sub-globose drupe, $\frac{1}{2}$ inch diameter; November to January. In dry deciduous forests from sea-level to 2,000 feet.

301. *EHRETIA BUXIFOLIA* Roxb. Tel. *Pichaika-biri*. A shrub. Bark crocked, reddish-brown. Leaves sub-sessile, obovate, bristly and shining above, pale below; $\frac{3}{8}$ to 1 inch long. Flowers axillary, solitary or two together, very small, white; practically at all seasons. Fruit a globose drupe, $\frac{1}{6}$ inch diameter, scarlet.

In dry scrub forest, very abundant in places, from 100 to 2,500.

XLIX.—CONVOLVULACEÆ.

302. *RIVEA ORNATA* Chois. Tel. *Buddhi-chettu*. A strong climbing shrub. Leaves orbicular or reniform, glabrous above, white silky below; $1\frac{1}{2}$ to 4 inches long, and usually a little broader. Flowers axillary, 1 to 7 together, white, 2 to $2\frac{1}{2}$ inches diameter; September to January. Fruit a sub-globose capsule, $\frac{3}{4}$ inch long, brown, shining breaking up in rings; January to May. In dry deciduous forests 2,000 to 3,000 feet. Not as wide-spread or abundant as the next species.

303. *RIVEA HYPOCRATERIFORMIS* Chois. Tel. *Buddhi-chettu*, *Buddhi-aku*. Very similar to the last species but the flowers usually solitary, the sepals obtuse and the fruit breaking up irregularly. Bark very thin, grey. Very common in dry deciduous forests in all the districts from sea-level to 2,000 feet. At lower elevations than the last species and further South.

L.—BIGNONIACEÆ

304. *MILLINGTONIA HORTENSIS* Linn. f. Eng. *The Indian Cork tree*. A medium-sized tree. Bark thick, corky, cracked into small irregular scales, light-brown. Leaves 2 or 3-pinnate; leaflets ovate-lanceolate, nearly glabrous; 2 to 3" long. Flowers in terminal panicles, the corolla with a long slender

tube, white, strongly scented; January to March. Fruit a strap-shaped capsule, 16 inches long; seeds with a thin papery, transparent wing all round. The tree rarely sets fruit in the region. Introduced from the Malay Straits and much planted in avenues and gardens.

305. *OROXYLUM INDICUM* Vent. A small tree. Bark soft, smooth, light brownish-grey. Leaves 2 or 3-pinnate; leaflets 4 to 6, ovate or elliptic, glabrous; $2\frac{1}{2}$ to 5 inches long. Flowers in large, erect, terminal racemes, lurid purple, 3 to 4 inches long and about as wide, fleshy, with an unpleasant smell. Fruit a flat woody capsule, 1 to 3 feet long and 2 to 4 inches wide, seeds winged. In deciduous forests in the hills in moist localities; rare.

306. *DOLICHANDRONE CRISPA* Seem. Tel. *Niru-oddi*, *Nereddi*. A moderate-sized tree. Bark thick, rough, brown. Leaves 5 to 7-foliate; leaflets elliptic glabrous; $1\frac{1}{2}$ to $3\frac{1}{2}$ inches long. Flowers in terminal racemes, white, $1\frac{1}{2}$ to 2 inches long and wide throughout the year but most abundant from July to September. Fruit a narrow, slightly compressed capsule, about 18 inches long, usually curved. In dry hill tracts from 200 to 2,000 feet.

307. *DOLICHANDRONE FALCATA* Seem. Tel. *Niru-oddi*. A small tree. Bark exfoliating in irregular woody scales, bluish-grey. Leaves 5 to 7-foliate leaflets sub-orbicular or obovate, pubescent; $\frac{1}{2}$ to $1\frac{1}{2}$ inches long. Flowers in terminal, few-flowered racemes, white, 1 to $1\frac{1}{2}$ inches long and wide; May to November. Fruit a flat, curved, narrow capsule, 12 to 20 inches long, brown; seeds winged; January to March, the empty capsules remaining on the tree for several months after the seeds have escaped. Common in dry open forests from sea-level to 2,000 feet.

308. *STEREOSPERMUM CHELONOIDES* DC. Tel. *Niru-oddi*. A fair-sized tree. Bark corky, fairly thick, brown. Leaves 7 to 11-foliate; leaflets elliptic, glabrous; 4 to 5 inches long. Flowers in drooping, terminal panicles, yellow tinged with reddish-purple, $\frac{3}{4}$ inch long, scented; May and June. Fruit a narrow, sub-quadrangular capsule, 1 to 2 feet long, often spirally twisted, dotted with white specks; seeds winged; August to November. In deciduous forests from 1,000 to 4,000 feet.

309. *STEREOSPERMUM SUAVEOLENS* DC. Very like the last species. Bark exfoliating in large-irregular, flat scales, grey. Leaves 7 to 9-foliate; leaflets broadly elliptic, rough above, pubescent below; 3 to 6 inches long. Flowers in large terminal panicles, dull purple, viscidly hairy, 1 to $1\frac{1}{2}$ inches long, strongly scented. Fruit a narrow, straight, cylindric, capsule, 1 to 2 feet long, somewhat rough with raised whitish specks. In similar, but dryer, localities as the last.

310. *RADERMACHERIA XYLOCARPA* K. Schum. (*STEREOSPERMUM XYLOCARPUM* Benth. and Hook.) A medium-sized tree. Bark rough, light-grey. Leaves 2-pinnate; leaflets 5 to 9 per pinna, elliptic-oblong, glabrous; 2 to 3 inches long. Flowers in terminal panicles, white tinged with yellow, $1\frac{1}{2}$ to 2 inches long, scented; May and June. Fruit a woody, slightly curved, cylindric capsule, 1 to 3 feet long, rough with many large irregular tubercles; during the rains. In deciduous hill forests from 2,000 to 4,500 feet.

LI.—ACANTHACEÆ.

311. *STENOSIPHONIUM RUSSELIANUM* Nees VAR. *SUBSERICEA*. Tel. *Kunji-aku*. A small shrub, Bark thin, smooth, dark-brown with a purple tinge.

Leaves rhomboid-elliptic, white silky below; $2\frac{1}{2}$ to 5 inches long. Flowers in terminal spikes, pale-blue, 1 inch long; December to March. Fruit a small capsule; March and April. Abundant and gregarious in clearings in dry deciduous forest from 100 to 2,500 feet.

LII.—VERBENACEÆ.

312. *LANTANA CAMARA* Linn. Eng. *Lantana*. A large straggling shrub with quadrangular, prickly branches. Bark thin, with small lenticels, light-brown. Flowers in terminal, capitate spikes, white, yellow, pink or crimson, usually with a darker center; practically throughout the year. Fruit a small, globose drupe, black, edible.

Introduced and run wild forming dense thickets.

313. *TECTONA GRANDIS* Linn. f. Eng. *The Teak tree*. Tel. *Teku*. A very large tree in suitable localities but in our area generally small and crooked; branchlets quadrangular. Bark fibrous, with shallow, vertical cracks, exfoliating in long, thin flakes, light-brown or grey. Leaves elliptic or obovate, glabrous and rough above, tomentose below; 1 to 2 feet long. Flowers in large, erect, terminal panicles, small, white; July to September. Fruit sub-globose, $\frac{1}{2}$ inch diameter, hard, tomentose, enclosed in the enlarged calyx; January to March. In dry hill tracts and also planted. From 1,000 to 3,000 feet.

314. *PREMNA CORYMBOSA* Rottl. & Willd. A small tree or large shrub. Leaves ovate, nearly glabrous; 2 to $3\frac{1}{2}$ inches long. Flowers in terminal panicles, small, yellowish-green with brown-purple obes; September to January. Fruit a small ovoid drupe, purple, September to February. In dry deciduous forests from near the sea to 2,500 feet.

315. *PREMNA TOMENTOSA* Willd. Tel. *Naruwa*. A small or moderate-sized tree. Bark light-greyish-brown, resembling that of teak. Leaves ovate, yellowish, woolly below; 3 to 8 inches long. Flowers in terminal panicles, small, greenish-yellow; April to July. Fruit a small, ovoid, drupe, black; May to September. Common in dry deciduous forest from 200 to 4,000 feet.

316. *PREMNA LATIFOLIA* Roxb. Tel. *Nelli*. A small tree. Bark thin, greyish-white. Leaves ovate-cordate, pubescent; 2 to 4 inches long. Flowers in terminal panicles, small, greenish-white; about July. Fruit a small, globose drupe, black; August to November. In dry deciduous forest from 300 to 2,000 feet.

317. *GMELINA ARBOREA* Roxb. Tel. *Irriki-man*. A fair-sized tree. Bark smooth, greyish-white. Leaves broadly ovate-cordate, fulvous tomentose below; 4 to 8 inches long. Flowers in terminal panicles, brownish-yellow, 1 to 1½ inches long; March and April. Fruit an ovoid drupe, ¾ to 1 inch long, orange-yellow, with a pleasant smell; during the rains. In hill forests from 800 to 3,000 feet not abundant.

318. *GMELINA ASIATICA* Linn. Tel. *Gummudi*. A large, thorny shrub. Bark thin, brownish-white. Leaves ovate or elliptic, glabrous, minutely glandular below; ¾ to 1½ inches long. Flowers in terminal racemes or panicles, bright-yellow, 1½ to 2 inches long; at all seasons. Fruit an ovoid drupe, ¾ inch long, yellow. Common in open dry, deciduous forests from near sea-level to 2,500 feet.

319. *VITEX NEGUNDO* Linn. Tel. *Vayela*. A large shrub. Bark thin, smooth, grey. Leaves 5-foliate; leaflets lanceolate, white tomentose below;

the terminal 2 to 4 inches long, the lateral smaller. Flowers in terminal panicles, bluish-purple; May to November. Fruit a small, globose drupe, black. Usually found in open waste places and near villages mostly along streams, up to about 3,000 feet.

320. *VITEX ALTISSIMA* Linn. Tel. *Nemali-adugu*. A large tree. Bark fibrous, yellowish-grey. Leaves 3-foliate, (rarely 5-foliate) the petiole usually somewhat winged; leaflets sessile, lanceolate somewhat pubescent below; terminal one 3 to 6 inches long, the lateral smaller. Flowers in terminal panicles, small, blue or bluish-white; April to September. Fruit a small, sub-globose drupe, black, often dotted with white specks; during the rains.

In deciduous hill forests from 300 to 4,500 feet.

320-A. *VITEX ALTISSIMA* Linn. VAR. *ALATA*. Tel. *Nemali-adugu*. Exactly like the type but the petiole with a broad wing which is cordate at the base.

321. *VITEX PUBESCENTS* Vahl. Tel. *Nemali-adugu*. A large tree generally resembling the last species. Leaves 3 or 4-foliate; leaflets sessile, ovate or oblong, pubescent; 4 to 8 inches long. In deciduous forests, rare.

322. *VITEX LEUCOXYLON* Linn. f. Tel. *Leuki, Luki*. A fair sized tree. Bark smooth grey. Leaves usually 3-foliate, but sometimes with 1 or 2 smaller leaflets below the others; leaflets stalked, oblong, somewhat yellowish hairy below; end leaflet 2 to 4 inches long, the lateral smaller. Flowers in axillary cymes, white, small; March to July. Fruit an obovoid drupe, ¾ inch long, dark-purple; September to November. In hill country along streambanks from 200 to 2,000 feet.

323. *CALLICARPA LANATA* Linn. A small tree, the branchlets covered with a thick grey or brownish

felt. Bark rough, corky, grey. Leaves ovate or ellipticlanceolate, glabrous, rugose and shining above, densely tomentose below; 6 to 9 inches long. Flowers in axillary cymes, small, reddish-purple; March to May. Fruit a small globose drupe, black; May to July. Only found on the higher hills, generally in or near evergreen forests.

324. SYMPHOREMA INVOLUCRATUM *Roxb.* A large rambling or climbing shrub. Bark thick, corky, deeply, vertically fissured, grey. Leaves ovate or elliptic, glabrous above, pubescent below; 2 to 3 inches long. Flowers in terminal, capitate cymes, greenish-white, $\frac{1}{2}$ inch long; January and February. Fruit small, enclosed in the enlarged calyx; March to May. In hill tracts from 500 to 3,000 feet, not abundant.

325. AVICENNA OFFICINALIS *Linn.* Tel. *Mada.* A large shrub or small tree with quadrangular branchlets. Bark thin, smooth, greyish-brown. Leaves coriaceous, elliptic-oblong or obovate-oblong, glabrous and shining above, thinly tomentose below; 2 to 3 inches long. Flowers in axillary, capitate cymes or in terminal corymbs, small, yellow; August to September. Fruit an ovoid, compressed capsule, 1 to $1\frac{1}{2}$ inches long; October and November. In tidal swamps.

LIII.—NYCTAGINACEÆ.

326. PISONIA ACULEATA *Linn.* Tel. *Konki-mullu-podha.* A large, thorny, climbing shrub. Bark thin shallowly, vertically ridged, light-brown. Leaves elliptic or elliptic-lanceolate, glabrous; 1 to 3 inches long. Flowers in small, axillary panicles, greenish, small; January to March. Fruit oblong, $\frac{1}{2}$ inch long, 5-ribbed with stalked viscid glands along the

ribs, brown; March and April. In dry deciduous forests from near the sea to 1,500 feet.

LIV.—LAURACEÆ.

327. ACTINODAPHNE MADRASPATANA *Bedd.* Tel. *Kavan-chettu.* A medium-sized tree with whorled leaves. Leaves sub-coriaceous, elliptic-lanceolate, the nerves below often orange-coloured; 6 to 10 inches long. Flowers in dense, globose axillary or lateral clusters yellow; about March. Fruit an ellipsoid berry, its base clasped by the enlarged perianth, red. In hill tracts near streams from 2,000 to 3,000.

328. ACTINODAPHNE HOOKERI *Meissn.* Tel. *Bommadi-aku.* A medium-sized tree with whorled leaves. Bark smooth, light-brown. Leaves coriaceous, elliptic-lanceolate; 4 to 7 inches long. Flowers in dense globose axillary or lateral clusters yellow; February to March. Fruit an ellipsoid berry, $\frac{1}{2}$ inch long, clasped at the base by the enlarged cup-shaped perianth, red; April and May. In dry hill forests (Seshachellams and Kambakkam) from 2,000 to 3,000 feet.

329. LITSEA TOMENTOSA *Heyne.* A small tree. Bark thin, smooth, grey. Leaves coriaceous, elliptic-lanceolate or obovate, glabrous above, yellowish-white tomentose below; 4 to 9 inches long. Flowers in axillary, umbellate heads, pale-yellow; during the hot season. Fruit a globose berry, $\frac{1}{2}$ inch diameter, clasped at the base by the enlarged perianth, black; April to June. In dry hill tracts from 2,500 to 4,500 feet.

330. NEOLITSEA ZEYLANICA *Merr.* (LITSEA ZEYLANICA *Nees*). Tel., *Akupatrikam.* A small evergreen tree. Bark thin, smooth, grey. Leaves

thinly coriaceous, elliptic-lanceolate, glabrous and shining above, glaucous below; $2\frac{1}{2}$ to 6. inches long. Flowers in axillary clustered umbels. Fruit an ellipsoid berry, $\frac{1}{2}$ inch long, clasped at the base by the enlarged perianth. In dry hill tracts usually near streams, 2,000 feet rare.

LV.--SANTALACEÆ.

331. SANTALUM ALBUM Linn. Eng. *The Sandalwood tree*. Tel. *Srigandam*. A small evergreen tree. Bark rough, with short vertical cracks, dark-grey to almost black, dark-red within. Leaves sub-coriaceous, elliptic-lanceolate, glabrous; $1\frac{1}{2}$ to 3 inches long. Flowers in axillary and terminal panicles, brownish-purple, small; January to September. Fruit a sub-globose drupe, $\frac{1}{2}$ inch long purple-black, edible; soon after the flowers. Doubtfully indigenous anywhere in the area but planted and run wild in many parts, from sea-level to 4,000 feet.

LVI.—EUPHORBIACÆ.

332. EUPHORBIA TIRUCALLI Linn. Eng. *The Milk-hedge*. A small tree with green, cylindric twigs with an acrid, poisonous milky juice. Bark brown or greenish-brown. Leaves very few and minute. Flowers clustered in the forks of the branchlets, small, greenish; March to August. Fruit a capsule $\frac{1}{4}$ inch diameter, dark-brown. Introduced from Africa, much planted as a hedge and run wild here and there.

333. EUPHORBIA SP? Tel. *Kattai-jemmadu*. A much-branched thorny shrub, with round branchlets. Bark, smooth, green. Leaves fleshy, rounded; $\frac{1}{3}$ to $\frac{1}{2}$ inch long. The leaves fall early, usually before January and the shrub is leafless for part of

the year. Flowers fascicled in the axils of fallen leaves, yellowish-green; about March. Fruit a sharply 3-angled capsule, $\frac{2}{3}$ inch diameter, red; about April. In dry rocky places from 600 to 1,200 feet. This shrub has not yet been identified, but appears to be unnamed. It is abundant in the Palkonda hills and the hills of West Cuddapah, in the Yerramalais of Kurnool and in part of the Palnad of Guntūr among rocks, but its spread is limited.

334. EUPHORBIA NIVULIA Ham. Tel. *Aku-jemmadu*. A small thorny tree, with an acrid, milky juice and rounded branchlets. Bark reticulated, brown. Leaves fleshy, obovate or obovate-oblong, sessile or nearly so, glabrous; 4 to 8 inches long. Flowers in small cymes from above the leaf-scars, yellowish-green; February and March. Fruit a triangular capsule, $\frac{1}{4}$ inch broad. In hill tracts from 150 to 2,500 feet.

335. EUPHORBIA ANTIQUORUM Linn. Tel. *Bontha-jemmadu*. A small or medium-sized thorny tree with an acrid, milky juice; the branchlets (usually 3) angled. Bark thick, rough, often pitted, brown. Leaves soon falling, sub-sessile, obovate-oblong, fleshy, glabrous, $\frac{1}{4}$ to $\frac{1}{2}$ inch long. Flowers in small axillary cymes, greenish-yellow; August to February, Fruit a 3-angled capsule, $\frac{1}{2}$ inch diameter; during the hot season. Very common on dry rocky hill sides and in low scrub forests, also planted as a hedge. From near sea-level to 3,000 feet.

336. EUPHORBIA TORTILIS Rottl. Tel. *Bontha-Jemmadu*. Very like the last species, but the branches usually 4-angled and much spirally twisted, the bark shining, dark-grey. In similar localities but much less abundant and widespread.

337. *BRIDELIA RETUSA* Spreng. Tel. *Verri-karaka*. A moderate-sized tree, the trunk thorny in youth. Bark rough with longitudinal cracks, exfoliating in long irregular flakes, grey or brown; light-red within. Leaves rigidly coriaceous, elliptic-oblong, usually finely tomentose below; 3 to 6 inches long. Flowers in axillary clusters or axillary or terminal spikes, greenish-yellow, small; April and May. Fruit a globose, fleshy drupe. $\frac{1}{3}$ inch diameter, purple-black, edible; about August. In deciduous forests in the hills from 1,000 to 4,500 feet.

338. *BRIDELIA HAMILTONIANA* Wall. A large straggling shrub. Leaves elongate-elliptic or obovate-elliptic, glabrous; $\frac{1}{2}$ to $3\frac{1}{2}$ inches long. Flowers in axillary clusters, very small. Fruit a globose drupe, $\frac{1}{4}$ inches diameter, black; November and December. In hill tracts, not abundant.

339. *BRIDELIA STIPULARIS* Bl. A large straggling shrub, occasionally bearing spines on the branches and sometimes producing aerial roots. Bark brown. Leaves sub-coriaceous, elliptic-oblong or obovate, pubescent below; 1 to 4 inches long. Flowers in axillary clusters or spikes, small, greenish-yellow; November to February. Fruit an ellipsoid drupe, $\frac{3}{8}$ inch long, fleshy, black.

In deciduous hill forests from 500 to 2,000 feet.

340. *CLEISTANTHUS COLLINUS* Benth. Tel. *Wodishai*. A small medium-sized tree. Bark thick, rough, deeply cracked into irregular scales greyish-brown to dark-brown, often with a reddish-tinge. Leaves coriaceous, orbicular, broadly obovate or elliptic, glabrous; $1\frac{1}{2}$ to 4 inches long. Flowers in axillary clusters, small, yellowish;

about April. Fruit a sub-globose capsule, $\frac{2}{3}$ inch diameter, brown; December to February.

341. *PHYLLANTHUS RETICULATUS* Poir. Tel. *Piski-bira*. A large straggling shrub. Bark thin, brown. Leaves oblong, elliptic or sub-orbicular, glabrous; $\frac{1}{2}$ to $1\frac{1}{4}$ inches long. Flowers in axillary racemes, small, greenish-purple; August to February. Fruit a small, globose berry, fleshy, purple; September to May. In dry deciduous forest, usually near streams and in open places and hedges adjoining fields, from sea-level to 4,000 feet.

342. *PHYLLANTHUS EMBLICA* Linn. Tel. *Userikai*. A moderate-sized tree. Bark thin, exfoliating in small, irregular, conchoidal flakes, light-grey or greenish-grey, red within. Leaves distichous, close-set, giving the appearance of compound leaves, linear, glabrous; $\frac{1}{3}$ to $\frac{1}{2}$ inch long. Flowers in axillary fascicles, often from the naked portions of the twigs below the leaves, minute, greenish-yellow; during the hot season. Fruit a globose drupe, $\frac{1}{2}$ to $\frac{5}{8}$ inch diameter, pale-yellow; September to March. Common in dry deciduous hill forests from 600 to 4,000 feet.

343. *PHYLLANTHUS POLYPHYLLUS* Willd. Tel. *Pandi-barasa*. A large shrub. Bark very thin, exfoliating in round flakes leaving a light-grey patch, dark-grey. Leaves numerous, sessile, linear-oblong, glabrous; $\frac{1}{2}$ to $\frac{2}{3}$ inch long. Flowers axillary, solitary or 2 to 3 together, minute, green; July to September. Fruit a small, depressed-globose drupe; soon after the flowers. In hill forests usually near streams and tanks, from 200 to 3,000 feet.

344. *GLOCHIDION ZEYLANICUM* A Juss. A small tree. Bark thin, corky, grey. Leaves

coriaceous, elliptic-oblong, glabrous, shining above; $3\frac{1}{2}$ to 7 inches long. Flowers in supra-axillary clusters, $\frac{1}{3}$ inch diameter, yellowish-green; February to August. Fruit a depressed-globose capsule, somewhat lobed, $\frac{1}{2}$ inch diameter; August and September.

In deciduous and dry evergreen forest, particularly near streams, not abundant, usually at low elevations.

345. GLOCHIDION HEYNEANUM Wight. A moderate-sized tree. Leaves thin, elliptic or oblong, sparsely pubescent below; 2 to 5 inches long. Flowers in axillary clusters. Fruit a depressed-globose capsule, 8 to 12-lobed, $\frac{1}{2}$ inch diameter. Not common.

346. FLUGGEA MICROCARPA Bl. A shrub. Bark thin, smooth, reddish-brown. Leaves thin elliptic or obovate, glabrous; 1 to 3 inches long. Flowers in axillary clusters, very small, greenish; July and August. Fruit globose, of 2 kinds: one dry and very small, the other fleshy and larger, white, $\frac{1}{3}$ inch diameter, edible; August and September.

In dry deciduous forests from 400 to 2,500 feet.

347. FLUGGEA LEUCOPYRUS Willd. Tel. *Tella puruguda*. A thorny shrub. Leaves obovate or sub-orbicular, glabrous; $\frac{1}{2}$ to $1\frac{1}{2}$ inches long. Flowers in axillary clusters, very small, greenish-white; about August. Fruit globose, $\frac{1}{4}$ inch diameter, fleshy, white; September to December. Common in dry deciduous forest from near sea-level to 2,500 feet.

348. BREYNIA PATENS Rolfe. Tel. *Guguti*. A shrub. Bark thin, smooth, yellow. Leaves broadly

elliptic, glabrous; $\frac{1}{2}$ to $1\frac{1}{4}$ inches long. Flowers axillary, very small, greenish-yellow; May to September. Fruit depressed globose, $\frac{1}{2}$ to $\frac{2}{3}$ inch diameter, fleshy, orange-red, seated on the much enlarged calyx; September and October. In dry, open, hill forests from 3,000 to 4,500 feet.

349. BREYNIA RHAMNOIDES Muell-Arg. Tel. *Guguti*. A large shrub. Bark rough, greyish-brown. Leaves elliptic, glabrous; $\frac{1}{2}$ to $1\frac{1}{2}$ inches long. Flowers in axillary fascicles, the females usually solitary, very small, greenish-yellow; February to September. Fruit globose, $\frac{1}{4}$ inch diameter, fleshy, dull-red; August to February. In open, dry, deciduous scrub forests from near sea-level to 4,000 feet. Much more common than the last species which it generally resembles.

350. PUTRANJIVA ROXBURGHII Wall. Tel. *Putranji*. A moderate-sized tree. Bark with numerous horizontal, oblong lenticles, somewhat corky, whitish when young, later dark-grey. Leaves coriaceous, elliptic-oblong, glabrous shining; 2 to 4 inches long. Flowers axillary, the males in crowded clusters, the females 1 to 3 together, small, green. Fruit an ellipsoid drupe, $\frac{1}{2}$ to $\frac{3}{4}$ inch long, with a very hard, warted seed. In shady valleys near streams, not abundant.

351. HEMICYCLIA SEPIARIA W. & A. Tel. *Bira*, *Yerri-bira*. An evergreen small tree or large shrub with rigid branches. Bark thin, smooth, grey. Leaves very coriaceous, elliptic or elliptic-oblong, glabrous, shining; $1\frac{1}{2}$ to $3\frac{1}{2}$ inches long. Flowers axillary, males clustered, females solitary or a few together, very small, greenish-yellow; about March. Fruit a globose drupe, $\frac{1}{4}$ to $\frac{1}{3}$ inch diameter, crimson, edible; June to August. In

dry deciduous and evergreen forest from near sea-level to 3,000 feet.

352. *ANTIDESMA GHÆSEMBILA Gaertn.* A small tree, the leaves edible with a pleasant acid taste. Bark grey or pale-brown. Leaves broadly elliptic or orbicular-oblong, pubescent or tomentose below; 2 to 4 inches long. Flowers in axillary, paniculate spikes, very small, greenish; about August. Fruit a small, depressed-globose drupe, edible, reddish-purple; about September. In valleys from 200 to 800 feet.

353. *ANTIDESMA BUNIAS Spreng.* A small evergreen tree. Bark greyish-brown. Leaves elongate-elliptic, elliptic-lanceolate or oblanceolate, glabrous, shining above; 3 to 7 inches long. Flowers in axillary spikes, very small, reddish. Fruit a small, globose, drupe, black. In dry hill tracts, not abundant.

354. *ANTIDESMA ALEXITERIA Linn.* A small evergreen tree. Leaves oblong, lanceolate or orbicular-obovate, glabrous, shining above; 1 to 3 inches long. Flowers in axillary spikes, very small, greenish; about February. Fruit a small, globose drupe. In dry hill tracts, rare. Seen by me only in the Kambakkam Hill at 2,000 feet.

355. *ANTIDESMA DIANDRUM Roth.* A large shrub or small tree. Bark smooth, grey; fibrous and pale-red within. Leaves lanceolate to obovate, usually glabrous; 2 to 5 inches long. Flowers in axillary racemes, minute, greenish. Fruit a small, globose drupe, purplish-red edible. In mixed hill forests, not abundant.

356. *CROTON SCABIOSUS Bedd.* Tel. *Yerri-chilla.* A small tree, the leaves turning orange-red before falling. Bark very rough, fissured and

granulated, dark-brown. Leaves sub-coriaceous, ovate or orbicular, base cordate, scaly; 2 to 5 inches long. Flowers in terminal racemes, small, yellowish-green; about March. Fruit a sub-globose 3-lobed capsule, $\frac{1}{2}$ inch diameter, brown; about July. In dry deciduous forest, especially in open, rocky areas from 700 to 2,500 feet. Very common in the hills of the Cuddapah District.

357. *CROTON AROMATICUS Linn.* A large shrub or small tree. Leaves ovate or orbicular, base cordate and 3-nerved, rough above, pubescent below; 2 to 4 inches long. Flowers in axillary racemes, small; about August. Fruit a small, sub-globose capsule; during the cold season. In dry hill forests, not common.

358. *CROTON OBLONGIFOLIUS Roxb.* A moderate-sized tree. Bark thick, grey or brownish. Leaves coriaceous, oblong-lanceolate, glabrous; 5 to 10 inches long. Flowers axillary, solitary or fascicled or in racemes, small, greenish-yellow; about March. Fruit a sub-globose capsule, $\frac{1}{2}$ inch diameter. In hill forests, usually near streams, not abundant.

359. *GIVOTIA ROTTLEIFORMIS Griff.* Tel. *Tella poliki.* A fair-sized tree, conspicuous by the white underside of the leaves. Bark thick, smooth, exfoliating in circular scales that leave pits, brown. Leaves coriaceous, broadly ovate or sub-orbicular, cordate at base, glabrous above, densely white woolly below; 5 to 10 inches diameter, 5 to 7-nerved; petioles 4 to 6 inches long. Flowers in axillary cymes, $\frac{1}{2}$ inch diameter, green; about July. Fruit a globose drupe, $\frac{3}{4}$ to 1 inch diameter, green; about October. Common but scattered on dry rocky hill sides from 200 to 3,000 feet.

360. *TREWIA NUDIFLORA* Linn. A medium-sized tree. Bark smooth grey. Leaves ovate, base cordate, 3 to 5-nerved, glabrous; 3 to 7 inches long. Flowers lateral, the males in racemes, the females solitary, green; about March. Fruit a globose, almost woody, drupe, 1 to 1½ inches diameter. Near streams in deciduous forests, rare.

361. *MALLOTUS PHILIPPINENSIS* Muell.-Arg. Tel. *Vasanta*. A moderate-sized tree. Bark marked by irregular cracks, grey; red within. Leaves ovate or ovate-lanceolate, 3-nerved, pubescent below; 3 to 6 inches long. Flowers in erect, terminal spikes, small greenish; January to September. Fruit a globose capsule, ⅜ inch diameter, covered with bright scarlet powder; January to April. In deciduous forests from 200 to 4,300 feet. Fairly common but scattered.

362. *MALLOTUS STENANTHUS* Muell.-Arg. A small tree or large shrub with compressed branchlets which bear yellow, resinous glands. Leaves lanceolate, glabrous; 3 to 6 inches long. Flowers in axillary and terminal racemes, very small, yellowish; about April. Fruit a sub-globose, 3-angled capsule with a few weak, conical spines. In hill tracts, in semi-evergreen woods (Horsleykonda) at about 3,500 feet.

363. *MACARANGA TOMENTOSA* Wight (M. *ROXBURGHII* Wight). A medium-sized tree. Bark dark-grey. Leaves peltately attached, ovate or orbicular, glabrous above, more or less pubescent and gland-dotted below; 5 to 8 inches long. Flowers in axillary, paniced heads, minute. Fruit a globose, hairy, glandular capsule, ¼ to ⅓ inch diameter. In dry hill tracts from 200 to 2,500 feet,

364. *HOMONOIA RIPARIA* Lour. An evergreen shrub resembling a willow. Bark thin, smooth, pale-brown. Leaves linear-oblong or linear-lanceolate, glabrous, with numerous round scales below; 3 to 6 inches long. Flowers in axillary spikes, small, greenish-brown; about March. Fruit a small, globose capsule; about August. Along streams on the banks and in the beds among rocks, in hill forests from 500 to 2,000 feet.

365. *GELONIUM LANCEOLATUM* Willd. Tel. *Paira*. A small, evergreen tree. Bark thin, granular, dark-grey. Leaves coriaceous, obovate-oblong, elliptic to oblanceolate, glabrous; 2½ to 5 inches long. Flowers in axillary clusters, small, green; February to September. Fruit a small depressed-globose, 3-lobed, rough capsule; about September. In dry evergreen forest and along streams in deciduous forests from near sea-level to 3,000 feet.

366. *EXCÆCARIA AGALLOCHA* Linn. Tel. *Chilla*. A small evergreen tree with a poisonous, acrid, milky juice. Bark smooth, with numerous round, prominent lenticels, shining, grey. Leaves thickly coriaceous, elliptic, glabrous; 2 to 4 inches long. Flowers in axillary and terminal spikes and racemes, small yellowish-green; August to October. Fruit a globose capsule, 3-angled, ¼ to 1 inch diameter. In tidal swamps.

367. *SAPIUM INSIGNE* Benth. Tel. *Devasuripi*. A fair-sized tree, with thick branchlets and a poisonous, milky juice. Bark rough, corky, deeply fissured, grey. Leaves coriaceous, elliptic-lanceolate or oblong-lanceolate, glabrous; 4 to 10 inches long. Flowers in terminal spikes when the tree is leafless; in the hot season. Fruit a sub-globose

capsule, $1\frac{1}{3}$ inches diameter. In dry hill tracts, usually in rocky places from 300 to 2,000 feet.

LVII.—URTICACEÆ.

368. *HOLOPTELIA INTEGRIFOLIA* Planch. Tel. *Thapasi*. A fair-sized tree. Bark exfoliating in long, irregular flakes, soft, evil smelling when freshly cut, light-grey. Leaves elliptic, glabrous; 3 to 5 inches long. Flowers fascicled in the axils of fallen leaves, small, green; February and March. Fruit circular, flat, with a wing all round, 1 inch diameter, brown; March and April. In deciduous forests and near villages from 300 to 3,000 feet.

369. *CELTIS CINNAMOMEA* Lindl. Tel. *Koti-bira*, *Yemika-bira*, *Kodamma*. A moderate-sized evergreen tree. Leaves stiff, obliquely ovate, glabrous; $2\frac{1}{2}$ to 4 inches long. Flowers in axillary cymes, green; about March. Fruit an ovoid drupe, $\frac{1}{2}$ inch long; about August. In dry deciduous hill forests, usually near streams, from 500 to 1,500 feet.

370. *CELTIS WIGHTII* Planch. Tel. *Koti-bira*, *Yemika-bira*, *Koruka-bira*. A moderate-sized, evergreen tree much resembling the last species. Leaves rigidly coriaceous, ovate or elliptic-oblong, not oblique, glabrous; 3 to 6 inches long.

In similar situations as the last species.

371. *TREMA ORIENTALIS* Bl. Tel. *Gada-nelli*. A small tree. Bark thin, with numerous lenticels, greyish-brown. Leaves obliquely ovate, rough above, white pubescent below; $2\frac{1}{2}$ to 5 inches long. Flowers in axillary cymes, very small, greenish; March and September. Fruit a small, ovoid drupe, black; about September. In dry deciduous and evergreen hill forests from 500 to 4,000 feet.

372. *STREBLUS ASPER* Lour. Tel. *Pakki*. A small tree or large shrub, evergreen. Bark thin, soft, irregularly ribbed, granular, grey. Leaves elliptic-rhomboid or obovate, scabrous; 1 to $3\frac{1}{2}$ inches long. Flowers axillary, the males in heads or spikes, the females 1 to 4 together, small, greenish-yellow; about February. Fruit sub-globose, small, yellow, edible. In dry deciduous and evergreen forests, often as undergrowth, from 100 to 3,000 feet.

373. *PLECOSPERNUM SPINOSUM* Trév. Tel. *Dayamulla*, *Kodiara*. A large, thorny, straggling shrub. Bark thin, exfoliating in thin, brittle flakes, orange-coloured; that of young branches grey. Leaves obovate or elliptic, glabrous, shining above; 2 to 3 inches long. Flowers in axillary heads, green; February to April. Fruit irregular, lobed, $\frac{1}{2}$ inch diameter, formed of the fusing of the several receptacles of the flower, head. In valleys and also in open places and in hedges from 500 to 4,000 feet.

374. *FICUS GIBBOSA* Bl. VAR. *PARASITICA* King. Tel. *Pakki*. A fair-sized tree, often epiphytic. Bark thin, smooth, greenish-yellow. Leaves thinly coriaceous, rhomboid or sub-rhomboid, scabrid; 3 to 6 inches long. Flowers minute, on the inner surface of a fleshy, axillary receptacle; about March. Fruit consisting of the enlarged, fleshy receptacle. In most areas but scattered, from 800 to 4,000 feet. Frequently growing on the Palmyra palm.

375. *FICUS BENGALENSIS* Linn. Eng. *The Banian tree*. Tel. *Pedda-mari*. A very large tree with numerous aerial roots. Bark thick, smooth, exfoliating in small irregular plates, light-grey. Leaves coriaceous, elliptic to ovate or orbicular-ovate, pubescent below; 4 to 8 inches long. Flowers and fruit as in the last species, the receptacle globose,

red ripening from October to February. A common tree both wild and planted as an avenue tree or in topes. From sea-level to 4,000 feet.

376. *FICUS TOMENTOSA* Roxb. Tel. *Jivi*, *Kaljuvi*. A moderate-sized tree, sometimes epiphytic. Bark smooth, greenish-white. Leaves coriaceous, ovate-elliptic or obovate-elliptic, densely rusty-grey tomentose below; 2 to 5 inches long. Flowers and fruit as in the last species but smaller. Common on rocky slopes in deciduous, dry forests, often growing out of the fissures of boulders. From 400 to 3,000 feet.

377. *FICUS BENJAMINA* Linn. Eng. *The Javafig*. Tel. *Putra-jivi*. A large evergreen tree with drooping branches, sometimes epiphytic. Bark thin, smooth, grey. Leaves thinly coriaceous, broadly ovate-elliptic, glabrous, shining; 2 to 4 inches long. Flowers and fruit as in the last, receptacle $\frac{1}{3}$ inch diameter. Not indigenous but planted in avenues.

378. *FICUS RETUSA* Linn. Tel. *Juvi*. A large evergreen tree with no or very few aerial roots, often epiphytic. Bark fairly smooth, brown. Leaves coriaceous, elliptic, ovate or obovate, glabrous, polished and shining above; 2 to 4 inches long. Much resembling the last species but the branches not drooping, the leaves with fewer veins. Receptacle yellow or reddish. Common in dry deciduous forests and in open places from sea-level to 4,500 feet. Often on Palmyra palms.

379. *FICUS NERVOSA* Heyne. A large evergreen tree without aerial roots. Bark smooth, dark. Leaves thinly coriaceous, elliptic, oblong-lanceolate or oblanceolate, glabrous, shining; $3\frac{1}{2}$ to 8 inches long. Flowers and fruit as in the other species, receptacle yellow. Not common.

380. *FICUS RELIGIOSA* Linn. Eng. *The Peepul tree*. Tel. *Rai*, *Ravi*. A large tree without aerial roots, often epiphytic. Bark thick, exfoliating in thick rounded scales which leave depressions, grey. Leaves coriaceous, ovate-rotund with a long, usually curved, tail, glabrous; 4 to 7 inches long. Flowers and fruit as in the other species, receptacle $\frac{1}{2}$ inch diameter, dark-purple. Probably not indigenous but widely planted and now run wild.

381. *FICUS TSIELA* Roxb. Tel. *Jadi*. A large tree without aerial roots. Bark smooth, greenish-white. Leaves thinly coriaceous, broadly ovate or elliptic lanceolate, glabrous; 3 to 6 inches long. Flowers and fruit as in the other species, receptacle $\frac{1}{2}$ inch diameter, purple. Not abundant in the forest but much planted as an avenue tree.

382. *FICUS ARNOTTIANA* Miq. A moderate-sized tree, often epiphytic. Leaves sub-coriaceous, broadly ovate, glabrous; 3 to 8 inches long. Flowers and fruit as in the other species, receptacle $\frac{1}{3}$ inch diameter, purple with green spots. In deciduous forests in the hills, from 2,000 to 4,000 feet.

383. *FICUS INFECTORIA* Roxb. Tel. *Juvi*. A large tree, often epiphytic. Bark smooth, thick, exfoliating in irregular flakes, greenish-grey. Leaves membranous, ovate or ovate-oblong, glabrous; 3 to 5 inches long. Flowers and fruit as in the other species, receptacle $\frac{1}{4}$ inch diameter, white with a reddish tinge. In hill forests from 2,000 to 4,000 feet.

384. *FICUS HISPIDA* Linn. Tel. *Bodanmamidi*, *Bummari*, *Brammadi*, *Bemmadu*. A small or moderate-sized tree. Bark exfoliating in regular flakes, with slight horizontal ridges encircling the stem grey. Leaves membranous, ovate or oblong,

rough above, hispid below; 4 to 12 inches long. Flowers and fruit as in the other species but besides arising from the axils, also on branchlets that come out of the branches, trunk and even from the roots, receptacle $\frac{3}{4}$ to 1 inch diameter, yellowish. In dry deciduous forests, usually along streams. From near sea-level to 3,000 feet.

385. *FICUS GLOMERATA* Roxb. Tel. *Mari*. A large deciduous tree. Bark smooth with a few large cracks, reddish-brown. Leaves ovate-oblong or elliptic-lanceolate, glabrous; 3 to 6 inches long. Flowers and fruit as in the other species but borne on short, warted, leafless branchlets issuing from the larger branches or the trunk; receptacle $1\frac{1}{4}$ inches diameter, red. Common near streams in dry deciduous forests from near sea-level to 3,000 feet.

386. *ARTOCARPUS INTEGRIFOLIA* Linn. f. Eng. *The Jack-fruit tree*. Tel. *Panasa*. A large evergreen tree. Bark thick, deeply cleft, blackish. Leaves coriaceous, elliptic or obovate, glabrous and polished above, somewhat rough below; 4 to 8 inches long. Flowers densely crowded on an oblong receptacle borne on the larger branches and the trunk. Receptacle compound, very large, oblong, green, edible. Not indigenous but widely planted.

LVIII.—CASUARINACEÆ.

387. *CASUARINA EQUISETIFOLIA* Forst. Tel. *Chavuku*. A fair-sized evergreen tree without leaves but with green filiform twigs. Bark fibrous, rough, exfoliating in vertical strips, dark-brown. Flowers: males in terminal spikes, females in axillary, ovoid or globose heads. Fruit an oblong cone, $\frac{3}{4}$ inch long. Not indigenous but much planted especially along the coast.

LIX.—SALICACEÆ.

388. *SALIX TETRASPERMA* Roxb. A moderate-sized tree. Bark rough with deep vertical fissures. Leaves lanceolate, glabrous above, white and more or less silky below; 2 to 5 inches long. Flowers in axillary spikes. Fruit a small, 2-valved capsule.

On river banks and in moist places. Rare.

LX.—CYCADACEÆ.

389. *CYCAS CIRCINALIS* Linn. Tel. *Per-ita*. An evergreen, palm-like, small tree. Bark smooth below, above tessellated with small, diamond-shaped scars, brown. Leaves pinnate, 5 to 9 feet long; leaflets linear, glabrous; 10 to 12 inches long. The petioles bearing spines near the base. Flowers in terminal cones, the male cones formed of numerous flat fleshy scales with a mass of anthers on the lower side, the females of similar scales bearing solitary ovules along the margins; about August. Seeds ovoid, $\frac{3}{4}$ inch diameter, bluish-grey; during the cold season. In dry deciduous forests in the hills from 300 to 2,500 feet.

390. *CYCAS BEDDOMEI* Dyer. Tel. *Per-ita*. An evergreen, palm-like shrub. Bark exfoliating in rectangular scales exposing a yellow under surface, brown outside. Leaves pinnate, 3 feet long; leaflets linear with a revolute margin, glabrous; 3 to 5 inches long. Petioles with spines near the base. Flowers and fruit as in the last species, which it generally resembles except for being smaller in all directions and for the revolute leaf margins.

In the hills of the Cuddapah district and perhaps elsewhere.

LXI.—PALMACEÆ.

391. *CARYOTA URENS* Linn. Eng. *The Bastard Sago Palm*. Tel. *Jirugu*. A large tree. Stem smooth, cylindric, annulate, grey. Leaves 2-pinnate, 18 to 20 feet long; leaflets cuneiform, glabrous, shining; 4 to 8 inches long. Flowers in large, pendulous panicles. Fruit globose, $\frac{3}{4}$ inch diameter, reddish.

In hill tracts, not common.

392. *PHŒNIX SYLVESTRIS* Roxb. Eng. *The Wild-date Palm*. Tel. *Pedda-ita*. A moderate-sized tree. Stem densely covered by the bases of the fallen leaves or marked by their scars. Leaves pinnate, 7 to 12 feet long; leaflets linear, folded along the middle, glabrous; 6 to 18 inches long, the lowest ones converted into spines. Flowers in panicles, small; about January. Fruit oblong, 1 to $1\frac{1}{4}$ inches long, orange-yellow, edible; about May. In open forests, and waste lands, especially near streams, from sea-level to 3,000 feet.

393. *PHŒNIX HUMILIS* Royle. Eng. *The Hill-date Palm*. Tel. *Ita*. A small palm, usually not more than 3 feet high. Stem as in the last species. Leaves pinnate, 4 to 8 feet long; leaflets like those of the last species, 10 to 20 inches long, glabrous, the lowest converted into spines. Flowers in axillary panicles, small, yellow; February to March. Fruit oblong, $\frac{1}{2}$ inch long, orange turning to black, edible; May and June. Abundant in dry hill tracts, especially in areas annually burnt over, from 2,000 to 4,500 feet.

394. *CALAMUS VIMINALIS* Willd. Tel. *Pemu*. A thorny climbing cane. Leaves pinnatisect, 2 to 3 feet long; leaflets narrow-linear, 4 to 10 inches long, spinulose. Flowers in spikelets along an

axillary spadix, small. Fruit globose, covered with closely appressed scales, light-brown. In moist place and along streams near the coast.

395. *CALAMUS ROTANG* Linn. Tel. *Pemu*. Very similar to the last species and in similar localities, somewhat more slender.

396. *BORASSUS FLABELLIFORMIS* Linn. Eng. *The Palmyra Palm*. Tel. *Tadi*. A large tree. Stems cylindric, marked by the large semicircular scars of the fallen leaves, black. Leaves coriaceous, orbicular, with 60 to 80 segments that are pleated along the midrib and have long free appendages glabrous, shining, 3 to 5 feet diameter; petioles very stout, with marginal spines, 2 to 4 feet long. Flowers numerous on a branched spadix, small; about March. Fruit a sub-globose drupe, 4 to 5 inches diameter, brown. Introduced from Africa and very extensively planted. Now run wild and very abundant especially near the coast but also on dry rocky hill sides, from sea-level to 2,500 feet.

397. *COCOS NUCIFERA* Linn. Eng. *The Coconut Palm*. Tel. *Kobari*. A tall, slender tree. Stem smooth, annulate, grey or greyish-brown. Leaves pinnate, 6 to 15 feet long; leaflets coriaceous, linear-lanceolate, 2 to 3 feet long, glabrous. Flowers in large panicles, $\frac{1}{2}$ inch long, cream coloured. Fruit ovoid or sub-globose, 8 to 12 inches long, green or yellowish. Introduced and widely cultivated, but nowhere wild.

LXII.—PANDANACEÆ.

398. *PANDANUS TECTORIUS* Soland. (P. *FASCICULARIS* Lam.). Eng. *The Screw-pine*. Tel. *Mogili*. A large shrub with aerial roots. Stem smooth

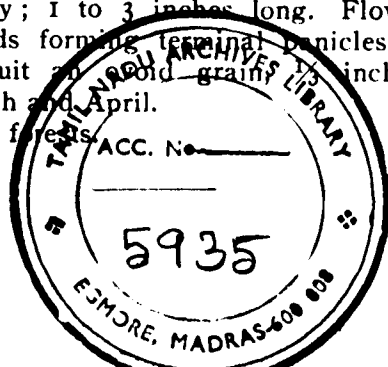
light-brown. Leaves coriaceous, ensiform, glabrous; 3 to 5 feet long, the midrib and margins bearing spines. Flowers axillary or terminal, males on a compound, cone-like spadix, strongly scented, females in a confluent group resembling a pine-apple; August to November. Fruit oblong or globose, formed by the confluence of the ovaries, 6 to 10 inches long, yellow or red; September to December. In low-lying damp places, particularly along the sandy coast, forming dense thickets. From sea-level to 3,000 feet.

LXIII.—GRAMINACEÆ.

399. *BAMBUSA ARUNDINACEA* Willd. Eng. *The Female Bamboo*. Tel. *Mullu-veduru, Bungalow*. A large thorny, hollow bamboo. Stem smooth, shining, green, the internodes hollow and up to 18 inches long. Leaves linear or linear-lanceolate 7 to 8 inches long. Flowers in large terminal panicles; about January. Fruit a narrow, oblong grain, $\frac{1}{3}$ inch long, brown; March and April. Abundant and gregarious in valleys from 200 to 3,000 feet.

400. *DENDROCALAMUS STRICTUS* Nees. Eng. *The Male Bamboo*. Tel. *Pen-veduru Sadanapa-veduru*. An unarmed, solid or nearly solid bamboo. Stem smooth, yellowish, with nodes that are solid or nearly so and 12 to 18 inches long. Leaves narrow elliptic, hairy; 1 to 3 inches long. Flowers in globose heads forming terminal panicles; about January. Fruit a round grain, $\frac{1}{3}$ inch long, brown; March and April.

In dry hill forests.



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Synonyms are printed in italics. The numbers are those of the descriptive part.

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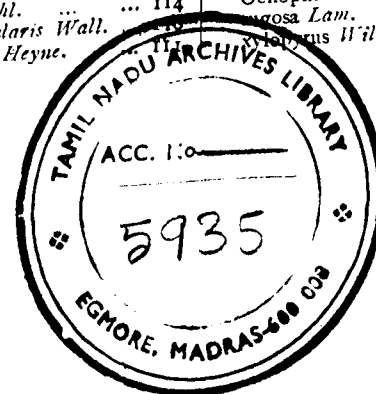
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