

ARTIFICIAL KEYS TO IDENTIFICATION OF TREES,

SHRUBS AND WOODY CLIMBERS
(With PLATE Nos. 26 to 26)

These artificial keys, based on simple, macroscopic characters have been prepared for the benefit of the forest department personnel.

Trees

A. Leaves simple :

B. Leaves simple, margins entire :

C. Leaves generally opposite, rarely whorled :

D. Leaves stipulate Key-1.

D. Leaves ex-stipulate Key-2.

C. Leaves generally alternate Key-3.

B. Leaves simple, margins serrate, crenate

or leaves lobed Key-4.

A. Leaves compound :

E. Leaves palmately compound Key-5.

E. Leaves pinnately compound :

F. Leaves simple pinnate :

G. Leaves imparipinnate Key-6.

G. Leaves paripinnate Key-7.

F. Leaves bipinnate or tripinnate :

H. Leaves bipinnate Key-8.

H. Leaves tripinnate Key-9.

Key-1.

1. Plants armed :

2. Flowers dimorphic and polygamous;

ovary 1-celledGardenia turgida
var. montana

2. Flowers not dimorphic nor polygamous;

ovary 2-celled :

3. Fruit exceeding 5 cm. in

diameterXeromphis uliginosa

3. Fruit less than 2.5 cm.

in diameterXeromphis spinosa

1. Plants unarmed :

4. Inflorescence a syconusFicus hispida
(PL. 26 : FIG 19)

4. Inflorescence not as above :

5. Flowers crowded in dense,
globose heads :

6. Flowers pure white, nearly

- 2.5 cm. longMorinda tomentosa
6. Flowers not white, less than
2.5 cm. long :
7. Flowers orange; corolla
imbricateAnthocephalus indicus
7. Flowers yellow or greenish
yellow; corolla valvate :
8. Leaves as broad as long,
distinctly cordate;
stigma clavateAdina cordifolia
8. Leaves variable, but
not distinctly cordate;
stigma mitriform.....Mitragyna parvifolia
5. Flowers in terminal panicles, not
in dense, globose heads; capsule
ellipsoidHymenodictyon excelsum
(23:10)

Key-2.

1. Plants with milky juice :
2. Corolla with coronal structures :
3. Fruit rough with white
tubercles, grooved at the

- junction of the carpelsWrightia tomentosa
(21:4)
 - 3. Fruit without white tubercles, not groovedWrightia tinctoria
(21:6)
- 2. Corolla without coronal structuresHolarrhena antidysenterica (21:5)
- 1. Plants without milky juice :
 - 4. Fruit winged :Terminalia crenulata
(26:18)
 - 4. Fruit not winged :
 - 5. Leaves large; fruit enclosed in the enlarged calyxTectona grandis
(22:8)
 - 5. Leaves not as large as in above; fruit not enclosed in enlarged calyx :
 - 6. Fruit a loculicidal capsuleLagerstroemia microcarpa
(24:14)
 - 6. Fruit not a capsule :
 - 7. Flowers brownish-yellow, upto 3.5-4 cm. longGmelina arborea
 - 7. Flowers much smaller :
 - 8. Leaves linear-lanceolate; fruit inferiorSyzigium heyneanum

8. Leaves never linear-lanceolate;

fruit superior :

9. Fruit obliquely lentiform,

blackBuchanania lanzan
(24:12)

9. Fruit globose or oblong,

not black :

10. Fruit yellow with

thickly coriaceous

calyxDiospyros melanoxylon

10. Fruit without thickly

coriaceous calyx :

11. Flowers in dense

fascicles near the

end of branches....Madhuca indica

11. Flowers in axillary

or terminal

paniclesSalvadora persica

Key-3.

1. Flowers with a gynophore; leaves covered

with olive green velvety pubescence....Capparis grandis

1. Flowers without a gynophore; leaves

not covered with velvety pubescence :

2. Fruit winged :

3. Fruit equally 5-angledTerminalia arjuna

3. Fruit not 5-angled :

4. Fruit clustered in a headAnogeissus latifolia4. Fruit not clustered in
a headHoloptelea integrifolia

2. Fruit not winged :

5. Fruit a syconous :

6. Receptacles sessile :

7. Leaves glabrous :

8. Leaves broadly ovate
cordate, acuminate;
aerial roots absentFicus religiosa8. Leaves elliptic or narrowly
oblong-ovate, acute; aerial
roots often presentFicus amplissima7. Leaves tomentose beneath ...Ficus benghalensis

6. Receptacles stalked :

9. Receptacles in fascicles ...Ficus racemosa

9. Receptacles solitary or in pairs :

10. Receptacles solitary ...Ficus asperrima

- 10. Receptacles in pairsFicus virens
- 5. Fruit not a syconous :
 - 11. Flowers 3-merousMiliusa tomentosa
 - 11. Flowers 4-5-merous :
 - 12. Flowers in axillary spike,
clustered at the end of
branchesTerminalia bellerica
 - 12. Flowers not in axillary spike
and not clustered at the end
of branches :
 - 13. Tree with more or less
spinescent branchesAlangium salvifolium
 - 13. Tree without spinescent
branches :
 - 14. Flowers polygamous,
whiteCordia dichotoma
 - 14. Flowers dioecious,
not white :
 - 15. Fruit a capsule,
covered with red
powderMallotus philippensis
 - 15. Fruit not a capsule :

16. Fruit pisiform, yellow
 when ripeStreblus asper
16. Fruit drupaceous, purple
 black, fleshyBridelia squamosa

Key-4.

1. Leaves simple, not lobed, margins
 serrate or crenate :
2. Stipular spines presentZizyphus mauritiana
2. Stipular spines absent :
3. Fruit a capsule :
4. Capsule woody, pointed, dehiscing
 loculicidally; flowers yellowish-
 orange, 4-5 cm.in diameter...Eriolaena hookeriana
4. Capsule indehiscent;
 flowers smallCaesaria elliptica
3. Fruit drupaceous :
5. Flowers in clustered fascicles :
6. Venation multicostate; leaves
 covered with yellowish
 tomentum beneathZizyphus xylopyra
6. Venation unicostate; leaves

not covered with tomentum

beneathTrema orientalis

5. Flowers in dichotomous cymes

or axillary umbels :

7. Flowers in branched dichotomous

cymes on long erect peduncles;

leaves oppositeCassine glauca

7. Flowers in few-flowered axillary

umbels; leaves alternateGrewia pilosa

1. Leaves lobed :

8. Lobes of leaf two onlyBauhinia racemosa

8. Lobes of leaf more than two :

9. Leaves 40-50 cm. in diameter..Borassus flabellifer

9. Leaves much smaller :

10. Fruit a follicleSterculia urens
(23:11)

10. Fruit a capsule :

11. Flowers yellowCochlospermum religiosum

11. Flowers whiteKydia calycina

Key-5.

1. Leaflets twoBalanites aegyptiaca

1. Leaflets more than two :

- 2. Ovary on a long gynophoreCrateva adansonii
ssp. indica
- 2. Ovary not on a gynophore :
 - 3. Fruit a hard, globose berry
(Amphisarca).....Aegle marmelos
 - 3. Fruit not a berry :
 - 4. Corolla papilionaceous :
 - 5. Pods distinctly torulose,
many-seededErythrina suberosa
 - 5. Pods flat, thickened at
sutures, one-seededButea monosperma
 - 4. Corolla not papilionaceous :
 - 6. Flowers regular, large,
bright redBombax ceiba
 - 6. Flowers irregular, small,
purple-whiteVitex negundo

Key-6.

- 1. Fruit a pod :
 - 2. Pods winged at sutures :
 - 3. Pods nearly circularPterocarpus marsupium
var. acuminatus
 - 3. Pods thin, flat, oblong or strap-shaped :

- 4. Leaflets acuminateDalbergia sissoo
(24:13)
- 4. Leaflets obtuse or rounded :
 - 5. Leaflets broadly ovate or
suborbicular, roundedDalbergia latifolia
 - 5. Leaflets elliptic or
oblong, obtuseDalbergia lanceolaria
- 2. Pods not winged at suturesDerris indica
- 1. Fruit a drupe or a capsule :
 - 6. Fruit a capsule :
 - 7. Capsule pear-shaped, 4-8 cm.
long, seeds not wingedSchrebera swietenoides
(25:17)
 - 7. Capsule not pear-shaped, more
than 8 cm. long; seeds winged :
 - 8. Young parts viscous hairy;
corolla dull purple; capsule
cylindric, slightly ribbed....Stereospermum suaveolens
(20:3)
 - 8. Young parts glabrous; corolla
white; capsule flat, falcately
curved, glabrousDolichandrone falcata
var. lawii (21:7)
 - 6. Fruit drupaceous :
 - 9. Drupe dehiscent, trigonousBoswellia serrata
(25:16)

9. Drupe indehiscent, not trigonous :

10. Seeds with a membranous

wingGaruga pinnata
(25:15)

10. Seeds not winged :

11. Leaflets entire; flowers

appear when the tree is

bare of leavesLannea coromandelica

11. Leaflets distinctly serrate;

flowers appear when the

leaves are also there..Azadirachta indica

Key-7.

1. Unbranched stem with a crown of pinnate

leaves at the top, a typical palm

like habitPhoenix sylvestris

1. Leaves and plant habit not as above :

2. Fruit a samaraAilanthus excelsa

2. Fruit not a samara :

3. Fruit a pod :

4. Pods strap-shaped, thin,

1-seeded near the tip of

the podHardwickia binata

- 4. Pods more than 1-seeded, not strap-shaped :
- 5. Pods cylindric, smooth straight, brown-black, more than 20 cm. longCassia fistula
- 5. Pods linear-oblong, sub-compressed, brownTamarindus indicus
- 3. Fruit a capsule :
- 6. Capsule dehiscent, seeds winged..Soymida febrifuga
(22:9)
- 6. Capsule indehiscent, seeds not winged :
- 7. Fruit pointed, echinate with stout blunt pricklesSchleichera oleosa
- 7. Fruit clothed with fulvous hairs, fleshy, wrinkled when ripeSapindus emarginatus

Key-8.

- 1. Flowers in globose heads :
- 2. Heads axillary :
- 3. Pods turgid, moniliformAcacia nilotica
ssp. indica
- 3. Pods flat, not moniliform :

PLATE No. 20

- Fig. 1. Fruit of Oroxylum indicum (Linn.) Vent.
Fig. 2. " " Radermachera xylocarpa (Roxb.) K. Schum.
Fig. 3. " " Stereospermum suaveolens DC.



PLATE No. 20.

PLATE No. 21

- Fig. 4. Fruit of Wrightia tomentosa Roem. & Schult.
- Fig. 5. " " Holarrhena antidysenterica (Linn.) Wall.
- Fig. 6. " " Wrightia tinctoria R. Br.
- Fig. 7. " " Dolichandrone falcata Seem. var.
lawii (Seem.) Haines

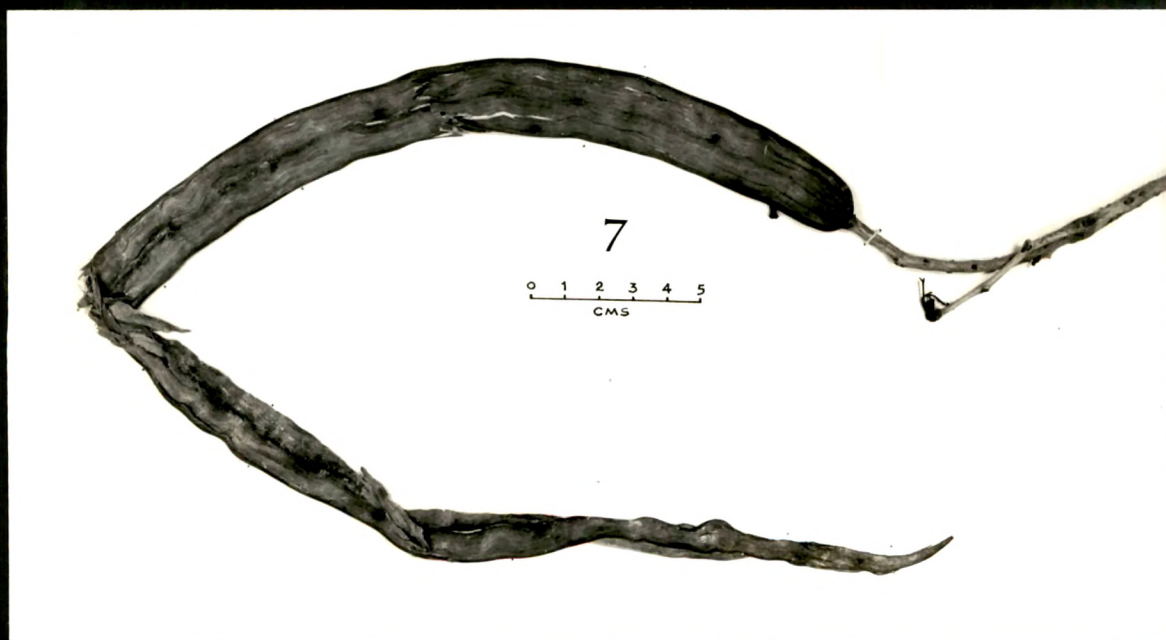
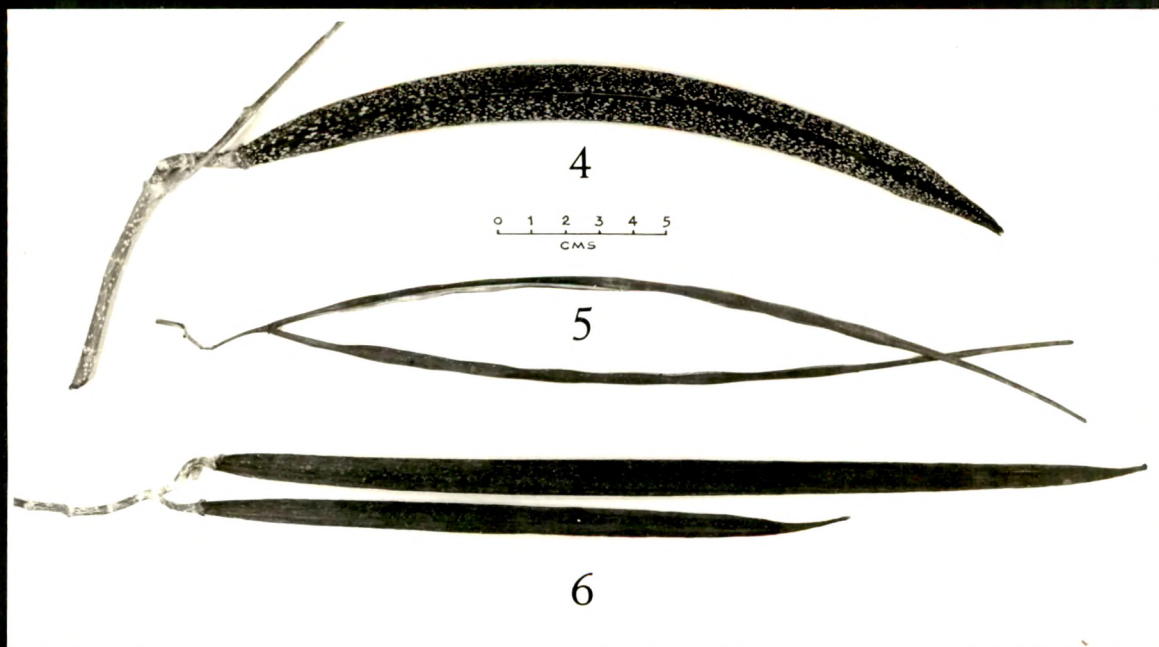


PLATE No. 21.

PLATE No. 22

Fig. 8. Fruit of Tectona grandis Linn.

Fig. 9. " " Soymida febrifuga Juss.

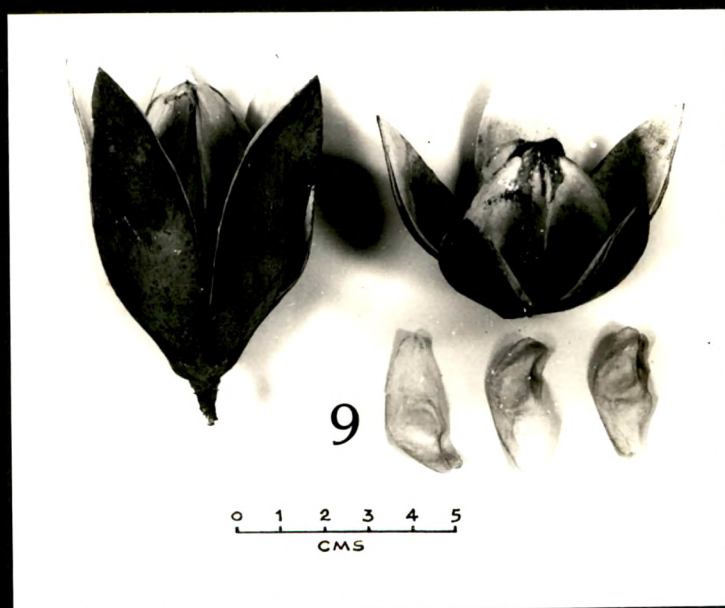
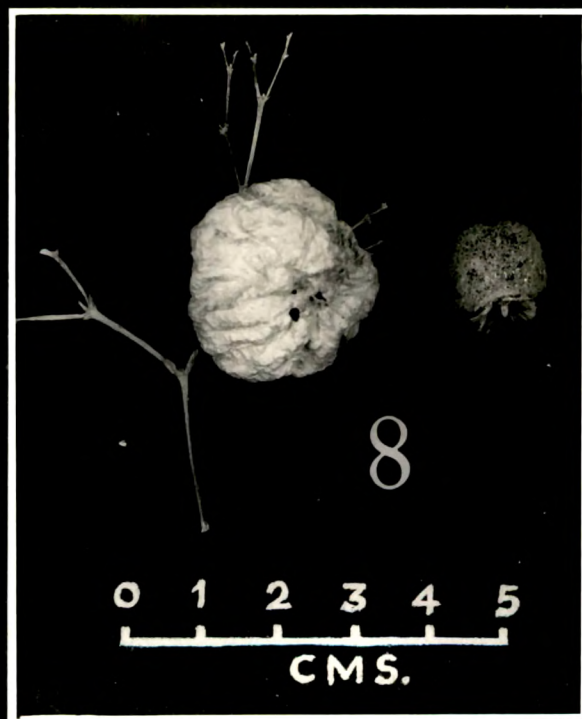


PLATE No. 22.

PLATE No. 23.

Fig. 10. Fruit of Hymenodictyon excelsum (Roxb.) Wall.

Fig. 11. " " Sterculia urens Roxb.

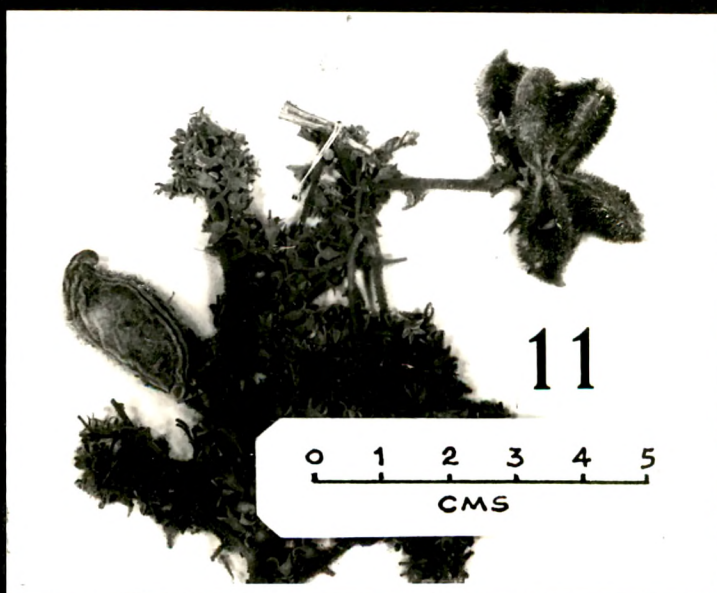


PLATE No. 24

Fig. 12. Fruit of Buchanania lanzan Spreng.

Fig. 13. " " Dalbergia sissoo Roxb.

Fig. 14. " " Lagerstroemia microcarpa Wight

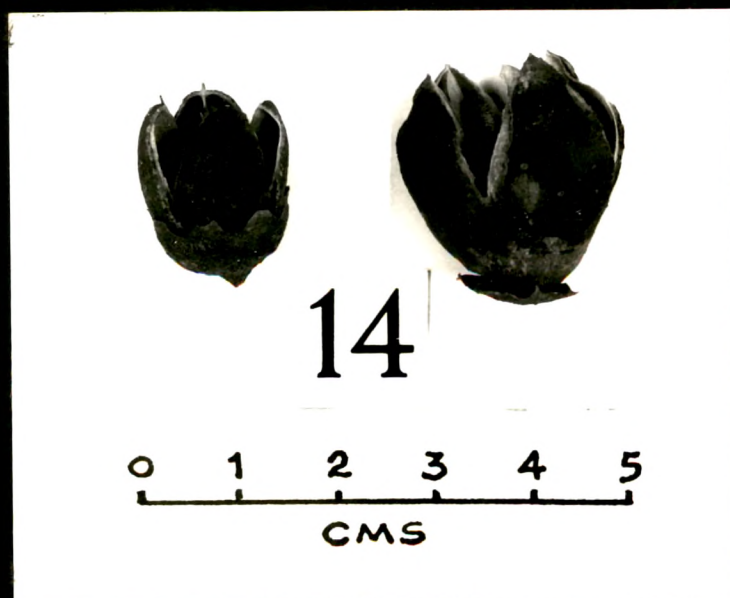
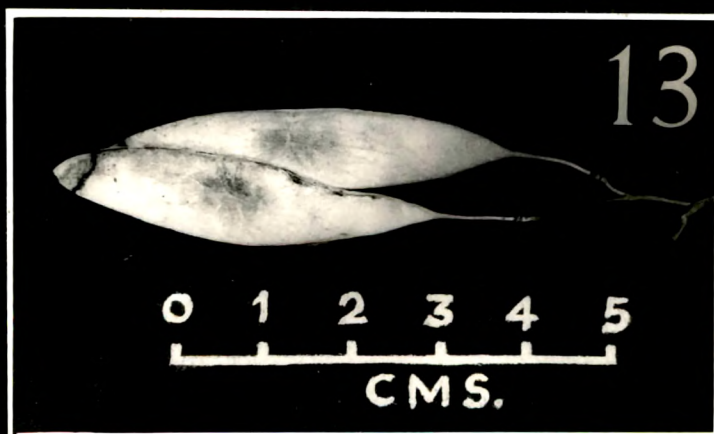
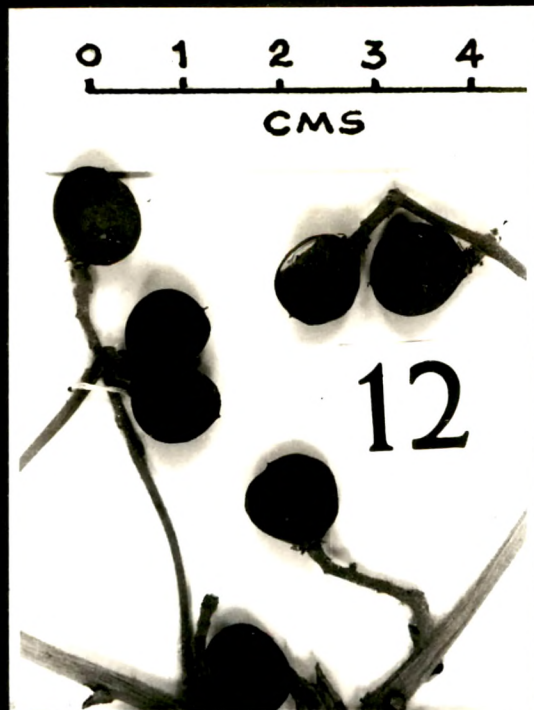


PLATE No. 25

Fig. 15. Fruit of Garuga pinnata Roxb.

Fig. 16. " " Boswellia serrata Roxb.

Fig. 17. " " Schrebera swietenioides Roxb.

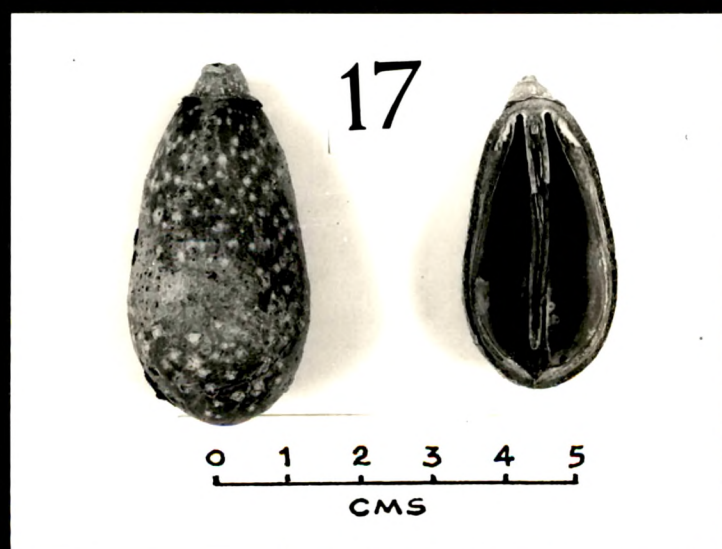


PLATE No. 26

Fig. 18. Fruit of Terminalia crenulata Roth

Fig. 19. Syconia of Ficus hispida Linn. f.

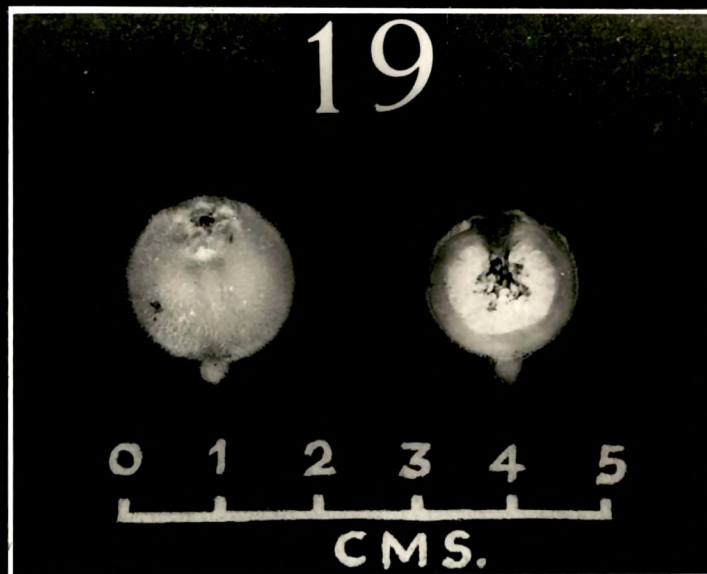
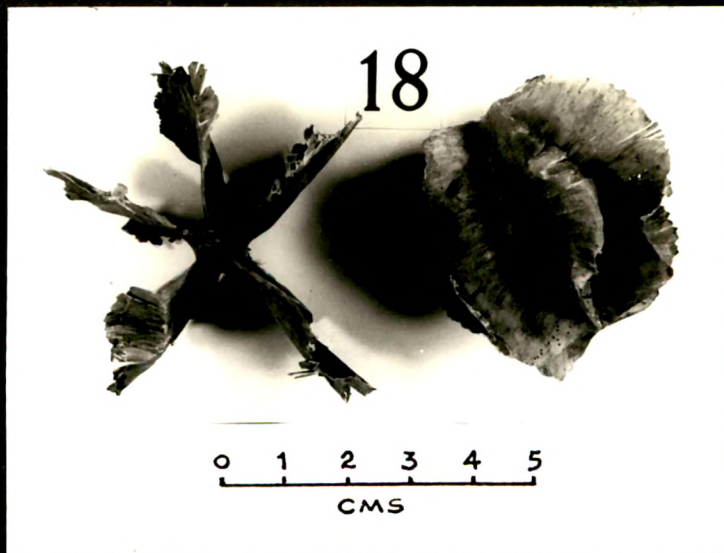


PLATE No. 26.

Shrubs

1. Calyx and corolla when differentiated,
the petals free or at best connate at
the base only and when not differentiated,
the tepals free :
2. Plants armed :
 3. Leaves small, present on the young
shoots; older shoots leaflessCapparis decidua
 3. Plants leafy throughout :
 4. Leaves simple :
 5. Stipular spines present;
fruit indehiscent :
 6. Leaves tomentose on
both sidesZizyphus nummularia
 6. Leaves clothed with
silky hairs beneathZizyphus oenoplia
 5. Stipular spines absent;
fruit dehiscent, capsular...Maytenus emarginata
 4. Leaves compound :
 7. Flowers in elongated spike,
2-colouredDichrostachys cinerea
 7. Flowers in globose headMimosa hamata
2. Plants unarmed :

8. Fruit a spirally twisted capsule....Helicteres isora

8. Fruit not spirally twisted :

9. Leaves very large, broadly

ovate, cordateLeea macrophylla

9. Leaves not as large as above :

10. Leaves simple :

11. Leaves opposite :

12. Flowers in close or

distant clusters

forming terminal

spikes; awned.....Pupalia lappacea

12. Flowers in short

cymes; awns absent..Woodfordia fruticosa

11. Leaves alternate :

13. Fruit schizocarpic :

14. Plants viscous

hairySida glutinosa

14. Plants stellately

hairySida rhombifolia

var. retusa

13. Fruit not schizocarpic :

15. Fruit dehiscent,

capsular :

- 16. Epicalyx absent; flowers
small.....Baliospermum montanum
- 16. Epicalyx present; flowers
bigger :
 - 17. Calyx cupular,
truncateAzanza lampas
 - 17. Calyx not cupular or
truncate :
 - 18. Calyx spathaceous,
deciduousAbelmoschus manihot
 - 18. Calyx persistent,
not spathaceous....Hibiscus vitifolius
- 15. Fruit indehiscent, a berry or drupe :
 - 19. Fruit a berry :
 - 20. Leaves elliptic or ovate,
subacute; berry white..Securinega virosa
 - 20. Leaves oblong or elliptic,
obtuse; berry purple...Kirganelia reticulata
 - 19. Fruit a drupe :
 - 21. Flowers whiteGrewia damine
 - 21. Flowers yellowGrewia hirsuta
- 10. Leaves compound :

- 22. Leaflets 3 :
 - 23. Pods spinous pointed, tetragonous,
more than two-seededIndigofera trita
 - 23. Pods more or less compressed,
linear-oblong, two-seededAtylosia sericea
- 22. Leaflets more than 3 :
 - 24. Leaves imparipinnate :
 - 25. Leaflets oblong, entire,
rounded; fruit a podIndigofera tinctoria
 - 25. Leaflets elliptic, serrate,
acuminate; fruit a berry ...Leea edgeworthii
 - 24. Leaves paripinnate :
 - 26. Leaflets 3-5 pairs; stipules
absentCassia occidentalis
 - 26. Leaflets 8-12 pairs;
stipules foliaceousCassia auriculata
- 1. Calyx and corolla well differentiated;
petals united :
 - 27. Plants armed :
 - 28. Corolla irregular :
 - 29. Corolla white with darker

- lines, distinctly 2-lipped.....Lepidagathis cuspidata
29. Corolla yellow, tubular.....Barleria prionitis
28. Corolla regular :
30. Corolla white, salver-shaped,
tube cylindric; spines stout,
long and straightCarissa congesta
30. Corolla pale-purple, rotate;
prickles stout, short and
usually curved :
31. Berries less than 1 cm.
in diameterSolanum indicum
31. Berries more than 1 cm.
in diameterSolanum incanum
27. Plants unarmed :
32. Leaves alternate :
33. Calyx densely covered with
stalked glandsPlumbago zeylanica
33. Calyx not covered with glands :
34. Fruit an achene, covered
by bristlesXanthium strumarium
34. Fruit not an achene :

35. Fruit dehiscent, not covered
by the calyxDyerophytum indicum
35. Fruit indehiscent, enclosed
in an inflated calyxWithania somnifera
32. Leaves opposite :
36. Leaves with inter-petiolar
stipulesSpermadictyon suaveolens
36. Leaves without inter-petiolar
stipules :
37. Gynostemium present :
38. Corona lobes narrow, shorter
than the staminal column
with two obtuse auricles
just below the entire
apexCalotropis gigantea
38. Corona lobes broad, equalling
or longer than the staminal
column, without auricles
below the bifid apex....Calotropis procera
37. Gynostemium absent :
39. Flowers axillary, solitary,
regular; capsule spiny...Datura metel

39. Flowers not solitary,
irregular; capsule not
spiny :

40. Flowers in cymes :

41. Corolla 2-lipped, rosy
or pink, stamens 2;
fruit a capsulePeristrophe
bicalyculata

41. Corolla white, stamens
4; fruit drupaceous...Clerodendrum
multiflorum

40. Flowers in bracteate spike :

42. Stamens 2Eranthemum rosoum

42. Stamens 4 :

43. Leaf margin entire;
flowers in globose
spikesNeuracanthus
sphaerostachys

43. Leaf margin serrate;
flowers in sub-
tetragonal spike...Carvia callosa

Climbers

A. Leaves simple, entire or lobed :

 \ B. Leaves simple, entire :

 C. Leaves oppositeKey-1.

 C. Leaves alternateKey-2.

 B. Leaves simple, lobedKey-3.

A. Leaves compound :

 D. Leaves palmately compound :

 E. Leaves 3-foliolateKey-4.

 E. Leaves 5-7-foliolateKey-5.

 D. Leaves pinnately compoundKey-6.

Key-1.

1. Fruit a winged samaraCombretum ovalifolium

1. Fruit not as above :

 2. Follicles echinate with

 short spinesPergularia daemia

 2. Follicles not echinate :

3. Corolla 2 to 3.5 cm. acrossHolostemma annulare

3. Corolla less than 2 cm. across :

4. Follicles solitary with a
thick curved beakLeptadenia reticulata

4. Follicles divaricate, in pairs :

5. Corolla rotate :

6. Petiole terete; lamina
broadly ovate, shortly
acuminateDregea volubilis

6. Petiole grooved on the
upper side; lamina linear-
lanceolate or elliptic-
oblong, acute or
apiculateHemidesmus indicus

5. Corolla urceolate,
complanate or salver-shaped :

7. Stem and leaves
tomentoseMarsdenia tenacissima

7. Stem and leaves not
tomentose :

8. Leaves ovate, shortly

acuminate, cordate with
a broad sinus at the
baseTelosma pallida

8. Leaves elliptic-oblong
or ovate-oblong, acute
at the baseCryptolepis buechanani

Key-2.

1. Leaves reduced to scale; cladodes
presentAsparagus racemosus
var. javanica

1. Leaves well-developed :

2. Plants with stipular spines :

3. Flowers in umbelsCapparis sepiaria

3. Flowers supra-axillary, not
in umbelsCapparis zeylanica

2. Plants without spines :

4. Fruit moniliformMaerua oblongifolia

4. Fruit not moniliform :

5. Flowers unisexual :

- 6. Fruit a drupeTinospora cordifolia
- 6. Fruit a capsule :
 - 7. Stem climbing by twining
to the left; leaves
broadly cordateDioscorea bulbifera
 - 7. Stem climbing by twining
to the right; leaves
elliptic-lanceolate.....Dioscorea belophylla
- 5. Flowers bisexual :
 - 8. Petals free :
 - 9. Fruit a winged nutVentilago denticulata
 - 9. Fruit a capsuleCelastrus paniculata
 - 8. Petals united :
 - 10. Leaves silky tomentose beneath :
 - 11. Corolla salver-shaped..Rivea hypocrateriformis
 - 11. Corolla funnel-shaped :
 - 12. Corolla rose-coloured,
strigose outside...Argyreia strigosa
 - 12. Corolla pink-coloured,
not strigose outside..Argyreia sericea

10. Leaves not as above :

13. Stem fistular, not muricate;

peduncle not swollen below

the fruitIpomoea fistulosa

13. Stem muricate, not fistular;

peduncle swollen below the

fruitIpomoea muricata

Key-3.

1. Flowers scarlet-red; fruit a capsule..Ipomoea hederifolia

1. Flowers not scarlet-red; fruit a berry :

2. Peduncle tendrillar; berry globose..Ampelocissus latifolia

2. Peduncle not tendrillar; berry

pyriformCissus repanda

Key-4.

1. Corolla papilionaceous :

2. Corolla yellow or light yellow.....Rhynchosia rothii

2. Corolla not yellow :

3. Pods densely clothed with

persistent irritant bristles.....Mucuna pruriens

- 3. Pods not densely clothed with
irritant bristles :
 - 4. Pods turgid, linear-oblong...Canavalia gladiata
 - 4. Pods flat :
 - 5. Corolla blue; pods membranous,
not clothed with
ferrugineous tomentum.....Pueraria tuberosa
 - 5. Corolla orange; pods clothed
with ferrugineous
tomentumButea parvifolia
 - 1. Corolla not papilionaceous :
 - 6. Plants tendrillar, fruit a berry....Cayratia trifolia
 - 6. Plants without tendrils; fruit
a capsuleDioscorea hispida
- Key-5.
- 1. Plants tendrillar; fruit a berryCayratia auriculata
 - 1. Plants not tendrillar; fruit not a berry :
 - 2. Flowers bisexual, purple-blue;
bulbils absentMerremia aegyptiaca

2. Flowers unisexual, not purple-blue,
bulbils presentDioscorea pentaphylla

Key-6.

1. Seeds red with broad black spot.....Abrus precatorius
1. Seeds not as above :
2. Pods densely armed on faces
with wiry pricklesCaesalpinia crista
2. Pods never armed :
3. Branches armed with prickles;
leaves bipinnate; pods glabrous :
4. Leaflets 12-30 pairsAcacia torta
4. Leaflets 40-50 pairsAcacia pennata
3. Branches not armed with prickles;
pods covered with velvety brown
hairs; leaves imparipinnate.....Milletia auriculata