

Noviciæ Indicæ XXIV. *Some new Indian Plants.*—By D. PRAIN.  
(With Plates VII—VIII).

In this paper are given descriptions of a few plants new to the *Flora of British India* either in the sense that they are new to science or that they have been ascertained to be Indian since the portions of the *Flora of British India* containing accounts of their respective natural families have appeared. References are also occasionally given to interesting new localities for species already fully described there.

IV. ANONACEÆ.

9. UNONA LINN.

11. UNONA PRÆCOX *H. f. & T.*

Add to localities of F. B. I.:—

SIKKIM: Ryang Valley, 4,000—5,000 ft., *Cave!*

15. GONIOTHALAMUS BL.

3. GONIOTHALAMUS GRIFFITHII *H. f. & T.*

Add to localities of F. B. I.:—

ANDAMANS: Port Blair, common.

20. SACCOPETALUM BENN.

1. SACCOPETALUM LONGIFLORUM *H. f. & T.*

Add to localities of F. B. I.:—

SIKKIM: Ryang Valley, 4,000—5,000 ft., *Cave!*

XXVII. STERCULIACEÆ.

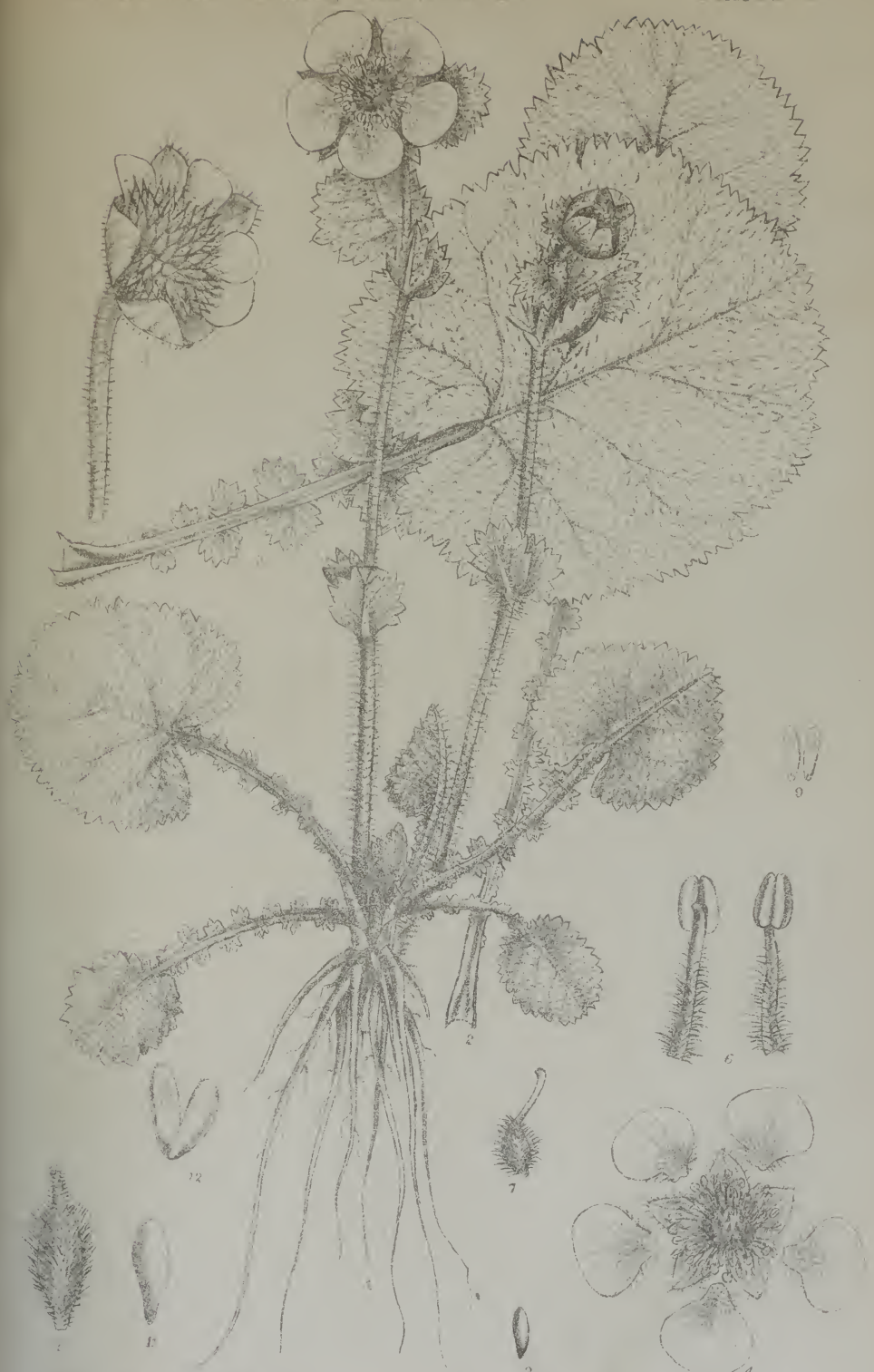
1. STERCULIA LINN.

*Leaves simple not lobed; calyx lobes medium spreading.*

13b. STERCULIA KINGII *Prain*; leaves ovate-lanceolate, long acuminate, base round, glabrous above, glabrescent beneath; panicles or racemes drooping much shorter than the leaves; calyx lobes lanceolate-acuminate.

SIKKIM: Darjeeling District *T. Thomson!* at Ranyak, *T. Anderson* n. 388! Kootom, below Mungpoo, 3,000 ft., *King!* Rungbee, 3,000 ft., *King!* Lopchoo, 6,000 ft., *Osmaston!*

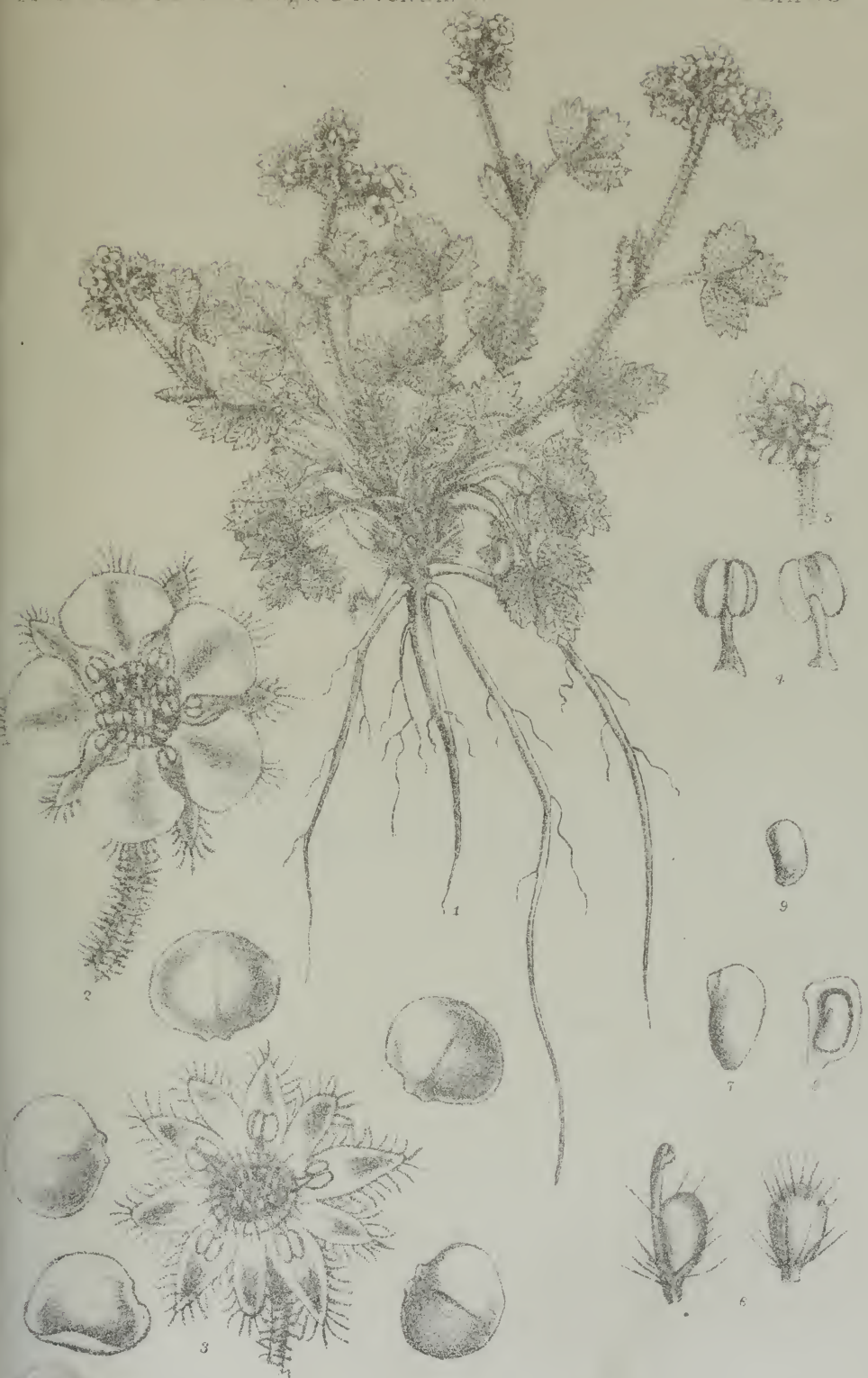
A tree about 30 feet high, wood soft, bark greyish, branches with prominent cicatrices. *Leaves* alternate, ovate-lanceolate, apex long acuminate, base rounded, glabrous above, when young sparingly pubescent with stellate hairs on the nerves, but soon glabrous beneath, 9-12 in. long, 4-6 in. wide, main-nerves 10-12 pairs spreading, secondary nervation wider-meshed distinct; petioles 2-2.5 in. long, flattened above; stipules linear-ovate, coloured, rusty-hairy. *Flowers* near ends of



Drawn by K. P. Das

K. P. Das lith

*SIEVERISIA SIKKIMENSIS* Prain



by K. P. Dass.

POTENTILLA SIKKIMENSIS Franch.

K. P. Dass lith.



branches below the leaves, in the axils of cicatrices; in drooping few-flowered racemes or panicles 2.5-4 in. long; peduncles glabrous as are the slender pedicels .5-.7 in. long, bracts very minute and fugacious. *Calyx* brownish-red, campanulate, tube very short .1 in. long, lobes 5, lanceolate acute .5 in. long; finely puberulous. *Stamens* about 5, united in an erect crenate column, about .2 in. long; anthers 2-celled. *Ovary* 4-5-celled, ovules many. *Fruit* of 4-5 purplish red or scarlet follicles, 4-5 in. long, 1.5 in. wide. *Seeds* ovoid, .8 in. long .5 in. across, testa blue.

Osmaston gives the vernacular name as *Chiwi pat*. The species is nearly related to *S. coccinea* which is however easily distinguished by its narrower pilose calyx-segments. It is also closely related to *S. laevis* Wall., but is again very distinct because the calyx-lobes are not bearded within. It has been sometimes confused with *S. Roxburghii* which has however much smaller flowers.

## XLI. CELASTRINEÆ.

### 1. EUONYMUS LINN.

6b. *EUONYMUS MACROCARPUS* Gamble, *List. Darjeel.*, ed. II, 18 (1896); leaves 2.5-5 in. long, 1-1.75 in. wide, ovate-lanceolate, acuminate, thickly papery, margins finely serrate; peduncles 3-flowered axillary; petals ovate, margins entire.

EASTERN HIMALAYA: Bootan, at Khumpung, 7,500 ft., *Gamble!*

A large climber; branches cylindric. *Leaves* pale-green, nerves 6-7 pairs, distinct above and prominent beneath, much curved forward and forming a series of intramarginal loops particularly in the apical half. *Peduncles* short, .35 in. long, stout; pedicels .2 in. long, rather stout. *Flowers* .2 in. across; sepals rotund, concave, 5; petals 5, ovate; style long. *Fruit* oblong, sharp-pointed, valves 5, spreading stellately when ripe, hard and thickly leathery or almost woody, 1.25 in. long, .75 in. wide.

A very distinct species.

#### 7. *EUONYMUS GRANDIFLORUS* Wall.

Add to localities of F. B. I.:—

E. HIMALAYA: Chumbi; Paroo, *Dungboo!* Bootan; *Griffith!*  
BURMA: Shan Hills, at Moungtaya, 4,000 ft., *Collett!*

#### 8. *EUONYMUS CALOCARPUS* Kurz.

To be deleted: is a *Glyptopetalum*.

8b. *EUONYMUS KACHINENSIS* Prain; peduncles 2-2.5 in. slender, fruit broadly pyriform, strongly 4-angled.

UPPER BURMA: Kachin Hills, at Sima, 6,500 ft., *Shaik Muqim!*

A shrub, branches slightly 4-angled under the leaves, terete below, smooth. *Leaves* lanceolate-acuminate tapering from below the middle to the narrowly cuneate base with entire margins, elsewhere finely serrate, thinly but firmly papery, 4 in. long, 1.25 in. wide; nerves slender acute 8-9 pairs, prominent beneath.

*Peduncles* 1·5 in. long, pedicels usually one to each peduncle, '5 in. long. *Fruit* deeply 4-lobed, the calyx persistent at its contracted base; length '75 in., width at apex '6 in.

A very distinct species of which the petals are not yet known. The sepals are rounded, spreading, forming a calyx '25 in. in diam.

Sc. ENONYMUS SUBSULCATUS *Prain*; peduncles '75-1 in. very slender, fruit subpyriform, distinctly 4-angled.

BURMA: Tenassarim; Moolyet, 5,000 ft., *Gallatly!*

A shrub, branches distinctly 4-angled throughout, somewhat 4-grooved in upper parts of internodes, smooth. *Leaves* ovate-lanceolate acuminate, base wide-cuneate, margin entire, thickly membranous, 3·5-4 in. long, 1·75-2·25 in. wide, nerves 5-6 pairs not prominent below, hardly visible above. *Peduncles* '75-1 in., pedicels usually 1, sometimes 2 to each peduncle, '25 in. long. *Fruit* deeply 4-lobed, the calyx persistent at its contracted base; length '5 in., width at apex '45 in.

12b. ENONYMUS WRAYI *King*, *Journ. As. Soc. Beng.* lxiv., 2, 344; leaves 4·5 in. long, 2·25 in. wide, ovate acuminate, remotely and obscurely serrate, peduncles very long slender, cymes lax 3-4 in. across, flowers nearly '25 in. across.

MALAYA: Perak; Gunong Batu Pateh, *Wray!* Pahang; Kota Glanggi, *Ridley!*

A small tree; branches cylindric, smooth, dark-brownish when dry. *Flowers* 5-merous, sepals large rotund spreading concave, glabrescent, margins membranous. *Petals* not much exceeding sepals, rotund, clawed; edges incurved undulate, minutely puberulous, green with dull crimson veins. *Fruit* shortly and broadly pyriform, deeply 5-lobed, the calyx persistent at the contracted base; length '75 in., width at apex '6 in.

A very distinct species; in general appearance approaching most closely to *E. glaber*, but with laxer cymes and widely different fruit.

17b. ENONYMUS VIBURNOIDES *Prain*; leaves 3-5 in. long, 1·25-2·25 in. wide, oblong acute base rounded or truncate less often cuneate, fruit very slightly 4-ridged.

EASTERN HIMALAYA: Sikkim; Sureil, 5,500 to 6,500 feet; *King!* Near Darjeeling, *Gage!* Rungyroom, *King!* Pasheting, *Grieve!*

A shrub; young branches faintly quadrangular under the leaves. *Leaves* thickly herbaceous, margins finely serrate and slightly revolute with a tendency for those of alternate pairs to be smaller and larger; nerves about 6 pairs, distinct on both surfaces, especially beneath. *Peduncles* axillary rather slender, 1-1·5 in. long, cymes very many-flowered up to 4 in. across. *Sepals* 4, wide reniform, spreading. *Petals* 4, much exceeding the sepals, orbicular, minutely puberulous. *Style* 0. *Fruit* somewhat depressed, very slightly 4-ridged, '3 in. long, '4 in. across.

A distinct species nearest *E. bullatus*, but with larger and more numerous flowered cymes, smaller fruit, and the veins on the leaves beneath less prominent.

## 18. ENONYMUS BULLATUS Wall.

Add to localities of F.B.I.:—

EASTERN HIMALAYA: Bootan; *King's Collector!* INDO-CHINA: Naga Hills; Kohima, *Clarke!* Manipur; Lingli, *Watt!*

## 19. ENONYMUS FIMBRIATUS Wall.

Add to localities of F.B.I.:—

AFGHANISTAN: Kurram Valley; *Aitchison!* WESTERN HIMALAYA: Hazara; at 7,000 ft., *Stewart!* Chitral; Ziarat, 7,800 ft., *Harriss!* Kashmir; Sonamurg, 8,500 ft., *Clarke!* Barzil Valley, *Duthie!* Kishengunga Valley, *Duthie!*20b. ENONYMUS LAWSONII C. B. *Clarke* Mss. in *Herb. Calc.*; leaves lanceolate-acuminate, 3-5 in. long, 1 in. wide, sharply serrate except at the entire cuneate base, fruit with 4 prominent angles but not winged.KHASIA: Normai, Mansmai, Sohra, etc., *Clarke!* Mann! *Simons!* Prain!

A small tree; branches slender, cylindric. Leaves membranous or thinly chartaceous, nerves 5-6 pairs, rather distinct, especially beneath. Inflorescence laxly cymose; cymes 2 in. across, peduncles very slender, 1.5 in. long; pedicels almost filiform .25 in. long. Flowers .2 in. across. Sepals 4 rounded. Petals 4 orbicular, shortly clawed, much exceeding sepals, margin faintly undulate but not fringed or toothed, finely veined. Fruit thinly coriaceous, .3 in. long, .5 in. across.

Very like and very nearly related to *E. frigidus*, but with rather larger petals and very different fruit.

## 7. CELASTRUS LINN.

## 1. CELASTRUS PANICULATA Willd.

This species, as defined in the *Flora of British India*, includes three species as recognised by Roxburgh, viz.:—*C. paniculata*, *C. multiflora* and *C. nutans*. Of these the two former are certainly quite distinct, and the third, which approaches *C. multiflora* is also possibly distinct. The three may be diagnosed, with much ease, as follows:—

Leaves rounded	...	...	...	...	<i>C. paniculata.</i>
Leaves oblong	...	...	...	...	<i>C. multiflora.</i>
Leaves obovate	...	...	...	...	<i>C. nutans.</i>

The geographical areas of the three, which may be looked upon as representative species, is as follows:—

*C. PANICULATA Willd.*N. W. HIMALAYA and SUB-HIMALAYA: Kalidungi, *Thomson* 740! Patludon, *Brandis* 2032! Chamba, at Raipur, 3,000 ft., *Clarke* 23681! Dehra Dun, *Vicary* 175! Submontane forests of Pilibhit, *Duthie* 21400/a! Kheri in Oudh, *Duthie* 21402! Bettiah, near the Nepal Frontier, *Hieronymus* 443! RAJPUTANA: Aboo, *King!* Stocks! C. INDIA: Gwalior, *Maries* 22! Khandwa District, *Duthie* 8211! WESTERN INDIA:



Bas-sein, *Burkill* 15787! Concan, *Stocks*! near Malcolmpett, *Campbell*! Deccan; near Poona, *Woodrow*! *Cooke*! S. INDIA: Nilgiris, *Schmid*! *Clarke* 11282! *Gamble* 11646! Shevaroi Hills, *Perrottet* 33! 456! 467! localities doubtful, *Wight* 462 (K.D.)! 463 (K.D.)! and in Wall. Cat. 4301 F! *Heyne* in Wall. Cat. 4301 B! CEYLON: localities doubtful, *J. Watson*! *Thwaites* C. P. 1232! BENGAL: village jungles in Central Bengal *Kurz*! W. Bengal, on Pachete, *Kurz*! Manbhum *Campbell*! BEHAR: Rajmahal Hills near Sahebganj, *Kurz*! Low hills near Topechana at 2,000 ft., *Kurz*! CHOTA NAGPUR: Palamow, in Kumandi reserve, *Gamble* 8780! Hazaribagh, Golah, *Prain*! Parasnath, 2,000 ft., *Kurz*! and 2,500! *Clarke* 24,857! BURMA: Karenee, *Kurz* 1926! Pegu Yomah, *Kurz*! Ava; *Wallich* 4301 K! Yeu, *Cole*! Shwebo, *Abdul Hug*! Shan Hills; at Keloh, *Collett*! Pwehla, *Collett*! Fort Stedman, *Lwekaw* and *Taunggyi*, *King's collectors*!

A very distinct form of this plant, distinguished mainly by its leaves being pubescent beneath, is confined to Burma. It may be known as:—

*C. PANICULATA* var. *PUBESCENS* *Kurz* (= *C. pubescens* Wall. Cat. 4303).

BURMA: Pegu, *Eyre*! Prome Hills, *Wallich* 4303! Pegu Yomah, *Kurz*! Maymyo, *King's collector* 11! 36! 259! Shan Hills; *Taunggyi*, *King's collector*!

Another but less distinct form with unusually large and rather firmer leaves occurs in the Andamans. This may be termed *C. paniculata* var. *andamanica*. It is not uncommon in the vicinity of Port Blair.

*CELASTRUS MULTIFLORUS* Roxb.

NEPAL: *Hamilton*, *Wallich* 4302 (*C. dependens* Wall. Mss.)! SIKKIM: Rungit 700 ft., *Clarke* 26 339! 2,000 ft., *Hooker*! Ryang 800 ft., *Osmaston*! Gurubathen, 1,500 ft., *Prain's Collector*! DAPHLA HILLS: Radhu pokri, *Lister*! ASSAM: Valley of Brahmaputra; Dibroo Mukh, *Masters*! localities uncertain, *Griffith*! *Wallich*, *Griffith* and *M'Clelland*! Gauhati, *Simons*! Khasia Hills, *Simons*! *Hooker* and *Thomson*! BURMA: Chindwin, near Tummoo, *Prazer* 167! Kendat, *Prazer*! Chin Hills, *Prazer* 236! Kalay Hills *Prazer*! Kachin Hills; near Sadon, *Shaikh Muqim*! Koni, *Prazer*! Pinmona, *Abdul Hug*! Shan Hills; *Taunggyi*, *King's Collector*! TENASSERIM: Tavoy, Oomaigoi, *Shaikh Muqim*!

*CELASTRUS NUTANS* Roxb.

S. INDIA: Kurg (Collector unknown)! Travancore; Peermed, 3,000 ft., *Bourdillon*!

2. *CELASTRUS STYLOSA* Wall.

Lawson has under this name confused two very distinct species, viz., *C. stylosa* Wall., which he describes a second time as *Gymnosporia*

*neglecta* and *Celastrus* sp. n. 3 Hook. f. in Herb. Ind. Or. which is a very distinct plant, quite different from *C. stylosa*. The two can be at once distinguished by the stamens which have hirsute filaments in *C. stylosa*, but glabrous ones in Hooker's species, which is defined below. *C. stylosa* is abundant in Nepal, Sikkim and Khasia, but has not been met with in Burma.

2b. *CELASTRUS HOOKERI* Prain; calyx segments oblong obtuse! petals  $\frac{1}{2}$  in. oblong with faintly toothed margins towards the apex, entire below; stamens glabrous; style faintly 3-lobed; fruit brown, 3-celled, 6-seeded.

SIKKIM: Lachen Valley, 8-10,000 ft., *Hooker! King's Collector!* Darjeeling and neighbourhood, 6,000-9,000 ft., *King! Kurz! Clarke 27040! 35758! Gamble 682! 1926!* DAPHLA HILLS: *Lister!* KHASIA: Nurtiang, *Hooker and Thomson!* BURMA: Chindwin, *Prazer!*

A shrub; usually climbing. *Leaves* 4 in. long, 2-2.5 in. wide, elliptic or ovate-oblong, acute or acuminate, serrate or subentire, turning brown (when dry). *Flowers* in axillary or terminal racemose cymes, sometimes up to 3 in. long. *Fruit* brown, tipped by the persistent style.

*C. Hookeri*, as the definition shows, is very nearly related to *C. stylosa*, but it is easily distinguished by the thinner leaves which become reddish-brown when dry, those of *C. stylosa* remaining green; by the capsules with thinner valves which are brown instead of yellow; by the filaments which are glabrous instead of pubescent; and by the petals which are only faintly toothed not deeply undulate.

2c. *CELASTRUS MEMBRANIFOLIA* Prain; calyx segments shortly ovate subacute; style slender entire, fruit 3-celled, about 6-seeded, seeds black.

KHASIA HILLS: *G. Mann!*

A shrub, with terete branches. *Leaves* ovate-lanceolate, tapering from the middle to the acuminate apex and the cuneate base; 4.5 in. long, 2 in. wide, membranous, pale-green, glabrous, margins serrate; petiole slender 4 in. long. *Flowers* in short axillary or terminal racemose cymes. *Fruit* green, valves 3, very thin, style persistent, slender.

3. *CELASTRUS VENULOSA* Wall. Fruit 3-celled.

Add to localities of F.B.I. :—

SIKKIM: outer hills, above 2,000 ft., *Dungboo!* DAPHLA HILLS: Harmati, and elsewhere in the outer hills, *Lister!*

This species has, as its nearest ally, one from the Malay Archipelago, *C. racemulosa* Hassk. The two are related to each other much as the forms united under *C. paniculata* are.

3b. *CELASTRUS LISTERI* Prain; calyx segments half orbicular; style short; fruit 3-celled, 3-seeded.

DAPHLA HILLS: Tenir Lampa, 3,000 ft., *Lister!*

A small tree, with smooth dark-brown round branches. *Leaves* large, ovate or



obovate, dark-brown when dry, glabrous, apex rounded with an abrupt acumen, base wide-cuneate, margin entire; 8 in. long, 3.5 in. across, subcoriaceous. *Flowers* in short axillary or terminal cymes. *Fruit* large .5 in. across, 3-celled, 3-seeded; *Seeds* brown, .3 in. long, somewhat curved.

Nearly related to *C. monosperma*, but with larger leaves, a different habit and a 3-celled, 3-seeded fruit.

## 8. GYMNOSPORA W. & A.

### 2. GYMNOSPORA NEGLECTA Wall.

This species should be deleted. It is based originally on *Celastrus neglectus* Wall. Cat. 4341, which is *Celastrus stylosa*.

Lawson in the *Flora of British India* has associated *Celastrus? at-teanata* Wall. Cat. 4319 with the preceding number. The material at Calcutta is not very good, but so far as it goes, it does not admit of this number being distinguished from *Celastrus oxyphylla* Wall. Cat. 4312 which is treated by Lawson as the basis of *Gymnosporia acuminata* Hook f. Moreover Lawson brings under *G. neglecta* the plant issued by Wallich as *Baebotrys acuminata* Wall. Cat. 2321. This last, which appears to be the true basis of *G. acuminata* Hook. f., is certainly identical with Wall. Cat. 4312.

7b. GYMNOSPORA SIKKIMENSIS Prain; leaves 5.7 in. by 2.25-3 in., ovate obtuse, very obscurely serrate, thinly coriaceous, glabrous.

SIKKIM: Tista Valley, Gamble 1748! Ambikh, Prain's Collector!

A small tree; branches unarmed, stoutish, dark, glabrous. *Flowers* small, in numerous clustered cymes from old leaf-scars; peduncles 1.75 in. long, cymes 2 in. across. *Sepals* 5, short, obtuse, concave, puberulous, externally corrugate. *Petals* 5, wide-oblong, obtuse, thrice as long as sepals. *Stamens* 5, filaments slender incurved, attached outside disk anthers short, broad, 2-celled. *Disk* thick fleshy, corrugated. *Styles* short, coherent with vertical grooves; stigmas slightly recurved. *Fruit* turbinate, 3-celled, .5 in. long, .3 in. across.

7c. GYMNOSPORA CURTISII King in Journ. As. Soc. Beng., lxx., 2. 353; leaves 4-6 in. by 2.25-3 in. ovate-elliptic subacute, distantly shallowly crenate, coriaceous, glabrous.

KEDAH: Curtis!

A scandent shrub; young branches stoutish, grey, glabrous. *Flowers* small, in clustered cymes from old leaf-scars; peduncles .5-7 in. long. *Sepals* 5, semiorbicular, the edges with a few short thick cilia. *Petals* 5, oblong, obtuse, much longer than sepals. *Stamens* 5, filaments slender, incurved, attached outside disk; anthers small, suborbicular. *Disk* thick, fleshy, entire. *Style* short clavate. *Fruit* widely ovoid, almost globular, 3-angled, 3-valved. *Seeds* 1, or often 2 in each cell.

## 13. SIPHONODON GRIFF.

### 1. SIPHONODON CELASTRINEUS Griff.

Add to localities of F. B. I. :—

·ANDAMANS: Coco group, *Prain!* EASTERN HIMALAYA: Sikkim; Tista Valley, *Prain!*

L. LEGUMINOSÆ.

108. CRUDIA SCHREB.

CRUDIA MANSONI *Prain*; leaflets thinly coriaceous, glabrous, ovate-oblong or oblong, shortly acuminate, rachis slightly prolonged beyond the terminal leaflet. *Touchiroa Mansonii* Prain Mss.

BURMA: Tenasserim; Tavoy, *Manson's Collector* 172! 306!

A tree with glabrous branchlets. *Leaves* odd-pinnate, rachis 4-5 in. long, petiole articulate, the interpetiolar stipules united at the base; leaflets 5, petiolules .25 in. long, glabrous as is the rachis which is prolonged as an acumen beyond the last leaflet; alternate, ovate-oblong or oblong, base cuneate rarely rounded, apex rounded, with an abrupt sharp tip .25 in. long, 6-8 in. long, 2.25-2.5 in. wide, dark-green above, paler beneath, quite glabrous on both surfaces, lateral nerves about 10 pairs, spreading, and looping within the margin, not very prominent but distinctly visible as is the secondary venation on both surfaces. *Flowers* in long narrow racemes from old leaf-axils, beset at the base with ovate-lanceolate coriaceous bud-scales, rachis 8-12 in. long (including flowerless peduncle 2 in. long) finely puberulous throughout; pedicels close-set, slender, puberulous, .25 in. long. *Calyx*-tube short, lobes 4 oblong imbricate reflexed in flower, sparingly puberulous externally glabrous within. *Petals* 0. *Stamens* not seen. *Ovary* shortly stipitate, densely tawny-velvety, 3-4-ovuled, stipe glabrous below, pubescent above, as long as calyx-tube; style slender glabrous except at base. *Pod* oblong, obliquely rounded at both ends, finely rusty-velvety, 2.5 in. long, 1.5 in. wide.

A very distinct species with leaflets and long racemes of close-set flowers not unlike those of *Crudia bantamensis* Hassk., and quite unlike those of any other hitherto described species from South Eastern Asia. The present species, however, differs markedly from *C. bantamensis* in the more numerous leaflets and the longer pedicels.

Mr. Manson's collectors have associated with this tree two Burmese names, viz., *Tsintonui* and *Thit kouk wüt*.

The present opportunity is taken of providing a description for hitherto uncharacterised Bornean species.

CRUDIA HAVILANDI *Prain*; leaflets thinly coriaceous, almost glabrous, very long caudate-acuminate, rachis slightly prolonged beyond the terminal leaflet. *Touchiroa Havilandi* Prain MSS.

BORNEO: Sarawak, near Kuching, *Haviland* 3070! 3703!

A shrub with slender quite glabrous branchlets. *Leaves* odd-pinnate, rachis 1.5-2.5 in. long, petiole articulate, the interpetiolar stipules united at the base by their inner margins, thereafter free, lanceolate, sparsely puberulous on their petiolar aspect; leaflets 4-6, very rarely 3, petiolules .15 in. long, glabrous as is the rachis, which is prolonged beyond the last leaflet as a short blunt process; alternate, narrowly ovate or obovate-oblong, base rounded, apex prolonged into a .75 in. long

narrow-caudate tip, 2-4 in. long, '75-1'6 in. wide, dark-green, glabrous dull above, glaucous and very finely and minutely puberulous beneath, lateral nerves 7-8 pairs slightly ascending, looped '25 in. within the margin, rather prominent as is the secondary venation beneath, obscure above. *Flowers* in narrow racemes at bases of new leafy shoots, with finely puberulous rachis 2-3 in. long; pedicels slender, under '25 in. long, finely puberulous with 1 or 2 minute puberulous bracteoles, one-third below calyx; buds oblong, '2 in. long. *Calyx*-tube short, lobes 4, ovate, imbricate, reflexed in flower, finely puberulous externally, glabrous within. *Petals* 0. *Stamens* 10, filaments glabrous, free, slender, as long as style; anthers oblong, versatile. *Ovary* shortly stipitate, densely rusty-velvety, 2-ovuled, stipe glabrous, as long as calyx-tube; style long, slender, glabrous, '25 in. long, rather longer than ovary and stipe. *Fruit* not seen.

A species very closely related to *Crudia caudata* Prain, (*Journ. As. Soc. Beng.*, lxi. 2. 220) but easily distinguished by the absence of the rusty pubescence characteristic of that plant, and by the broader leaflets.

## 112. HUMBOLDTIA VAHL.

*HUMBOLDTIA BOURDILLONI* Prain; branches solid, nodes not constricted, leaves distinctly petioled, rachis winged, leaflets normally 6, but lowest pair may be absent though the joint in the main rachis corresponding to their position is present, petiolules 0; petals 5.

TRAVANCORE: Peermerd Ghât, 3,000 ft., and Peermerd Road, 2,800 ft., *Bourdillon* 906! 1080!

A handsome tree, 50 feet high. *Stipules* not seen. *Leaf-rachis* 2'5-3 in. long, leaflets ovate-lanceolate or lanceolate, thinly coriaceous, 2-4 in. long, '6-1'5 in. wide, base unequal, rounded below, cuneate anteriorly, apex gradually tapering from near the middle, tip rounded or acute. *Corymbs* from tubercles on the stem, clustered; 2 in. across; 1'75 in. long; lower pedicels slender, their peduncles 1-2 in. long, puberulous; bracteoles and sepals finely closely grey-silky, bracteoles '2 in. sepals '45 in. long. *Petals* ovate, obtuse, rather longer and wider than the sepals. *Pod* bright crimson, finely silky, 4 in. long, 1 in. wide.

This very fine species is quite unlike any other *Humboldtia* except *H. decurrens* Bedd., by reason of its winged petiole and rachis. It differs from *H. decurrens* by its much smaller leaves with fewer leaflets; its smaller flowers with bracteoles less than half the size, and its much longer, slender pedicels.

## II. ROSACEÆ.

### 9. GEUM LINN.

3. *GEUM* (*Sieversia*) *SIKKIMENSE* Prain; hirsute, leaves lyrate, pinnatisect with a large orbicular or reniform terminal lobe and numerous small terminate lateral lobes, irregularly crenate serrate; flowers erect, achenes hirsute. (PLATE 7).

EASTERN HIMALAYA: Sikkim; Jongri, Onglathang and Huhalanghi, *King's Collector!* *Prain's Collector!*



*Rootstock* stout. *Leaves* 3-5 in. long, terminal lobe 1.75-3 in. wide, lateral lobes 6-12-jugate, close-set or distant .15-.25 in. long. *Flowering* stems with 2-3, rarely 4 leaves, reduced to the terminal lobe or with only 1-2 pairs of lateral lobes and solitary, rarely 2, flowers. *Flowers* .75 in. across. *Calyx*-lobes triangular or ovate-acute, enlarging in fruit, finely pubescent and at the same time rather sparingly hispid, not spreading. *Petals* rounded with cuneate base, yellow, distinctly veined, hirsute at least at the base within, sometimes sparsely pubescent on both surfaces; not much exceeding the calyx-lobes in flowers, marcescent but shorter than the calyx-lobes in fruit. *Stamens* 40-50, filaments hirsute. *Carpels* hispidly hairy, sessile at the base of the calyx, style glabrous or finely pubescent. *Achenes* acute at both ends, hispidly hairy.

Very different from the common Himalayan *Sieversia* (*Geum elatum* Wall.) and more resembling the Northern Asiatic *Geum* (*Sieversia*) *rotundifolium* Langsdorff, but with more numerous lateral lobes to the leaves and very different achenes. The species appears to be both local and rare. It has been collected on three occasions but always in Western Sikkim not far from the Nepalese border.

## 11. POTENTILLA LINN.

### 6. POTENTILLA PURPUREA Royle.

Add to localities of F. B. I. :—

SIKKIM: Thangu *Hooker!* *Younghusband!* CHUMBI: Syampoo, *King's Collector!* DISTRIB. Kiala, *Soulie.*

66. POTENTILLA SIKKIMENSES Prain; leaflets 3, obovate, cuneate, truncate, 3-5-lobed, flowers in small cymes dark-red, 5-merous, achenes with a few hispid hairs, style short, ventral.

EASTERN HIMALAYA: Sikkim; Gnatong, *Dungboo!* Lyang, Gabur on Kinchinjanga, 15,000 ft., *King's Collector!* Jongri, *King's Collector!*

*Rootstock* woody, depressed branched. *Leaves* mostly radical with a few scattered cauline, clothed with soft silky hairs; petiole up to 2.5 in. long, slender; leaflets .25-.75 in. long, cuneate at the base, lobes short, ovate, subacute, nerves obscure; stipules large, membranous. *Flowering stems* .5-5 in. long; cymes leafy and silky. *Flowers* pedicelled. *Calyx* .2 in. long, lobes ovate-lanceolate, acute; bracteoles lanceolate. *Petals* suborbicular, not exceeding calyx. *Stamens* 5. *Carpels* 30. *Achenes* ovoid, obtuse, with a few hispid hairs at apex and round the base, receptacle flat.

Nearest to and much resembling *P. Sibbaldi*, but differing markedly in the dark-red petals and the hispid achenes.

## 16. ROSA LINN.

### 1. ROSA INVOLUCRATA Roxb.

Delete from Synonyms of F.B.I. :—*Rosa Lyellii* Lindl. The Rose known as *Rosa Lyellii* and excellently characterised by Lindley seems quite a distinct species from *R. involucrata*. Its resuscitation calls for

some amendment in the distribution of *R. involucrata* which, as testified by specimens in the Calcutta Herbarium, is as follows:—

*Typica*; leaves pubescent beneath.

UPPER GANGETIC PLAIN: Moradabad, *Holled!* N. BEHAR: *Kurz!* *Clarke!* *Anderson!* N. BENGAL: Naogaon, *Prain!* Rangpur, *Watt!* ASSAM: Nowgong, *Simons!* BURMA: Minbu Dist., at Sinbok, *Gage!* Kyoukmyoung, *King's Collector!*

VAR. *glabra*; leaves glabrous or very slightly pubescent beneath. *R. bracteata* Roxb. Ic. Ined.

UPPER GANGETIC PLAIN: Gorakhpur, *Duthie's Collector!* CHOTA NAGPUR; Udaipur Tributary State, *Prain's Collector!* VIZAGAPATAM: Jaipur State, *V. Ball!* EAST BENGAL: Pabna, *Clarke!* Jatrapur, *Watt!* ASSAM: Sylhet, Jhils, *Hooker & Thomson!* *Mann!* *Robertson!* BRAHMAPUTRA VALLEY: Gauhati, *Jenkins!* *Mann!* *King's Collector!* Golaghat, *Masters!* Sibsagar, *Masters!* MANIPUR: Imphal, *Watt!* BURMA: Myitkyina, *Pottinger!*

To this variety also belongs Wall. Cat. 696 "E montibus Pundooa Sylhet confinibus" which, as Hooker says, is most probably also from Sylhet.

VAR. *parvifolia*; leaflets as in VAR. *glabra*, but less than half the size, (not exceeding '5 in. in length). *R. palustris* Ham. MSS.

N. W. HIMALAYA: Kamaon, *Blinkworth!* Nepal, *Wallich!* BEHAR: Nakeswar, *Buchanan!* CHOTA NAGPUR: *Gamble!* *J. J. Wood!*

The diagnosis between *R. involucrata* and *R. Lyellii* is very simple, and may be given as follows:—

Rambling shrubs, never climbing on banks of slow running rivers					
below high-water mark or in the beds of jheels and back-					
waters; bracts pectinate; flowers sessile	...	...	...	...	<i>involucrata.</i>
Climbing over trees on dry ridges; bracts entire; flowers long-					
peduncled	...	...	...	...	<i>Lyellii</i>

In other respects the two roses, as Sir Joseph Hooker truly says, are exceedingly closely allied. Crepin hazards the suggestion that *R. Lyellii* is a natural hybrid between *R. involucrata* and *R. moschata*, a suggestion rather difficult to admit even if *R. Lyellii* had been, as was long supposed to be the case, confined to Nepal. The distribution of *R. Lyellii*, which is given below shows, however, in the writer's opinion, that Crepin's hypothesis is untenable.

ROSA LYELII *Lindl. Monogr. Ros.* p. 12, tab. 1 (1820). *R. pubescens* Roxb. Fl. Ind. i. 514.

SIWALIKS: "native of the mountains north of Rohilkand" *Roxburgh (Ic.)!* *Royle!* NEPAL: in woods, climbing on trees, *Wallich!* SIKKIM: *Kurz!* CENTRAL INDIA: Sagor, *Vicary!* S. INDIA: Nilgiris, *Schmidt!*

Monro's Mysore plant referred to *R. involucrata* is possibly *R. Lyellii*. It is very unlikely to be Roxburgh's plant.

10. *ROSA GIGANTEA* Collett ex Crepin *Comptes-Rendus Soc. Roy. Bot. Belg.* xxvii. 152; climbing, evergreen, glabrous, subcoriaceous stipules very narrow, adnate for .75–1 in. with lanceolate free points .2–.25 in. long; flowers very large, on short peduncles always solitary; sepals reflexed; fruit large, globose. *Coll. & Hemsl., Journ. Linn. Soc.* xxvii. 55.

MANIPUR: Sirohifurar, 5–6,000 ft., Watt! BURMA: Shan Hills; Collett! Candler! Prazer!

Climbing over rocks and lofty trees. *Leaves* 2-jugate, rarely 3-jugate, the uppermost only 3-foliolate, 3–7 in. long, leaflets large 1.25–3.25 in. long, .75–1.75 in. wide, ovate or elliptic, base rounded, apex acute or mucronate, marginal teeth rather small, petiolulate; petiole glabrous minutely glandular above, margin of stipules minutely glandular. *Flowers* solitary, peduncles .5–.75 in. long. *Calyx*-tube ovoid as long as the peduncle; calyx-lobes 1.5 in. long, margins entire, lanceolate, minutely spatulate at the tips, glabrous externally, finely pubescent within. *Corolla* 4–5 in. across; petals large yellowish-white wide-obovate with a median triangular mucro, very thick. *Styles* hirsute throughout or glabrous at the tips. *Fruit* large, globose, yellow, fleshy, with a few large achenes.

A magnificent species, very like an extremely luxuriant form of *R. indica* Auct., but the writer believes quite distinct.

11. *ROSA COLLETTII* Crepin *Comptes Rendus Soc. Roy. Bot. Belg.* xxviii. 2. 49; climbing, stipules free or nearly so, deciduous, setaceous, pubescent; prickles few, short, slightly recurved; leaflets mostly 3-jugate, ovate-elliptic, rounded or somewhat cuneate at the base, narrowed to an acute or sub-obtuse tip, margin finely serrate, glabrous above, pubescent beneath; petioles and inflorescence softly tomentose; flowers corymbose; ripe fruit globose. *Coll. & Hemsl. Journ. Linn. Soc.* xxviii. 56.

BURMA: Shan Hills; Koni, 4,000 ft., Collett! Tamakan and Nong-taya, 3,000 ft., Collett!

A considerable climber. *Leaves* 2–3 in.; leaflets, terminal 1–1.5 in. long, .45–.7 in. wide, proximal .5–.75 in. long, shortly petiolulate, finely papery. *Corymbs* short, 1.5 in. long, by 1.5 in. wide; bracts small, setaceous, deciduous, pubescent. *Calyx*-tube obovoid, pubescent, lobes ovate-lanceolate .25 in. long. *Corolla* small, .75 in. across, petals ovate faintly reflexed. *Fruit* pisiform, .25–.3 in. in diam., calyx-lobes deciduous. *Styles* connate, short.

Nearest *R. microcarpa* Lindl., from China.

## 20. PYRUS LINN.

11b. *PYRUS (Sorbus) KURZII* Watt *MSS. in Herb. Calcutta*; leaflets 4–5 pairs small, oblong, acute, sharply serrate especially at the apex, very



sparingly grey-puberulous; corymbs long-peduncled, lax-flowered, petals small orbicular.

SIKKIM: Phalut, 11,000 ft., *T. Thomson!* *Kurz!* *Prain's Collector!* Sandakphu, 12,000 ft., *Gamble!*

A small tree; young parts perfectly glabrous. *Leaves* 3-4 in. long; leaflets coriaceous, sparingly grey-puberulous above, glabrous beneath, base unequal, rounded, entire, sides entire below, sharply serrate above as is the apex, which ends in an acute or mucronate tip; '75 in. long, '35-'45, in. wide, venation not visible above, of a fine close-meshed subequal reticulation. *Corymbs* 1'25 in. wide, their peduncles glabrous, 1'5 in. long; pedicels slender. *Flowers* '25 in. across. *Styles* 5, glabrous. *Fruit* '25 in diam.

A species no doubt near *P. foliolosa* but abundantly distinct. It has been collected on five separate occasions, in 1857, 1868, 1880 and 1903, always on the same ridge—that along the Nepalese Frontier of Sikkim. Considering how very frequently this ridge has been explored by botanical collectors we must conclude that the tree in Sikkim is not only local but rare.

15. *PYRUS GRIFFITHII Dcne.*

Add to localities of F.B.I. :—

ASSAM: Naga Hills; Pulinabadza, *Watt!*

16. *PYRUS KHASIANA Dcne.*

Add to localities of F.B.I. :—

ASSAM: Naga Hills; Kohima, *Conry!* Konoma, *Prain's Collectors!* BURMA: Kachin Hills; *Prain's Collectors!*

17. *PYRUS GRANULOSA Bertol.*

Add to localities of F.B.I. :—

MALAYA: Perak, *Scortechini!* *Kunstler!*

DISTRIB. Sumatra; *Forbes!*

LVIII. COMBRETACEÆ.

1. TERMINALIA LINN.

16. *TERMINALIA BURMANICA King MSS. in Herb. Calcutta;* leaves clustered towards ends of branches, base cuneate, petiole eglandular; fruit shortly beaked, flattened so as to show two ridges.

BURMA: Sagain, *Calcutta Garden Collectors!*

A tree: young branches stout, densely rusty-tomentose. *Leaves* crowded near the apices of the branches, alternate, obovate, the apex very broad, sometimes obscurely and minutely cuspidate, tapering from about the middle to the short eglandular petiole; upper surface shining and glabrous everywhere except at the rusty-tomentose base of the midrib, lower surface everywhere covered with short rusty-tomentum; length 4 or 5 in., breadth 2'5 to 3 in., petiole '3 to '4 in., stout, densely rusty-tomentose. *Spikes* axillary, alternate, shorter than the leaves, almost glabrous, solitary. *Flowers* rather less than '15 in. in diam., those in the upper part of the spike male, those in the lower part hermaphrodite. *Calyx* very sparsely

pubescent outside, pubescent inside, the tube narrow, the mouth campanulate and with ovate acute teeth. *Fruit* ellipsoid, much compressed, vertically grooved, the apex flattened and shortly beaked, the base narrowed, the edges keeled, quite glabrous, 1.25 in. long and 1 in. broad, the pericarp crustaceous, very thick.

Of this only two specimens have as yet been collected. In the shape both of its leaves and of its fruit it approaches *T. Cutappa* L., from which, however, it is well distinct. The measurements of fruit above given are of unripe specimens.

## LXXXIII. MONOTROPEÆ.

## 3. CHEILOTHECA HOOK. F.

Anthers long, like linear lips on each side of the connec-	...	...	...	...	1. <i>C. khasiana</i> .
tive	...	...	...	...	
Anthers short, hippocrepiform	...	...	...	...	2. <i>C. malayana</i> .

1. CHEILOTHECA KHASIANA *Hook. f. Flor. Brit. Ind.* iii., 477.

KHASIA MTS.; *Hooker & Thomson; Clarke.*

2. CHEILOTHECA MALAYANA *Scort. in Hook. f. Icon. Plant.* xvi. t. 1564; stems erect, simple or 2—3-forked; stamens puberulous, alternately somewhat shorter and longer, anthers short, hippocrepiform; stigma obscurely lobed.

MALAY PENINSULA: Perak, in heavy jungle about 3,500 feet elev., *Scortechini, Kunstler 2715!*

Stem 6-9 in. high, stoutish; *scales* .25-.75 in long, imbricate, ovate-oblong, obtuse, gradually increasing upwards, lurid purple (*Scortechini*) or waxy white (*Kunstler*). *Flowers* terminal 1 in. long, solitary, "hidden inside the leaves at top, bright-yellow" (*Kunstler*) or with the tips of the petals exerted, white (*Scortechini*). *Sepals* 5, resembling the uppermost scales, linear-oblong, obtuse or sub-acute, glabrous. *Petals* 3, larger than the sepals, rounded cucullate at apex, glabrous externally, internally more or less pilose. *Stamens* 6, filaments pilose; anthers short, innate, cells confluent at apex, dehiscing by marginal pores. *Ovary* narrowly fusiform, stigma obscurely 4-lobed, placentas 6 parietal. *Fruit* a white fleshy berry, .75 in. across, tipped by the persistent remains of the style.

The specimens collected by *Kunstler* differ from those obtained by *Scortechini*, according to the notes of these two collectors, in having white instead of purple scales and yellow instead of white flowers. The petals of *Kunstler's* plant are very sparingly hirsute within, and the anthers are about twice as long as the figure in the *Icones*, t. 1564, shews. In other respects, however, the two are identical, and the doubt is not so much that *Scortechini's* and *Kunstler's* specimens represent the same species, as whether the Malayan *Cheilotheca* really differs specifically from the Khasia one.

## CIV. OROBANCHACEÆ.

## 2. CHRISTISONIA GARDN.

3b. CHRISTISONIA SCORTECHINII *Prain*; stem short, glabrous, scales linear, pedicels short or 0, calyx oblong, lobes acute; upper anthers

1-celled simple, lower thickened, connective produced behind into an oblong appendage with an acute tip.

MALAYAN PENINSULA: Perak, *Scortechini* 2121!

Whole plant 1·5—3 in. high. Stems very stout, covered with linear scales. *Flowers* sessile or shortly peduncled, each with an oblong cucullate basal bract ·75 in. long, all parts loaded with sticky mucilage. *Calyx* spathaceous rupturing into usually 2, occasionally 3-4 lobes in the fully opened flower, the tube 1 in., the lobes ·25 in. long. *Corolla*-tube white, with a yellow line inside in front, 2 in. long, infundibuliform and curved above, the lower part narrowly cylindrical 1 in. long; limb 2-lipped; upper lip outermost in bud, erect, 2-lobed, lower lip 3-lobed, spreading. *Stamens* didynamous, anthers all conniving; filaments glabrous, inserted below middle of corolla-tube, 1-celled, adnate to the enlarged filament, lower pair with a projecting acute posterior process. *Ovary* 1-celled, placentas 2, 2-fid, uniformly covered with ovules; style glabrous downwards; stigma peltate, flat, ·2 in. in diameter.

A species that most nearly approaches *C. Hookeri* from the Khasia Hills, but by coloration and other characters is evidently abundantly distinct. *Scortechini's* specimens are not good but are fortunately supplemented by a manuscript description written in the field. *Scortechini* takes the processes on the lower anther-cells to be empty cells, but they appear to the writer to be due to the production beyond the anther of the thickened connective.

## CXII. LABIATÆ.

### 15. ELSHOLTZIA WILLD.

13. ELSHOLTZIA (*Euelsholtzia*) KACHINENSIS *Prain*; pubescent, leaves short petioled, ovate acute, crenate, spikes broad, pubescent, fruiting calyx ·2 in. long, campanulate, glabrous.

UPPER BURMA: Kachin Hills, Nakharan Road, near water, *Shaik Muqim*! Sima, 6,500 ft. elev.—*Shaik Muqim*!

A prostrate herb, stems pubescent 6-14 in. long, rooting below. *Leaves* ·6-·7 in. long, ·35-·4 in. wide, base cuneate, entire, margin elsewhere crenate, glabrous except the faintly puberulous midrib above, quite glabrous and paler beneath, nerves oblique, about 5 pairs, rather prominent beneath; petiole ·15 in. long, glabrous. *Spikes* ·5-·75 in. long, ·4 in. wide, rather pubescent, bracts subsecund, ovate to orbicular, cuspidate, imbricate, membranous, ·25 in. across; cusps subulate. *Calyx* in flower minute, in fruit slightly vesicular, teeth 5, short, triangular, with 5 nerves running up to the teeth and as many to the sinuses, the latter being close fine reticulations rather than nerves each with on the outside a corresponding raised spongy ridge. *Corolla* pinkish-purple, tube exerted curved, margins of lobes of upper lip ciliate, elsewhere glabrous. *Disk* with a large clavate gland much exceeding the ovary and as long as the ripe fruit. *Fruit* of a solitary nutlet with three abortive nutlets, the developed nutlet almost filling the slightly inflated fruiting calyx.

A very distinct species.



## EXPLANATION OF THE PLATES.

## PLATE 7.

*Geum* (Sieversia) *sikkimense* Prain.

1, A plant  $\times \frac{1}{2}$ ; 2 and 3, radical leaves, *nat. size*; 4, flower, dissected, *nat. size*; 5, fruiting head, *nat. size*; 6, stamens  $\times 4$ ; 7 carpel  $\times 4$ ; 8 and 9, ovules  $\times 4$ ; 10, ripe achene  $\times 4$ ; 11 and 12, seeds  $\times 4$ .

## PLATE 8.

*Potentilla sikkimensis* Prain.

1, A plant, *nat. size*; 2, flower  $\times 8$ ; 3, flower, dissected  $\times 8$ ; 4, stamens  $\times 8$ ; 5, fruiting head, *nat. size*; 6, carpels, *much enlarged*; 7, ripe achene  $\times 4$ ; 8, the same, laid open  $\times 4$ ; 9, seed  $\times 4$ .

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*Additions to the Collection of Oriental Snakes in the Indian Museum.*  
—By NELSON ANNANDALE, B.A., *Deputy Superintendent of the Indian Museum.* (With Plate IX)

In 1891 my predecessor Mr. W. L. Sclater published his *List of the Snakes in the Indian Museum*. Since that date a large number of specimens have accumulated, the more important coming from the North-West Frontier, Assam, Siam and Java. Among them are examples of species of intrinsic or geographical interest or new to our collection. I propose to offer to the Society a series of short papers on these specimens. For the sake of convenience, and in order not to interrupt other work in progress, I will deal with the accumulation in sections of moderate bulk. This will make it possible to put on record new specimens as they reach the Museum, and will enable such records to be published within a reasonable time. The names of species new to the collection since 1890 are distinguished by an asterisk. The identifications, except as regards the Afghan-Baluch species, are chiefly my own, and I have made a careful re-examination of such specimens as other officials of the Museum had determined.

## Part I.

## TYPHLOPIDÆ.

## 1. TYPHLOPS DIARDII Schleg.

One specimen, presented by H. W. Biggie, Esq., from Pitsanuloke, N. Siam.