

SPERMATOPHYTA

ANGIOSPERMAE

DICOTYLEDONEAE—ARCHICHLAMYDEAE

SALICACEAE (by Arika Kimura)

Salix anticecrenata Kimura, sp. nov.

[Plate 8]

Fruticulus nanus ut videtur solo vel rupestribus adpressus, foliis annotinis emortuis persistentibus notatus, ramis procumbentibus radicanibus in siccitate cinereo-brunneis 2.5–4.0 mm crassis, ramulis prostratis glabris siccitate brunneis striatis interdum paulo nitentibus 1.5–4.0 cm longis 0.8–1.2 mm crassis, hornotinis novellis tantum parce adpresse pilosis. Folia condensata elliptica vel oblongo-vel obovato-elliptica rarius oblanceolato-oblonga, apice obtusa vel obtuse acuta, basi acuta ad obtusissima, margine antice vel supra medium distincte quandoque obscure glanduloso-crenato-serrulata ceterum integerrima, supra viridia nitentia *stomatifera* glabra vel ad costam impressam minute pilosa, subtus pallide viridia vel dilute glaucina vulgo secus costam prominentem adpresse sericea margine angustissime leviterque revoluto-marginata, 4.5 × 2.0, 6.0 × 3.0, 8.6 × 4.2, 9.8 × 4.8, 10.0 × 4.8, 11.5 × 4.6 mm etc. magna, 2.0–2.5-plo longiora quam latiora; nervis primariis arcuato-ascendentibus supra tenuiter impressis utroque latere 3–5 a costa sub angulis 30°–50° divergentibus. *Folia annotina* emortua brunnea crasse chartacea vegetationis tempore in ramulis remanentia ut in *Salice rotundifolia* Trautv. etc. Petioli semiteretes supra tenuiter canaliculati sericei, subtus primo laxe sericei dein glabrescentes 2–4 mm longi. Stipulae minimae ovatae apice obtusissimae quasi glandiformes circ. 0.25 mm longae. Amenta ♀ coetanea aut serotina ovato-capituliformia perparva 6–8-flora, sub anthesi 3.5–4.0 mm longa 2.5–3.0 mm crassa, ramulos breves parce pilosos 2.5–5.0 mm longos folia 4–7 gerentes terminantia, rhachidibus pilosis. Fl. ♀: bracteolae flores fere toto tegentes membranaceae concolores 3-nervatae, late oblongae vel elliptico-oblongae apice truncato-rotundatae aut emarginatae aut irregulatim undulatae vel sinuatae, extus convexae intus concavae utrinque glabrae, antice minute parce ciliatae, 2.2–2.6 mm longae, expansione 1.3 mm latae. Glandula una ventralis in sicco fuscescens ovato-rectangularis apice truncata paulum obcompressa circ. 1.0 mm longa 0.4–0.6 mm lata. Ovaria glaberrima anguste ovato-conica sub anthesi 1.3–1.5 mm longa circ. 0.8 mm lata, apice obtusissima basi brevissime stipitata, stipitibus 0.2–0.25 mm longis. Styli brevissimi 0.15–0.2 mm longi. Stigmata carinalia divaricata oblonga bifida 0.25–0.3 mm longa. Ovula in quaque placenta 3. Amenta fructifera circ. 7 mm longa 6 mm crassa; capsulae castaneae paulo nitentes ex ovata basi attenuato-conicae 3.0–3.6 mm longae 1.4–1.7 mm crassae, stipitibus 0.5–0.7 mm longis. Amenta ♂ capituliformia, ut ♀ ramulos breves paucifolios termi-

nantia, circ. 5–7-flora, sub anthesi circ. 5–6 mm longa 3.0–5.0 mm crassa, rhachidibus pilosis. Fl. ♂: bracteolae fere ut in ♀, ad 2.7 mm longae, expansione 1.8–2.0 mm latae. Glandulae 2 ventralis et dorsalis ima basi leviter raro vix connatae in sicco fuscescentes (in vivo fusco-rubrae?); ventralis rectangularis truncata paulum obcompressa circ. 1.0 mm longa 0.6–0.7 mm lata; dorsalis ventrali conformis 0.9 mm longa 0.6 mm lata. Stamina 2, filamentis liberis glaberrimis aequilongis 2.0–2.5 mm vel ultra longis 0.25–0.3 mm crassis, bracteolam subaequantibus vel paulo superantibus. Antherae late orbiculares 0.8 mm longae 0.9 mm latae, in vivo obscure rubrae (ex collectoribus) siccitate fuscescentes.

NEPAL. Topke Gola, 3800 m (H. Kanai, H. Ohashi, K. Iwatsuki, H. Ohba, Z. Iwatsuki & P. R. Shakya ♀, Jun. 17, 1972, no. 727278. Holotypus in π); Banduke Pokhari (Duo Tulo Pokhari)—Saju Pokhari, 4200–4000 m (H. Kanai, H. Ohashi, K. Iwatsuki, H. Ohba, Z. Iwatsuki & P. R. Shakya ♂, Jun. 15, 1972, no. 720504. Allotypus in π , “Prostrate shrub, 3 cm high. Male stock. Anthers dark red. Pollen yellow”).

Distr. E. Himalaya (E. Nepal).

A *Salice ovatomicrophylla* Hao quodammodo affini foliis plerisque majoribus antice crenato-serrulatis et praesertim annotinis emortuis diuturne in ramulis remanentibus distincta; etiam a *S. crenata* ejusdem auctoris discrepans foliis antice solum crenato-serrulatis, annotinis emortuis remanentibus, bracteolis filamentis tantum paulo brevioribus nec “about 1/2 as long as the stamen” (ex Hao) et glandula ventrali non “cylindrical” (ex Hao). Est certe e sect. Lindleyanarum¹⁾.

mstr²⁾. **monadelpha** Kimura, mstr. nov.

[Plate 2c]

Filamentis alte vel toto ad apicem usque connatis dignoscitur.—Filamenta glabra 2.4–4.0 mm longa e basi fere ad 3/4 totae longitudinis vel prorsus ad apicem usque connata; ceterum ut in typica.

NEPAL. Banduke Pokhari (Duo Tulo Pokhari) – Saju Pokhari, 4200–4000 m (H. Kanai, H. Ohashi, K. Iwatsuki, H. Ohba, Z. Iwatsuki & P. R. Shakya ♂, Jun. 15, 1972, no. 720504 pro parte³⁾. Typus mstr. in π).

Distr. E. Himalaya (E. Nepal).

Salix hylematica Schneider: Kimura in Fl. E. Himal. **2**: 15 (1971).

NEPAL. Oo Kharka–Mul Kharka, 3400–3800 m (Jul. 1, 1970, no. 672177).

Examinavi etiam multa specimina hujus salicis ex Nepalia a Herb. Musei Britannici nobiscum communicata; folia eorum supra non stomatifera.

Salix Lindleyana Wallich ex Andersson in Svensk. Vetensk. Akad. Handl. **1850**: 499 (1851); in Journ. Linn. Soc. **4**: 56 (1860); in DC., Prodr. **16** (2): 296 (1868)—Brandis, Forest Fl. N.-W. & C. Ind. 471 (1874); Ind. Trees 638 (1906)—Hook. f., Fl. Brit. Ind. **5**: 634 (1888)—Schneider in Pl. Wilson. **3**: 145 (1916)—Görz in Journ. Arnold Arb. **13**: 394 (1932)—Hao in Fedde, Rep. Beih. **93**: 51 (1936).

Salix Souliei Seemen in Fedde, Rep. **3**: 23 (1906)—Schneider in Pl. Wilson. **3**: 62 (1916), fide Görz.

1) Ad diagnosin sectionis a C. K. Schneider datam adde: — Antherae interdum purpureae.

2) Monstrositas sive forma monstrosa.

3) Specimen hoc et allotypicum sub eodem numero mihi sunt communicata, quidque tamen ut opinor certe ex individuo haud eodem sed alieno collectum.

var. **microphylla** Andersson in Svensk. Vetensk. Akad. Handl. **1850**: 500 (1851); in DC., Prodr. **16** (2): 296 (1868).

NEPAL. Topke Gola–Jalang Chhyongo, 3600–4300 m (Jun. 20, 1972, ♂ & ♀ ovarii glaberrimis); Jalang Chhyongo–Janga La–Thudam, 3400–4600 m (Jun. 21, 1972, no. 720652 ♂, “Prostrate shrub, 3 cm high. Male stock. Bracts glaucous. Glands 2, black purple. Stamens 2. Filaments free from the base, glabrous” & ♀ ovarii glaberrimis).

f. **hebecarpa** Kimura, f. nov.

A typica ovarii adpresse sericeis recedit.—Amenta ovato-capituliformia perparva circ. 3–5 mm longa 2–3.8 mm crassa, 2–5-flora, ramulos breves 2–6 mm longos folia 4–5 raro 7 gerentes terminantia. Bracteolae luteolae, sub anthesi apicem ovarii attingentes, obovatae apice rotundatae basi subcuneatae 2.3–2.7 mm longae circ. 1.3 mm latae, in expansione late ovaes tum 1.6–2.0 mm latae, extus convexae glabrae vel parte mediana longitudinaliter pilis minutis adpressis conspersae, intus valde concavae glabrae, margine pilis minutis curvis vel crispulis parce ciliatae. Glandula una ventralis lutea crassa ovato-oblonga vel oblonga apice obtusissima vel truncata 1.0–1.3 mm longa 0.4–0.6 mm lata. Ovaria ovato-oblonga sursum attenuata apice obtusissima 1.8–2.5 mm longa 0.8–1.0 mm lata, sub microscopio latere ventrali et dorsali (partibus apicalibus basalibus et secus lineam suturalem exceptis) pilis brevibus adpressis albo-sericea, stipitibus glabris vix 0.2 mm longis; stylis 0.25–0.5 mm longis, profunde vel fere ad basin usque divisis. Stigmata oblonga vel cuneato-oblonga breviter excurva integra vel retusa ad 0.25 mm longa. Ovula in quaque placenta 3.

NEPAL. Topke Gola, 3800 m (H. Kanai, H. Ohashi, K. Iwatsuki, H. Ohba, Z. Iwatsuki & P. R. Shakya ♀, Jun. 8, 1972, no. 720579. Typus in TI. “Apressed shrub, 5 cm high. Ovaries apressed short hairy, whitish”).

Distr. Himalaya (Kumaon, Nepal, Sikkim) and W. China (Yunnan).

Adnotatio: Folia perparva crassiuscula valde condensata lanceolato-oblonga vel oblanceolato-oblonga ad elliptica, apice obtusa basi acuta vel obtusa, margine integerrima anguste revoluta, supra laete viridia nitentia *non stomatifera* glabra vel parce minuteque crispo-pilosa, costa mediana impressa, subtus glauca costa mediana prominente adpresse albo-pilosa vel sericea excepta glabra vel undique laxe sericea, 4.0–7.0 mm longa 2.0–2.7 mm lata, 1.8–3.2-plo longiora quam latiora; petiolis semiteretibus supra glabris tenuiter canaliculatis 1.0–2.0 mm longis, subtus glabris vel parce adpresse pilosis.—Descriptionem feci ad n. 720579.

Salix ovatomicrophylla Hao in Fedde, Rep. Beih. **93**: 53 (1936), anglice cum icon. photo. (Pl. 8, fig. 15); Kimura in Fl. E. Himal. 44 (1966).

NEPAL. Mul Kharka, Chilime Khola, 4000–4100 m (H. Kanai & P. R. Shakya Jul. 3, 1970, no. 672267 ♂, sub anth. “Male stock: Bracts reddish. Stamens 2, twice as long as bract. Glands 2, yellowish, rod-shaped, at the base of stamen”; Jul. 3, 1970, no. 672258 ♀, sub anth. “Female stock: Bracts reddish, as long as ovary. Style 0. Stigma small. Glands 2, yellowish, 1/3 as long as ovary”).

Distr. E. Himalaya (Nepal, Sikkim) and W. China (Yunnan).

Folia supra *stomatifera*.—Vidi specimen n. 10388 ♀ a J. F. Rock a. 1921 in Yunnan lectum (Eastern slopes of Mount Dyinaloko, northern peak of the Likiang Snow Range. On limestone boulders, alpine region, 15000 ft.) in Herb. Arboreti

Arnoldiani conservatum, quod Hao ill. in opere suo supra citato ad hanc speciem refert. Specimen nostrum ♀ cum eo Rockii bene congruit; ♂ autem filamentis staminum inferne parce pilosis (nec “glabrous”), antheris in sicco atropurpureis (nec “yellow”) cum descriptione originali non plene conveniens sed forsitan ut mihi quidem videtur ad hanc speciem referendum.

FAGACEAE (by Hiroo Kanai)

Castanopsis indica (Roxb.) A. DC.: Kanai in Fl. E. Himal. 49 (1966).

NEPAL. Makwampur, 600 m (Apr. 20, 1969); Sundarijar, 1400 m (Aug. 31, 1969); Tarku-Sisa Ghat, 600 m (Jan. 13, 1970); Khosori Khabre-Barabise, 1000 m (Sep. 13, 1970); Saju Khola-Dingla, 1200 m (Jul. 1, 1972).

Castanopsis tribuloides (Smith) A. DC.: Fl. E. Himal. 49 (1966).

NEPAL. Sundarijar, 1600 m (Feb. 13, 1969); Dhara Pani-Makwampur Garhi, 900 m (Apr. 21, 1969); Makwampur Garhi, 1000 m (Apr. 22, 1969); Phulchoki, 1700 m (Aug. 9, 1969); Gokarna, 1300 m (Mar. 6, 1970); Deorali-Chitlang, 1900 m (Sep. 3, 1970); Makwampur Garhi-Dunge Garhi, 700 m (Nov. 16, 1970); Papung, 2000 m (Jun. 29, 1972); Bir Gaon, 1600 m (Jun. 30, 1972); Papung-Bir Gaon, 1900 m (Jun. 30, 1972).

Lithocarpus grandifolia (D. Don) S. N. Biswas: Kanai in Fl. E. Himal. 2: 18 (1971).

NEPAL. Kakani, 2200 m (Dec. 16, 1969).

DARJEELING. Batasi-Mani Bhanjyang, 2000 m (Aug. 9, 1972).

Quercus acutissima Carruth: Fl. E. Himal. 50 (1966).

NEPAL. Nagarkot, 2000 m (Nov. 24, 1970).

Quercus glauca Thunb.: Fl. E. Himal. 50 (1966).

NEPAL. Sundarijar, 1600 m (Feb. 13, 1969); Phulchoki, 1800 m (Apr. 11, 1969); Makwampur Garhi-Dunge Garhi, 1000 m (Apr. 22, 1969); Nagarjun, 1600 m (Apr. 29, 1970).

Quercus lanuginosa D. Don, Prodr. Fl. Nepal. 57 (1825)-Hook. f., Fl. Brit. Ind. 5: 603 (1888).

Q. incana Roxb. sensu Kanai in Fl. E. Himal. 50 (1966).

NEPAL. Sundarijar, 1600 m (Feb. 13, 1969); Phulchoki, 2200 m (Apr. 11, 1969).

ULMACEAE (by Hiroo Kanai)

Holoptelea integrifolia Planch. in Ann. Sci. Nat. ser. 3, 10: 269 (1848)-Hook. f., Fl. Brit. Ind. 5: 481 (1888).

NEPAL. Tamur Bridge-Teku Nala, 500 m (Jun. 3 & Jul. 9, 1972).

Distr. Himalaya, India, Ceylon, Burma, and Indo-China.

URTICACEAE (by Hiroshi Hara)

Boehmeria clidemioides Miquel, Pl. Jungh. 34 (1851)-Hand.-Mzt., Symb. Sin. 7: 152 (1929).

Urtica cinerascens Wallich, Cat. no. 4591 (1831), nom. nud.

U. comosa Hamilt. ex Wallich, Cat. no. 4616E (1831), nom. nud.

B. sidaefolia Wedd. in Ann. Sci. Nat. ser. 4, 1: 203 (1854)-Tuyama in Fl. E. Himal. 57 (1966).

B. diffusa Wedd., Monogr. Urtic. 356 (1856).

Boehmeria platyphylla var. *clidemioides* (Miq.) Wedd., l. c. 366 (1856), quoad basionym.

B. comosa Wedd. in DC., Prodr. **16** (1): 205 (1869).

B. platyphylla var. *cinerascens* Hook. f., Fl. Brit. Ind. **5**: 579 (1888).

B. clidemioides var. *diffusa* (Wedd.) Hand.-Mzt., l. c. 152 (1929).

Distr. E. Himalaya (Nepal to Bhutan), Assam, N. Burma, Indo-China, W. China, and Malaysia.

Boehmeria macrophylla D. Don: Fl. E. Himal. 56 (1966).

BHUTAN. Nyotoka-Samtengang, 1500-2100 m (Apr. 10, 1967, fr.).

Distr. Himalaya (Garhwal to Bhutan), Assam, Burma, Indo-China, and W. China.

Boehmeria platyphylla D. Don: Fl. E. Himal. 56 (1966).

Urtica scabrella Roxb. [Hort. Beng. 67 (1814), nom. nud.-Wallich, Cat. no. 4581 (1831), nom. nud.] Fl. Ind. ed. 2, **3**: 581 (1832).

B. rotundifolia Hamilt. ex D. Don, Prodr. Fl. Nepal. 60 (1825), e typo.

B. scabrella Gaud. [Voy. Freyc. Bot. 500 (1830), nom. nud.] ex Miq., Fl. Ind. Bat. **1** (2): 252 (1859), p.p.

U. macrostachya Wallich, Cat. no. 4582A-C (1831), nom. nud.

Splitgerbera macrostachya Wight, Icon. **6**: 10, t. 1977 (1853).

B. macrostachya Wedd. [in Ann. Sci. Nat. ser. 4, **1**: 199 (1854), nom. nud.] ex Blume, Mus. Bot. Lugd.-Bat. **2**: 224 (1857).

B. platyphylla var. *macrostachya* (Wight) Wedd., Monogr. Urtic. 367 (1856).

B. platyphylla var. *scabrella* Wedd., l. c. 365 (1856)-Fl. Brit. Ind. **5**: 578 (1888).

B. cuspidata Blume, Mus. Bot. Lugd.-Bat. **2**: 216 (1857).

B. platyphylla var. *rotundifolia* (Hamilt. ex D. Don) Wedd. in DC., Prodr. **16** (1): 212 (1869), p.p.-Fl. Brit. Ind. **5**: 579 (1888), p.p.

var. **canescens** (Wedd. ex Bl.) Wedd. in DC., Prodr. **16**(1): 213 (1869), excl. *B. ternifolia*-Fl. Brit. Ind. **5**: 579 (1888), p.p.

Urtica macrostachya var. *canescens* Wallich, Cat. no. 4582D (1831), nom. nud.

Boehmeria canescens Wedd. [in Ann. Sci. Nat. ser. 4, **1**: 200 (1854), nom. nud.] ex Blume, Mus. Bot. Lugd.-Bat. **2**: 224 (1857).

B. platyphylla var. *cuspidata* Wedd. subvar. *canescens* Wedd., Monogr. Urtic. 365 (1856), excl. *B. ternifolia*.

NEPAL. Godawari, Kathmandu, 1500 m (Sep. 18, 1963, fl.); Iladanda-Selap, 1800-2600 m (Nov. 9, 1963, fr.); Ghatte-Khebang, 2400-1700 m (Nov. 19, 1963, fr.).

Distr. E. Himalaya and ?W. China.

Boehmeria polystachya Wedd. [in Ann. Sci. Nat. ser. 4, **1**: 200 (1854), nom. nud.] Monogr. Urtic. 370 (1856): Fl. E. Himal. 56 (1966).

NEPAL. Tingoang-Khosori Khabre (Sep. 12, 1970, fr.).

DARJEELING. Phalut-Ratho Chu, 2800 m (Aug. 4, 1972, fl.).

Distr. Himalaya (Kumaon to Bhutan), Assam, and W. China.

Boehmeria rugulosa Wedd. [in Ann. Sci. Nat. ser. 4, **1**: 200 (1854), nom. nud.] Monogr. Urtic. 378 (1856): Fl. E. Himal. 57 (1966).

BHUTAN. Near Luntan Zampa, 1200 m (Nishioka, Nov. 24, 1965).

Distr. Himalaya (Punjab to Bhutan) and ?Burma.

Boehmeria ternifolia D. Don: Fl. E. Himal. 57 (1966), excl. syn.

Urtica caudigera Wallich, Cat. no. 4585 (1831), nom. nud.

B. caudigera Wedd. [in Ann. Sci. Nat. ser. 4, **1**: 199 (1854), nom. nud.] ex Blume, Mus. Bot. Lugd.-Bat. **2**: 219 (1857).

B. platyphylla D. Don var. *cuspidata* Wedd., Monogr. Urtic. 364 (1856), excl. *B. rotundifolia*.

U. blanda Wall. ex Wedd., l.c. 365 (1856), pro syn.

B. platyphylla var. *rotundifolia* Wedd. in DC., Prodr. **16** (1): 212 (1869), p.p., excl. basionym—Fl. Brit. Ind. **5**: 579 (1888), p.p.

B. cuspidata C. B. Clarke in Journ. Linn. Soc. **15**: 124 (1876).

NEPAL. Papung–Bir Gaon, 1900 m (Jun. 30, 1972); Bir Gaon–Dingla, 1600–1000 m (Jul. 1, 1972).

BHUTAN. Tashi Choling–Kyebaka, 2100–1600 m (Apr. 26, 1967); Tinlegang, 1950 m (May 3, 1967); Bhotakha–Rinchu, 1450–1500 m (May 8, 1967, fl.).

Distr. Himalaya (Punjab to Bhutan).

Chamabainia cuspidata Wight: Fl. E. Himal. 57 (1966).

NEPAL. Hile–Chitre, 1900–2400 m (Jun. 5, 1972); Shewaden–Mewa Khola, 2400 m (Jun. 29, 1972, fl.).

DARJEELING. 2250 m (Jun. 23, 1969; Jul. 25, 1972, fl.); Senchal–Ghum, 2400–2300 m (Jul. 6, 1969, fl.).

BHUTAN. Pasikha, 1900 m (Apr. 4, 1967).

Distr. Himalaya (Garhwal to Bhutan), Khasia, India, Ceylon, Indo-China, W. China, Formosa, and ?Java.

Debregeasia longifolia (Burm. f.) Wedd.: Fl. E. Himal. 57 (1966).

BHUTAN. Tashiling–Tongsa Bridge, 2300–1900 m (Apr. 16, 1967).

Distr. Himalaya (Kumaon to NEFA), India, Burma, Indo-China, W. & C. China, and Malaysia.

Debregeasia salicifolia (D. Don) Rendle in Prain, Fl. Trop. Afr. **6** (2): 295 (1917).

Boehmeria salicifolia D. Don, Prodr. Fl. Nepal. 60 (1825), e typo.

Urtica bicolor Wall. [Cat. no. 4613 (1831), nom. nud.] ex Roxb., Fl. Ind. ed. 2, **3**: 589 (1832).

B. hypoleuca Hochst. in A. Rich., Tent. Fl. Abyss. **2**: 264 (1851).

Morocarpus salicifolius (D. Don) Blume, Mus. Bot. Lugd.-Bat. **2**: 157 (1856).

D. hypoleuca (Hochst.) Wedd., Monogr. Urtic. 463, t. 15A, f. 10 & 11 (1857)—Fl. Brit. Ind. **5**: 591 (1888).

NEPAL. Chilime–Para Gaon, 2200 m (Jun. 28, 1970, fr.).

Distr. Arabia, Afghanistan, and Himalaya (Kashmir to Nepal).

Debregeasia Wallichiana Wedd.: Hara, Fl. E. Himal. **2**: 20 (1971).

NEPAL. Dingla–Doban, 900 m (Jul. 2, 1972, fr.).

Distr. Himalaya (Nepal, Sikkim), Khasia, Burma, and Indo-China.

Dendrocnode sinuata (Blume) Chew in Gard. Bull. **21**: 206 (1965); l.c. **25**: 36, f. 13 & 14 (1969).

Urtica sinuata Blume, Bijdr. 505 (1826).

U. crenulata Roxb., Fl. Ind. ed. 2, **3**: 591 (1832), non Sev. (1785).

Laportea crenulata Wedd., Monogr. Urtic. 133 (1856)—Fl. Brit. Ind. **5**: 550 (1888).
L. sinuata (Blume) Miquel, Ann. Mus. Bot. Lugd.-Bat. **4**: 301 (1869).

BHUTAN. Phuntsholing, 300–900 m (Apr. 3, 1967, bud).

Distr. E. Himalaya (Nepal to Bhutan), India, Ceylon, Burma, Thailand, Indo-China, China, and Malaysia.

Elatostema dissectum Wedd., Monogr. Urtic. 314 (1856)—Fl. Brit. Ind. **5**: 568 (1888)—Hand.-Mzt., Symb. Sin. **7**: 145 (1929).

Pellionia heteroloba Wedd. sensu Tuyama in Fl. E. Himal. 60 (1966).

DARJEELING. Takdah, 1600–1700 m (Apr. 19, 1960, ♂ fl.).

BHUTAN. Rinchu—Mishichen, 1500–1600 m (May 9, 1967, ♂ fl.).

Distr. E. Himalaya (E. Nepal to Bhutan), Khasia, N. Burma, and W. China.

Elatostema ficoides Wedd., Monogr. Urtic. 306, t. 10 (1856)—Fl. Brit. Ind. **5**: 563 (1888).

Procris ficoidea Wall., Cat. no. 4635 (1831), nom. nud.

DARJEELING. Ubayuri-dani, 2250 m (Jun. 23, 1969, bud).

Distr. Himalaya (Punjab to Sikkim), Khasia, and W. China.

Elatostema Hookerianum Wedd.: Fl. E. Himal. 58 (1966).

BHUTAN. Phuntsholing—Chimakhothi, 300–2350 m (Apr. 4, 1967, ♂ fl.); Neylong—Tashiling, 2400–2300 m (Apr. 15, 1967, ♂ fl.).

Distr. E. Himalaya (Sikkim to NEFA), S. Tibet, Khasia, and Naga Hills.

Elatostema integrifolium (D. Don) Wedd. in DC., Prodr. **16** (1): 179 (1869)—Backer et Bakh.-Brink, Fl. Jav. **2**: 43 (1965).

Procris integrifolia D. Don, Prodr. Fl. Nepal. 61 (1825).

P. sesquifolia Reinw. ex Blume, Bijdr. 511 (1826).

P. punctata Ham. ex Wall., Cat. no. 4627 (1831), nom. nud., p.p.

P. piperifolia Wall., Cat. no. 4628 (1831), nom. nud.

E. sesquifolium (Bl.) Hassk., Cat. Hort. Bogor. 79 (1844)—Wedd., Monogr. Urtic. 308 (1856)—Fl. Brit. Ind. **5**: 564 (1888), p.p.

E. sesquifolium α . *integrifolium* (D. Don) Wedd., l.c. 308 (1856).

E. sesquifolium β . *semiserratum* Wedd., l.c. 308 (1856), p.p.

E. integrifolium var. *semiserrata* Wedd. in DC., Prodr. **16** (1): 180 (1869), p.p.

E. lineolatum Wight var. *integrifolia* Hook. f., Fl. Brit. Ind. **5**: 565 (1888), p.p.

NEPAL. Phulchoki, Kathmandu, 2200–2700 m (Jul. 15, 1972, no. 723918, fl.).

Distr. Himalaya (Kumaon to Bhutan), Khasia, India, Burma, and Malaysia.

Typical *Elatostema integrifolium* from E. Himalaya tends to have leaves with a few coarse teeth approaching to *E. lineolatum* var. *majus*, and seems to be somewhat different from *E. sesquifolium* of Java. The specimen from Kumaon (T. Thomson, Jun. 1845, no. 1191, BM) cited under *E. sesquifolium* var. *semiserratum* Wedd. is the same as typical *E. integrifolium*.

Elatostema lineolatum Wight: Fl. E. Himal. 58 (1966).

BHUTAN. Phuntsholing, 900 m (Apr. 3, 1967, fl.).

Distr. Himalaya (Kumaon to Bhutan), Khasia, India, Ceylon, and Burma.

var. ***majus*** Wedd.,¹⁾ Monogr. Urtic. 312 (1856); in DC., Prodr. **16** (1): 182

1) Lectotype of *E. lineolatum* var. *majus*: Malabar, Concan, trop. (Stocks in BM).

(1869)—Fl. Brit. Ind. **5**: 565 (1888), p.p., ut var. *major* Thwaites.

E. sesquifolium β. *semiserratum* Wedd., l.c. 308 (1856), p.p.

E. integrifolium var. *semiserrata* (Wedd.) Wedd., l.c. 180 (1869), p.p.

E. lineolatum var. *integrifolia* Hook. f., Fl. Brit. Ind. **5**: 565 (1888), p.p.

DARJEELING. Darjeeling—Tista, 2000–1000 m (Jun. 8, 1967, fl.).

BHUTAN. Mishichen—Khosa, 1600–1800 m (May 10, 1967, fl.); Khosa—Tamji, 1800–2200 m (May 11, 1967).

Distr. Himalaya (Nepal to Bhutan), Khasia, India, and Ceylon.

Elatostema monandrum (Hamilt. ex D. Don) Hara, comb. nov.

Procris monandra Hamilt. ex D. Don, Prodr. Fl. Nepal. 61 (1825), e typo.

P. diversifolia Wall., Cat. no. 4631 (1831), nom. nud.

P. elegans Wall., Cat. no. 4632 (1831), nom. nud.

E. surculosum Wight (1853): Fl. E. Himal. 59 (1966), p.p.

E. diversifolium Wedd. in DC., Prodr. **16** (1): 189 (1869).

E. surculosum var. *elegans* Hook. f., Fl. Brit. Ind. **5**: 573 (1888).

NEPAL. Godawari—Phulchoki, 2500–3000 m (Jun. 23 & 26, 1967; Jun. 10, 1969); Chitre—Dor, 2300–2600 m (Jun. 6, 1972); Chauke—Lamo Pokhari, 2600–2900 m (Jun. 8, 1972); Shewaden—Mewa Khola, 2500 m (Jun. 29, 1972, fl.); Chauke—Dor, 2600–2900 m (Jul. 6, 1972, fl.); Gram—Dunche, 1900–2000 m (Aug. 21, 1972, fr.); Khodang Danda—Latsu, 2500–2100 m (Aug. 29, 1972, fl.).

DARJEELING. 2250 m (Jun. 23, 1969, fl.); Phalut—Raman, 3000–2100 m (Aug. 4, 1972, fl.).

SIKKIM. Damthang—Tendong, 2150–2900 m (Jun. 29, 1969, fl.).

BHUTAN. Bhotokha—Rinchu, 1450–1500 m (May 8, 1967); Thimphu—Chimakhothi, 2450–2350 m (Jun. 1, 1967).

Distr. Himalaya (Simla to Bhutan), India, Ceylon, Indo-China, and W. China.

The species is variable in the length and hairiness of stems, the size, shape and hairiness of leaves, and the length of peduncles. Hooker f. has separated several varieties based on these characters, and some of our specimens are referable to f. *ciliatum*, f. *pedunculatum*, f. *pinnatifidum*, and f. *subincisum*¹⁾.

Elatostema nasutum Hook. f., Fl. Brit. Ind. **5**: 571 (1888).

E. nigrescens Miq. sensu Clarke in Journ. Linn. Soc. **15**: 124 (1877).

DARJEELING. Raman—Rimbick, 1900–2400 m (Aug. 5, 1972, fl.).

Distr. Sikkim.

Elatostema obtusum Wedd. [in Ann. Sci. Nat. ser. 4, **1**: 190 (1854), nom. nud.] Monogr. Urtic. 324 (1856): Fl. E. Himal. 58 (1966).

1) **Elatostema monandrum** (Hamilt. ex D. Don) Hara

f. **ciliatum** (Hook. f.) Hara, stat. nov.

E. surculosum var. *ciliata* Hook. f., Fl. Brit. Ind. **5**: 573 (1888).

f. **pedunculatum** (Hook. f.) Hara, stat. nov.

E. surculosum var. *pedunculosa* Hook. f., l.c. 573 (1888).

f. **pinnatifidum** (Hook. f.) Hara, stat. nov.

E. surculosum var. *pinnatifida* Hook. f., l.c. 573 (1888).

f. **subincisum** (Hook. f.) Hara, stat. nov.

E. surculosum var. *subincisa* Hook. f., l.c. 573 (1888).

NEPAL. Tangjet-Khirojet, 1750–2300 m (Jun. 28, 1970, no. 67, fl.); Sano Ting-sang, 3200 m (Sep. 26, 1970, no. 674612, fr.); Lamo Pokhari, 2900 m (Jun. 9, 1972, no. 720276, fl.); Topke Gola-Shewaden, 3000 m (Jun. 28, 1972, fl.).

Distr. Himalaya (Kumaon to Bhutan), Khasia, Burma, and W. China.

Elatostema platyphyllum Wedd.: Fl. E. Himal. 58 (1966).

BHUTAN. Bhotokha-Rinchu, 1500 m (May 8, 1967, fr.); Rinchu-Mishichen, 1500–1600 m (May 9, 1967, fl.).

Distr. Himalaya (Kumaon to Bhutan), Khasia, Naga Hills, W. China, and Formosa.

var. **polycephalum** Hara, var. nov.

Receptacula parva breviter pedunculata nodo aggregata.

NEPAL. Illam-Ranga Pani, 1200–400 m (Dec. 8, 1963, no. 6307156, bud).

BHUTAN. Tinlegang-Gon Chungnang, 1800 m (May 5, 1967, bud); Bhotokha-Rinchu, 1500 m (May 8, 1967, no. 14522, fr. Holotype in π).

Distr. var. Himalaya (Kumaon to Bhutan).

In the typical form, the receptacles are solitary or binate at a single node, while in var. *polycephalum* they are small and clustered at a node, and its leaves are extremely oblique at the base and generally longer-petiolate.

Elatostema pusillum C. B. Clarke ex Hook. f., Fl. Brit. Ind. 5: 568 (1888).

NEPAL. Chauke-Dor, 2600–2900 m (Jul. 6, 1972, no. 726036, fl.).

DARJEELING. Palmajua, 2200 m (Aug. 2, 1972, fr.).

Distr. Himalaya (Simla to Sikkim).

Elatostema rupestre (D. Don) Wedd., Monogr. Urtic. 304 (1856); in DC., Prodr. 16(1): 177 (1869)–Fl. Brit. Ind. 5: 564 (1888).

Procris rupestris Hamilt. ex D. Don, Prodr. Fl. Nepal. 60 (1825).

NEPAL. Pokhara, 900 m (Jun. 8, 1967, fl., a glabrescent form); Chobar, Kathmandu, 1200 m (Jun. 17, 1967, fl.).

Distr. Himalaya (Kumaon, Nepal), Khasia, Burma, W. China, and Java.

Elatostema sessile J. R. et G. Forster: Fl. E. Himal. 59 (1966).

NEPAL. Phulchoki, Kathmandu, 2200–2900 m (Jun. 10, 1969; Jul. 15, 1972, fl.); Hile-Chitre, 1900–2400 m (Jun. 5, 1972); Shewaden-Mewa Khola, 2500 m (Jun. 29, 1972, fl.); Bhuje-Chauke, 2700–2900 m (Jul. 4, 1972, fl.).

Distr. Himalaya, India, Burma, W. & C. China, Formosa, and Malaysia.

var. **polycephalum** Wedd., Monogr. Urtic. 295 (1856), ut β . *polycephala*–Fl. Brit. Ind. 5: 564 (1888)–Hand.-Mzt., Symb. Sin. 7: 145 (1929).

Procris punctata Hamilt. ex D. Don, Prodr. Fl. Nepal. 61 (1825).

P. polycephala Wallich, Cat. no. 4629 (1831), nom. nud.

Elatostema punctatum (Hamilt.) Wedd. in Ann. Sci. Nat. ser. 4, 1: 189 (1854), p.p., quoad basionym Hamilt.

E. polycephalum (Wedd.) Wedd., l.c. 189 (1854), nom. nud.

E. sessile β . *punctatum* (Hamilt. ex D. Don) Wedd. in DC., Prodr. 16 (1): 173 (1869).

NEPAL. Pokhara, 900 m (Jun. 18, 1967, bud).

Distr. Himalaya (Mussourie to Bhutan) and W. & C. China.

This variety has several small clustered short-peduncled receptacles at a node, and also the stems are generally very minutely papillose, and the leaves are auricled

at the base.

Elatostema sikkimense C. B. Clarke in Journ. Linn. Soc. **15**: 125 (1876)—Fl. Brit. Ind. **5**: 571 (1888).

SIKKIM. Gangtok, 1650 m (Jun. 15, 1960, fl.); Singhik—Gangtok, 1500–1900 m (Jul. 1, 1969, fl.).

Distr. Sikkim.

Elatostema Stracheyanum Wedd. in Ann. Sci. Nat. ser. 4, **1**: 188 (1854); Monogr. Urtic. 328, t. 9, f. 18 (1856); in DC., Prodr. **16**(1): 189 (1869)—Fl. Brit. Ind. **5**: 567 (1888)—Schröter et Winkler in Fedde, Rep. Beih. **83** (2): 154 (1936).

NEPAL. Nagarjun, Kathmandu, 1500 m (Apr. 29, 1970).

BHUTAN. Ritang—Rukubi, 2600–2800 m (Apr. 13, 1967, bud).

Distr. Himalaya (Kumaon to Bhutan), Khasia, and W. China.

Elatostema subincisum Wedd., Monogr. Urtic. 314 (1856)—Fl. Brit. Ind. **5**: 566 (1888).

E. surculosum Wight sensu Tuyama in Fl. E. Himal. 59 (1966), p.p.

NEPAL. Bilbatay Bhanjyang—Hati Sar, 2200–2700 m (Oct. 27, 1963, no. 6307159); Hati Sar—Minchin Dhap, 2700–2900 m (Oct. 28, 1963); Minchin Dhap—Mul Pokhari, 2900–2500 m (Oct. 29, 1963); Baroya Khimty—Thakma Kholā, 2500–3200 m (Nov. 12, 1963); Diorali Bhanjyang (Nov. 14, 1963).

DARJEELING. Gairibas—Tonglu, 2800–3000 m (Jun. 7, 1960); Senchel—Tiger Hill, 2400–2500 m (Jun. 23, 1960).

Distr. E. Himalaya (Nepal, Sikkim).

Oreocnide frutescens (Thunb.) Miquel, Ann. Mus. Bot. Lugd.-Bat. **3**: 131 (1867).

Urtica frutescens Thunberg, Fl. Jap. 70 (1784)—Roxb., Fl. Ind. ed. 2, **3**: 589 (1832).

Boehmeria frutescens (Thunb.) Thunb. in Trans. Linn. Soc. **2**: 330 (1794).

B. frondosa D. Don, Prodr. Fl. Nepal. 59 (1825).

B. fruticosa Gaud. in Voy. Bot. Freyc. 500 (1830).

Morocarpus microcephalus Benth. in Hook. Kew Journ. Bot. **6**: 78 (1854).

Villebrunea frutescens (Thunb.) Blume, Mus. Bot. Lugd.-Bat. **2**: 168 (1857)—Wedd., Monogr. Urtic. 455 (1857)—Koidzumi in Act. Phytotax. Geobot. **10**: 222 (1941); Fl. E. Himal. 62 (1966).

V. fruticosa (Gaud.) Nakai in Bot. Mag. Tokyo **41**: 514 (1927).

O. fruticosa (Gaud.) Hand.-Mzt., Symb. Sin. **7**: 154 (1929).

V. microcephala (Benth.) Nakai in Bot. Mag. Tokyo **55**: 559 (1941).

BHUTAN. Samtengang—Ritang, 2100–2600 m (Apr. 11, 1967, ♀ fl.); Tongsa—Tashiling, 2300–2300 m (Apr. 19, 1967, fl.); Ritang—Ratsoo, 2600–2000 m (Apr. 23, 1967); Tinglegang, 1950 m (May 4, 1967, ♀ fl.); Mishichen—Khosa, 1600–1800 m (May 10, 1967, ♀ fl.).

Distr. Himalaya (Punjab to Bhutan), Khasia, Burma, Indo-China, W. & S. China, and S. Japan.

Parietaria micrantha Ledeb., Icon. Pl. Alt. **1**: 7, t. 22 (1829); Fl. Alt. 303 (1833)—Komarov, Fl. USSR **5**: 402 (1936).

P. debilis Forst. f. *α. micrantha* (Ledeb.) Wedd. in DC., Prodr. **16**(1): 235⁴⁵ (1869).

P. debilis Forst. f. sensu Hook. f., Fl. Brit. Ind. **5**: 593 (1888).

P. lusitanica L. subsp. *chersonensis* (Lang) Chrtek var. *micrantha* (Ledeb.) Chrtek in Folia Geobot. Phytotax. Praha **8**: 426 (1973).

NEPAL. Gopte–Thale Patil, 3400 m (Aug. 26, 1972, no. 721972, fr.).

Distr. S. Ural, Caucasus, Asia Minor, C. Asia, Himalaya, Siberia, Mongolia, China, and Japan.

The Himalayan plants agree well with the Japanese ones, and they are certainly identical with *Parietaria micrantha*. As compared with *P. debilis*, *P. micrantha* is much more delicate diffuse plants with thinner soft-hairy leaves. In these respects, it comes nearer to *P. lusitanica* subsp. *chersonensis*, as most recently pointed out by Chrtek (1973). However, the achenes of both *P. lusitanica* and its subsp. *chersonensis* are brown even in full mature, with often brownish firmer perianth-lobes and elongate lanceolate bracts, while those of *P. micrantha* are black in mature, with membranaceous (not accrescent) perianth-lobes and ciliate linear bracts.

Pilea approximata C. B. Clarke: Fl. E. Himal. 61 (1966).

NEPAL. Dor–Tinjure, 2800 m (Jun. 7, 1972, fl.); Lamo Pokhari, 2900 m (Jun. 9, 1972, no. 726038, fl.).

DARJEELING. Senchal, 2400 m (Jul. 6, 1967, fl.).

Distr. E. Himalaya (Nepal to Bhutan).

The species is very near to *Pilea racemosa* (Royle) Tuyama.

Pilea bracteosa Wedd., Monogr. Urtic. 245 (1856); in DC., Prodr. **16**(1): 134 (1869)—Fl. Brit. Ind. **5**: 555 (1888).

P. bracteosa var. *striolata* Hand.-Mzt., Symb. Sin. **7**: 137 (1929).

DARJEELING. (Jun. 21, 1960); Raman–Rimbick, 2000 m (Aug. 5, 1972).

SIKKIM. Gangtok, Lagyap, 2200 m (Hara & Pradhan, Sep. 13, 1964, fr.).

BHUTAN. Mishichen–Khosa, 1600–1800 m (May 10, 1967, fl.); Khosa–Tamji, 1800–2200 m (May 11, 1967, fl.); Chimakhothi–Phuntsholing, 2350–300 m (Jun. 2, 1967, fl.).

Distr. Himalaya (Nepal to Bhutan), Khasia, Burma, and W. China.

var. ***oxyodon*** (Wedd.) Hara, comb. nov.

Pilea oxyodon Wedd., Monogr. Urtic. 221 (1856); in DC., Prodr. **16** (1): 126 (1869).

NEPAL. Tingsang, Kalingchok, 2900 m (Sep. 12, 1970, fl. & fr.).

DARJEELING. Gairibas–Tonglu, 2800–3000 m (Jun. 7, 1960).

Distr. E. Himalaya (Nepal to Bhutan).

As suggested by Hooker f. (1888), *Pilea oxyodon* will be only a smaller glabrescent form with sharply serrate leaves of *P. bracteosa*. Some Eastern Himalayan specimens with sharply serrate ovate leaves have often been referred to *Pilea Wightii* Wedd. of South India, but they belong to either *P. bracteosa* var. *oxyodon* or a small form of *P. Symmeria*. The specimens of Nepal, Wallich 1821, no. 4589B, are also a mixture of these two plants.

Pilea cordifolia Hook. f.: Fl. E. Himal. 61 (1966).

P. obliqua Hook. f., Fl. Brit. Ind. **5**: 558 (1888).

DARJEELING. East Birch Hill Road, 2100–2200 m (Jul. 24, 1969; Jul. 22, 1972, fl.); Batasi–Mani Bhanjyang, 2100–2200 m (Aug. 9, 1972, fl.).

Distr. Sikkim and Khasia.

Pilea glaberrima (Blume) Blume, Mus. Bot. Lugd.-Bat. **2**: 54 (1856).

Urtica glaberrima Blume, Bijdr. 493 (1826).

P. smilacifolia Wedd. [in Ann. Sci. Nat. ser. 4, **1**: 186 (1854), nom. nud.]

Monogr. Urtic. 181 (1856): Fl. E. Himal. 61 (1966).

P. Goglado Blume, Mus. Bot. Lugd.-Bat. **2**: 53 (1856).

NEPAL. Pokhara, 900 m (Jun. 18, 1967, no. 26057, fr.).

Distr. E. Himalaya (Nepal, Sikkim), Khasia, Burma, and Java.

The Himalayan plants seem to somewhat differ from typical *Pilea glaberrima* of Java, as suggested by Merrill (1941).

Pilea Kanaii Hara in Journ. Jap. Bot. **49**: 193 (1974). [Fig. 6]

NEPAL. Sim Chotala-Ramche, 1500 m, on wet rock (Aug. 20, 1972, ♂ fl. Holotype in TI).

Distr. Endemic to Nepal.

This is a striking species in having male inflorescences only at the basal node of stems, and leaves conspicuously setulose-ciliate on the margin, and often sparsely pilose with long stiff hairs on the upper surface.

Pilea Martinii (Lév.) Hand.-Mzt., Symb. Sin. **7**: 131 (1929), cum descr.

Boehmeria Martini Léveillé in Fedde, Rep. **11**: 551 (1913).

NEPAL. Godawari-Phulchoki, 2700–3000 m (Jun. 23, 1967, no. 3020, fl.; Jun. 10, 1969; Jul. 15, 1972).

Distr. Himalaya (Nepal to ?Bhutan), N. Burma, and W. & C. China.

The perianth of male flowers in our specimens is generally pilose in the upper part with short appressed hairs.

Pilea racemosa (Royle) Tuyama in Fl. E. Himal. 61 (1966).

P. subalpina Hand.-Mzt., Symb. Sin. **7**: 142, t. 3, f. 4 (1929).

NEPAL. Phulchoki, Kathmandu, 2500–3000 m (Aug. 9, 1969, fl.); Thale Bisauna-Tingoang, 3100 m (Sep. 11, 1970, fr.); Sano Tingsang, 3200 m (Sep. 26, 1970, fr.); Dunche-Singum Gompa, 2000–3200 m (Aug. 22, 1972, fl.).

DARJEELING. Phalut, 3600 m (Jul. 18, 1969; Aug. 3, 1972, fr.).

BHUTAN. Shodu-Barshong, 3700 m (May 24, 1967, fl.).

Distr. Himalaya (Garhwal to Bhutan), Tibet, and W. China.

This dwarf species occurs in the subalpine region, and is exceedingly variable. The rhizomes are generally tuberous; the leaves are ovate and obtuse-serrate in the type specimen from N. W. India (Herb. Royle, κ), but sometimes roundish and coarsely serrate, occasionally subentire, rarely oblong and entire; the peduncles are sometimes long and filiform; and the achenes are oblong-ovate, 1–1.5 mm long and long exerted from the perianth-lobes.

Pilea Symmeria Wedd.: Fl. E. Himal. 62 (1966).

P. Wrightii Wedd. sensu Hook. f., Fl. Brit. Ind. **5**: 554 (1888), quoad specim.

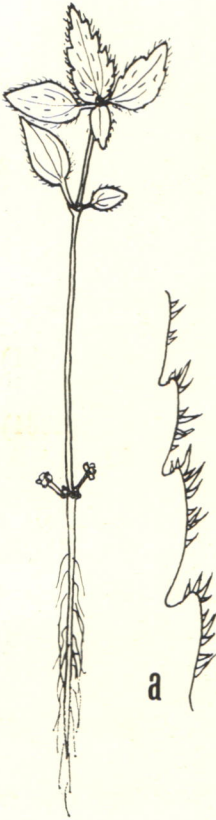


Fig. 6. *Pilea Kanaii* Hara. $\times 1$. a. Leaf-margin.

ex Nepal.

NEPAL. Phulchoki, Kathmandu, 2400–2700 m (Sep. 19, 1970, fr.); Dor–Chauke, 2600–2900 m (Jun. 7, 1972); Topke Gola–Shewaden, 3000–2600 m (Jun. 28, 1972); Shewaden–Mewa Khola, 2500 m (Jun. 29, 1972, fl. & fr.); Nessum–Bhujje, 1300–2700 m (Jul. 3, 1972, fl.); Dor–Chitre, 2600–2300 m (Jul. 7, 1972, fl.); Chitre, 2400 m (Jul. 8, 1972, fl.).

DARJEELING. Tonglu–Sandakphu, 2800–3100 m (Jul. 13 & 21, 1969, fl.); Mekma–Tonglu, 2600–3000 m (Jul. 30, 1972, fl.); Phalut–Raman, 2100 m (Aug. 4, 1972, fl.); Palmajua–Batasi, 2200–2100 m (Aug. 8, 1972, fl.).

BHUTAN. Tzatogang–Dotanang, 3200–2700 m (May 27, 1967).

Distr. Himalaya (Kumaon to Bhutan), Khasia, and W., S. & C. China.

The species is considerably variable. The perianth-lobes of male flowers are sometimes conspicuously rostrate at the apex, and very rarely minutely pilose.

Pilea ternifolia Wedd.: Fl. E. Himal. 62 (1966).

DARJEELING. Palmajua, 2200 m (Aug. 7, 1972, fr.); Palmajua–Batasi, 2200–2100 m (Aug. 8, 1972, ♂ fl.).

var. ***exmucronata*** Hara, var. nov.

A typo differt lobis perianthii floris ♂ apice haud mucronatis.

NEPAL. Tute–Dor, 2400 m (Jun. 6, 1972, no. 720216, ♂ fl. Holotype in TI).

Distr. sp. E. Himalaya (E. Nepal, Sikkim).

Pilea umbrosa Blume, Mus. Bot. Lugd.-Bat. 2: 56 (Feb. 1856).

Urtica umbrosa Wallich, Cat. no. 4589 (1831), nom. nud.

P. umbrosa Wedd. [in Ann. Sci. Nat. ser. 4, 1: 187 (1854), nom. nud.] Monogr. Urtic. 243 (1856): Fl. E. Himal. 62 (1966).

P. producta Blume, Mus. Bot. Lugd.-Bat. 2: 56 (1856), e typo.

NEPAL. Above Dunche–Gosainkund, 2600–3000 m (Jun. 4, 1969); Sheopuri, Kathmandu, 2700 m (Jun. 14 & 15, 1969); Sanguri Bhanjyang, 1130 m (Jun. 2, 1972, no. 720130, fr.); Bir Gaon, 1600 m (Jul. 1, 1972, fr.).

DARJEELING. 2250 m (Jun. 23, 1969, fr.).

SIKKIM. Singhik–Gangtok, 1500–1900 m (Jul. 1, 1969, fl.).

Distr. Himalaya (Kashmir to Sikkim), Khasia, and W. China.

var. ***obesa*** Wedd., Monogr. Urtic. 243 (1856); in DC., Prodr. 16 (1): 134 (1869), cum descr., excl. *P. Wallichii* Wedd., nom. nud.

Urtica obesa Wallich, Cat. no. 4587 (1831), nom. nud.

P. obesa Wedd. in Ann. Sci. Nat. ser. 4, 1: 186 (1854), nom. nud.

P. Wightii Wedd. sensu Hook. f., Fl. Brit. Ind. 5: 554 (1888), quoad syn. *U. obesa*.

P. Kingii C. E. C. Fischer in Kew Bull. 1927: 76 (1927), quoad specim. ex Nepal.

NEPAL. (Wallich 1821, no. 4587. Lectotype in KW); Phulchoki, Kathmandu, 2300–2700 m (Aug. 9, 1969, no. 673360, ♂ fl.); Chitre, 2400 m (Jul. 7, 1972, no. 721165, ♂ fl.).

Distr. Nepal.

Urtica obesa Wall. was considered by Hooker f. (1888) as a form of *Pilea Wightii* Wedd., and later by C.E.C. Fischer (1927) as a synonym of his *Pilea Kingii*, but it is clearly different from both of them from S. India, and is much nearer to *Pilea*

umbrosa in the characters of leaves, cystoliths, stipules and achenes, as first treated by Weddell. It slightly differs from typical *P. umbrosa*, and the leaves are glabrescent only with scattered white stiff hairs above, the peduncles are elongate often up to 15 cm long, and the rachis is minutely pubescent on one side.

I have also examined the type specimen of *Pilea producta* Blume kindly sent on loan by courtesy of the director of Rijksherbarium at Leiden, and it is surely identical with *P. umbrosa*. The Chinese specimens referred to *P. producta* by Handel-Mazzetti (1929) include different plants.

Pouzolzia sanguinea (Blume) Merrill in Journ. Str. Branch Asiat. Soc. Spec. no. **84**: 233 (1921); in Contr. Arnold Arb. **8**: 52 (1934).

Urtica sanguinea Blume, Bijdr. 500 (1826).

U. viminea Wallich, Cat. no. 4616 (1831), nom. nud.

Boehmeria sanguinea (Blume) Hassk., Cat. Hort. Bogor. 79 (1844).

P. ovalis Miquel, Pl. Junghn. 24 (1851)—Wedd., Monogr. Urtic. 410 (1857).

Margarocarpus vimineus Wedd. in Ann. Sci. Nat. ser. 4, **1**: 203 (1854), cum descr.

B. viminea Blume, Mus. Bot. Lugd.-Bat. **2**: 202 (1857).

P. viminea (Wedd.) Wedd. in DC., Prodr. **16**(1): 228 (1869)—Fl. Brit. Ind. **5**: 581 (1888).

NEPAL. Saju Khola, 1400 m (Jul. 1, 1972, fl.); Latsu-Bhorlang, 1700–2400 m (Aug. 30, 1972, fl.).

DARJEELING. 2200 m (Dec. 26, 1963, fr.).

SIKKIM. Gangtok-Rangpo, 1600–350 m (Jun. 18, 1960, fl.).

Distr. Himalaya (Kumaon to Bhutan), Assam, Manipur, Burma, China, Formosa, and Malaysia.

Boehmeria frondosa D. Don (1825) based on a specimen 'Nepalia, Wallich' was cited by Weddell (1857) as a synonym of *Pouzolzia ovalis* var. *fulgens* Wedd. with a question mark, and later by Hooker f. (1888) as a synonym of *P. viminea*. If so, D. Don's name is the earliest epithet for this species. Unfortunately any authentic specimen so named by D. Don is not extant in the British Museum. However, in almost all cases when D. Don's species are based on Wallich's collections from Nepal, some specimens which agree well with D. Don's original description can be found among Wallich's specimens from Nepal in the British Museum or Kew. Among Nepalese urticaceous plants, those which do not contradict to the original description of *Boehmeria frondosa* seem to be *Pouzolzia sanguinea* var. *fulgens*¹⁾ or *Oreocnide frutescens*. A phrase 'foliis . . . subtus niveo-tomentosis' seems to suggest *P. sanguinea* var. *fulgens*, but this variety has not been collected by Wallich and also any later collectors from C. Nepal, and also its leaves are generally broadly cuneate at the base. While, two specimens of *Oreocnide frutescens* are found at Kew; one is 'Nepal (Dr. Wallich)' in Herb. Hook., and the other 'Wallich 9091 Nipal' in Herb.

1) *Pouzolzia sanguinea* (Blume) Merrill.

var. **fulgens** (Wedd.) Hara, comb. nov.

Urtica Chiple Hamilt. in Wall., Cat. no. 4616D (1831), nom. nud.

U. parvifolia Hamilt. in Wall., l.c. 4616F (1831), nom. nud.

Pouzolzia ovalis s. *fulgens* Wedd., Monogr. Urtic. 411 (1857).

Distr. Himalaya (Nepal to Bhutan), Assam, Manipur, and Burma.

Hook. (not Wallich no. 9091 in Herb. Wallich).

The former specimen especially has ovate leaves which are roundish at the base and white-tomentose beneath, and agrees fairly well with the original description of *Boehmeria frondosa*. Also the fact must be taken into consideration that the specimen (BM) identified as *Boehmeria frutescens* by D. Don (1825) is proved to be *Maoutia Puya* (Hook. f.) Wedd., and it is quite probable that D. Don described the true *Boehmeria frutescens* (*Oreocnide*) as a new species i.e. *Boehmeria frondosa*. Under these circumstances, I here designate the specimen of *Oreocnide*, 'Nepal (Wallich)' above mentioned in Kew, as the neotype of *Boehmeria frondosa* D. Don, in order to avoid further confusion in nomenclature of the species of *Pouzolzia*.

var. **nepalensis** (Wedd.) Hara, comb. nov.

Boehmeria nepalensis Wedd., Monogr. Urtic. 383 (1856).

B. rugulosa var. *tenuis* King ex Hook. f., Fl. Brit. Ind. 5: 577 (1888), in nota, nom. non rite public.

NEPAL. (Wallich no. 9091. Isotype of *B. nepalensis* KW, K, BM); Thale, Langtang, 2000 m (Jun. 24, 1970, fl.).

DARJEELING. East Birch Hill Road, 2200 m (Jul. 29, 1969, fl.); Raman-Rimbick, 2000 m (Aug. 5, 1972, fl.).

SIKKIM. Singhik-Gangtok, 1500-1900 m (Jul. 1, 1969, fl.).

Distr. E. Himalaya (Nepal, Sikkim).

In this variety, the male-flower clusters are arranged in long leafless spikes as in *Boehmeria*, but the female-flower clusters are axillary. However, the male flower spikes occasionally bear a few leaves, and there seem to be some transitional forms between this variety and the mother species. The relationship between the two should be carefully studied in the field. It is noteworthy that one specimen at Kew with the label, Nipal, Wallich no. 9091, is *Oreocnide frutescens*.

Procris crenata C. B. Robinson in Philip. Journ. Sci. 5: 507 (1911)-G. Taylor in Excell, Cat. Pl. S. Thomé 312 (1944).

P. Wightiana Wall. [Cat. no. 4638 (1831), nom. nud.] ex Wedd., Monogr. Urtic. 336 (1856), nom. superfl.-Schröter in Fedde, Rep. 45: 179 & 257 (1938).

P. laevigata Blume sensu Hook., Icon. Pl. 13: 74, t. 1295 (1879)-Fl. Brit. Ind. 5: 575 (1888).

BHUTAN. Tinlegang, 1950 m (May 4, 1967, fr.).

Distr. Himalaya (Nepal to Bhutan), India, Ceylon, Manipur, Indo-China, China, Formosa, Bonin, Philippines, and Africa.

Urtica ardens Link, Enum. Hort. Berl. 2: 385 (1822).

U. virulenta Wallich, Cat. no. 4586 (1831), nom. nud.

U. parviflora Roxb., Fl. Ind. ed. 2, 3: 581 (1832)-Wedd., Monogr. Urtic. 85 (1856), p.p.-Fl. Brit. Ind. 5: 548 (1888), p.p.

U. himalayensis Kunth et Bouché in Ann. Sci. Nat. ser. 3, 7: 182 (1847)-Wedd. in Ann. Sci. Nat. ser. 4, 1: 180 (1854).

NEPAL. Dunche-Singum Gompa, 1900-3000 m (Aug. 22, 1972, fl.).

DARJEELING. Rimbick-Raman, 1900-2400 m (May 7, 1960, fl. & fr.).

Distr. Himalaya (Kashmir to Sikkim) and W. China.

Urtica Mairei Léveillé in Fedde, Rep. 12: 183 (1913)-Hand.-Mzt., Symb.

Sin. 7: 116 (1929).

U. parviflora Roxb. sensu Hook. f., Fl. Brit. Ind. 5: 548 (1888), p.p.: Fl. E. Himal. 62 (1966).

DARJEELING. Rimbick–Raman, 1900–2400 m (May 7, 1960); Darjeeling, 2100 m (Jun. 24, 1960).

BHUTAN. Tzatogang–Dotanang, 3200–2700 m (May 27, 1967, fl.).

Distr. Himalaya (Kashmir to Bhutan), S. Tibet, N. Burma, and W. China.

In the typical plant of Maire, the stems and petioles are densely covered with long setose-hairs, but some specimens of Yunnan are glabrescent only with scattered bristles, and agree with Eastern Himalayan ones.

BALANOPHORACEAE (by Hiroshi Hara)

Balanophora involucrata Hook. f.: Hara, Fl. E. Himal. 66 (1966)—Hansen in Dansk Bot. Ark. 28 (1): 152, f. 41 (1972).

DARJEELING. Tonglu–Gairibas, 2850 m (Jul. 31, 1972, fl.).

Distr. Himalaya (Punjab to Sikkim), Tibet, and W. China.

ARISTOLOCHIACEAE (by Hiroshi Hara)

Aristolochia Tagala Chamisso in Linnaea 7: 207, t. 5, f. 3 (1832)—Merrill, Enum. Philip. Fl. Pl. 2: 120 (1923).

A. Roxburghiana Klotzsch.: Hara, Fl. E. Himal. 66 (1966).

NEPAL. Dingla, 1000 m (Jul. 2, 1972, no. 721006, fl. & fr.).

Distr. E. Himalaya (Nepal, Sikkim), India, Ceylon, and Malaysia.

Corolla lobe slender, developed upward, black purple with short hairs, base revolute. Corolla tube and mouth dirty white yellow, tube glabrous with purple network. Corolla base globose, dark purple, inside hairy without reticulation. Stamens 6. Filaments plank-shaped, erect, connate each other. Anthers embedded at the center of filament, extrorse. (Note by Hiroo Kanai).

POLYGONACEAE (by Hiroshi Hara)

Bistorta affinis (D. Don) Greene, Leaf. 1: 21 (1904).

Polygonum affine D. Don, Prodr. Fl. Nepal. 70 (1825)—Hook. f. in Bot. Mag. t. 6472 (1880); Fl. Brit. Ind. 5: 33 (1886)—Steward in Contr. Gray Herb. 88: 28 (1930).

P. Donianum Spreng., Syst. Veg. 4 (2): 154 (1827).

NEPAL. Gadge–Surjakund, 4300 m (Aug. 26, 1969, fl.); Mul Kharka, Chilime, 4000 m (Jul. 6, 1970, fl.); Lama Chungbu–Slesa, 4300 m (Jun. 24, 1972, fl.).

Distr. Himalaya (Kashmir to Nepal) and Tibet.

Bistorta amplexicaulis (D. Don) Greene: Hara, Fl. E. Himal. 69 (1966).

Polygonum speciosum Meisn., Monogr. Polygon. 66 (1826)—Wall., Cat. no. 1716 (1828).

P. amplexicaule var. *speciosa* (Meisn.) Hook. f., Fl. Brit. Ind. 5: 33 (1886).

NEPAL. Lama Chungbu–Thudam, 4200–3400 m (Jun. 24, 1972, fl.); Thudam, 3400 m (Jun. 25, 1972, fl.); Phulchoki, 2200–2700 m (Jul. 15, 1972, fl.); Trisuli Khola–Singum Gompa, 2800 m (Aug. 22, 1972, fl.); Gosainkund–Gopte, 4000–3500 m (Aug. 25, 1972, fl.)*; Gopte–Thale Patil, 3200–3400 m (Aug. 26, 1972, fl.)*.

DARJEELING. Gairibas-Kalapokhari, 2900 m (Jul. 13, 1969 & Jul. 31, 1972, fl.); Phalut, 3800 m (Jul. 18, 1969, fl.); Sandakphu, 3600 m (Aug. 1, 1972, fl.)*.

var. **pendula** Hara, var. nov.

[Plate 2a]

Spica distincte nutans 3–7 cm longa 13–18 mm crassa densiflora, floribus intense purpureo-rubris ca. 5 mm longis. Folia subtus ad nervos minutissime papillosa.

NEPAL. Rock Shelter II-Gotiora, Gosainkund, 3250 m (Aug. 25, 1969, fl.); Godje-Surjakund, 4200 m (Aug. 26, 1969, fl.); Gopte-Thale Patil, 3500–3200 m (Aug. 26, 1972, no. 721979, fl. Holotype in π).

Distr. sp. Afghanistan, Himalaya (Kashmir to Bhutan), and W. & C. China.

This species is variable in the size and colour of flowers and the hairiness of leaves. Some specimens marked with * have shorter dense spikes with larger deep purple-red flowers 5–6 mm long, and correspond with *Polygonum speciosum* Meisn. Some of our specimens have glabrous leaves, some have leaves very minutely papillose on nerves beneath, while some have leaves softly pubescent beneath.

In the Gosainkund district, var. *pendula* with drooping spikes forms a separate colony from the typical one with ascending spikes. On the Singalila Range, a few plants of *B. amplexicaulis* have slightly nodding spikes.

Bistorta macrophylla (D. Don) Soják in Preslia **46**: 152 (1974).

Polygonum macrophyllum D. Don, Prodr. Fl. Nepal. 70 (1825)–Steward, l.c. 36 (1930).

P. sphaerostachyum Meisn., Monogr. Polygon. 53 (1826)–Fl. Brit. Ind. **5**: 32 (1886), p.p.

NEPAL. Thale Bisauna-Tingoang, Kalingchok, 2750–3100 m (Sep. 11, 1970, fl.); Topke Gola, 3600 m (Jun. 18, 1972, fl.); Lama Chungbu-Thudam, 4500–3400 m (Jun. 24, 1972, fl.); Singum Gompa-Gosainkund, 4000 m (Aug. 23, 1972, fl. pink); Gopte-Thale Patil, 3300 m (Aug. 26, 1972, fl. pink).

Distr. Himalaya (Garhwal to Bhutan), Assam, and W. & C. China.

The leaves are sometimes glabrous and only minutely papillose on nerves beneath, but sometimes pubescent beneath.

Bistorta Milletii Léveillé in Fedde, Rep. **12**: 286 (1913).

Polygonum sphaerostachyum Meisn. sensu Hook. f. in Bot. Mag. t. 6847 (1885).

P. Milletii Lév., l.c. 286 (1913), pro syn.–Steward, l.c. 35 (1930).

NEPAL. Tsedang Pokhari, 3000 m (Aug. 23, 1969); Gopte-Thale Patil, 3400 m (Aug. 26, 1972, fl. rose-red).

Distr. Nepal and W. China.

CARYOPHYLLACEAE (by Hideaki Ohba)

Arenaria ciliolata Edgew. in Fl. Brit. Ind. **1**: 240 (1874)–Duthie, List N. W. Ind. Pl. 22 (1881)–Williams in Journ. Linn. Soc. **33**: 373 (1898).

NEPAL. Gosainkund, 4400 m (Aug. 24, 1972, fl.).

Distr. Himalaya (Garhwal, Kumaon, Nepal, and Sikkim).

Arenaria densissima Wall. ex Edgew. et Hook. f.: Mizushima in Fl. E. Himal. **2**: 25 (1971).

NEPAL. Ghopte-Gosa, 3500–4100 m (Jun. 13, 1972, fl.); Kipuphu, 4500 m (Jun. 26,

1972, fl.); Phujeng La, 4640 m (Jun. 27, 1972, fl.); Gosainkund, 4200 m (Aug. 23, 1972, fl.).

Arenaria globiflora Wall. [Cat. no. 639 (1829), nom. nud.] ex Edgew. et Hook. f. in Fl. Brit. Ind. **1**: 238 (1874)—Williams in Journ. Linn. Soc. **33**: 406 (1898)—Mizushima in Kihara, Fauna Fl. Nepal Himal. 122 (1955).

Cherleria grandiflora D. Don, Prodr. Fl. Nepal. 214 (1825).

Dolophragma globiflorum Fenzl in Ann. Wien. Mus. Naturgesch. **1**: 63, t. 71 (1836).

NEPAL. Gosainkund, 4200 m (Aug. 24, 1972, fl.).

Distr. E. Himalaya (Nepal).

Arenaria orbiculata Royle ex Edgew. et Hook. f. in Fl. Brit. Ind. **1**: 240 (1874)—Duthie, List N. W. Ind. Pl. 22 (1881)—Williams in Journ. Linn. Soc. **33**: 356 (1898).

NEPAL. Jarjare—Roll, 2080–3100 m (May 2, 1970, fl.); Topke Gola—Jalang Chhyongo, 3800 m (Jun. 20, 1972, fl.).

BHUTAN. Gon Chungnang—Punakha, 1800–1400 m (May 6, 1967, fl.); Chamsa—Yabu Thang, 3700–3400 m (May 15, 1967, fl.); Shodu—Barshong, 3600 m (May 24, 1967, fl.); Barshong—Nala, 3300 m (May 25, 1967, fl.); Tzatogang—Dotanang, 3200–2700 m (May 27, 1967, fl.).

Distr. Afghanistan, Pakistan, and temperate Himalaya (Kashmir to Bhutan).

Cerastium holosteoides Fries, Nov. Fl. Suec. **4**: 52 (1817).

subsp. **triviale** (Link) Möschl in Bot. Not. **1948**: 375 (1948).

var. **angustifolium** (Franch.) Mizushima in Journ. Jap. Bot. **43**: 54 (1968).

C. holosteoides subsp. *triviale* var. *hallaisanense* (Nakai) Mizushima: Mizushima in Fl. E. Himal. 80 (1966).

NEPAL. Mure, 2000 m (Jun. 5, 1972, fl. & fr.); Hile Chok—Ghopte, 3450 m (Jun. 12, 1972, fl.).

Distr. var. Himalaya (E. Nepal), China, Formosa, Korea, and Japan.

Drymaria diandra Blume: Fl. E. Himal. 80 (1966).

NEPAL. Godawari, 1500 m (Sep. 8, 1970); Bir Gaon—Dingla, 1000–1600 m (Jul. 1, 1972, ster.).

Drymaria villosa Chamisso et Schlechtendal: Fl. E. Himal. 80 (1966).

NEPAL. Sanguri Bhanjyang—Dhara Pani, 1000 m (Jun. 2, 1972, fl.); Bir Gaon—Dingla, 1600–1000 m (Jul. 1, 1972, fl.); Ramche—Gram, 1800–1900 m (Aug. 20, 1972, fl. & fr.).

DARJEELING. Raman—Rimbick, 1900–2400 m (Aug. 5, 1972, fl. & fr.); Batasi—Mani Bhanjyang, 2100–2000 m (Aug. 9, 1972, fl. & fr.); Darjeeling—Thame, 2000–2200 m (Aug. 10 & 12, 1972, fl. & fr.).

Gypsophila cerastioides D. Don: Fl. E. Himal. **2**: 25 (1971).

NEPAL. Mul Kharka, 3800–4100 m (Jul. 4, 1970, fl.); Saju Pokhari—Topke Gola, 4300 m (Jun. 16, 1972, fl.); Topke Gola, 3600 m (Jun. 17 & 18, 1972, fl.); Topke Gola—Jalang Chhyongo, 4000 m (Jun. 20, 1972, fl.); Thudam—Lama Chungbu, 3800 m (Jun. 23, 1972, fl.).

Lepyrodielis debilis (Hook. f.) H. Ohba, comb. nov.

Arenaria debilis Hook. f., Fl. Brit. Ind. **1**: 242 (1874)—Franch. in Bull. Soc. Bot. France **33**: 432 (1886)—Williams in Journ. Linn. Soc. **33**: 431 (1898)—Pax et Hoffmann in Engl. et Prantl, Nat. Pfl.-fam. 2 Aufl., **16c**: 317 (1934), in sect. xi

Odontostemma.

NEPAL. Saju Pokhari, 4000 m (Jun. 16, 1972, fl.).

DARJEELING. Tonglu-Sandakphu, 3100-3970 m (Jul. 13, 1969, fl.); Sandakphu, 3500 m (Jul. 14 & 15, 1969, fl.).

Distr. E. Himalaya (Nepal & Sikkim). Probably this is new to Nepal.

Lepyrodiclis glandulosa (Benth. ex G. Don) H. Ohba, comb. nov.

Adenostemma glandulosum Benth. in Wall., Cat. no. 645 (1829), nom. nud.

Odontostemma glandulosum Benth. ex G. Don, Gen. Syst. Bot. **1**: 449 (1831).

Arenaria Benthami Edgew. in Fl. Brit. Ind. **1**: 242 (1874), non Fenzl. (1840).

Arenaria glandulosa (Benth. ex G. Don) Williams in Journ. Linn. Soc. **33**: 431 (1898)-Pax et Hoffmann, l.c. 317 (1934)-Fl. Phulchoki & Godawari 10 (1969).

NEPAL. Oo Kharka-Mul Kharka, 3700 m (Jul. 1, 1970); Lukthang-Kalingchok, 3400 m (Sep. 28, 1970); Gosainkund-Surjakund, 3700 m (Aug. 25, 1972, fl. & fr.); Gopte-Thale Patil, 3200-3500 m (Aug. 26, 1972, fl.).

DARJEELING. Kala Pokhari-Sandakphu, 3000 m (Jul. 31, 1972, fl.); Sandakphu, 3600 m (Aug. 1, 1972, fl.); Sandakphu-Phalut, 3300 m (Aug. 2, 1972, fl.).

Distr. Himalaya (Kumaon, Nepal, and Sikkim).

The genus *Lepyrodiclis* is clearly distinguishable from the genus *Arenaria* in having petals with incised apex, pistils with 2(-3) styles, etc. The sect. *Odontostemma* (Benth.) Pax of *Arenaria* seems to be included in *Lepyrodiclis*.

L. glandulosa differs from *L. debilis* in having obtriangular petals, longer styles and ellipsoidal ovaries.

Lychnis himalayensis (Rohrb.) Edgew.: Fl. E. Himal. 81 (1966).

NEPAL. Mul Kharka-Chilime Kholo, 3800-4100 m (Jul. 2, 1970, fl.); Thudam, 3400 m (Jun. 24, 1972, fl.); Singum Gompa-Gosainkund, 3200-4200 m (Aug. 23, 1972, fl.).

Lychnis indica Benth. in Royle, Ill. Bot. Himal. 81 (1839)-Edgew. et Hook. f. in Fl. Brit. Ind. **1**: 225 (1874)-Mizushima in Kihara, Fauna Fl. Nepal Himal. 124 (1955).

Melandrium indicum (Benth.) Boiss., Fl. Orient. Suppl. 109 (1888).

NEPAL. Dunche-Singum Gompa, 3000 m (Aug. 22, 1972, fl.); Manges-Khodang Danda, 3100-2500 m (Aug. 28, 1972).

Distr. Pakistan and Himalaya (Kashmir to Nepal).

Lychnis nigrescens Edgew. in Fl. Brit. Ind. **1**: 223 (1874).

NEPAL. Topke Gola-Jalang Chhyongo, 4000 m (Jun. 20, 1972, fl.); Lama Chungbu, 4200 m (Jun. 24, 1972); Singum Gompa-Gosainkund, 3200-4200 m (Aug. 23, 1972, fl.).

Distr. E. Himalaya (Nepal and Sikkim). This is new to Nepal.

Lychnis nutans Benth. in Royle, Ill. Bot. Himal. 80 (1839)-Edgew. et Hook. f. in Fl. Brit. Ind. **1**: 225 (1874).

DARJEELING. Sandakphu-Phalut, 3300-3600 m (Jul. 16, 1969, fl.; Aug. 2, 1972, fl.); Phalut-Singalila, 3600 m (Aug. 3, 1972, fl.).

Distr. Himalaya (Kunawar to Sikkim).

Polycarpon indicum (Retz.) Merrill: Fl. E. Himal. 81 (1966).

NEPAL. Bir Gaon-Dingla, 1000 m (Jul. 1, 1972, fl.); Doban, 800 m (Jul. 2, 1972, fl.).

Pseudostellaria heterantha (Maxim.) Pax ex Pax et Hoffm. in Engl. et Prantl, Nat. Pfl.-fam. 2 Aufl., **16c**: 318 (1934)-Schäftlein in Phytion **7**: 193 (1957)-

Mizushima in Bull. Bot. Surv. Ind. **7**: 68 (1965).

Krascheninnikovia heterantha Maxim. in Bull. Acad. Sci. St.-Petersb. **18**: 382 (1873).

BHUTAN. Gasa-Chamsa, 2800–3700 m (May 14, 1967, fl.); Chabecha-Lingshi, 3800–4100 m (May 22, 1967, fl.); Tzatogang-Dotanang, 2700 m (May 27, 1967, fl.).

Distr. E. Himalaya (Bhutan), China, and Japan. New to Himalaya.

Sagina japonica (Sw.) Ohwi: Fl. E. Himal. 81 (1966); **2**: 26 (1971).

NEPAL. Thale-above Dunche, 2100–2200 m (Jun. 3, 1969, fl.); Thale-Sim Chotala (Jun. 6, 1969, fl.); Mure, 2000 m (Jun. 5, 1972, fl.); Chauke-Lamo Pokhari, 2600–2900 m (Jun. 8, 1972, fl.); Suke-Hile Chok, 2900–3600 m (Jun. 11, 1972, fl.); Dor-Chitre, 2300–2600 m (Jul. 7, 1972, fl. & young fr.); Dunche-Singum Gompa, 2000–3200 m (Aug. 22, 1972, fl. & fr.).

SIKKIM. Singhik-Gangtok, 1500–1900 m (Jul. 1, 1969, fl. & fr.).

DARJEELING. Tonglu-Sandakphu, 2800–3600 m (Jul. 31, 1972, fr.).

Stellaria Alsine Grimm. in Nov. Act. Leopold. **3**: app. 313 (1767).

S. Alsine Grimm. var. *undulata* (Thunb.) Ohwi: Fl. E. Himal. 82 (1966).

NEPAL. Kathmandu (May 27, 1969, fl.).

Distr. Temperate regions of N. Hemisphere.

Stellaria decumbens Edgew.: Fl. E. Himal. 82 (1966); **2**: 26 (1971).

NEPAL. Gotiora-Gadje, 3500 m (Aug. 25, 1969, fl.); Mul Kharka, Chilime Khola, 3800 m (Jul. 4, 1970, fl.); Kyangjing, Langtang Khola, 3700 m (Jul. 15, 1970, fl.); Topke Gola, 3800 m (Jun. 18, 1972, fl.); Thudam, 3400 m (Jun. 24, 1972, fl.); Thudam-Kipudonsu, 3400–4200 m (Jun. 26, 1972, fl.).

DARJEELING. Tonglu-Sandakphu, 3500 m (Jul. 13, 1969, fl.); Phalut, 3900 m (Jul. 17, 1969, fl.); Sandakphu-Phalut, 3300 m (Aug. 2, 1972, fl.).

Stellaria lanata Hook. f.: Fl. E. Himal. 82 (1966); **2**: 26 (1971).

DARJEELING. Sandakphu, 3500 m (Jul. 15, 1969, fl.); Phalut-Mt. Singalila, 3950 m (Jul. 17, 1969, fl.).

Stellaria monosperma Hamilt. ex D. Don, Prodr. Fl. Nepal. 215 (1825).

var. **monosperma**

S. monosperma D. Don var. *monosperma* form. *paniculata* (Edgew.) Mizushima: Fl. E. Himal. 83 (1966).

NEPAL. Langtang Gorge-Langtang, 3000 m (Jul. 12, 1970, fl.); Thale Bisauna-Tingang, Kalingchok, 3100 m (Sep. 11, 1970, fl.); Phulchoki, 2400–2700 m (Chuma, Sep. 19, 1970, fl.); Sheopuri (Chuma, Sep. 22, 1970, fl.).

DARJEELING. Senchal, 2400 m (Sep. 19, 1964); Batasi-Mani Bhanjyang (Aug. 9, 1972).

Distr. var. N. E. Afghanistan, temperate Himalaya (Kashmir to Sikkim), N. W. Assam, Madras, and Indo-China.

Stellaria neotomentosa Mizushima ex H. Ohba, sp. nov. [Fig. 7]

A *S. Uchiyamana* Makino floribus bracteatis et cymam formatis (non ebracteatis nec semper solitariis) et pilis simplicibus (nec stellatis) differt.

Herba perennis, modice radicata, caule longe repenti prope basin valde furcato. Rami decumbentes vel prostrati, teretiusculi vel triangulares, e gemmis axillaribus caulium perhiemantium emergentes, simplices sed infra corymbose furcati, dense vel modice strigoso-pilosi (pilis albis 0.4–0.7 mm longis). Folia simplicia exstipulata opposita paribus aequimagnis brevissime petiolata (petiolo piloso plerumque 2 mm

longo), sursum gradatim minora; lamina vere vel late ovata apice obtuse apiculata vel acuta basi rotundato brevi-attenuata, herbacea infra pallida, margine integra sed dense strigoso-pilosa, utrinque sparsim vel modice pilosa (pilis albis 0.4–0.7 mm longis), 1–1.8 cm longa 0.6–1.2 cm lata 1.5–2-plo longiora quam latiora; costa infra leviter prominenti sed supra plus minusve prominula vel non prominenti; venis sparsim reticulatis et non attingentibus sed utrinque invisibilibus. Flores axillares sed vix terminales, cymam (floribus numero (1–)3–5) efformantes, ante anthesin anguste lanceolati; bractea sessili foliis insigniter diversa, lanceolata apice attenuato acuta scariosa 1-nervi paene glabrata, 3–4 mm longa 0.6–1.0 mm lata; pedicello 2–4 cm longo, modice vel sparsim piloso. Calyx basi obconicus (altitudine circa 1.4 mm) et leviter connatus vel paene distinctus; sepalis 5, basi plus minusve

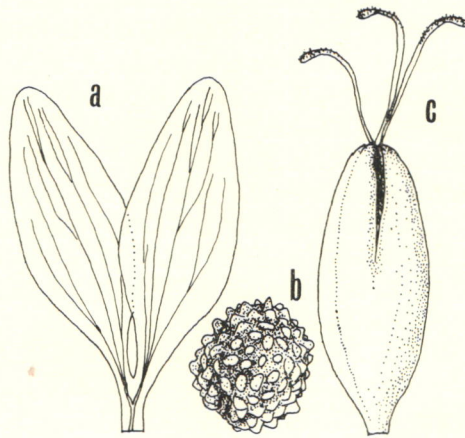


Fig. 7. *Stellaria neotomentosa* Mizushima ex H. Ohba.
a. Petal, $\times 7.5$, b. Seed, $\times 15$, c. Pistil, $\times 7.5$.

imbricatis, lanceolatis vel lanceolato-triangularibus apice acutis vel acute apiculatis basi rotundato late cuneatis, papyraceis margine integris et angustissime scariosis, utrinque glabris, 5–6.7 mm longis 1.7–2 mm latis, e basi 3-nervis; nervis mediis lateralibusque extus plus minusve prominentibus. Petala 5, libera subsessilia, sepalis paulo (circa 1.2-plo) longiora, membranacea, prope basin profundissime in bipartes anguste ovatas vel anguste ellipticas apice rotundatas basi longe attenuatas margine integras 5.3–5.8 mm longas 1.7–2.2 mm latas divisa. Stamina plerumque 10, filamentis subulato, petalis brevioribus, circa 5 mm longo, alternipetalis (numero 5) paulum lobis disci annularis glandulosi insidentia; antheris ut videtur sub anthesin purpureis. Ovarium fere ovoideum circa 2.5 mm longum 1.5 mm latum, subsessile, circa 30–40-ovulatum; stylo 3 filiformi glabro, apice in stigma lineare brevissime glandulosum (glandulis densis et 0.05–0.08 mm longis) simplex continue producto, (cum stigmate) circa 3 mm longo. Capsula longe ovoidea, calyce 1.2–1.4-plo longior, 7–8 mm longa, multiseminalis, in valvulas numero 6 lanceolatas obtusas dehiscens. Semina paucissima compressa, circa 1.2 mm diametro, testa brunnea distincte tuberculata.

NEPAL. Godawari, 1600 m (Hara et al., Jun. 23, 1967); Godawari–Phulchoki, 2100–

3000 m (Hara, Kurosawa & Ohashi, May 29, 1969. Holotypus in π); loc. cit., 2200 m (Ohashi & Ohba, May 28, 1972, no. 726417).

Distr. E. Himalaya (Endemic to Nepal).

This species superficially resembles *S. Uchiyamana* Makino from Japan, but greatly differs from the latter in having unbranched hairs and cymes with conspicuous leafy bracts.

Stellaria ovatifolia (Mizushima) Mizushima: Fl. E. Himal. 83 (1966).

NEPAL. Dunche–Singum Gompa, 2500 m (Aug. 22, 1972, fl.).

Stellaria patens D. Don: Fl. E. Himal. 84 (1966); 2: 26 (1971).

NEPAL. Thale–above Dunche, 2065–2200 m (Jun. 3, 1969, fl.); above Dunche–Gosainkund, 2065–3000 m (Jun. 4, 1969, fl.); Sheopuri, 2700 m (Jun. 15, 1969, fl.); Mure, 2000 m (Jun. 5, 1972, fl.).

DARJEELING. Sandakphu–Phalut, 3300–3970 m (Jul. 16, 1969, fl.).

Stellaria sikkimensis Hook. f.: Fl. E. Himal. 84 (1966); 2: 26 (1971).

NEPAL. Chitre–Hile, 2300 m (Jul. 8, 1972, fl.).

SIKKIM. Singhik–Gangtok, 1500–1800 m (Jul. 1, 1969, fl.).

DARJEELING. Senchal–Ghum, 2300–2400 m (Jul. 6, 1969, fl.); Mani Bhanjyang–Tonglu (Jul. 30, 1972, fl.).

Stellaria vestita Kurz: Fl. E. Himal. 85 (1966).

NEPAL. Godawari (May 28, 1969); Hile–Chitre, 1900–2400 m (Jun. 5, 1972, fl.).

RANUNCULACEAE (by Hiroshi Hara)

Aconitum jucundum Diels in Not. Bot. Gard. Edinb. 5: 266 (1912)–Hand. Mzt. in Act. Hort. Gotob. 13: 78 (1939)–Fletcher et Lauener in Not. Bot. Gard. Edinb. 20: 192 (1950)–Hara in Journ. Jap. Bot. 47: 269 (1972).

NEPAL. Minchin Dhap–Mul Pokhari, 2900–2500 m (Oct. 29, 1963, fr.); Baroya Khimty–Thakma Khola, 2800–3200 m (Nov. 16, 1963, fr.).

Distr. E. Himalaya (Nepal, Bhutan), N. Burma, and W. & C. China.

Adonis nepalensis Simonovicz in Nov. Syst. Pl. Vasc. URSS 7: 146 (1971).

NEPAL. Saju Pokhari–Topke Gola, 4300 m (Jun. 16, 1972, no. 720542, fl. bright yellow).

Distr. C. & E. Nepal.

Anemone fuscopurpurea Hara in Journ. Jap. Bot. 48: 353, f. 1 (1973).

NEPAL. Banduke Pokhari, 4200 m (Jun. 14, 1972, fl.); Banduke Pokhari–Saju Pokhari, 4200–4000 m (Jun. 15, 1972, no. 721252, fl. dark purple. Holotype in π); Saju Pokhari–Topke Gola, 4400–3600 m (Jun. 16, 1972, fl.).

Distr. Endemic to E. Nepal.

This species is characteristic in having glabrescent and deeply lobed leaves, smaller narrow and dark purple sepals, and glabrescent carpels.

Anemone rupestris Wallich [Cat. no. 4696 (1831), nom. nud.] ex Hook. f. et Thoms., Fl. Ind. 1: 21 (1855), p.p.; in Fl. Brit. Ind. 1: 9 (1872), p.p.–Brühl in Ann. Bot. Gard. Calc. 5 (2): 79 (1896)–Hara in Journ. Jap. Bot. 48: 354 (1973).

A. rupestris var. *pusilla* Brühl et var. *Wallichii* Brühl, l.c. 80 & 81 (1896).

A. rupestris subsp. *gelida* var. *Wallichii* (Brühl) Lauener in Not. Bot. Gard. Edinb. 23: 200 (1960).

A. bhutanica Tamura in Act. Phytotax. Geobot. 19: 75 (1962).

NEPAL. Hile Chok-Ghopte, 3500 m (Jun. 12, 1972, no. 723628, fl.); Ghopte-Gosa, 3500-4100 m (Jun. 13, 1972, fl.); Gosainkund, 4200 m (Aug. 25, 1972, fl.).

Distr. E. Himalaya (Nepal to Bhutan) and S. Tibet.

The typification of the name *Anemone rupestris* was discussed in detail by Hara (1973).

Anemone rupicola Cambess. in Jacquemont, Voy. **4**: 5, t. 2 (1838)—Fl. Brit. Ind. **1**: 8 (1872)—Bot. Mag. t. 9476 (1937).

NEPAL. Saju Pokhari-Topke Gola, 4300 m (Jun. 16, 1972, fl. white); Phujeng La-Topke Gola, 3800 m (Jun. 27, 1972, fl.).

Distr. Afghanistan, Himalaya (Kashmir to Bhutan), S. Tibet, and W. China.

Caltha palustris L. var. **himalensis** (D. Don) Mukerjee: Hara, Fl. E. Himal. 88 (1966).

NEPAL. Gosainkund, 4000 m (Aug. 24, 1972, no. 723891, fr.); Khodang Danda, 2500 m (Aug. 28, 1972, fr.).

Distr. sp. Europe, Himalaya, Siberia, China, Japan, and N. America.

Clematis alternata Kitamura et Tamura in Act. Phytotax. Geobot. **15**: 129 (1954); in Kihara, Fauna Fl. Nepal Himal. 126, f. 19 (1955). [Plate 2b]

Archiclematis alternata (Kitam. et Tamura) Tamura in Sci. Rep. Osaka Univ. **16**: 31 (1967); in Act. Phytotax. Geobot. **24**: 151, f. 1 & 2 (1970).

NEPAL. Khirojet-Yatumbal, 2600 m (Jun. 29, 1970, no. 672113, fl. dull rose).

Distr. Nepal.

Clematis tongluensis (Brühl) Tamura in Act. Phytotax. Geobot. **19**: 77 (1962).

C. montana subsp. *sinchugica* O. Kuntze, Monogr. Clematis 141 (1885)—Gupta in Bull. Bot. Gard. Lucknow **80**: t. 38 (1963).

C. montana var. *tongluensis* Brühl in Ann. Bot. Gard. Calc. **5**: 74 (1896).

NEPAL. Shewaden, 2600 m (Jun. 29, 1972, no. 720880, fl.).

DARJEELING. Tonglu, 3100 m (Jul. 11 & 12, 1969, fl.; Jul. 30, 1972); Sandakphu-Tonglu, 2900-3100 m (Jul. 21, 1969, fl.).

Distr. E. Himalaya (E. Nepal to Bhutan) and Khasia.

Clematis tortuosa Wall. [Cat. no. 4675 (1831), nom. nud.] ex C.E.O. Fischer in Kew Bull. **1929**: 4 (1929)—Gupta in Bull. Bot. Gard. Lucknow **54**: t. 17 (1961)—Kapoor in Bull. Bot. Gard. Lucknow **78**: 52 (1962).

C. vitifolia Wall., Cat. no. 4676 (1831), nom. nud.

C. Buchaniana DC. var. *tortuosa* Hook. f. et Thoms. et var. *vitifolia* Hook. f. et Thoms., Fl. Ind. **1**: 11 (1855); in Fl. Brit. Ind. **1**: 6 (1872).

NEPAL. Thale Bisauma-Tingoang, Kalingchok, 2750-3100 m (Sep. 11, 1970, fr.); Phulchoki, Kathmandu, 2500 m (Jul. 15, 1972, bud); Singum Gompa-Gosainkund, 3200-3800 m (Aug. 23, 1972, fl.); Gopte-Thale Patil, 3500-3200 m (Aug. 26, 1972, no. 721987, fl. light yellow).

DARJEELING. Sandakphu-Phalut, 3200-3600 m (Aug. 2, 1972, bud).

Distr. Himalaya (Kashmir to Bhutan), Assam, and N. Burma.

Paroxygraphis sikkimensis W. W. Smith: Fl. E. Himal. 90 (1966); **2**: 30 (1971).

NEPAL. Hile Chok-Ghote, 3600 m (Jun. 12, 1972, no. 720367, fl. ♂ & ♀); Saju Pokhari-Topke Gola, 4300 m (Jun. 16, 1972, fl.).

Distr. E. Himalaya (E. Nepal to Bhutan).

Ranunculus adoxifolius Hand.-Mzt.¹⁾: Fl. E. Himal. 90 (1966); **2**: 30 (1971).

NEPAL. Topke Gola, 3600 m (Jun. 17 & 19, 1972, no. 723623, fl.); Gosainkund-Surjakund, 4300 m (Aug. 25, 1972, fr.).

DARJEELING. Sandakphu, 3600 m (Aug. 1, 1972, fr.).

Distr. E. Himalaya (Nepal to Bhutan), N. Assam, and S. Tibet.

Ranunculus cantoniensis DC.: Fl. E. Himal. **2**: 31 (1971).

R. napaulensis DC., Prodr. **1**: 39 (1824), syn. nov.

NEPAL. Thale-Dunche, 2000 m (Jun. 25, 1970, no. 612006, fl.).

Distr. Himalaya (Punjab to NEFA), N. India, Indo-China, China, Korea, and Japan.

Ranunculus ficariifolius Léveillé et Vaniot in Bull. Soc. Bot. France **51**: 289 (1904)—Hand.-Mzt., Symb. Sin. **7**: 298 (1931); in Act. Hort. Gotob. **13**: 163 (1939)—Lauener et Green in Not. Bot. Gard. Edinb. **23**: 588 (1961).

R. microphyllus Hand.-Mzt.: Fl. E. Himal. 91 (1966); **2**: 31 (1971).

NEPAL. Kokim Pokhari-Hati Surde, 3200 m (Jun. 11, 1972, no. 720312, fl.); Hile Chok-Ghopte, 3500 m (Jun. 12, 1972); Topke Gola, 3700 m (Jun. 18, 1972).

DARJEELING. Tonglu-Sandakphu, 2800–3500 m (Jul. 31, 1972).

Distr. Himalaya (Kashmir to Bhutan) and W. & C. China.

Ranunculus pegaeus Hand.-Mzt. in Act. Hort. Gotob. **13**: 141 (1939).

NEPAL. Topke Gola, 3600 m (Jun. 19, 1972, no. 720614, fl. & young fr.); Kipuphu-Topke Gola, 4800–3600 m (Jun. 27, 1972, fl.).

Distr. Himalaya (Punjab to Sikkim), S. Tibet, and W. China.

Our Nepalese specimens agree well with *R. pegaeus* from Yunnan. The flowers are about 6 mm in diameter, and seem to be smaller than those in the original description of *R. pegaeus*, but the isotype (Hand.-Mzt. no. 4526) of *R. pegaeus* at Edinburgh has smaller ovate-oblong petals about 3 mm long and 1.3 mm wide. The plant also resembles *R. hyperboreus* Rottb. subsp. *Arnellii* Scheutz, but has 5 petals.

Ranunculus pseudo-pygmaeus Hand.-Mzt. in Act. Hort. Gotob. **13**: 161, t. 1, f. 14 (1939), ex isotype.

NEPAL. Chilime Khola, 3800–4100 m (Jul. 3, 1970, no. 670041, fl.); Kokim Pokhari-Hati Surde, 3200 m (Jun. 11, 1972, no. 720313, fl.); Banduke Pokhari-Saju Pokhari, 4100 m (Jun. 15, 1972, fl. & fr.); Gosainkund, 4200 m (Aug. 23, 1972, fr.).

Distr. E. Himalaya (Nepal) and W. China.

The Nepalese plants agree well with *R. pseudo-pygmaeus* from W. China, and the species is very closely allied to *R. adoxifolius*.

Ranunculus tricuspis Maxim., Fl. Tangut. 12 (1889); Enum. Pl. Mongol. 16, t. 4, f. 17–27 (1889), ex isotype.

R. Cymbalariae Pursh var. *alpinus* Hook. f. et Thoms., Fl. Ind. **1**: 32 (1855), p.p.

R. Cymbalariae Pursh sensu Hook. f., Fl. Brit. Ind. **1**: 17 (1872), p.p.

Halerpestes tricuspis (Maxim.) Hand.-Mzt. in Act. Hort. Gotob. **13**: 135 (1940)—

1) SIKKIM. Changu, 11000 ft. (W. W. Smith, Jul. 6, 1911, no. 3177. Isotype in Lloyd Bot. Gard. Darjeeling).

Mukerjee in Bull. Bot. Surv. Ind. **3**: 99 (1962).

Halerpestes salsuginosa Greene var. *incisa* Baranov in Fedde, Rep. **63**: 286, f. 3 (1960).

R. salsuginosus Pallas ex Georgi sensu Hara, Fl. E. Himal. **2**: 32 (1971).

NEPAL. Topke Gola, 3800 m (Jun. 18, 1972, fl.).

Distr. Pamir, Thian-Shan, Himalaya (Kashmir to Bhutan), Tibet, Mongolia, and N. China.

This group has been known to be very variable in the shape and size of leaves and the shape of fruit-heads.

Although variable, *Ranunculus salsuginosus* Pallas ex Georgi generally has roundish ovate or ovate leaves shallowly 3-lobed (Fig. 8), ovoid or ellipsoid heads of fruit, and numerous small achenes about 1-1.5 mm long with very short beak. It is distributed in C. Asia, Afghanistan, Kashmir, Tibet, Mongolia, N. China, N. Korea, and Siberia east to Kamtchatka.

Ranunculus tricuspis Maxim. is distinct in having deeply lobed leaves, globose fruit-heads with fewer achenes, and larger (1.5-2 mm long) achenes with recurved style. However, the shape and size of leaves are variable in the species (Fig. 9). Typical *R. tricuspis* from Kansu, Tibet, and Mongolia has leaves very deeply 3-lobed near to the base with narrow lanceolate lobes (Fig. 9 a, b), and the leaves on stolon are also deeply 3-lobed. A specimen from Kansu (Purdum, κ) has deeply 3-5-lobed leaves, and similar specimens are found also from Bhutan and Nepal. Also the size and shape of leaves are influenced by ecological conditions of the habitat. The plants growing in spring or pool, for example, specimens from Bhutan (Ludlow & Sherriff no. 16645 BM; Kanai et al. no. 21903 TI) and Tibet (Ludlow, Sherriff & Taylor no. 4655 BM), have larger shallowly 3-lobed leaves (Fig. 9 k, l), approaching to those of *R. salsuginosus*. A sterile specimen collected in water, below Kawa in Kali Valley, W. Nepal (Duthie no. 6321, BM) with elongate petioles and shallowly 3-lobed leaves is probably the same form.

Another form from Tibet, Punjab, Ladak and Pamir named as *R. lancifolius* Bertol. has thick narrow leaves which are shallowly 3-lobed or entire (Fig. 9, q-v),

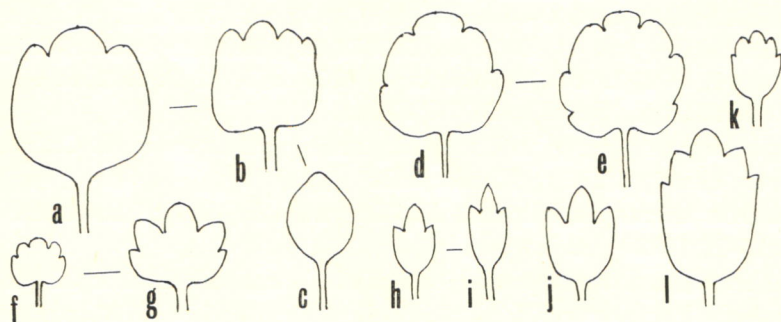


Fig. 8. Variations in leaves of *Ranunculus salsuginosus* Pallas ex Georgi $\times 1.5$. a-c. Kashmir (Clarke 30026B), d,e. Shansi (H. Smith 7361), f, g. Karakorum (O. Polunin 6406), h, i. Irkutsk (Augustinovitz), j. Peiping (Y. Yabe), k. (Kar. et Kiril. 547), l. Mongolia (J. Ohwi).

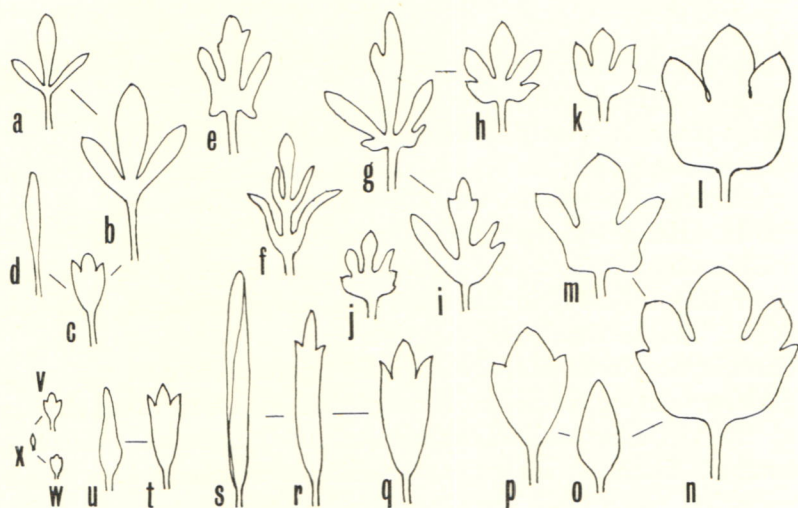


Fig. 9. Variations in leaves of *Ranunculus tricuspis* Maxim. $\times 1.5$. a–d. Kansu (Przewalski, isotype of *R. tricuspis*), e. Kansu (Purdom), f. S. Tibet (Gould 2196), g–i. Bhutan (Ludl. & Sher. 16670), j. Naini Tal (Miss Benham), k, l. S.E. Tibet (Ludl., Sher. & Tayl. 4655), m–p. Bhutan (Ludl. & Sher. 20466), q–s. W. Tibet (T. Thomson, type of *R. palifolius*), t, u. N. Tibet (Deasy 90), v–x. Pamir (Alcock 17674).

but agrees with *R. tricuspis* in the characters of fruit-head and achene. In this form too, the shape and size of leaves are very variable, and occasionally two different forms are mixed in one collection. Even a syntype specimen (the lectotype) of *R. palifolius* from W. Tibet (Mulra Valley, 10000 ft., Thomson, κ) includes 3 plants with deeply lobed leaves like *R. tricuspis* (Fig. 9 e). On the other hand, in an isotype specimen of *R. tricuspis* from Kansu: Regio Tangut (Przewalski, 1880, κ), some outer leaves are shallowly 3-lobed and rarely lanceolate and entire (Fig. 9 c, d) as in *R. lancifolius*. So I wish to treat *R. lancifolius* as a variety of *R. tricuspis*¹⁾.

***Thalictrum alpinum* L.**, Sp. Pl. ed. 1, 545 (1753)—Fl. Brit. Ind. **1**: 12 (1872)—Lecoyer, Monogr. *Thalictrum* 118 (1885)—Hand.-Mzt., Symb. Sin. **7**: 311 (1931); in Act. Hort. Gotob. **13**: 172 (1940)—Boivin in *Rhodora* **46**: 353 (1944)—Hara in Journ. Fac. Sci. Univ. Tokyo **6** (2): 54 (1952)—Hultén, *Amphi-Atlant. Pls.* 238, map 220 (1958)—Mukerjee in Bull. Bot. Surv. Ind. **2**: 99 (1960).

var. ***minutissimum*** Hara, var. nov.

Differt a typo foliis 3–4-ternatis profunde dissectis, segmentis ultimis obovatis minutissimis ca. 1 mm longis glabris, pedunculis filiformibus suberectis, antheris apiculatis, filamentis minutissime scabris, ovariis subsessilibus.

NEPAL. Gosainkund, 4000 m (Kanai, Hara & Ohba, Aug. 24, 1972, fl., no. 723351).

1) *Ranunculus tricuspis* var. ***lancifolius*** (Bertol.) Hara, comb. nov.

R. lancifolius Bertoloni in Mem. Acad. Sci. Bologna, ser. 2, **3** (4): 423, t. 6 (1864).

R. palifolius Dunn in Kew Bull. **1925**: 280 (1925), e typo.

Halerpestes lancifolia (Bertol.) Hand.-Mzt. in Act. Hort. Gotob. **13**: 136 (1940).

Holotype in π); Langtang, 12500–16500 ft. (O. Polunin, Jun. 1949, nos. 189, 220 & 642, fl., BM).

This is an extreme form having very finely dissected leaves with very small obovate ultimate segments only 1 mm long.

Thalictrum alpinum is widely distributed in the arctic-alpine regions of the Northern Hemisphere, and has been known as a variable species (Hara 1952). It is noteworthy that the species seems to show the widest range of variations in the Himalayas. Handel-Mazzetti (1931) noticed that some plants from Himalaya as well as China have long-stalked achenes, and referred them to his var. *microphyllum*. Later Boivin (1944) included all the Sino-Himalayan material in var. *stipitatum* Yabe, but the situation is not so simple.

Some Himalayan plants are almost indistinguishable from typical European *Thalictrum alpinum* having roundish coarsely lobed leaves, recurved shorter fruiting peduncles, sessile or short-stalked achenes, minutely apiculate anthers 1.3–2 mm long, and smooth filaments. However, the Himalayan plants tend to have longer filiform peduncles, longer (2–2.5 mm) anthers long-cuspidate at the apex, and very minutely scabrous filaments.

Thalictrum acaule Jacquem.¹⁾ was named to a form from W. Himalaya with erect straight fruiting peduncles and sessile achenes, and the same form occurs also in Garhwal, Sikkim, Tibet, and W. China (Yunnan, Kansu), and probably some specimens from Nepal belong to this form.

The specimen from N. W. Himalaya (Herb. Royle in κ) of *T. microphyllum* Royle has flowers with short-stalked ovaries and small deeply lobed leaflets about 2 mm long. But Handel-Mazzetti (1931) applied the name, var. *microphyllum* (Royle) Hand.-Mzt. to the Sino-Himalayan form which has long-stalked (1–2.5 mm long) achenes with a stalk often as long as the achene-body. The variety in the sense of Hand.-Mzt. is found in Himalaya (Kashmir, Punjab, Kumaon), W. Tibet and W. China (Yunnan, Szechuan). All the specimens from Nepal and Bhutan are lacking ripe fruits, and it is difficult to confirm which varieties occur in these regions. *Thalictrum marginatum* Royle (1834) and *T. bracteifilum* Bertoloni (1864), both described from W. Himalaya, are also based on flowering material.

Besides the forms above mentined, one variety, var. *acutilobum*, is characteristic in having acutish lobes of leaves which have scattered soft hairs beneath and also small horn-like appendages on nerves on the lower surface²⁾.

1) *Thalictrum alpinum* L. var. **acaule** (Jacquem. ex Cambess.) Hara, comb. nov.
T. acaule Jacquem. ex Cambess. in Jacquem., Voy. Ind. 4: 3, t. 1A (1844).

2) *Thalictrum alpinum* var. **acutilobum** Hara, var. nov.

Differt a typo foliis saepe profunde lobatis infra molliter pilosis et ad venas parce corniculato-setosis, lobis 2–10 mm longis saepe margine anguste recurvatis subacutis, pedicellis filiformibus 7–25 mm longis vulgo ascendentibus, antheris lineari-oblongis 2–3 mm longis distincte apiculatis, filamentibus minutissime scabris, ovarii subsessilibus.

NEPAL. Lete, Kali Gandaki, 11000 ft. (Stainton, Sykes & Williams, Jun. 9, 1954, no. 1044, fl. Holotype in BM); Tukucha, Kali Gandaki, 10500 ft. (S. S. & W., Jun. 13, 1954, no. 1100, BM, π); Lanjung Himal, 15000 ft. (S. S. & W., Jul. 14, 1954, no. 6348, BM); Sang Khola, 14000 ft. (S. S. & W., Jun. 24, 1954, no. 3242, E).

BHUTAN. Shingbe, Me La, 15000 ft. (Ludlow, Sherriff & Hicks, Jun. 29, 1949, no. 20419, BM).

BURMA-TIBET FRONTIER. Adung Valley, 12–13000 ft. (K.-Ward, Jul. 14, 1931, no. 9804, BM); Seinghku Wang, 11–12000 ft. (K.-Ward, Jun. 26, 1927, no. 6995, κ).

Thalictrum Chelidonii DC., Prodr. **1**: 11 (1824)—Fl. Brit. Ind. **1**: 11 (1872)—Lecoyer, Monogr. Thalictrum 110 & 185 (1885)—Mukerjee in Bull. Bot. Surv. Ind. **2**: 99 (1960).

T. cysticarpum Wall. [Cat. no. 3714 (1831), nom. nud.] Pl. As. Rar. **2**: 26, t. 129 (1831).

NEPAL. Mangen, 3100 m (Aug. 27, 1972, fl. pale mauve); Khodang Danda—Latsu, 2500–2100 m (Aug. 29, 1972, fl.).

Distr. Himalaya (Kulu to Bhutan).

Thalictrum Punduanum Wall. [Cat. no. 3712 (1831), nom. nud.] Pl. As. Rar. **2**: 26 (1831)—Fl. Brit. Ind. **1**: 13 (1872)—Lecoyer, l.c. 142 & 232 (1885)—Mukerjee, l.c. 100 (1960).

NEPAL. Ramche—Gram, 1800–1900 m (Aug. 20, 1972, fr.); Trisuli Khola, 1900 m (Aug. 22, 1972, fl.).

Distr. Himalaya (Garhwal to Nepal) and Khasia.

Thalictrum rostellatum Hook. f. et Thoms., Fl. Ind. **1**: 15 (1855); in Fl. Brit. Ind. **1**: 12 (1872)—Lecoyer, l.c. 154 & 235 (1885)—Mukerjee, l.c. 101 (1960).

NEPAL. Para Gaon, 2310 m (Jun. 28, 1970, no. 672105).

DARJEELING. Phalut—Ratho Chu, 2800 m (Aug. 4, 1972, fl. & fr.).

Distr. Himalaya (Simla to Bhutan).

Thalictrum saniculaeforme DC.: Fl. E. Himal. 91 (1966).

NEPAL. Dor—Chitre, 2600–2300 m (Jul. 7, 1972, fl.); Khodang Danda—Latsu, 2500–2100 m (Aug. 29, 1972, no. 723331, fr., epiphytic); Latsu—Bhorlang, 1700–2400 m (Aug. 30, 1972, fl. & fr.); Bhorlang, 2400 m (Aug. 31, 1972, fr.).

Distr. Himalaya (Simla to Sikkim) and W. China.

LAURACEAE (by Yasuiti Momiyama)

Beilschmiedia Gammieana King ex Hook. f., Fl. Brit. Ind. **5**: 124 (1886).

BHUTAN. Tongsa—Tashiling, 2200–2300 m (Apr. 19, 1967, fr.).

Distr. E. Himalaya (Nepal, Sikkim, Bhutan).

Dodecadenia grandiflora Nees: Momiyama in Fl. E. Himal. 100 (1966).

NEPAL. Phulchoki, 2700 m (Oct. 21, 1970); Makwanpur Garhi—Dunge Garhi, 600–1000 m (Nov. 16, 1970); Khodang Danda—Latsu, 2500–2100 m (Aug. 29, 1972, fr.).

Distr. Himalaya (Kumaon, Nepal) and Burma.

Dodecadenia Griffithii Hook. f., Fl. Brit. Ind. **5**: 181 (1886).

NEPAL. Tinjure Phedi, 2700 m (Jun. 7, 1972, “Tree 8 m high. Young fruit ovoid.”); Dor—Chauke, 2600–2900 m (Jun. 7, 1972, fr. juv.); Shewaden—Papung, 2600–2000 m (Jun. 29, 1972, ster., “Tree 5 m high.”).

Distr. E. Himalaya (Nepal, Bhutan).

Dodecadenia paniculata Hook. f., Fl. Brit. Ind. **5**: 181 (1886).

NEPAL. Shyaprubensi—Dunche, 1800–2000 m (Jul. 19, 1970, “Fruits conical, bright red.”).

Distr. E. Himalaya (Nepal, Sikkim) and Manipur.

Lindera Neesiana (Wall.) Kurz: Fl. E. Himal. 100 (1966); **2**: 38 (1971).

NEPAL. Phulchoki, 2700 m (Oct. 19, 1970, fl.).

DARJEELING. Phalut—Raman, 3600–2100 m (Aug. 4, 1972, fr.).

Lindera pulcherrima (Nees) Benth. ex Hook. f.: Fl. E. Himal. 101 (1966); **2**: 38 (1971).

NEPAL. Phulchoki, 2700 m (Nov. 3, 1970, ster.); Dunche-Singum Gompa, 1900-3200 m (Aug. 22, 1972, fr.).

DARJEELING. Palmajua-Batasi, 2200-2100 m (Aug. 8, 1972, fr.).

Litsea elongata (Wall.) Hook. f.: Fl. E. Himal. 101 (1966); **2**: 39 (1971).

NEPAL. Shewaden-Papung, 2600-2000 m (Jun. 29, 1972, bud).

Litsea oblonga (Wall. ex Nees) Hook. f., Fl. Brit. Ind. **5**: 168 (1886).

Tetranthera oblonga Wall. [Cat. no. 2542 (1830), nom. nud.] ex Nees in Wall., Pl. As. Rar. **2**: 67 (1831); Syst. Laur. 551 (1836).

Cylicodaphne oblonga (Wall. ex Nees) Meisn. in DC., Prodr. **15** (1): 205 (1864).

NEPAL. Tingoang-Harjung, 2000 m (Apr. 18, 1970, "Fr. acorn-shaped, dark green with bright dots. Tree 10 m."); Chitlang-Thankot, 2200-1500 m (Sep. 4, 1970, ster.); Phulchoki, 2700 m (Nov. 3 & 4, 1970).

Distr. E. Himalaya (Nepal, Sikkim) and Khasia.

Litsea salicifolia (Roxb.) Hook. f.: Fl. E. Himal. **2**: 39 (1971).

L. oblonga Wall. ex Hook. f. sensu Momiyama in Fl. E. Himal. 102 (1966).

SIKKIM. Gangtok, Orchid Sanctuary, 1500 m (Mar. 18, 1963, bud); Middle Camp, Singtam-Gangtok, 700 m (Mar. 29, 1963, fl. ♂).

Distr. Himalaya (Nepal, Sikkim), Oudh, Assam, Bengal, Chittagong, and Pegu.

Litsea sericea (Wall.) Hook. f.: Fl. E. Himal. 102 (1966); **2**: 39 (1971).

DARJEELING. Tonglu-Sandakphu, 2800-3600 m (Jul. 31, 1972, fr.); Phalut-Raman, 3600-2100 m (Aug. 4, 1972, fr.).

Machilus Duthiei King ex Hook. f.: Fl. E. Himal. 102 (1966); **2**: 39 (1971).

NEPAL. Phulchoki, Kathmandu, 1970 m (Oct. 21, 1970); Phulchoki, 2700 m (Nov. 3, 1970).

Machilus Gammieana King ex Hook. f.: Fl. E. Himal. **2**: 39 (1971).

NEPAL. Shewaden-Papung, 2600-2000 m (Jun. 29, 1972).

DARJEELING. Palmajua-Batasi, 2200-2100 m (Aug. 8, 1972, fr.).

Machilus odoratissima Nees: Fl. E. Himal. **2**: 39 (1971).

NEPAL. Thale-Dunche, 1900-2000 m (Jun. 25, 1970).

Neolitsea Cuipala (D. Don) Kosterm. in Bull. Bot. Surv. Ind. **10**: 287 (1969), in obs.-Momiyama et Hara in Hara in Journ. Jap. Bot. **47**: 269 (1972).

Tetranthera Cuipala D. Don, Prodr. Fl. Nepal. 65 (1825), e typo.

N. lanuginosa (Nees) Gamble: Fl. E. Himal. 102 (1966).

Neolitsea pallens (D. Don) Momiyama et Hara in Journ. Jap. Bot. **47**: 269 (1972).

Tetranthera pallens D. Don, Prodr. Fl. Nepal. 66 (1825), e typo.

T. consimilis Nees in Wall., Pl. As. Rar. **2**: 64 (1831).

Litsea umbrosa var. *consimilis* (Nees) Hook. f., Fl. Brit. Ind. **5**: 180 (1886).

N. umbrosa (Nees) Gamble sensu Momiyama in Fl. E. Himal. 102 (1966).

NEPAL. Para Gaon-Khirojet, 2200-2300 m (Jun. 28, 1970, fr. juv.); Yatumbal-Tangjet, 2700-1800 m (Jul. 8, 1970, fr. juv.); Dunche-Singum Gompa, 1900-3200 m (Aug. 22, 1972, fr.).

Phoebe lanceolata (Nees) Nees: Fl. E. Himal. 103 (1966); **2**: 40 (1971).

NEPAL. Phulchoki, 2700 m (Oct. 20, 1970, ster.).

PAPAVERACEAE (by Hiroshi Hara)

Meconopsis discigera Prain in Ann. Bot. **20**: 356, t. 24, f. 12 (1906)—G. Taylor, Account Meconopsis 108, t. 28 (1934). [Plate 3b]

NEPAL. Samdan, 4400 m (Jun. 24, 1972, fl. pale yellow); Kipuphu—Phujeng La, 4700 m (Jun. 27, 1972, fl. cream yellow).

Distr. E. Himalaya (Nepal to Bhutan) and S. Tibet.

Meconopsis grandis Prain in Journ. Asiat. Soc. Beng. **64**: 320 (1896)—Stapf in Bot. Mag. t. 9304 (1933)—G. Taylor, l.c. 68, t. 16 (1934).

NEPAL. Saju Pokhari—Topke Gola, 3800 m (Jun. 16, 1972, fl.); Topke Gola, 3600–3800 m (Jun. 18, 1972, fl.); Lama Chungbu—Samdan, 4300 m (Jun. 24, 1972, fl.); Thudam—Kipuphu, 3400–4500 m (Jun. 26, 1972, fl.).

Distr. E. Himalaya (Nepal to Bhutan) and S. Tibet.

Meconopsis horridula Hook. f. et Thoms., Fl. Ind. **1**: 252 (1855); in Fl. Brit. Ind. **1**: 118 (1872)—G. Taylor, l.c. 91, t. 24 (1934). [Plate 3a]

NEPAL. Jalang Chhyongo—Thudam, 4200–4600 m (Jun. 21, 1972, fl. blue); Gosainkund, 4000–4400 m (Aug. 24, 1972, fl.).

Distr. E. Himalaya (Nepal to Bhutan), S. Tibet, N. Burma, and W. China.

Meconopsis lyrata (Cummins et Prain ex Prain) Fedde ex Prain in Kew Bull. **1915**: 142 (1915)—G. Taylor, l.c. 73 (1934).

Cathcartia lyrata Cummins et Prain ex Prain in Journ. Asiat. Soc. Beng. **64**: 325 (1896)—Fedde in Pfl.-reich IV-104, Ht. **40**: 246, f. 33E (1909).

C. polygonoides Prain, l.c. 326 (1896); in Ann. Bot. Gard. Calc. **9** (1): 6, t. 8 (1901).

DARJEELING. Phalut, 3600 m (Aug. 2 & 3, 1972, fl. mauve).

Distr. E. Himalaya (Nepal, Sikkim), S. Tibet, and W. China.

Meconopsis paniculata (D. Don) Prain in Journ. Asiat. Soc. Beng. **64**: 316 (1896)—G. Taylor, l.c. 39, t. 7 (1934).

Papaver paniculata D. Don., Prodr. Fl. Nepal. 197 (1825), p.p.

M. nepalensis DC. sensu Hook. f., Ill. Himal. Pl. t. 9 (1855); in Bot. Mag. t. 5585 (1866), ut *Nipalensis*.

NEPAL. Saju Pokhari, 4000 m (Jun. 16, 1972, fl. yellow).

Distr. E. Himalaya (Nepal to NEFA).

CRUCIFERAE (by Hiroshi Hara)

Arabis pterosperma Edgew. in Trans. Linn. Soc. **20**: 33 (1846)—O. E. Schulz in Notizbl. **9**: 1063 (1927)—Jafri in Not. Bot. Gard. Edinb. **22**: 98 & 99 (1956).

Arabis alpina L. sensu Hook. f. et Anderson in Fl. Brit. Ind. **1**: 135 (1872).

Arabidopsis mollissima N. Busch sensu Hara, Fl. E. Himal. **2**: 42 (1971).

Distr. Himalaya (Kashmir to Bhutan).

Braya oxycarpa Hook. f. et Thoms. in Journ. Linn. Soc. **5**: 169 (1861).

Aphragmus oxycarpus (Hook. f. et Thoms.) Jafri: Fl. E. Himal. **2**: 41 (1971).

NEPAL. Jalang Chhyongo, 4300 m (Jun. 21, 1972, fl.); Lama Chungbu, 4400 m (Jun. 23, 1972).

Distr. C. Asia, Afghanistan, Himalaya (Kashmir to Bhutan), Tibet, and W. China.

Chrysobraya glaricola Hara in Journ. Jap. Bot. **49**: 195, f. 1 (1974).

NEPAL. Jalang Chhyongo, 4100 m (Jun. 20, 1972, no. 720631, fl. yellow).

Distr. E. Himalaya (Nepal, Bhutan).

The genus *Chrysobraya* is well characterized in having linear subterete siliquae with uniseriate seeds, incumbent radicle, 4 separate clavate nectariferous glands without median ones, persistent sepals, yellow flowers, more or less obovate leaves generally with 3–5 coarse teeth, and long tree-like hairs up to the ovary.

Draba oreades Schrenk in Fischer et Meyer, Enum. Pl. Nov. **2**: 56 (1842)–O. E. Schulz in Pfl.-reich IV-105, Ht. **89**: 106 (1927), incl. var. *commutata* (E. Regel) O. E. Schulz, prol. *alpicola* (Klotz.) O. E. Schulz, et var. *occulta* O. E. Schulz.

D. alpicola Klotzsch, Bot. Ergebn. Res. Prinz Waldem 128, t. 34A (1862).

D. alpina L. sensu Hook. f. et Anderson in Fl. Brit. Ind. **1**: 142 (1872).

NEPAL. Topke Gola–Jalang Chhyongo, 3600–4300 m (Jun. 20, 1972, fr.); Jalang Chhyongo–Thudam, 4300 m (Jun. 21, 1972, fl. yellow); Kipuphu, 4500 m (Jun. 26 1972, fl.); Kipuphu–Topke Gola, 4500–3600 m (Jun. 27, 1972, fl.).

Distr. C. Asia, Altai, Himalaya, Tibet, Mongolia, and W. China.

This species is especially variable in the hairiness and the shape of silicles.

Eutrema heterophyllum (W. W. Smith) Hara in Journ. Jap. Bot. **48**: 97 (1973).

Braya heterophylla W. W. Smith in Not. Bot. Gard. Edinb. **11**: 201 (1919).

NEPAL. Jalang Chhyongo–Thudam, 4600–3400 m (Jun. 21, 1972, fl. & young fr.).

BHUTAN. Lingshi–Yale La–Shodu, 4400 m (May 23, 1967, fl.).

Distr. E. Himalaya (Nepal, Bhutan), S. Tibet, and W. China.

Lignariella Hobsonii (Pearson) Baehni in Candollea **15**: 57 (1955), ut *Hobsonii*–Jafri in Candollea **16**: 134, f. 16 & 18 (1957).

Cochlearia Hobsonii Pearson in Hook., Icon. Pl. t. 2643 (1900).

subsp. **serpens** (W. W. Smith) Hara, comb. nov.

Cochlearia? *serpens* W. W. Smith in Rec. Bot. Surv. Ind. **4**: 175 (1911).

Lignariella Hobsonii Baehni: Fl. E. Himal. 109 (1966), p.p.

L. obscura Jafri, l.c. 132 & 134, f. 17 & 19 (1957), excl. basionym et syn.

NEPAL. Banduke Pokhari, 4100 m (Jun. 15, 1972, fl. lilac); Saju Pokhari–Topke Gola, 4400–3600 m (Jun. 16, 1972, fl.); Kipudonsu–Kipuphu, 4300 m (Jun. 26, 1972, fl. violet).

Distr. Himalaya (Kashmir to Bhutan).

Jafri (1957) distinguished two species in the genus *Lignariella*. Typical *L. Hobsonii* has slender styles (2.5–)3–4 mm long, while the other is generally smaller in all respects, and has short styles 1–1.5(–1.8) mm long. However, intermediate forms rarely occur, and I wish to treat the latter as a subspecies of *L. Hobsonii*. On examination of the type of *Draba obscura* Dunn at Kew, I noticed, contrary to expectation, that *Aphragmus obscurus* (Dunn) O. E. Schulz is quite a different plant from *Lignariella*.

Loxostemon pulchellus Hook. f. et Thoms.: Fl. E. Himal. 109 (1966).

NEPAL. Banduke Pokhari–Saju Pokhari, 4200–4000 m (Jun. 15, 1972, fl.); Saju Pokhari (Jun. 16, 1972, fl.); Kipuphu–Topke Gola, 4800–3600 m (Jun. 27, 1972).

Distr. E. Himalaya (Nepal to Bhutan), S. Tibet, and W. China.

Pegaeophyton minutum Hara in Journ. Jap. Bot. **47**: 270, f. 2 (1972).

NEPAL. Mul Kharka, Chilime Khola, 4100 m (Jul. 3, 1970, no. 672270).

SIKKIM. Oma La–Migothang, 4200 m (May 30, 1960, no. 6344. Holotype in π).

Distr. E. Himalaya (Nepal to Bhutan) and S. Tibet.

Thlaspi cochlearioides Hook. f. et Thoms. in Journ. Linn. Soc. **5**: 177 (1861)–

Fl. Brit. Ind. **1**: 162 (1872)–O. E. Schulz in Notizbl. **9**: 1095 (1927).

NEPAL. Jalang Chhyongo–Janga La, 4400 m (Jun. 21, 1972, no. 720639, fl. & young fr.).

Distr. Himalaya (Kashmir to Sikkim).

PODOSTEMACEAE (by Hiroo Kanai)

Hydrobrium Griffithii (Wall.) Tulasne: Hara, Fl. E. Himal. 110 (1966); **2**: 45 (1971).

NEPAL. Budhanilkantha, 1500 m (Dec. 31, 1969); Thunnai, 1900 m (Sep. 30, 1970); Rol Khane–Barabise, 2000 m (Oct. 1, 1970).

The collection at Budhanilkantha is the first record of this plant in Kathmandu Valley. Its habitat seems to be fluctuating year by year influenced by the amount of running water. It was not found in the same place in December 1963 in spite of our special attention to it. In 1969, the rainfall was higher than usual years.

CRASSULACEAE¹⁾ (by Hideaki Ohba)

***Sedum bupleuroides** Wall. ex Hook. f. et Thoms.: Hara, Fl. E. Himal. **2**: 41 (1971). [Plate 3c]

S. elongatum Hook. f. et Thoms.: Fl. E. Himal. **2**: 41 (1971).

NEPAL. Gotiora–Gadje, 3300 m (Aug. 25, 1969, fr.); Yatumbal–Oo Kharka, 3100 m (Jun. 30, 1970, fl.); Lukthang–Kalingchok, 3400 m (Sep. 28, 1970, fr.); Hile Chok–Ghopte, 3500 m (Jun. 12, 1972); Topke Gola, 3600 m (Jun. 19, 1972, fl.); Topke Gola–Jalang Chhyongo, 3800 m (Jun. 20, 1972, fl.); Thudam–Lama Chungbu, 3600 m (Jun. 23, 1972, fl.); Thudam–Kipudonsu, 4000 m (Jun. 26, 1972, fl.); Phujeng La–Topke Gola, 3800 m (Jun. 27, 1972, fl.); Topke Gola–Shewaden, 3150 m (Jun. 28, 1972, fl.); Thale–Dunche, 2000 m (Aug. 21, 1972, fl. & fr.); Trisuli Khola–Singum Gompa, 2200 m (Aug. 22, 1972, fr.); Gosainkund, 4000 m (Aug. 24, 1972, fr.); Gosainkund–Surjakund, 4350 m (Aug. 25, 1972, fl. & fr.); Surjakund–Gopte, 3650 m (Aug. 25, 1972, fr.); Gopte–Thale Patil, 3200 m (Aug. 26, 1972, fr.); Thale Patil–Hile Dhap, 3400 m (Aug. 27, 1972).

Distr. E. Himalaya (Nepal to Bhutan), Tibet, and W. China.

***Sedum crenulatum** Hook. f. et Thoms. in Journ. Linn. Soc. **2**: 96 (1858)–C. B. Clarke in Fl. Brit. Ind. **2**: 417 (1878). [Plate 11]

BHUTAN. Lingshi–Shodu, 4500 m (May 23, 1967, young fl.).

Distr. E. Himalaya (Nepal, Sikkim, and Bhutan), Tibet, and W. China (Yunnan).

***Sedum Cretinii** R.-Hamet in Journ. Bot. **54**: suppl. 16 (1916).

S. Wallichianum Hook. var. *Cretinii* (R.-Hamet) Hara, Fl. E. Himal. 108 (1966).

NEPAL. Banduke Pokhari–Saju Pokhari, 4000–4200 m (Jun. 15, 1972, fl.); Topke

1) Species with an asterisk are treated in detail on pages 283–362.

Gola-Jalang Chhyongo, 4300 m (Jun. 20, 1972, fl.); Lama Chungbu-Samdan, 4300 m (Jun. 24, 1972, fl.); Thudam-Kipudonsu, 3850 m (Jun. 26, 1972, fl.).

Distr. E. Himalaya (Nepal, Sikkim, and Bhutan) and S. Tibet.

***Sedum discolor** Franchet in Journ. de Bot. **10**: 285 (1896).

S. tibeticum Hook. f. et Thoms. sensu Praeger in Journ. Roy. Hort. Soc. **46**: 49, fig. 17 (1921).

NEPAL. Gosainkund, 4200-4400 m (Aug. 27, 1969, fr.; Aug. 23, 1972, fr.); Mul Kharka, Chilime Khola, 3800-4100 m (Jul. 3, 1970, fl.); Saju Pokhari, 4000 m (Jun. 15, 1972, fl.); below Jalang Chhyongo, 3900 m (Jun. 20, 1972, fl.); Thudam-Lama Chungbu, 4000 m (Jun. 23, 1972, fl.); Kipudonsu-Kipuphu, 4400 m (Jun. 26, 1972, fl.).

SIKKIM. Along Choktsering Chu, N. of Jongri, 4000-4500 m (May 25, 1960, fl.); Migothang, 3900 m (May 31, 1960, fl.).

Distr. E. Himalaya (Nepal and Sikkim) and W. China (Yunnan).

***Sedum fastigiatum** Hook. f. et Thoms. in Journ. Linn. Soc. **2**: 98 (1858)-C. B. Clarke in Fl. Brit. Ind. **2**: 419 (1878).

NEPAL. Mul Kharka, Chilime Khola, 4100 m (Jul. 4, 1970, fl.); Banduke Pokhari, 4200 m (Jun. 14, 1972, fl.); Saju Pokhari-Topke Gola, 4200 m (Jun. 16, 1972, fl.); Jalang Chhyongo, 4300 m (Jun. 20, 1972, fl.); Kipudonsu-Kipuphu, 4300 m (Jun. 26, 1972, fl.); Kipuphu-Phujeng La, 4500-4800 m (Jun. 27, 1972, fl.); Singum Gompa-Gosainkund, 4200 m (Aug. 23, 1972, fl.); Gosainkund, 4200 m (Aug. 24, 1972, fl.); Gosainkund-Surjakund, 4200 m (Aug. 25, 1972, fl.).

SIKKIM. Jongri-Olothang (May 23, 1960, ster.); Oma La-Migothang (May 30, 1960); Migothang, 3800 m (May 31, 1960, fl. bud).

Distr. E. Himalaya (Nepal and Sikkim), Tibet, and N. W. China.

***Sedum himalense** D. Don: Fl. E. Himal. 107 (1966).

NEPAL. Mul Kharka, Chilime Khola, 4100 m (Jul. 3, 1970, fl.); Ghopte-Gosa, 3700-4100 m (Jun. 13, 1972, fl.); Gosa-Banduke Pokhari, 4100-4200 m (Jun. 15, 1972, fl.); Banduke Pokhari-Saju Pokhari, 4000-4200 m (Jun. 15, 1972, fl.); Saju Pokhari-Topke Gola, 4300-3700 m (Jun. 16, 1972, fl.); Topke Gola, 3600 m (Jun. 19, 1972, fl.); Janga La-Thudam, 4200-3400 m (Jun. 21, 1972, fl.); Thudam-Lama Chungbu, 3400-4200 m (Jun. 23, 1972, fl.); Lama Chungbu-Samdan, 4200-4400 m (Jun. 24, 1972, fl.); Thudam-Kipudonsu, 3400-4200 m (Jun. 26, 1972, fl.); Phujeng La-Topke Gola, 3800 m (Jun. 27, 1972, fl.); Gosainkund, 4000 m (Aug. 24, 1972, fl. & fr.).

BHUTAN. Laya-Laum Thang, 3800 m (May 18, 1967); Laum Thang-Chawa Gassar, 4700 m (May 19, 1967, fr.).

Distr. E. Himalaya (Nepal, Sikkim, and Bhutan), Tibet, and N. W. China.

***Sedum linearifolium** Royle, Ill. Bot. Himal. 222, t. 48, f. 1 (1835)-Hook. f. et Thoms. in Journ. Linn. Soc. **2**: 100 (1858)-C. B. Clarke in Fl. Brit. Ind. **2**: 420 (1878)-R.-Hamet in Act. Hort. Gothob. **2**: 394 (1926), excl. var. *ovatisepalum*, var. *Balfouri*, var. *Tieghemi*, var. *Dielsianum* et var. *sacrum*. [Plate 3d]

S. pauciflorum Edgew. in Trans. Linn. Soc. **20**: 49 (1846)-Hook. f. et Thoms., l.c. 100 (1858).

S. trifidum Wall. [Cat. no. 7230 (1832), nom. nud.] ex Hook. f. et Thoms. in Journ. Linn. Soc. **2**: 100 (1858)-C. B. Clarke in Fl. Brit. Ind. **2**: 420 (1878).

NEPAL. Thale-Thale Bisauna, 2600 m (Sep. 10, 1970, fl.); Thale Bisauna-Tingoang, 2750-3100 m (Sep. 11, 1970, fl.); Tinjure-Tinjure Phedi, 2900 m (Jun. 7, 1972, fr.);

Singum Gompa–Gosainkund, 3600 m (Aug. 23, 1972, fl.); Gopte–Thale Patil, 3300 m (Aug. 26, 1972, fl.).

Distr. Himalaya (Kashmir, Lahore, Kumaon, and Nepal).

Sedum multicaule Wall. ex Lindl.: Fl. E. Himal. 107 (1966).

NEPAL. Khanging–Lantang Gorge, 2300–2800 m (Jul. 11, 1970, fl.); Shyaprubensi–Dunche, 1500–2000 m (Jul. 19, 1970, fl.); Chitlang–Thankot, 2100 m (Sep. 4, 1970, fl.); Mewa Khola–Papung, 2100 m (Jun. 29, 1972, ster.); Ramche–Gram, 1800 m (Aug. 20, 1972, fl.); Thale–Dunche, 1860 m (Aug. 21, 1972, fl.); Dunche, 2000 m (Aug. 22, 1972, fl.).

****Sedum ovatisepalum*** (R.-Hamet) H. Ohba, stat. nov.

S. linearifolium Royle var. *ovatisepalum* R.-Hamet in Act. Hort. Gothob. **2**: 394 (1926): Fl. E. Himal. 107 (1966).

DARJEELING. Kala Pokhari–Sandakphu, 3200 m (Jul. 31, 1972, bud); Sandakphu, 3600 m (Aug. 1, 1972, fl.); Sandakphu–Sabargam, 3200–3600 m (Aug. 2, 1972, fl.); Phalut, 3600 m (Aug. 3, 1972, fl.).

BHUTAN. Tzatogang–Dotanang, 3000 m (May 27, 1967, ster.).

Distr. E. Himalaya (Nepal, Sikkim, and Bhutan), Tibet, and N. W. Burma.

****Sedum quadrifidum*** Pallas, Reise **3**: 730, t. 6, fig. 1 (1776)—Hook. f. et Thoms. in Journ. Linn. Soc. **2**: 97 (1858), cum obs. et incl. var. α - ϵ , e.g. *scoparium*—C. B. Clarke in Fl. Brit. Ind. **2**: 418 (1878).

NEPAL. Gosainkund, 4200 m (Aug. 25, 1972).

Distr. C. Asia, Himalaya, Tibet, N. W. China, Mongol, Siberia, and Eurasic Arctic Circle.

****Sedum sacrum*** (R.-Hamet) H. Ohba in Journ. Jap. Bot. **49**: 321 (1974).

S. linearifolium Royle var. *sacrum* R.-Hamet in Act. Hort. Gothob. **2**: 395 (1926).

NEPAL. Singum Gompa, 3000 m (Jun. 4, 1969; Aug. 22, 1972, fl.); Phulchoki, 2600 m (Aug. 9, 1969; May 28, 1972; Jul. 15, 1972, young fl.).

Distr. E. Himalaya (Nepal) and Tibet.

Sedum triactina Berger: Fl. E. Himal. 107 (1966); **2**: 41 (1971).

S. verticillatum R.-Hamet in Rev. gen. Bot. **55**: 92 (1913).

NEPAL. Near Chauke, 2750 m (Jun. 7, 1972; Jul. 6, 1972, fl.); Topke Gola–Shewaden, 2800 m (Jun. 28, 1972, fl.); Gopte–Thale Patil, 3200 m (Aug. 26, 1972, fl.).

Sedum trullipetalum Hook. f. et Thoms. in Journ. Linn. Soc. **2**: 102 (1858)—C. B. Clarke in Fl. Brit. Ind. **2**: 421 (1878)—R.-Hamet in Bull. Soc. Bot. France **56**: 47 (1909); in Not. Bot. Gard. Edinb. **24**: 118 (1912); in Candollea **4**: 48 (1929)—Praeger in Journ. Roy. Hort. Soc. **46**: 259 (1921)—Fröd. in Act. Hort. Gothob. **6**: app. 43 (1931); in Hand.-Mzt., Symb. Sin. **7**: 410 (1931); in Arkiv för Bot. **30** A (9): 7 (1943)—Weibel in Candollea **16**: 145 (1958).

NEPAL. Gadge–Surjakund, 3900–4450 m (Aug. 26, 1969, fl.); Singum Gompa–Gosainkund, 3600 m (Aug. 23, 1972, fl.).

Distr. Himalaya (Garhwal, Kumaon, Nepal, Sikkim, and Bhutan), Tibet, and N. W. China.

****Sedum Wallichianum*** Hook.: Fl. E. Himal. 107 (1966).

NEPAL. Topke Gola, 3600 m (Jun. 28, 1972); Singum Gompa–Gosainkund, 3300 m (Aug. 23, 1972, fl.).

SAXIFRAGACEAE (by Hiroshi Hara)

Parnassia chinensis Franch. in Bull. Soc. Bot. France **44**: 252 (1897), e typo—Nekrassova in Bull. Soc. Bot. France **74**: 650 (1927).

P. mysorensis Heyne sensu Hara, Fl. E. Himal. 115 (1966); **2**: pl. 9a (1971).

NEPAL. Topke Gola, 3600 m (Jun. 17, 1972); Kipuphu, 4500 m (Jun. 26, 1972, no. 720789, fl.).

DARJEELING. Sandakphu, 3600 m (Aug. 1, 1972, fl.).

Distr. Himalaya (Nepal to Bhutan), S. Tibet, N. Burma, and W. China.

The specimens from Sandakphu agree well with the type specimen of *P. chinensis* from Yunnan.

Parnassia kumaonica Nekrassova in Bull. Soc. Bot. France **74**: 646 (1927)—Hara in Kihara, Fauna Fl. Nepal Himal. 142 (1955).

NEPAL. Janga La—Thudam, 4100 m (Jun. 21, 1972, fl.); Thudam—Lama Chungbu, 3800 m (Jun. 23, 1972, no. 720687, fl. greenish white); Lama Chungbu—Thudam, 4400–3600 m (Jun. 24, 1972, fl.).

Distr. Himalaya (Kashmir to Nepal).

Parnassia pusilla Wall. [Cat. no. 1245 (1829), nom. nud.] ex Arnott in Comp. Bot. Mag. **2**: 315 (1837)—C. B. Clarke in Fl. Brit. Ind. **2**: 403 (1878), p.p.—Nekrassova, l.c. 645 (1927).

P. affinis Hook. f. et Thoms. in Journ. Linn. Soc. **2**: 81 (1857).

P. ovata Ledeb. sensu C. B. Clarke in Fl. Brit. Ind. **2**: 403 (1878), p.p.

P. mysorensis Heyne sensu C. B. Clarke, l.c. 402 (1878), p.p.—Nekrassova, l.c. 648 (1927), p.p.

NEPAL. Topke Gola, 3600 m (Jun. 19, 1972, fl.); Thudam—Lama Chungbu, 3500 m (Jun. 23, 1972, fl.); Lama Chungbu—Thudam, 4400–3400 m (Jun. 24, 1972, fl.); Phujeng La—Topke Gola, 3800 m (Jun. 27, 1972, fl.); Singum Gompa—Gosainkund, 3200–4000 m (Aug. 23, 1972, fl.); Gosainkund—Surjakund, 4000–4400 m (Aug. 25, 1972, fl.); Thale Patil—Mangen, 3400–3100 m (Aug. 27, 1972, fl.).

Distr. Himalaya (Garhwal to Sikkim).

I designate the specimen from Gossain Than (Wallich, 1821, no. 1245 kw) of C. Nepal as the lectotype of *P. pusilla*. The specimens of Sikkim collected by Hooker f. in 1849 (κ) are generally a mixture of *P. pusilla* and *P. chinensis*. *P. affinis* is a well-grown elongate form of *P. pusilla* sometimes attaining 18 cm high.

Ribes luridum Hook. f. et Thoms.: Fl. E. Himal. 116 (1966).

NEPAL. Saju Pokhari—Topke Gola, 4400–3600 m (Jun. 16, 1972); Jalang Chhyongo—Thudam, 4200–4600 m (Jun. 21, 1972, fl.); Thudam—Kipuphu, 4200–4500 m (Jun. 26, 1972, no. 723107, fl.).

Saxifraga Andersonii Engl.: Fl. E. Himal. **2**: 48 (1971).

NEPAL. Saju Pokhari, 4200 m (Jun. 16, 1972, no. 720540, fl. white); Jalang Chhyongo—Thudam, 4200–4600 m (Jun. 21, 1972, fl.).

Saxifraga Brunonis Wall. ex Seringe in DC., Prodr. **4**: 45 (1830).

S. Brunoniana Wall. [Cat. no. 444 (1828), nom. nud.] ex Sternb., Rev. Saxifr. Suppl. **2**: 25, t. 23 (1831)—Fl. Brit. Ind. **2**: 397 (1878)—Engl. et Irmsch. in Engl., Pfl.-reich IV-117, Ht. **67**: 163 (1916).

NEPAL. Langtang—Kyangjing, 3400–3800 m (Jul. 13, 1970, fl.); Thudam, 3400 m (Jun. 24, 1972, no. 723946, fl.).

Distr. Himalaya (Kumaon to Bhutan) and S. Tibet.

Saxifraga diversifolia Wall. ex Seringe: Fl. E. Himal. 116 (1966).

NEPAL. Singum Gomba–Gosainkund, 3200–4200 m (Aug. 23, 1972, fl.); Gosainkund, 4000–4400 m (Aug. 24, 1972, fl.); Gosainkund–Gopte, 4400–3500 m (Aug. 25, 1972, fl.).

Distr. Himalaya (Kashmir to Bhutan), S. Tibet, and W. China.

Saxifraga flagellaris Willd. in Sternb., Rev. Saxifr. 25, t. 6 (1810).

subsp. **mucronulata** (Royle) Engl. et Irmsch., l.c. 163 (1916).

S. mucronulata Royle, Ill. Bot. Himal. 227, t. 50, f. 2 (1835), fig. ut *S. spinulosa* Royle.

S. flagellaris var. *mucronulata* (Royle) C. B. Clarke in Fl. Brit. Ind. 2: 397 (1878).

NEPAL. Topke Gola–Jalang Chhyongo, 3800 m (Jun. 20, 1972, no. 720621, fl. yellow).

Distr. Himalaya (Kashmir to Bhutan).

Saxifraga Gageana W. W. Smith in Rec. Bot. Surv. Ind. 4: 265 (1911)–Engl. et Irmsch., l.c. 53 (1916).

NEPAL. Gosainkund, 4400 m (Aug. 24, 1972, no. 721907, fl. dark red).

Distr. E. Himalaya (Nepal, Sikkim).

Saxifraga glabricaulis H. Smith in Bull. Brit. Mus. Bot. 2: 241, f. 7, t. 18A (1960).

S. palpebrata var. *parceciliata* Engl. et Irmsch., l.c. 125 (1916).

NEPAL. Topke Gola–Jalang Chhyongo, 4200 m (Jun. 20, 1972, no. 720632, fl. yellow).

Distr. E. Himalaya (Nepal to Bhutan) and S. Tibet.

Saxifraga granulifera H. Smith in Bull. Brit. Mus. Bot. 2: 259, t. 21B (1960).

NEPAL. Langtang–Kyangjing, 3500 m (Jul. 13, 1970, no. 672479, fl. white).

Distr. Himalaya (Nepal to Bhutan) and S.E. Tibet.

Saxifraga hispidula D. Don: Fl. E. Himal. 117 (1966).

S. evolvuloides Wall. [Cat. no. 447 (1829), nom. nud.] ex DC., Prodr. 4: 46 (1830)–Sternb., Rev. Saxifr. Suppl. 2: 20, t. 23 (1831).

NEPAL. Singum Gomba–Gosainkund, 3200–4200 m (Aug. 23, 1972, fl.); Gosainkund, 4000–4400 m (Aug. 24, 1972, fl.).

DARJEELING. Kala Pokhari–Sandakphu, 3500–3550 m (Jul. 13, 1969, fl.); Mt. Singalila, 3950 m (Jul. 17, 1969, fl.); Sandakphu, 3600–3800 m (Jul. 20, 1969; Aug. 1, 1972, fl.); Gairibas–Sandakphu, 2900–3500 m (Jul. 31, 1972, fl.).

On the Singalila Range, the flowers of this species are generally deep yellow, but some individuals have pale lemon-yellow flowers.

Saxifraga Kingiana Engl. et Irmsch. in Engl., Bot. Jahrb. 48: 610 (1912); in Engl., Pfl.-reich IV-117, Ht. 67: 99 (1916).

NEPAL. Gosainkund–Gopte, 4200–3500 m (Aug. 25, 1972, fl.); Gopte–Thale Patil, 3500–3200 m (Aug. 26, 1972, no. 723958, fl.).

Distr. Himalaya (Nepal to Bhutan) and S. Tibet.

Saxifraga Lychnitis Hook. f. et Thoms. in Journ. Linn. Soc. 2: 68 (1857)–Fl. Brit. Ind. 2: 391 (1878)–Engl. et Irmsch., l.c. 132, f. 30A–M (1916).

NEPAL. Samdan, 4400 m (Jun. 24, 1972, no. 720719, fl. yellow).

Distr. Himalaya (Kumaon to Bhutan) and S. Tibet.

Saxifraga microviridis Hara, nom. nov.

S. microphylla (non Schleich. 1821) Royle ex Hook. f. et Thoms. in Journ. Linn.

Soc. 2: 72 (1857)—Fl. Brit. Ind. 2: 395 (1878)—Engl. et Irmsch., l.c. 156 (1916).

NEPAL. Mul Kharka, Chilime Khola, 3800–4100 m (Jul. 4, 1970, fl.); Phujeng La, 4800 m (Jun. 27, 1972, no. 720810, fl. green).

Distr. Himalaya (Kashmir, Kumaon, Nepal).

Saxifraga Moorkroftiana Wall. ex Sternb.: Fl. E. Himal. 117 (1966).

NEPAL. Gosainkund, 4000–4400 m (Aug. 24, 1972, fl. yellow).

Distr. Himalaya (Kashmir to Bhutan), S. Tibet, and W. China.

Saxifraga Nakaoui Kitamura in Kihara, Fauna Fl. Nepal Himal. 144, t. 25 (1955).

NEPAL. Kipudonsu–Kipuphu, 4300 m (Jun. 26, 1972, no. 720781, fl. yellow with orange dots in the lower half).

Distr. Nepal.

Saxifraga pallida Wall. ex DC.: Fl. E. Himal. 2: 49 (1971).

NEPAL. Banduke Pokhari–Saju Pokhari, 4100 m (Jun. 15, 1972, fl.); Lama Chungbu–Thudam, 4400–3400 m (Jun. 24, 1972, fl.); Thudam–Kipuphu, 3500 m (Jun. 26, 1972, fl.); Topke Gola–Shewaden, 3600–2600 m (Jun. 28, 1972, no. 723970, fl.).

Saxifraga parnassifolia D. Don in Trans. Linn. Soc. 13: 405 (1821); Prodr. Fl. Nepal. 210 (1825)—Sternb., Rev. Saxifr. Suppl. 2: 27, t. 25 (1831)—Fl. Brit. Ind. 2: 393 (1878), p.p.—H. Smith in Bull. Brit. Mus. Bot. 2: 232, f. 2d–g (1960).

S. diversifolia var. *parnassifolia* (D. Don) Engl., Monogr. Saxifr. 125 (1872)—Engl. et Irmsch., l.c. 129 (1916).

NEPAL. Gram–Dunche, 1900–2000 m (Aug. 21, 1972); Dunche–Singum Gompa, 2000–3000 m (Aug. 22, 1972, no. 723950, fl. yellow).

Distr. Himalaya (Garhwal to Bhutan).

Saxifraga pseudo-pallida Engl. et Irmsch. in Engl., Bot. Jahrb. 50 (Beibl. 114): 40 (1914); in Engl., Pfl.-reich IV–117, Ht. 67: 51, f. 8F–O (1916).

S. pallida Wall. sensu C. B. Clarke in Fl. Brit. Ind. 2: 394 (1878), p.p.

NEPAL. Saju Pokhari–Topke Gola, 4400–3600 m (Jun. 16, 1972, fl.); Lama Chungbu–Samdan, 4300 m (Jun. 24, 1972, no. 720709, fl. white with 2 yellow patches near the base); Thudam, 3400 m (Jun. 26, 1972, fl.); Kipuphu, 4500 m (Jun. 26, 1972, fl.); Kipuphu–Topke Gola, 4800–3600 m (Jun. 27, 1972, fl.).

Distr. Himalaya (Kashmir to Bhutan) and W. China.

Saxifraga saginoides Hook. f. et Thoms. in Journ. Linn. Soc. 2: 68 (1858)—Fl. Brit. Ind. 2: 392 (1878)—Engl. et Irmsch., l.c. 121, f. 24 (1916).

NEPAL. Saju Pokhari–Topke Gola, 4400–3600 m (Jun. 16, 1972, fl.); Janga La–Thudam, 4100 m (Jun. 21, 1972, no. 720655, fl.); Lama Chungbu–Thudam, 4200–4500 m (Jun. 24, 1972, fl.); Gosainkund, 4400 m (Aug. 24, 1972, no. 721911, fl. yellow).

Distr. Himalaya (Kumaon to Bhutan), S. Tibet, and W. China.

Saxifraga sphaeradena H. Smith in Bull. Brit. Mus. Bot. 2: 235, t. 15 B, f. 4 (1960).

NEPAL. Singum Gompa–Gosainkund, 3200–4200 m (Aug. 23, 1972, fl.); Thale Patil–Mangen, 3400–3100 m (Aug. 27, 1972, fl.); Khodang Danda–Latsu, 2500–2100 m (Aug. 29, 1972, fl.).

Distr. Himalaya (Nepal, Sikkim) and S. Tibet.

In our specimens, the sepals have sessile glands on the margin, and they are

intermediate between subsp. *sphaeradena* and subsp. *Dhwojii*.

Saxifraga stella-aurea Hook. f. et Thoms. in Journ. Linn. Soc. **2**: 72 (1857)—Engl. et Irmsch., l.c. 155 (1916).

S. Jacquemontiana var. *stella-aurea* (Hook. f. et Thoms.) C. B. Clarke in Fl. Brit. Ind. **2**: 395 (1878).

var. **polyadena** H. Smith in Bull. Brit. Mus. Bot. **2**: 254, f. 15 a-c (1960).

NEPAL. Kipuphu—Phujeng La, 4700 m (Jun. 27, 1972, no. 720806, fl. yellow with minute orange dots).

Distr. Himalaya (Nepal) and S.E. Tibet.

ROSACEAE (by Hiroshi Hara and Hiroyoshi Ohashi)

Eriobotrya elliptica Lindl. in Trans. Linn. Soc. **13**: 102 (1822)—Hook. f., Fl. Brit. Ind. **2**: 372 (1878)—Vidal in Adansonia n.s. **5**: 551 (1965), var. *elliptica*.

Mespilus Cuila Hamilt. ex D. Don, Prodr. Fl. Nepal. 238 (1825), nom. superfl.

NEPAL. Ranga Pani—Ghorwa, 400–500 m (Dec. 9, 1963, no. 6301813, fl.); Godawari—Phulchoki, 1600–2500 m (Jun. 25 & 26, 1967, young fr.).

Distr. Nepal.

Eriobotrya petiolata Hook. f., Fl. Brit. Ind. **2**: 370 (1878)—Vidal, l.c. 552, t. 1, f. 4 (1965).

DARJEELING. 2150 m (Jul. 27, 1969).

BHUTAN. Tongsa—Tashiling, 2200–2300 m (Apr. 19, 1967, bud).

Distr. Himalaya (Sikkim, Bhutan), Assam, and E. India.

Malus sikkimensis (Wenz.) Koehne, Gatt. Pomac. 27 (1890)—C. K. Schneid., Ill. Handb. Laubh. **1**: 719 (1906), in adnota—Rehd., Man. Trees & Shrubs ed. 2, 393 (1940).

Pyrus Pashia var. *sikkimensis* Wenz. in Linnaea **38**: 49 (1874).

P. sikkimensis (Wenz.) Hook. f., Fl. Brit. Ind. **2**: 373 (1878); in Bot. Mag. t. 7430 (1895).

BHUTAN. Thimphu, 2400 m (Apr. 30, 1967, fl.).

Distr. Himalaya (Nepal to Bhutan), Assam, and S. E. Tibet.

Prunus undulata Hamilt. ex D. Don, Prodr. Fl. Nepal. 239 (1825), e typo—Hara in Journ. Jap. Bot. **48**: 97 (1973).

Cerasus acuminata Wall., Pl. As. Rar. **2**: 78, t. 181 (1831).

P. Wallichii Steud.: Hara et Ohashi in Fl. E. Himal. 126 (1966); **2**: 55 (1971).

C. Wallichii (Steud.) M. Roemer, Syn. Monogr. Rosifl. **3**: 81 (1847).

Laurocerasus undulata (D. Don) M. Roemer, l.c. 92 (1847).

P. acuminata f. *Wallichii* (Steud.) Koehne in Engl., Bot. Jahrb. **52**: 296 (1915).

Distr. Himalaya (Nepal to Bhutan), Khasia, N. Burma, N. Thailand, Indo-China, W. & S. China, Malay, and Sumatra.

Prunus venosa Koehne in Sarg., Pl. Wilson. **1**: 60 (1911)—Hara in Journ. Jap. Bot. **48**: 98 (1973).

P. undulata Hamilt. ex D. Don sensu Hook. f., Fl. Brit. Ind. **2**: 316 (1878): Fl. E. Himal. 126 (1966); **2**: 55 (1971).

P. undulata f. *venosa* (Koehne) Koehne, l.c. 285 (1915).

Distr. Himalaya (Kumaon to Bhutan), Khasia, S. Tibet, and W. & C. China.

Rubus alexeterius Focke in Not. Bot. Gard. Edinb. **5**: 75, t. 67 (1911), e typo.

R. acaenocalyx Hara in Journ. Jap. Bot. **47**: 109, f. 1 (1972).

Distr. Himalaya (Nepal to Bhutan), S. E. Tibet, and W. China (Yunnan).

Rubus calycinoides O. Kuntze, Meth. Sp. Rubus 67, 78 & 83 (1879)—Hara in Journ. Jap. Bot. **47**: 140 (1972).

R. Himalaicus O. Kuntze, l.c. 66, 78, 80 & 83 (1879).

R. Bhotanensis O. Kuntze, l.c. 67, 78 & 82 (1879).

R. Darschilingensis O. Kuntze, l.c. 67, 78 & 82 (1879).

R. diffusus Focke: Fl. E. Himal. 128 (1966); **2**: fig. 5m (1971).

DARJEELING. 2200 m (Jul. 24 & 25, 1972, fl. white); Rimbick—Palmajua, 2100 m (Aug. 6, 1972, fl.).

Distr. Himalaya (Nepal to Bhutan) and ?Khasia.

Rubus Griffithii Hook. f., Fl. Brit. Ind. **2**: 327 (1878), e typo.

R. hexagynus Roxb. sensu Hara, Fl. E. Himal. 129 (1966).

Distr. Himalaya (Nepal, Sikkim).

Rubus nepalensis (Hook. f.) O. Kuntze, Meth. Sp. Rubus 125 (1879)—Hara in Journ. Jap. Bot. **47**: 112, in adnota (1972).

R. nutans var. *nepalensis* Hook. f., Fl. Brit. Ind. **2**: 334 (1878), e typo.

R. nutantiflorus Hara: Fl. E. Himal. 130 (1966).

NEPAL. Thale—Dunche, 2100–2200 m (Jun. 3 & 5, 1969, fl.); Shewaden—Papung, 2100–2600 m (Jun. 29, 1972, fl.); Mängen—Khodang Danda, 3200 m (Aug. 28, 1972, fl.).

Distr. Himalaya (Garhwal to Sikkim).

The species is very variable in the amount of long rufous stiff hairs on stems, petioles, peduncles, and calyces.

Rubus paniculatus Smith: Fl. E. Himal. 131 (1966).

NEPAL. Kakani, 2200 m (Jun. 20, 1967, fr.); Thale—Dunche, 2200–2000 m (Jun. 3, 1969); Shewaden—Papung, 2600–2000 m (Jun. 29, 1972); Basantapur, 2300 m (Jul. 7, 1972, fl.); Khodang Danda—Latsu, 2400 m (Aug. 29, 1972, fr. black-purple).

DARJEELING. 2200–2250 m (Jun. 23 & 24, 1969, fl.); around Ghum (Jul. 6 & 7, 1969, fl.); Palmajua—Batasi, 2200–2100 m (Aug. 8, 1972, fl.).

BHUTAN. Ritang—Rukubi, 2600–2800 m (Apr. 13, 1967).

Distr. Himalaya (Rajaori to Bhutan) and Khasia.

f. **tiliaceus** (Smith) Hara, stat. nov.

Rubus tiliaceus Smith in Rees, Cyclop. **30**: *Rubus* (1819)—Focke in Bibl. Bot. **17** (72): 73 (1910).

R. cordifolius (non Noronha 1790, nec Weihe et Nees 1822) D. Don, Prodr. Fl. Nepal. 233 (1825).

NEPAL. Phulchoki, Kathmandu, 2200–2700 m (Jun. 23, 1967 & May 28, 1972, fr.); Dunche, 1600 m (Jun. 26, 1970, fr.).

DARJEELING. Ratho Chu—Raman, 2100–2400 m (Aug. 4, 1972, fl.); Batasi—Mani Bhanjyang, 2100–2000 m (Aug. 9, 1972, fr.).

Distr. Himalaya (Kumaon to Sikkim).

Rubus pungens Cambes. in Jacquem., Voy. **4**: 48, t. 59 (1835–36).

var. **horridulus** Hara in Journ. Jap. Bot. **47**: 140 (1972).

R. horridulus (non P. J. Mueller 1868) Hook. f., Fl. Brit. Ind. **2**: 341 (1878).

R. parapungens Hara, Fl. E. Himal. **2**: 58 (1971).

Distr. sp. Himalaya (Kashmir to Bhutan), N. Burma, China, Korea, and Japan. The variations in this species was discussed by Hara (l.c. 141, 1972).

Rubus rugosus Smith in Rees, Cyclop. **30**: *Rubus* 34 (1819)—Focke in Bibl. Bot. **17** (72): 92 (1910).

R. rugosus Hamilt. ex D. Don, Prodr. Fl. Nepal. 234 (1825).

R. Hamiltonianus Ser. in DC., Prodr. **2**: 560 (1825).

R. moluccanus L. sensu Hook. f., Fl. Brit. Ind. **2**: 330 (1878), p.p.

NEPAL. Godawari, Kathmandu, 1500 m (Chuma, Sep. 8, 1970, no. 29, fl.).

BHUTAN. Mishichen—Khosa, 1700 m (May 10, 1967).

Distr. E. Himalaya and Khasia.

Rubus Treutleri Hook. f.: Fl. E. Himal. 132 (1966).

R. arcuatus O. Kuntze, Meth. Sp. Rubus 66 & 78 (1879).

R. rosulans O. Kuntze, l.c. 65 & 78 (1879).

R. Tongloensis O. Kuntze, l.c. 66 & 78 (1879).

NEPAL. Gupha Pokhari, 2800 m (Jul. 4, 1972, no. 721084, fl. pink); Chauke—Dor, 2900–2600 m (Jul. 6, 1972, fl.).

DARJEELING. Tonglu, 2800–3100 m (Jul. 11 & 12, 1969; Jul. 30, 1972, fl. pink).

Distr. Himalaya (Nepal to Bhutan) and W. China.

Rubus Wardii Merrill in Brittonia **4**: 84 (1941)—Hara in Journ. Jap. Bot. **47**: 142 (1972).

R. gigantiflorus Hara: Fl. E. Himal. 129 (1966); **2**: fig. 5 i (1971).

Distr. E. Himalaya (Sikkim), S. E. Tibet, N. Burma, and W. China.

Sibbaldia perpusilloides (W. W. Smith) Hand.-Mzt., Symb. Sin. **7**: 520 (1933)—Chatterjee in Not. Bot. Gard. Edinb. **19**: 326 (1938).

Potentilla perpusilloides W. W. Smith in Rec. Bot. Surv. Ind. **4**: 188 (1911).

NEPAL. Banduke Pokhari (Duo Tulo Pokhari), 4200 m (Jun. 15, 1972, no. 720502, fl.).

Distr. E. Himalaya (E. Nepal and Sikkim) and W. China (Yunnan).

Sibbaldia sikkimensis (Prain) Chatterjee in Not. Bot. Gard. Edinb. **19**: 327 (1938).

Potentilla sikkimensis Prain in Journ. Asiat. Soc. Beng. **73**: 201 (1904).

NEPAL. Kipuphu, 4500 m (Jun. 26, 1972, no. 720787, fl.); Kipuphu—Phujeng La, 4500–4800 m (Jun. 27, 1972, no. 727277, fl.).

Distr. E. Himalaya (E. Nepal and Sikkim).

Sorbus Kurzii (Watt ex Prain) C. K. Schneider in Bull. Herb. Boiss. ser. 2, **4**: 315 (1906).

Pyrus Kurzii Watt ex Prain in Journ. Asiat. Soc. Beng. **73**: 203 (1904).

NEPAL. Minchin Dhap—Mul Pokhari, 2500–2900 m (Oct. 29, 1963, no. 6301806, fr.); Dor—Tute, 2300–2600 m (Jul. 7, 1972, no. 727274).

Distr. Himalaya.

Sorbus microphylla Decne.: Fl. E. Himal. 133 (1966); **2**: 61 (1971).

NEPAL. Topke Gola, 3700 m (Jun. 19, 1972, no. 720602, fl.); Thudam, 3400 m (Jun. 24, 1972, no. 727273, fl.; Jun. 25, 1972, no. 720755, fl.).

Distr. E. Himalaya (E. Nepal to Sikkim) and W. China.

Sorbus Wallichii (Hook. f.) Ohashi, comb. nov.

Pyrus Wallichii Hook. f., Fl. Brit. Ind. **2**: 376 (1878).

S. foliolosa (Wall.) Spach. sensu C. K. Schneider, Ill. Handb. Laubh. **1**: 680 (1906).

BHUTAN. Gasa, 2800 m (May 14, 1967, no. 12894, fl.).

Distr. Himalaya (Nepal to Bhutan).

LEGUMINOSAE (by Hiroyoshi Ohashi)

Abrus precatorius L., Syst. Nat. ed. 12, **2**: 472 (1767)—Baker in Fl. Brit. Ind. **2**: 175 (1876)—Breteler in Blumea **10**: 617, t. 5 (1960)—Verdcourt in Kew Bull. **24**: 240 (1970).

subsp. **precatorius**

NEPAL. Tamur Bridge—Mohamabedi Khola, 300 m (Jul. 9, 1972).

Distr. Tropics and subtropics of Asia, Pacific Is., Australia, and Africa.

Acacia Catechu (L. f.) Willd.: Ohashi in Fl. E. Himal. 135 (1966).

NEPAL. Ghorwa—Sanichare, 200 m (Dec. 10, 1963); Sukaura—Arughat Bazar, 400–560 m (Jan. 9, 1970); Dharan, 200 m (Jun. 1, 1972); Tamur Bridge, on riverbed, 300 m (Jun. 3, 1972).

Distr. Himalaya, India, Burma, Thailand, and W. China (Yunnan). Often planted in other regions.

Acacia Farnesiana (L.) Willd., Sp. Pl. **4**: 1083 (1806)—Baker in Fl. Brit. Ind. **2**: 292 (1878)—Brenan in Fl. Trop. E. Africa, Leg.-Mimosoid. 111 (1959).

Mimosa Farnesiana L., Sp. Pl. ed. 1, 521 (1753)—Roxb., Hort. Beng. 40 (1814); Fl. Ind. ed. 2, **2**: 557 (1832).

Vachellia Farnesiana (L.) Wight et Arn., Prodr. 272 (1834)—Wight, Icon. **1**: t. 300 (1840).

NEPAL. Biratnagar, 200 m (Dec. 19, 1963).

Distr. Tropics but native of tropical America, often cultivated as an ornamental and sometimes naturalized.

Acacia lenticularis Buch.-Ham. [in Wall., Cat. no. 5244 (1831–32), nom. nud.] ex Benth. in Hook., Lond. Journ. Bot. **1**: 508 (1842)—Baker in Fl. Brit. Ind. **2**: 296 (1878).

NEPAL. Dhara Pani—Mohamabedi Khola, 800 m (Jun. 3, 1972, no. 720136, fl.).

Distr. Himalaya.

Acacia pennata (L.) Willd.: Fl. E. Himal. 135 (1966).

Acacia intsia (L.) Willd. var. *oxyphylla* Baker sensu Ohashi, l.c. 135 (1966).

Albizia myriophylla Benth. sensu Ohashi, l.c. 137 (1966).

NEPAL. Dumhan—Taplejung, 700–2000 m (Nov. 1, 1963); Bharomdin—Tharpu, 1000–1200 m (Nov. 25, 1963); Dharan—Dhara Pani, 400–1300 m (Jun. 2, 1972); Dhara Pani—Teku Nala, 300–1000 m (Jun. 3, 1972); Mohamabedi Khola, 400 m (Jun. 3, 1972).

DARJEELING. Tista, 300–500 m (Aug. 10, 1972).

Distr. Tropics of the Old World.

Aeschynomene indica L.: Fl. E. Himal. 135 (1966)—Ohashi in Journ. Fac. Sci. Univ. Tokyo, sect. 3, **11**: 31 (1971).

NEPAL. Barabise—Thale, 850–2050 m (Sep. 9, 1970).

Distr. Tropics to warm temperate regions of the world.

Albizia chinensis (Osb.) Merr.: Fl. E. Himal. 136 (1966); **2**: 61 (1971).

NEPAL. Bir Gaon–Dingla, 1000–1600 m (Jul. 1, 1972).

Albizia Julibrissin Durazz.¹⁾: Fl. E. Himal. 136 (1966).

var. **Julibrissin**

BHUTAN. Tongsa–Tashiling, 2200–2300 m (Apr. 19, 1967); Thargyal Mathur Bridge, 1500 m (Jun. 2, 1967).

var. **mollis** (Wall.) Benth. ex Baker in Fl. Brit. Ind. **2**: 300 (1878).

Acacia mollis Wall., Pl. As. Rar. **2**: 76, t. 177 (1831).

Albizia mollis (Wall.) Boiv.: Fl. E. Himal. **2**: 62 (1971)—Stainton, Forest. Nepal, fig. 36 (1972).

Albizia julibrissin subsp. *mollis* (Wall.) Ali in Pakistan Journ. Forest. **17** (3): 368 (1967).

NEPAL. Nagarjun, 2100 m (Apr. 29, 1970); Chitlang–Thankot, 1700–2200 m (Sep. 4, 1970).

Distr. Tropical to warm temperate Asia and N. Africa. Often cultivated in other regions.

Albizia lucida Benth.: Fl. E. Himal. 136 (1966), ut *A. lucida* (Roxb.) Benth.

Mimosa lucida Roxb. (1832), non Vahl (1807).

A. Meyeri Richer in Journ. Wash. Acad. Sci. **8**: 242 (1918).

NEPAL. Tarpu Ghat–Tarku, 430–500 m (Jan. 12, 1970).

Distr. Himalaya (Nepal to Bhutan), Assam, Burma, Thailand, W. China, and Formosa.

Albizia procera (Roxb.) Benth. in Hook., Lond. Journ. Bot. **3**: 89 (1844)—Baker in Fl. Brit. Ind. **2**: 299 (1878).

Mimosa procera Roxb., Pl. Coromand. **2**: 12, t. 121 (1798); Fl. Ind. ed. 2, **2**: 548 (1932).

Acacia procera Willd., Sp. Pl. **4**: 1063 (1806).

NEPAL. Ghorwa–Sanichare, 200–300 m (Dec. 10, 1963).

Distr. Himalaya, India, and Burma.

Alysicarpus vaginalis (L.) DC.: Fl. E. Himal. 137 (1966).

NEPAL. Nijgar–Patlaia, 100 m (Nov. 15, 1970).

Amphicarpaea ferruginea Benth. in Miq., Pl. Jungh. 232 (1852).

Shuteria? *ferruginea* (Benth.) Baker in Fl. Brit. Ind. **2**: 182 (1876)—Hand.-Mzt., Symb. Sin. **7**: 578 (1933).

NEPAL. Phulchoki, 2700 m (Jul. 15, 1972, fl., no. 727155); Daman, 2500 m (Aug. 15, 1972, no. 727209); Dunche–Singum Gompa, 1900–3200 m (Aug. 22, 1972, fl., nos. 721815 & 727159); Khodang Danda–Latsu, 2100–2500 m (Aug. 29, 1972, fl., nos. 722043 & 727160).

Distr. Himalaya (Nepal) and W. China (Yunnan and Szechuan).

1) *Albizia Julibrissin* Durazz.

var. **glabrior** (Koidz.) Ohashi, comb. nov.

A. mollis (Wall.) Boiv. var. *glabrior* Koidz. [in Mayebara, Fl. Austro-higo. 18 (1931), nom. nud.] in Act. Phytotax. Geobot. **1**: 18 (1932).

A. glabrior (Koidz.) Ohwi in Journ. Jap. Bot. **12**: 657 (1936); Fl. Jap. 672 (1953); ed. Engl. 553 (1965) & ed. rev. 783 (1965).

Apios carnea (Wall.) Benth. ex Baker: Fl. E. Himal. 140 (1966).

DARJEELING. Phalut-Ratho Chu, 2100-3600 m (Aug. 4, 1972, fl.).

Distr. Himalaya (Nepal and Sikkim), Assam, Burma, Thailand, Indo-China, and China.

Arachis hypogaea L., Sp. Pl. ed. 1, 741 (1753)-Baker in Fl. Brit. Ind. 2: 161 (1876).

NEPAL. Sim Chotala-Bainse, 800-970 m (Jun. 7, 1969, fl.).

Distr. Native of Brazil, cultivated widely as a crop.

Astragalus bhotanensis Baker in Hook. f., Fl. Brit. Ind. 2: 126 (1876)-Lauener in Not. Bot. Gard. Edinb. 30: 240 (1970).

BHUTAN. Thimphu, 2450 m (Apr. 29, 1967); Tzatogang-Dotanang, 2700 m (May 27, 1967, fl.); Tabab-Thimphu, 2500 m (May 28, 1967, fl.); Thimphu-Chimakhothi (Jun. 1, 1967, fl.).

Distr. E. Himalaya (Bhutan) and China.

Astragalus concretus Benth. in Royle, Ill. Bot. Himal. 1: 199 (1835).

A. vicoides Grah. [in Wall., Cat. no. 5931 (1831-32), nom. nud.] ex Baker in Fl. Brit. Ind. 2: 131 (1876), non Ledeb. (1831).

NEPAL. Tsedang Pokhari-Panghu Danda, 3100 m (Aug. 23, 1969); Yatumbal-Oo Kharka, 3100 m (Jun. 30, 1970, fl.); Kyangjing-Langtang, 3000-3800 m (Jul. 16, 1970); Trisuli Khola-Singum Gompa, 2700 m (Aug. 22, 1972); Mangen-Khodang Danda, 2500-3100 m (Aug. 28, 1972).

Distr. Himalaya (Kashmir to Nepal).

The flowering specimens of this species are occasionally identified as *Hedysarum strobiliferum*.

Astragalus emodi Steud., Nomen. ed. 2, 1: 161 (1840)-Baker in Fl. Brit. Ind. 2: 130 (1876).

NEPAL. Lukthang-Kalingchok, 3300-3650 m (Sep. 28, 1970); Gopte-Thale Patil, 3200-3500 m (Aug. 26, 1972).

Distr. Himalaya (Kumaon and Nepal).

Astragalus lessertioides Benth. ex Bunge, Astragali 1: 24 (1868) & 2: 28 (1869)-Baker in Fl. Brit. Ind. 2: 124 (1876).

NEPAL. Lama Chungbu-Samdan, 4300 m (Jun. 24, 1972, no. 720710).

Distr. E. Himalaya (E. Nepal and Sikkim).

Astragalus leucocephalus Grah. [in Wall., Cat. no. 5923 (1831-32), nom. nud.] ex Benth. in Royle, Ill. Bot. Himal. 198, t. 32, fig. 2 (1835)-Baker in Fl. Brit. Ind. 2: 128 (1876)-Collett, Fl. Siml. 125 (1921).

NEPAL. Shyaprubensi-Tangjet, 1500-2240 m (Jun. 27, 1970).

Distr. Afghanistan and Himalaya (Kumaon to Nepal).

Astragalus pyonorhizus Wall. [Cat. no. 5927 (1831-32), nom. nud.] ex Benth. in Royle, Ill. Bot. Himal. 199 (1835)-Baker in Fl. Brit. Ind. 2: 119 (1876)-Kitamura in Kihara, Fauna Fl. Nepal Himal. 162 (1955).

A. Donianus DC. sensu Ohashi in Fl. E. Himal. 2: 62 (1971).

NEPAL. Roll-Jarjare, 2910-3100 m (May 3, 1970, Kanai no. 671704); Langtang-Kyangjing, 3500 m (Jul. 13, 1970, Kanai & Shakya no. 672481); Thudam, 3600 m (Jun. 24, 1972, fl.); Singum Gompa-Gosainkund, 3200-4200 m (Aug. 23, 1972).

Distr. E. Himalaya (Nepal to Sikkim).

Sometimes *Astragalus Donianus* is difficult to distinguish from *A. pycnorhizus*. Among our collections the specimens of Kanai & Shakya 672481 and Kanai 671704 are apparently intermediate between both species. For example, Kanai 671704 has the calyces of *A. Donianus*-type, i.e. calyx-teeth half as long as the tube, but has the wing-petals of *A. pycnorhizus*-type, i.e. wings shorter than the keel-petals.

Astragalus sikkimensis Benth. ex Bunge, *Astragali* **1**: 23 (1868) & **2**: 28 (1869)—Baker in *Fl. Brit. Ind.* **2**: 126 (1876).

NEPAL. Thale Bisauna—Tingoang, 2750–3100 m (Sep. 11, 1970); Tingoang—Khosori Khabre, 3000 m (Sep. 12, 1970).

Distr. E. Himalaya (Nepal to Sikkim).

Astragalus stipulatus D. Don ex Sims: *Fl. E. Himal.* 140 (1966).

var. **phulchokiensis** Ohashi, var. nov.

A typo differt: Calyx glaber sed vulgo lacinia sparsim ciliatus; laciniis tubo brevioribus. Corolla et lutea et purpurea; vexillo ceteris petalorum longiore.

NEPAL. Phulchoki, 2200 m (Sep. 6, 1972, Kanai no. 722126, fl. & young fr. Holotype in TI, isotypes in TI, KYO, BM).

Distr. sp. E. Himalaya (C. Nepal to Bhutan).

Astragalus xiphocarpus Benth. ex Bunge: *Fl. E. Himal.* 140 (1966); **2**: 62 (1971).

NEPAL. Gorza Gaon—Bhuj, 2700 m (Jul. 3, 1972); Tinjure, 2900 m (Jul. 6, 1972, fl.).

Atylosia mollis Benth.: *Fl. E. Himal.* 140 (1966).

BHUTAN. Choojom—Mishina, 1500–1500 m (Apr. 27, 1967); Tinlegang—Gon Chungnang, 1950–1800 m (May 5, 1967).

Distr. Himalaya (Garhwal and Kumaon to Bhutan), Assam, and China (Yunnan).

Atylosia scarabaeoides (L.) Benth.: *Fl. E. Himal.* 140 (1966).

NEPAL. Sangu—Luitel, 390 m (Jan. 11, 1970).

BHUTAN. Choojom—Wangdu Phodrang, 1500–1450 m (Apr. 27, 1967).

Atylosia volubilis (Blanco) Gamble, *Fl. Madras* 369 (1918).

Cytisus volubilis Blanco, *Fl. Filip.* 599 (1837).

A. mollis Benth. sensu Baker in *Fl. Brit. Ind.* **2**: 213 (1876), p.p.

A. crassa Prain in *Journ. Asiat. Soc. Beng.* **66** (2): 45 & 432 (1897).

Cantharospermum volubile (Blanco) Merrill in *Philip. Journ. Sci.* **5**: 127 (1910).

NEPAL. Patlaia—Sakti Mohar Khola, 200 m (Apr. 18, 1969).

Distr. Tropical Himalaya, India, Burma, S. E. Asia, and Malaysia.

Bauhinia Vahlia Wight et Arn.: *Fl. E. Himal.* 141 (1966).

NEPAL. South of Dharan, 200 m (Jun. 1, 1972, fr.).

Bauhinia variegata L., *Sp. Pl. ed. 1*, 375 (1753)—Baker in *Fl. Brit. Ind.* **2**: 284 (1878)—de Wit in *Reinwardtia* **3**: 411 (1956).

B. candida Ait., *Hort. Kew.* **2**: 49 (1789)—Roxb., *Fl. Ind. ed. 2*, **2**: 319 (1832).

NEPAL. Gairi, 520 m (Jan. 8, 1970); Teku Nala—Dhankuta, 800–1300 m (Jun. 4, 1972, fl.).

Distr. Himalaya, India, Burma, and China. According to de Wit (1956), its native distribution is possibly in China.

Butea minor Buch.-Ham. ex Baker: *Fl. E. Himal.* 141 (1966)—Stainton, *Forest. Nepal*, fig. 32 (1972).

NEPAL. Dunche–Shyaprubensi, 1500–2000 m (Jun. 26, 1970); Khosori Khabre–Barabise, 1000 m (Sep. 13, 1970); Dingla–Doban, 700 m (Jul. 2, 1972, fl.); Teku Nala, 800 m (Jul. 8, 1972, fl.); Sanguri Bhanjyang–Dharan, 700 m (Jul. 10, 1972, fl.).

Butea monosperma (Lam.) Taub. in Pfl.-fam. III, 3: 366 (1894).

Erythrina monosperma Lam., Encycl. Méth. 1: 391 (1785).

B. frondosa Roxb., Pl. Coromand. 1: 21, t. 21 (1795); Fl. Ind. ed. 2, 3: 244 (1832)–Baker in Fl. Brit. Ind. 2: 194 (1876).

NEPAL. Sim Bhanjyang, 1200 m (Mar. 1, 1970).

Distr. Himalaya, India, Ceylon, S. E. Asia, and Malaysia.

Caesalpinia decapetala (Roth) Alst.¹⁾ in Trimen, Handb. Fl. Ceyl. 6, Suppl. 89 (1931)–Fl. Phulchoki & Godawari 24 (1969)–Stainton, Forest. Nepal, fig. 39 (1972).

Reichardia decapetala Roth, Nov. Sp. 212 (1821).

C. sepiaria Roxb.: Fl. E. Himal. 2: 62 (1971).

NEPAL. Phulchoki, 1800 m (Jul. 15, & Sep. 6, 1972); Gram–Dunche, 1900–2000 m (Aug. 21, 1972); Dunche–Trisuli Khola, 1900–2000 m (Aug. 22, 1972).

Campylotropis speciosa (Royle ex Schindler) Schindler in Fedde, Rep. 11: 425 (1912)–Ohashi in Journ. Jap. Bot. 49: 330 (1974).

Lespedeza eriocarpa DC. sensu Maxim. in Act. Hort. Petrop. 2: 350 (1873)–Baker in Fl. Brit. Ind. 2: 144 (1876).

L. speciosa Royle [in Maxim. in Act. Hort. Petrop. 2: 350 (1873), pro syn.] ex Schindler in Fedde, Rep. 9: 519 (1911).

L. indica Schindler, l.c. 9: 515 (1911).

C. eriocarpa Schindler, l.c. 11: 347 (1912).

C. macrostyla (D. Don) Schindler var. *eriocarpa* (Royle ex Maxim.) Ohashi in Fl. E. Himal. 142 (1966).

NEPAL. Dunche–Singum Gompa, 1900–3200 m (Aug. 22, 1972, fl.).

BHUTAN. Yuwak–Wangdu Phodrang, 1600–1400 m (Apr. 9, 1967, fl. & young fr.); Kyebaka–Samtengang, 1600–2100 m (Apr. 10 & 26, 1967, fl.); Tinlegang–Gon Chungnang, 1800–1950 m (May 5, 1967, fl.)

Distr. Himalaya (Kashmir to Bhutan) and Assam (Khasia).

Caragana nepalensis Kitamura in Act. Phytotax. Geobot. 15: 132 (1954); in Kihara, Fauna Fl. Nepal Himal. 163, f. 34 (1955).

1) **Caesalpinia decapetala** (Roth) Alst.

var. **japonica** (Sieb. et Zucc.) Ohashi, comb. nov.

Caesalpinia Crista Thunb., Fl. Jap. 179 (1784), non L. (1753).

C. japonica Sieb. et Zucc. in Abh. Akad. Muench. 4 (2): 117 (1845)–Franch. et Sav., Enum. Pl. Jap. 1: 114 (1875)–Makino et Nemoto, Fl. Jap. ed. 1, 706 (1925); ed. 2, 553 (1931)–Rehd., Man. Cult. Tr. Shrub. ed. 2, 448 (1940)–Ohwi, Fl. Jap. 673 (1953); ed. Engl. 554 (1965); ed. rev. 784 (1965).

C. sepiaria Roxb. sensu Miq., Prol. Fl. Jap. 242 (1867)–Matsum. in Bot. Mag. Tokyo 16: 99 (1902); Index Pl. Jap. 2: 251 (1912)–Masamune in Sci. Rep. Kanazawa Univ. 3: 122 (1955).

C. sepiaria Roxb. var. *japonica* (Sieb. et Zucc.) Hand.-Mzt. [Symb. Sin. 7: 543 (1933), comb. nud., in nota] ex Honda, Pl. Siebold. in Siebold–Kenkyu 553 (1938)–Makino, Ill. Fl. Nippon 431 (1940), ut var. *japonica* Makino–Koyama, Ohashi & Fukuoka in Mem. Nat. Sci. Mus. 3: 346 (1970)–Kitamura et Murata, Colour. Ill. Woody Pl. Jap. 1: 358, pl. 71, fig. 442 (1971).

C. decapetala (Roth) Merr. sensu Hatusima, Fl. Ryukyus 344 (1971).

NEPAL. Langtang Gorge—Langtang, 3100 m (Jul. 12, 1970, fl.).

Distr. Himalaya (Nepal).

Cassia floribunda Cavanilles, Descr. 132 (1802)—de Wit in *Webbia* **11**: 245 (1955)—Fl. Phulchoki & Godawari 25 (1969).

C. laevigata Willd., Enum. Hort. Berol. 441 (1809)—Prain in Journ. Asiat. Soc. Beng. **66** (2): 476 (1897).

Senna aurata Roxb., Fl. Ind. ed. 2, **2**: 342 (1832).

C. aurata Roxb. [Hort. Beng. 32 (1814), nom. nud.] ex Vogel, Syn. Cass. 17 (1837).

C. occidentalis L. sensu Ohashi in Fl. E. Himal. 144 (1966), p.p.

NEPAL. Balaju, 1300 m (Jun. 16, 1967); Gokarna, Kathmandu, 1400 m (Jun. 22, 1967).

SIKKIM. Singhik, 1500 m (Jun. 30, 1969).

Cassia mimosoides L.

subsp. **mimosoides**: Fl. E. Himal. 144 (1966), in nota.

var. **mimosoides**

NEPAL. Dunche—Shyaprubensi, 1500–2000 m (Jun. 26, 1970); Khosori Khabre—Barabise, 800–1500 m (Sep. 13, 1970).

var. **Wallichiana** Baker in Fl. Brit. Ind. **2**: 266 (1878)—Kitamura in Kihara, Fauna Fl. Nepal Himal. 164 (1955).

NEPAL. Shyaprubensi—Tangjet, 1500–2240 m (Jun. 27, 1970).

Distr. sp. Tropical to warm temperate regions in Asia, and tropical Africa, Australia and America.

Cassia Sophera L.: Fl. E. Himal. 145 (1966); **2**: 63 (1971).

C. occidentalis L. sensu Ohashi, l.c. 144 (1966), p.p.

NEPAL. Khosori Khabre—Barabise, 1000 m (Sep. 13, 1970).

Cassia Tora L., Sp. Pl. ed. 1, 376 (1753)—Baker in Fl. Brit. Ind. **2**: 263 (1878), p.p. min.—Prain in Journ. Asiat. Soc. Beng. **66** (2): 158 & 475 (1897)—de Wit, l.c. 276 (1955).

Senna Tora Roxb., Fl. Ind. ed. 2, **2**: 340 (1832).

NEPAL. Trisuli—Bainse, 800 m (Jun. 1, 1969, fl.); Khosori Khabre—Barabise, 1000 m (Sep. 13, 1970); Saju Kholā—Dingla, 1000–1400 m (Jul. 1, 1972).

SIKKIM. Papung, 500 m (Jun. 28, 1969, fl.).

Distr. Tropics, probably of S. American origin.

Chesneya nubigena (D. Don) Ali in Scientist (Karachi) **3**: 4 (1959).

Astragalus nubigenus D. Don, Prodr. Fl. Nepal. 245 (1825).

Caragana crassicaulis Benth. ex Baker in Fl. Brit. Ind. **2**: 117 (1876).

Calophaca crassicaulis (Benth. ex Baker) Komarov in Act. Hort. Petrop. **29**: 357 (1909).

Astragalus larkyaensis Kitamura in Kihara, Peoples Nepal Himal. 421 (1957)—Ohashi in Phot.-Alb. Pl. E. Himal. f. 214 (1968); in Fl. E. Himal. **2**: 62 (1971).

NEPAL. Topke Gola—Jalang Chhyongo, 4000–4300 m (Jun. 20, 1972 fl.); Janga La—Thudam, 4300 m & 4400 m (Jun. 21, 1972 fl.); Kipuphu, 4500 m (Jun. 27, 1972, fl.); Singum Gompa—Gosainkund (Aug. 23, 1972, fl.); Gosainkund, 4000–4400 m (Aug. 24, 1972, fl.).

BHUTAN. Laum Thang—Singke La, 4100–5000 m (May 19, 1967, fl.); Yale La,

4800 m (May 23, 1967, fl.).

Distr. Himalaya (Kumaon to Bhutan), W. Tibet, Burma, and China.

Chesneya polystichoides (Hand.-Mzt.) Ali in Scientist (Karachi) **3**: 10 (1959).

subsp. **bhutanica** Ohashi, subsp. nov.

[Fig. 10]

Astragalus nubigenus D. Don sensu Ohashi in Phot.-Alb. Pl. E. Himal. f. 215 (1968); in Fl. E. Himal. **2**: 62 (1971).

A typo (=subsp. *polystichoides*) folio 11–14 jugo pinnato, foliolo numero 23–29, apice mucronulate acuto, calyce albo-sericeo differt.

NEPAL. Chandanbari, 1200 ft. (Saman & Bista no. 13129, KATM, TI).

BHUTAN. Singke La–Chawa Gassar, 4600 m, on alpine grassland (Kanai, Murata, Ohashi & Yamazaki no. 11623, May 19, 1967, fl. Holotype in TI, isotypes in TI, KYO, BM, E); loc. cit. 4700 m (K.M.O.Y. no. 11430, fl.); loc. cit. 4200 m (K.M.O.Y. no. 11431, fl.); Laum Thang–Singke La, 4800 m (K.M.O.Y. no. 11444, May 19, 1967); Cheka–Tremo La, 4000 m (K. Nishioka, Jun. 23, 1966, fl.).

Distr. subsp. Himalaya (Nepal and Bhutan).

Christia vespertilionis (L. f.) Bakh. f. ex van Meeuwen in Reinwardtia **6**: 90 (1961).

Hedysarum vespertilionis L. f., Suppl. 331 (1781).

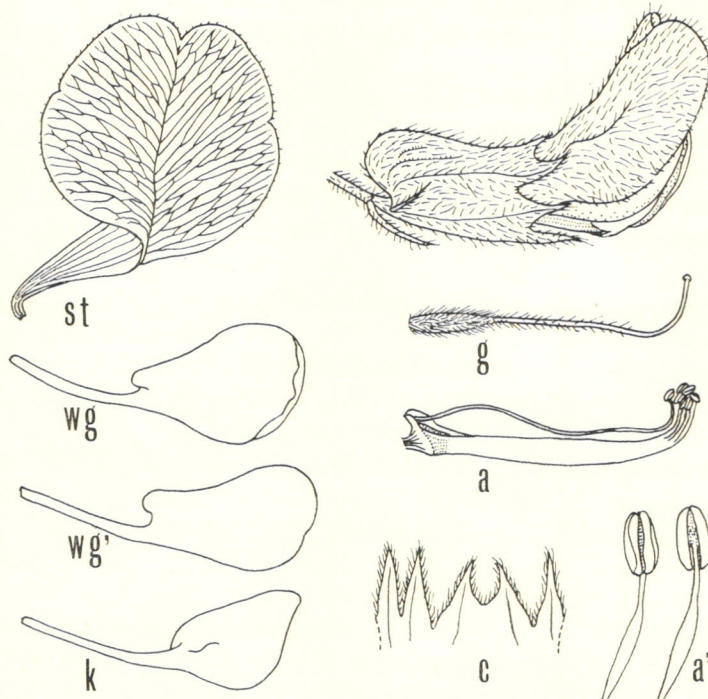


Fig. 10. Flower of *Chesneya polystichoides* subsp. *bhutanica*. st. Standard, wg. Left wing, wg'. Right wing, k. Keel-petal, a. Androecium, a'. Anther and upper part of filaments, g. Gynoecium, c. Calyx from the inside. All $\times 2$ except for a' $\times 8$. From the isotype.

Lourea vespertilionis (L. f.) Desv. in Journ. de Bot. **1**: 122, t. 5, f. 18 (1813)—Baker in Fl. Brit. Ind. **2**: 154 (1876).

BHUTAN. Choojom, 1500 m (Apr. 27, 1967).

Distr. Probably a native of tropical Asia.

Cochlianthus gracilis Benth. in Miq., Pl. Jungh. 234 (1852)—Baker in Fl. Brit. Ind. **2**: 193 (1876)—Fl. Phulchoki & Godawari 25 (1969).

NEPAL. Phulchoki, 2700 m (Jun. 26, 1967; Jul. 15, 1972; Sep. 6, 1972, fl.); Dunche-Singum Gompa, 1900–3200 m (Aug. 22, 1972, fl.); Latsu-Bhorlang, 1700–2400 m (Aug. 30, 1972, fl.); Bhorlang-Sundarijar, 2400–1400 m (Aug. 31, 1972, fl.).

Distr. Himalaya and W. China (Yunnan and Szechuan).

Codariocalyx motorius (Houtt.) Ohashi: Ohashi in Fl. E. Himal. 145 (1966); **2**: 63 (1971); in Ginkgoana **1**: 46, pl. 1 b (1973).

NEPAL. Kagne, 700 m (Jan. 7, 1970); Chitlang-Chandragiri, 1750–2250 m (Sep. 4, 1970); Phulchoki (Sep. 6, 1972).

Crotalaria alata Buch.-Ham. ex D. Don, Prodr. Fl. Nepal. 241 (1825)—Baker in Fl. Brit. Ind. **2**: 69 (1876)—Polhill in Fl. Trop. E. Afr., Leg.-Papil. 949 (1971).

C. bialata Schrank sensu Backer et Bakh. f., Fl. Java **1**: 579 (1963): Fl. E. Himal. 146 (1966); **2**: 63 (1971).

NEPAL. Bainse-Mane Gaon, 1000 m (Jun. 23, 1970); Sim Chotala, 600–900 m (Aug. 19, 1972).

Crotalaria albida Heyne ex Roth: Fl. E. Himal. 145 (1966); **2**: 63 (1971).

NEPAL. Nagarjun, 1500 m (Oct. 2, 1969); Deorali-Chitlang, 1600 m (Sep. 3, 1970); Barabise-Thale, 1700 m (Sep. 9, 1970); Khosori Khabre, 1500 m (Sep. 12, 1970); Bir Gaon, 1600 m (Jun. 30, 1972).

Crotalaria cytisoides Roxb. ex DC., Prodr. **2**: 131 (1825)—Roxb., Fl. Ind. ed. 2, **3**: 276 (1832)—Polhill in Kew Bull. **22**: 247 (1968), in text.

C. psoralioides D. Don (1825), non Lam. (1786), ut *psoraloides*: Fl. E. Himal. **2**: 63 (1971).

NEPAL. Nagarjun, 1500 m (Mar. 1, 1969); Chitlang-Thankot, 2000 m (Sep. 4, 1970).

Crotalaria pallida Ait., Hort. Kew **3**: 20 (1789)—Polhill in Kew Bull. **22**: 262 (1968).

var. **pallida**

C. mucronata Desv.: Fl. E. Himal. 147 (1966); **2**: 63 (1971).

NEPAL. Mohamabedi Kholā, 400 m (Jun. 3, 1972, fl.); Dingla-Doban, 800 m (Jul. 2, 1972); Dharan, 400 m (Jul. 10, 1972, fl.).

Crotalaria prostrata Rottb. ex Willd., Enum. Hort. Berol. **2**: 747 (1809)—Roxb. [Hort. Beng. 54 (1814), nom. nud.] Fl. Ind. ed. 2, **3**: 270 (1832)—Baker in Fl. Brit. Ind. **2**: 67 (1876)—de Munk in Reinwardtia **6**: 211 (1962).

C. hirsuta Willd. sensu Ohashi in Fl. E. Himal. 146 (1966).

Distr. Himalaya, India, Ceylon, and Malaysia.

Crotalaria spectabilis Roth, Nov. Sp. 341 (1821)—Polhill in Fl. Trop. E. Afr., Leg.-Papil. 959 (1971).

C. sericea Retz., Observ. Bot. **5**: 26 (1789), non Burm. f. (1768)—Baker in Fl. Brit. Ind. **2**: 75 (1876)—de Munk, l.c. 214 (1962).

C. Eschenaultii DC., Prodr. **2**: 125 (1825)—Baker, l.c. 76 (1876).

C. retusa L. sensu Ohashi in Fl. E. Himal. 147 (1966).

Distr. Tropics.

Dalbergia sericea G. Don: Fl. E. Himal. 148 (1966); **2**: 64 (1971).

NEPAL. Dunché-Shyaprubensi, 1500–2000 m (Jun. 26, 1970).

Dalbergia Sisso Roxb.: Fl. E. Himal. 148 (1966).

NEPAL. Mohamabedi Khola–Tamur Bridge, 300 m (Jun. 3 & Jul. 9, 1972, young fr.).

Dalbergia stipulacea Roxb.: Fl. E. Himal. 148 (1966); **2**: 64 (1971).

NEPAL. Dharan–Sanguri Bhanjyang, 500 m & 1300 m (Jun. 2, 1972, young fr.);
Dhara Pani–Tamur Bridge, 350 m & 600 m (Jun. 3 & Jul. 10, 1972, young fr.).

DARJEELING. Tista, 400 m (Aug. 10, 1972, young fr.).

Derris marginata (Roxb.) Benth.: Fl. E. Himal. 149 (1966).

D. thyriflora (Benth.) Benth. sensu Ohashi, l.c. 149 (1966), p.p.

NEPAL. Iladanda–Helok, 1500–1800 m (Nov. 13, 1963).

DARJEELING. Tista, 400 m (Aug. 10, 1972, fl.).

Derris microptera Benth. in Journ. Linn. Soc. **4**: suppl. 113 (1860)–Baker
in Fl. Brit. Ind. **2**: 243 (1876).

SIKKIM. Papung–Temi, 500–1620 m (Jun. 28, 1969).

Distr. E. Himalaya (Sikkim).

Desmodium concinnum DC.: Fl. E. Himal. **2**: 64 (1971).

var. **concinnum**: Ohashi in Ginkgoana **1**: 182, pl. 21b (1973).

NEPAL. Khosori Khabre, 1450 m (Sep. 12, 1970, fl.).

Desmodium confertum DC.: Fl. E. Himal. **2**: 64 & 266, f. 27b (1971); in
Ginkgoana **1**: 110 (1973).

NEPAL. Kagne–Samari Bhanjyang, 800 m (Jan. 7, 1970); Bagdeo–Saraswati, 400–
420 m (Nov. 14, 1970).

Desmodium elegans DC.: Ohashi in Fl. E. Himal. **2**: 64 & 278, f. 35–37
(1971); in Ginkgoana **1**: 110 (1973).

subsp. **elegans**

var. **argenteum** (Wall. ex Benth.) Ohashi, comb. nov.

D. argenteum Wall. [Cat. no. 5713 (1831–32), nom. nud.] ex Benth. in Miq., Pl.
Jungh. 226 (1852), in adnota.

D. tiliaefolium (D. Don) Wall. ex G. Don var. *argenteum* (Wall. ex Benth.)
Schindler in Fedde, Rep. **22**: 265 (1926).

NEPAL. Tangjet–Khirojet, 1750–2300 m (Jun. 28, 1970, fl.).

This variety is different from the other infraspecific taxa of *Desmodium elegans*
in having both copiously branched panicles and densely silver-grey or yellowish
velutinous hairs on the inflorescences, petioles, and under surface of leaflets.

var. **elegans**

NEPAL. Tangjet–Khirojet, 1750–2300 m (Jun. 28, 1970, fl.); Khirojet–Yatumbal,
2250–2700 m (Jun. 29, 1970, fl.); Singum Gompa, 3200 m (Aug. 22, 1972).

DARJEELING. Ratho Chu–Raman, 2100–2400 m (Aug. 4, 1972).

Var. *elegans* found between Ratho Chu and Raman is very similar to *Desmodium*
podocarpum subsp. *oxyphyllum*, especially in the shape of leaflets.

Desmodium gangeticum (L.) DC.: Ohashi in Fl. E. Himal. 149 (1966); in
Ginkgoana **1**: 184, pl. 22b (1973).

NEPAL. Nijgar, 200 m (Apr. 19, 1969).

Desmodium heterocarpon (L.) DC.: Fl. E. Himal. 149 (1966); **2**: 65 (1971).
subsp. **heterocarpon**

var. **heterocarpon**: Ohashi in Ginkgoana **1**: 213, pl. 29a (1973).

NEPAL. Nagarjun (Oct. 2, 1969); Barabise–Thale, 850–2050 m (Sep. 9, 1970); Latsu–Bhorlang, 1700–2400 m (Aug. 30, 1972).

var. **strigosum** van Meeuwen in Reinwardtia **6**: 95 (1961) & 251 (1962)–Ohashi in Ginkgoana **1**: 215, pl. 29b (1973).

NEPAL. Bainse–Sim Chotala, 600–900 m (Aug. 19, 1972); Sim Chotala–Gram, 900–1900 m (Aug. 20, 1972).

Desmodium laxiflorum DC.: Fl. E. Himal. 151 (1966).

subsp. **laxiflorum**: Ohashi in Ginkgoana **1**: 101, pl. 12 (1973).

NEPAL. Sim Chotala–Gram, 900–1900 m (Aug. 20, 1972).

DARJEELING. Tista, 400 m (Aug. 10, 1972, fl.).

Desmodium multiflorum DC.: Ohashi in Fl. E. Himal. **2**: 65 & 272 (1971); in Ginkgoana **1**: 110 (1973).

NEPAL. Thale, 2000 m (Sep. 9, 1970); Thale–Thale Bisauna, 2200 m (Sep. 10, 1970); Khosori Khabre, 1500 m (Sep. 12, 1970); Shewaden–Papung, 2000–2600 m (Jun. 29, 1972); near Nessum, 1300 m (Jul. 2, 1972); Sim Chotala–Gram, 900–1900 m (Aug. 20, 1972); Gram–Dunche, 1900–2000 m (Aug. 21, 1972); Dunche–Singum Gompa, 1900–3200 m (Aug. 22, 1972); Latsu–Bhorlang, 1700–2400 m (Aug. 30, 1972); Bhorlang–Sundarijar, 1400–2400 m (Aug. 31, 1972).

Desmodium podocarpum DC.: Ohashi in Fl. E. Himal. 153 (1966); in Ginkgoana **1**: 142, pls. 19–20 (1973).

subsp. **oxyphyllum** (DC.) Ohashi in Fl. E. Himal. **2**: 65 (1971).

var. **oxyphyllum**

NEPAL. Nagarjun, 1500 m (Oct. 2, 1969, fr.); Okhre Danra–Deorali, 1450–1950 m (Sep. 2, 1970, fl.); Bir Gaon–Dingla, 1000–1600 m (Jul. 1, 1972, fl.); Gram–Dunche, 1900–2000 m (Aug. 21, 1972).

Desmodium sequax Wall.: Fl. E. Himal. **2**: 65 & 315, f. 46b (1971).

NEPAL. Dingla–Doban, 800–1000 m (Jul. 2, 1972, fl. & young fr.).

Desmodium triflorum (L.) DC.: Ohashi in Fl. E. Himal. 154 (1966); **2**: 65 (1971); in Ginkgoana **1**: 245, pl. 36b (1973).

NEPAL. Barabise–Thale, 850–2050 m (Sep. 9, 1970); Mohamabedi Kholā–Teku Nala, 300–800 m (Jun. 3, 1972, fl.); Dingla, 1000 m (Jul. 1, 1972); Dingla–Doban, 800–1000 m (Jul. 2, 1972); Bainse–Sim Chotala, 600–900 m (Aug. 19, 1972).

DARJEELING. Tista, 400 m (Aug. 10, 1972).

Dumasia villosa DC.: Fl. E. Himal. 156 (1966).

BHUTAN. Tinlegang, 1950 m (May 4, 1967); Rinchu, 1500 m (May 8, 1967); Rinchu–Mishichen, 1500–1600 m (May 9, 1967).

Eriosema himalaicum Ohashi: Fl. E. Himal. 156 (1966)–Icon. Cormophyt. Sin. **2**: 509, f. 2747 (1972).

NEPAL. Dakchin Kali–Okhre Danra, 1500–1950 m (Sep. 1, 1970); Sim Chotala–Gram, 900–1900 m (Aug. 20, 1972).

Erythrina arborescens Roxb. [Hort. Beng. 53 (1814), nom. nud.] Pl. Coromandel **3**: 14, t. 219 (1811); Fl. Ind. ed. 2, **3**: 256 (1832)–Baker in Fl. Brit. Ind. **2**: 190 (1876)–Hand.-Mzt., Symb. Sin. **7**: 579 (1933)–Krukoff in Journ. Arn. Arb.

53: 130 (1972)—Stainton, Forest. Nepal, fig. 42 (1972).

NEPAL. Khanging—Langtang Gorge, 2600 m (Jul. 11, 1970, fl.); Dunche—Sungum Gumpa, 1900–3200 m (Aug. 22, 1972, fl.).

DARJEELING. 2200 m (Jul. 25, 1972, fl.).

Distr. Himalaya (Kumaon to Bhutan), Assam (Khasia), and W. China (Yunnan and Szechuan).

Erythrina stricta Roxb. [Hort. Beng. 53 (1814), nom. nud.] Fl. Ind. ed. 2, **3:** 251 (1832)—Baker in Fl. Brit. Ind. **2:** 189 (1876)—Hand.-Mzt., l.c. 579 (1933)—Krukoff, l.c. 132 (1972).

E. variegata L. sensu Ohashi in Fl. E. Himal. 157 (1966), p.p., excl. specim. cit. Sikkim.

Distr. Himalaya (Nepal to Bhutan), Burma, Indo-China, and W. China (Yunnan).

Flemingia macrophylla (Willd.) Merrill in Philip. Journ. Sci. **5:** 130 (1910); Enum. Philip. Fl. Pl. **2:** 317 (1923), ut *F. macrophylla* (Willd.) O. Kuntze ex Prain. *Crotalaria macrophylla* Willd., Sp. Pl. **3:** 982 (1800).

F. congesta Roxb. [Hort. Beng. 56 (1814), nom. nud.] ex Aiton, Hort. Kew. ed. 2, **4:** 349 (1812)—Roxb., Fl. Ind. ed. 2, **3:** 340 (1832)—Baker in Fl. Brit. Ind. **2:** 228 (1876).

Moghania macrophylla (Willd.) O. Kuntze: Fl. E. Himal. 159 (1966); **2:** 66 (1971).

NEPAL. Dunche—Shyaprubensi, 1500–2000 m (Jun. 26, 1970).

Flemingia strobilifera (L.) R. Brown ex Aiton, Hort. Kew. ed. 2, **4:** 350 (1812)—Baker in Fl. Brit. Ind. **2:** 227 (1876).

Moghania strobilifera (L.) O. Kuntze, Rev. Gen. Pl. **1:** 199 (1891): Fl. E. Himal. 159 (1966); **2:** 67 (1971).

NEPAL. Nagarjun, Kathmandu (Apr. 28, 1970); Bagdeo—Saraswati, north of Nijgar, 400–420 m (Nov. 14, 1970).

Glycine max (L.) Merrill: Fl. E. Himal. 157 (1966).

NEPAL. Pati Bhanjyang, 1700 m, cult. (Aug. 30, 1972).

Gueldenstaedtia himalaica Baker: Fl. E. Himal. **2:** 66 (1971). [Plate 4a]

G. Santapau Thothathri: Fl. E. Himal. **2:** 66 (1971).

NEPAL. Langtang—Kyangjing, 3400–3800 m (Jul. 13, 1970); Topke Gola, 3600 m (Jun. 18, 1972, fl.); Thudam, 3400 m (Jun. 22, 1972, fl.); Thudam—Lama Chungbu, 3400–4200 m (Jun. 23, 1972, fl.); Lama Chungbu—Thudam, 3400–4200 m (Jun. 24, 1972, fl.).

Hedysarum campylocarpon Ohashi in Journ. Jap. Bot. **49:** 164 (1974).

NEPAL. Langtang—Kyangjing, 3400–3800 m (Jul. 13, 1970, fl. & young fr.).

Distr. Himalaya (C. Nepal).

A taxonomic treatment of this species is provided on page 374.

Hedysarum sikkimense Benth. ex Baker in Fl. Brit. Ind. **2:** 145 (1876).

[Plate 4b]

NEPAL. Thudam—Lama Chungbu, 3400–4200 m (Jun. 23, 1972, fl.); Lama Chungbu, 4200 m (Jun. 24, 1972, fl.).

Distr. Himalaya, Tibet, and W. China.

This species is treated in detail on page 388.

Indigofera bracteata Grah. ex Baker in Fl. Brit. Ind. **2**: 100 (1876)—Kitamura in Kihara, Fauna Fl. Nepal Himal. 166 (1955).

NEPAL. Phulchoki, 2400–2700 m (Jun. 23, 1967, fl.; May 29, 1969, fl.; May 28, 1972; Jul. 15, 1972, fl.); Trisuli Khola–Gosainkund, 2065–3000 m (Jun. 4, 1969); Khirojet–Yatumbal, 2300–2700 m (Jun. 29, 1970); Thale–Thale Bisauna, 2500 m (Sept. 10, 1970); Khodang Danda–Latsu, 2100–2500 m (Aug. 29, 1972).

Distr. Himalaya (Nepal) and Assam.

Indigofera cylindracea Wall. ex Baker in Fl. Brit. Ind. **2**: 99 (1876)—Ali in Bot. Not. **111**: 568 (1958).

I. pulchella Roxb. sensu Ohashi in Fl. E. Himal. 157 (1966).

NEPAL. Kakani, 2200 m (Jun. 20, 1967, fl.); Phulchoki, 2300–2700 m (Jun. 23, 1967; May 29, 1969; Jun. 10, 1969; Jul. 15, 1972); Nagarkot, 2000 m (Jun. 24, 1967, fl.); Tikabhairab, 1500 m (Feb. 10, 1970); Mane Gaon–Thale, 1200–1900 m (Jun. 24, 1970); Khirojet–Yatumbal, 2300–2700 m (Jun. 29, 1970); Khanging–Langtang Gorge, 2400–2800 m (Jul. 11, 1970); Dor–Chauke, 2600–2900 m (Jun. 7, 1972, fl.); Shewaden–Papung, 2000–2600 m (Jun. 29, 1972); Papung–Bir Gaon, 1600–2000 m (Jun. 30, 1972, fl.); Chitre–Teku Nala, 800–2400 m (Jul. 8, 1972); Sim Chotala–Gram, 900–1900 m (Aug. 20, 1972); Gram–Dunche, 1900–2000 m (Aug. 21, 1972); Dunche–Singum Gompa, 1900–3200 m (Aug. 22, 1972).

DARJEELING. Phalut–Raman, 2100–3600 m (Aug. 4, 1972).

Distr. Himalaya (Kumaon to Nepal and Sikkim).

Indigofera Dosua Buch.-Ham. ex D. Don: Fl. E. Himal. **2**: 66 (1971).

NEPAL. Dunche–Shyaprubensi, 1600 m (Jun. 26, 1970, fl.); Dingla–Nessum, 800–1300 m (Jul. 2, 1972, fl.).

var. **tomentosa** Baker in Fl. Brit. Ind. **2**: 102 (1876).

I. stachyodes Lindley: Fl. E. Himal. 158 (1966).

NEPAL. Phulchoki, 2400 m (Jul. 15, 1970, fl.); Gram–Dunche, 1900 m (Aug. 21, 1972).

DARJEELING. Rimbick–Palmajua, 1500–2200 m (Aug. 6, 1972).

SIKKIM. Singhik–Phyang La, 1500–1900 m (Jul. 1, 1969).

BHUTAN. Ratsoo–Samtengang, 2700 m (Apr. 25, 1967).

Indigofera hebeptala Benth. ex Baker in Fl. Brit. Ind. **2**: 101 (1876)—Ali in Bot. Not. **111**: 572 (1958).

var. **glabra** Ali, l.c. 572 (1958).

NEPAL. Phulchoki, 2400–2700 m (Jun. 23, 1967; May 28, 1972 & July 15, 1972, all fl.); Thale–Trisuli Khola, 2000–2200 m (Jun. 3, 1969, fl.); Trisuli Khola–Gosainkund, 2000–3000 m (Jun. 4, 1969, fl.).

BHUTAN. Dotanang–Thimphu, 2500 m (May 28, 1967, fl.); Thimphu–Chimakhothi (Jun. 1, 1967, fl.).

Distr. Himalaya (Kashmir to Bhutan).

Indigofera heterantha Wall. ex Brandis, For. Fl. N. W. & C. Ind. 135 (1874)—Ali in Bot. Not. **111**: 566 (1958).

I. Gerardiana Wall. ex Baker in Fl. Brit. Ind. **2**: 100 (1876), cum var. *heterantha* (Wall.) Baker.

NEPAL. Chitre–Dor, 2300–2600 m (Jun. 6, 1972, fl.).

BHUTAN. Dochu La, 3200 m (May 30, 1967, fl.); Thimphu–Chimakhothi (Jun. 1, 1967, fl.).

Distr. E. Afghanistan, Himalaya (Kashmir to Bhutan), Assam, and China.

Lathyrus sativus L.: Fl. E. Himal. 158 (1966).

NEPAL. Pokharatar-Tarpu Ghat, 450 m, in rice paddy (Jan. 12, 1970, fl.).

Lespedeza cuneata (Du Mont. d. Cours) G. Don, Gen. Syst. **2**: 307 (1832)—Nakai, Lesp. Jap. & Korea 98 (1827)—Ohwi, Fl. Jap. 680 (1953); ed Engl. 560 (1965); ed. rev. 791 (1965).

Hedysarum sericeum Thunb., Fl. Jap. 287 (1784), non Mill.

Anthyllis cuneata Du Mont. d. Cours, Bot. Cult. **6**: 100 (1811).

Aspalathus cuneata D. Don, Prodr. Fl. Nepal. 246 (1825).

Indigofera chinensis Vogel in Nov. Act. Acad. Leop.-Carol. Nat. Cur. **19**, suppl. **1**: 14 (1843), fide Merrill in Journ. Arn. Arb. **18**: 69–70 (1937).

Lespedeza argyrea Sieb. et Zucc. in Abh. Akad. Muench. **4**, **2**: 120 (1843).

L. sericea (Thunb.) Miq., Ann. Mus. Bot. Lugd.-Bat. **3**: 49 (1867)—Baker in Fl. Brit. Ind. **2**: 142 (1879)—Schindler in Engler, Bot. Jahrb. **49**: 597 (1913).

L. juncea var. *sericea* (Thunb.) Forbes et Hemsl. in Journ. Linn. Soc. **23**: 181 (1887)—Matsum. in Bot. Mag. Tokyo **16**: 71 (1902).

L. juncea subsp. *sericea* (Thunb.) Steen. in Nov. Guin. **6**: 280 (1955)—Backer et Bakh. f., Fl. Java **1**: 613 (1963).

BHUTAN. Choojom-Wangdu Phodrang, 1450–1500 m (Apr. 27, 1967, old fr.); Thimphu, 2450 m (Apr. 30, 1967, old fr.).

Distr. Afghanistan, Himalaya, Assam, China, Formosa, Manchuria, Korea, Ryukyu, Japan, Malaysia, and N. Australia.

Lespedeza juncea (L. f.) Pers., Syn. Pl. **2**: 318 (1807)—Maxim. in Act. Hort. Petrop. **2**: 370 (1873)—Baker in Fl. Brit. Ind. **2**: 142 (1876)—Schindler in Engler, Bot. Jahrb. **49**: 604 (1913).

Hedysarum junceum L. f., Decas. **1**: 7, t. 4 (1762)—L., Sp. Pl. ed. 2, 1053 (1763). forma **variegata** (Camb.) Ohashi, stat. nov.

L. variegata Cambess in Jacq., Voy. **4**, Bot. 42, t. 50 (1844)—Schindler, l.c. **49**: 600 (1913).

L. sericea (Thunb.) Miq. var. *longepetiolata* Prain in Journ. Asiat. Soc. Beng. **66** (2): 374 (1897).

L. juncea var. *variegata* (Camb.) Ali in Biologia **12**: 41 (1966).

NEPAL. Shyaprubensi-Tangjet, 1500–2240 m (Jun. 27, 1970, fl.).

Distr. sp. Afghanistan, Himalaya (Kashmir to Nepal), China, E. Siberia, Korea, and Japan.

Lotus corniculatus L., Sp. Pl. ed. 1, 775 (1753)—Baker in Fl. Brit. Ind. **2**: 91 (1876)—Kitamura, Fl. Afghan. 235 (1960)—Fl. Phulchoki & Godawari 29 (1969)—Ohashi et Tateishi in Journ. Jap. Bot. **49**: 73 (1974).

var. **japonicus** Regel, Index Sem. Hort. Petrop. 23 (1864)—Kitamura in Kihara, Fauna Fl. Nepal Himal. 166 (1955).

L. japonicus (Regel) K. Larsen in Bot. Tidsskr. **52**: 13 (1955).

NEPAL. Langtang Gorge-Langtang, 2800 m (Jul. 12, 1970); Shyaprubensi-Dunche, 1500–2000 m (Jul. 19, 1970).

Distr. E. Afghanistan, Himalaya, China, Formosa, Korea, Ryukyus, and Japan.

Lotus corniculatus varies greatly in gross morphology but is roughly characterized as follows: Plants prostrate or ascending, 5–40 cm long; leaflets narrowly obovate

or narrowly oblong, 3–10 mm wide, usually not more than 3 times as long as wide; corolla (9–)10–16 mm long; and calyces (4–)5–8 mm long. The species is distributed widely in the Old World and the plants of the species in Japan have usually been treated as a variety, var. *japonica*. Cytologically *L. corniculatus* includes diploid and tetraploid races. The Japanese variety is known as diploid ($2n=12$), while the typical *corniculatus* is reported as tetraploid ($2n=24$). Based on these cytological data var. *japonica* sometimes regarded as a distinct species. However, I cannot agree with the treatment. In geographical distribution, “*japonicus*” is distributed not only Japan but also the area from east Afghanistan through the Himalayas to China and Korea. The morphological distinctions between “*japonicus*” and “*corniculatus*” are, moreover, somewhat obscure, though both are usually distinguishable from each other by the combination of several characters as follows:

Inflorescences 1–3(–4)-flowered; calyx-teeth apparently longer than or rarely as long as the calyx-tube; stems and leaves almost glabrous var. *japonicus*

Inflorescences (1–)2–7-flowered; calyx-teeth shorter to a little longer than the calyx-tube; stems and leaves pubescent or rarely glabrous var. *corniculatus*

Macrotyloma uniflorum (Lam.) Verdcourt in Kew Bull. **24**: 322 & 401 (1970).

Dolichos uniflorus Lam., Encycl. Méth. **2**: 299 (1786).

D. biflorus L. sensu Baker in Fl. Brit. Ind. **2**: 210 (1876).

NEPAL. Phusri, 450 m, cult. (Oct. 16, 1963, fr.); Helok, 1500 m, cult. (Nov. 7, 1963, fr.); Birwa–Yektin, 1700–2800 m, cult. (Nov. 28, 1963, fr.).

Distr. Tropics of Asia and Africa.

Our specimens of the species all belong to var. *uniflorum*.

Mezoneurum cucullatum (Roxb.) Wight et Arn.: Fl. E. Himal. 158 (1966).

NEPAL. Sukaara–Arughat Bazar, 500 m (Jan. 9, 1970, fl.); Dunche–Shyaprubensi, 1500–2000 m (Jun. 26, 1970, fl.); Lothar, 210 m (Nov. 18, 1970, fl. & young fr.); Godawari–Phulchoki, 1700 m (Sep. 6, 1972).

SIKKIM. Singhik, 1500 m (Jul. 1, 1969, fl.).

Millettia auriculata Baker ex Brandis: Fl. E. Himal. 158 (1966).

NEPAL. South of Dharan, 200 m (Jun. 1, 1972, fl.).

Millettia cinerea Benth.: Fl. E. Himal. 159 (1966).

NEPAL. Bagdeo–Saraswati, north of Nijgar, 400–420 m (Nov. 14, 1970).

Distr. Himalaya (Nepal to Bhutan), N. Assam, N. Burma, and Yunnan.

Millettia Prainii Dunn in Journ. Linn. Soc. **41**: 174 (1912).

M. glaucescens Kurz sensu Prain in Journ. Asiat. Soc. Beng. **66** (2): 362 (1897), p.p., excl. specim. cit. Malay.

Derris thyrsoflora (Benth.) sensu Ohashi in Fl. E. Himal. 149 (1966), p.p.

DARJEELING. Peshok, 900 m (Apr. 27, 1960, fl.).

Distr. E. Himalaya (E. Nepal and Sikkim).

Mimosa rubicaulis Lam.: Fl. E. Himal. 159 (1966).

NEPAL. Pokhara, 900 m (Jun. 18, 1967, fl.); Sanguri Bhanjyang–Dhara Pani, 1000–1300 m (Jun. 2 & Jul. 10, 1972, fl.); Bir Gaon, 1600 m (Jul. 1, 1972, fl.); Sim Chotala–Gram, 900–1900 m (Aug. 20, 1972).

DARJEELING. Lopchu-Tista, 400–800 m (Aug. 10, 1972).

BHUTAN. Phuntsholing, 900–1200 m (Apr. 3, fl. & Jun. 2, 1967, fl.).

Oxytropis lapponica (Wahl.) Gay, Fl. Dan. **10**: 30 (1827)–Gaud., Fl. Helvet. **4**: 545 (1829)–Baker in Fl. Brit. Ind. **2**: 137 (1876).

Phaca lapponica Wahl., Veg. Helv. 131 (1813), in nota–DC., Prodr. **2**: 274 (1825).

var. **Jacquemontiana** Benth. ex Baker, l.c. 137 (1876).

NEPAL. Samdan-Slesa, 4500 m (Jun. 24, 1972, fl.).

var. **lapponica**

NEPAL. Samdan, 4400 m (Jun. 24, 1972, fl.).

var. **xanthantha** Baker, l.c. 137 (1876).

NEPAL. Lama Chungbu-Samdan, 4300 m (Jun. 24, 1972, fl.).

Distr. sp. Mountains of Europe, Himalaya, and Siberia.

Oxytropis microphylla (Pall.) DC., Astr. 83 (1802); Prodr. **2**: 279 (1825)–Baker in Fl. Brit. Ind. **2**: 139 (1876)–Shishkin in Fl. USSR **13**: 216 (1938)–Kitamura in Kihara, Fauna Fl. Nepal Himal. 167 (1955).

Phaca microphylla Pall., Reise **3**: 744 (1776).

Astragalus microphyllus Pall., Sp. Astr. 92 (1800).

Oxytropis chiliophylla Royle, Ill. Bot. Himal. **1**: 198 (1835).

BHUTAN. Seanchu Passa-Gokhu La-Chabecha, 3800–4400 m (May 21, 1967, fl.).

Distr. Himalaya (Kashmir to Bhutan), Mongol, and E. Siberia.

Parochetus communis Buch.-Ham. ex D. Don: Fl. E. Himal. 160 (1966); **2**: 67 (1971).

DARJEELING. Sandakphu-Phalut, 3200–3600 m (Aug. 2, 1972, fl.); Phalut-Singalila, 3600–3700 m (Aug. 3, 1972, fl.).

Phaseolus coccineus L., Sp. Pl. ed. 1, 724 (1753).

DARJEELING. (Jul. 25, 1972, fl.); Raman-Rimbick, 1900–2400 m (Aug. 5, 1972, fl.).

Distr. Cultivated widely in temperate regions of the world.

Phaseolus lunatus L.: Fl. E. Himal. 160 (1966), p.p., incl. specim. cit. Nov. 26 & Nov. 27, 1963, cet. excl.

NEPAL. Dhara Pani-Dharan, 400–1300 m (Jul. 10, 1972, fl. & young fr.).

Phaseolus vulgaris L., Sp. Pl. ed. 1, 723 (1753)–Baker in Fl. Brit. Ind. **2**: 200 (1876).

NEPAL. Teku Nala-Dhankuta, 1200 m, cult. (Jun. 4, 1972, fl.); Dingla, 1000 m, cult. (Jul. 2, 1972).

Distr. Cultivated widely in the tropical and temperate regions of the world.

Piptanthus nepalensis (Hook.) D. Don: Fl. E. Himal. 161 (1966); **2**: 67 (1971).

NEPAL. Yatumbal-Oo Kharka, 2700–3400 m (Jun. 30, 1970, fl.); Singum Gompa-Gosainkund, 3200–4200 m (Aug. 23, 1972).

Pithecolobium bigeminum (L.) Benth. in Hook., Lond. Journ. Bot. 206 (1844)–Baker in Fl. Brit. Ind. **2**: 303 (1878).

Mimosa bigemina L., Sp. Pl. ed. 1, 517 (1753).

NEPAL. Saju Khola-Dingla, 1000–1400 m, (Jul. 1, 1972, no. 727181, fr.).

Distr. E. Himalaya, India, and Ceylon.

Pueraria peduncularis (Benth.) Graham [in Wall., Cat. no. 5354 (1831–32),

comb. nud.] ex Benth. in Journ. Linn. Soc. **9**: 124 (1867): Fl. E. Himal. 162 (1966).

Neustanthus peduncularis Benth. in Miq., Pl. Jungh. 235 (1852).

NEPAL. Khanging–Langtang Gorge, 2300–2800 m (Jul. 11, 1970, fl.); Thale–Thale Bisauna, 2300 m (Sep. 10, 1970); Phulchoki, 2200–2700 m (Jul. 15, 1972); Dunche–Singum Gompa, 1900–3200 m (Aug. 22, 1972); Khodang Danda–Latsu, 2100–2500 m (Aug. 29, 1972).

BHUTAN. Thimphu–Chimakhothi (Jun. 1, 1967, fl.).

Rhynchosia minima (L.) DC., Prodr. **2**: 385 (1825)–Baker in Fl. Brit. Ind. **2**: 223 (1876).

Dolichos minimus L., Sp. Pl. ed. 1, 726 (1753).

BHUTAN. Choojom, 1500 m (Apr. 27, 1967).

Distr. Tropics.

Shuteria vestita Wight et Arn.: Fl. E. Himal. 163 (1966).

var. **densiflora** (Benth.) Baker in Fl. Brit. Ind. **2**: 182 (1876).

BHUTAN. Tashiling–Tongsa, 2200 m (Apr. 16, 1967, old fr.).

var. **involutrata** (Wight et Arn.) Baker, l.c. 182 (1876).

S. involutrata Wight et Arn., Prodr. 207 (1834)–Collett, Fl. Siml. 137 (1921).

NEPAL. Phulchoki, 2400 m (Jun. 26, 1967); Latsu–Bhorlang, 1700–2400 m (Aug. 30, 1972).

Smithia sensitiva Sit.: Fl. E. Himal. 164 (1966).

NEPAL. Chitlang–Thankot, 2000 m (Sep. 4, 1970); Thale–Thale Bisauna, 2050–2750 m (Sep. 10, 1970).

Spatholobus parviflorus (Roxb.) O. Kuntze: Fl. E. Himal. 164 (1966).

NEPAL. South of Dharan, 200 m (Jun. 1, 1972, old fr.).

Tadehagi triquetrum (L.) Ohashi

subsp. **pseudotriquetrum** (DC.) Ohashi in Ginkgoana **1**: 295, pl. 42b (1973).

Pteroloma triquetrum (L.) Benth.: Fl. F. Himal. 162 (1966).

P. triquetrum subsp. *pseudotriquetrum* (DC.) Ohashi: Fl. E. Himal. **2**: 67 (1971).

NEPAL. Arughat Bazar–Majenda, 450–600 m (Jan. 9, 1970, fr.); Barabise–Thale, 800–2000 m (Sep. 9, 1970, fr.); Bainse, 600 m (Aug. 19, 1972, fr.).

Thermopsis barbata Royle: Fl. E. Himal. **2**: 67 (1971).

NEPAL. Kyangjing–Langtang Gorge, 3000–3800 m (Jul. 16, 1970).

Trigonella Emodi Benth. in Royle, Ill. Bot. Himal. 197 (1835)–Baker in Fl. Brit. Ind. **2**: 88 (1876)–Kitamura, Fl. Afghan. 242 (1960).

Botryolotus cachemyrianus Jaub. et Spach., Illust. **1**: 125 (1843).

T. cachemiriana Camb. in Jacq., Voy. **4**, Bot. 36, t. 41 (1844).

T. rhytidocarpa Boiss. et Bal., Diagn. ser. 2, **6**: 44 (1859).

NEPAL. Godawari–Phulchoki, 2100–2800 m (May 29 & Jun. 10, 1969, fl.; Jul. 15, 1972, fl.); Tangjet–Chilime, 1800 m (Jun. 28, 1970, fl.); Langtang Gorge–Langtang, 2800–3400 m (Jul. 12, 1970); Trisuli Khola–Singum Gompa, 2800 m (Aug. 22, 1972).

Distr. Asia Minor, Iran, Afghanistan, and Himalaya (Kashmir to Nepal).

Uraria lagopus DC. in Ann. Sci. Nat. 100 (Jan. 1825); Prodr. **2**: 324 (Nov. 1825)–Baker in Fl. Brit. Ind. **2**: 156 (1876)–Prain in Journ. Asiat. Soc. Beng. **66** (2): 381 (1897)–Fl. Phulchoki & Godawari 31 (1969).

Hedysarum arboreum (Buch.-Ham.) D. Don, Prodr. Fl. Nepal. 243 (Feb. 1825).

U. arborea (D. Don) G. Don, Gen. Syst. **2**: 287 (1832)—Walp., Rep. Suppl. **1**: 889 (1843)—Schindler in Fedde, Rep. Beih. **49**: 363 (1928).

var. **lagopus**

NEPAL. Taplejung—Garhi Danra, 2000 m (Nov. 3, 1963, fr.); Tuwa—Taplethok, 1400–1800 m (Nov. 5, 1963, fr.); Ghatte—Khebang, 1600–2400 m (Nov. 19, 1963, fr.).

BHUTAN. Tongsa—Tashiling, 2200–2300 m (Apr. 19, 1967).

Distr. var. Himalaya (Punjab to Bhutan) and Assam.

var. **neglecta** (Prain) Ohashi, comb. nov.

U. neglecta Prain in Journ. Asiat. Soc. Beng. **66** (2): 382 (1897)—Schindler, l.c. **49**: 366 (1928).

NEPAL. Nagarjun, 1500 m (Mar. 1, 1969, fr.).

Distr. var. Himalaya (Kumaon to Nepal) and India (Bengal and Assam).

Uraria rufescens (DC.) Schindler in Fedde, Rep. **21**: 14 (1925)—Ohashi, Fl. E. Himal. 164 (1966), excl. specim. cit.

U. hamosa (Roxb.) Sweet [Hort. Brit. ed. 2, 149 (1830), comb. nud.] ex Wight et Arn., Prodr. 222 (1834)—Wight, Icon. **1**: t. 284 (1840)—Baker in Fl. Brit. Ind. **2**: 156 (1876).

NEPAL. Makwampur Garhi—Dunge Garhi, 700–1000 m (Nov. 16, 1970, fr.).

In the first report this species was listed erroneously on the specimens of *U. lagopodioides*.

Vicia angustifolia L.: Fl. E. Himal. 165 (1966).

V. sativa subsp. *nigra* (L.) Ehrh. in Hannover. Mag. **1780** (15): 229 (1780)—Ball in Fl. Europ. **2**: 134 (1968).

BHUTAN. Thimphu, 2450 m (Apr. 7, 1967, fl. & fr.); Yuwak—Wangdu Phodrang, 1600 m (Apr. 9, 1967, fl. & fr.); Tongsa—Tratang, 2000–2500 m (Apr. 18, 1967).

Vicia hirsuta (L.) S. F. Gray: Fl. E. Himal. 165 (1966).

BHUTAN. Tongsa—Tratang, 2200–2700 m (Apr. 18, 1967, fl. & fr.); Dotanang—Tabab, 2550–2700 m (May 28, 1967, fl. & fr.).

Vicia tetrasperma (L.) Schreber, Spicil. Fl. Lips. 26 (1771)—Baker in Fl. Brit. Ind. **2**: 177 (1876).

BHUTAN. Thimphu, 2450–2800 m (Apr. 7, 1967, fl. & fr.).

Distr. Native in Europe and Asia, and naturalized in N. America.

Vigna angularis (Willd.) Ohwi et Ohashi

var. **nipponensis** (Ohwi) Ohwi et Ohashi in Journ. Jap. Bot. **44**: 30 (1969)—Verdcourt in Kew Bull. **24**: 558 (1970).

Phaseolus nipponensis Ohwi in Journ. Jap. Bot. **13**: 435 (1937).

P. angularis (Willd.) W. F. Wight var. *nipponensis* (Ohwi) Ohwi in Act. Phytotax. Geobot. **12**: 110 (1943).

Azukiangularis (Willd.) Ohwi var. *nipponensis* (Ohwi) Ohwi [Fl. Jap. 691 (Mar. 1953), comb. nud.] in Bull. Nat. Sci. Mus. Tokyo no. 33, 77 (Jul. 1953).

P. angularis f. *nipponensis* (Ohwi) Kitamura [in Kitamura et Murata, Colour. Ill. Herb. Pl. Jap. **2** (Choripetalae): 116, pl. 28, f. 232 (1961), comb. nud.] in Act. Phytotax. Geobot. **20**: 199 (1962).

NEPAL. Godawari, 1500 m (Sep. 18, 1963, no. 6301759, fl. & young fr.).

Distr. var. Himalaya (Nepal), China, Korea, and Japan.

Vigna umbellata (Thunb.) Ohwi et Ohashi in Journ. Jap. Bot. **44**: 31 (1969)—Verdcourt in Kew Bull. **24**: 560 (1970).

Dolichos umbellatus Thunb. in Trans. Linn. Soc. **2**: 339 (1794).

Phaseolus pubescens Blume: Fl. E. Himal. 160 (1966).

NEPAL. Dingla–Doban, 800–1000 m (Jul. 2, 1972, no. 724022, fl. & young fr.).

Vigna unguiculata (L.) Walp., Rep. Bot. Syst. **1**: 779 (1842)—Piper in U. S. Dept. Agric. Bur. Pl. Ind. Bull. no. 229, 7 (1912)—Wilczek in Fl. Congo Belge **6**: 387, pl. 30 (1954)—Verdcourt in Kew Bull. **24**: 542 (1970).

Dolichos unguiculatus L., Sp. Pl. ed. 1, 725 (1753).

D. sinensis L., Herb. Amb. 23 (1754).

V. sinensis (L.) Savi ex Hassk.: Fl. E. Himal. 165 (1966).

var. **cylindrica** (L.) Ohashi, stat. nov.

Phaseolus cylindricus L., Herb. Amb. 23 (1754).

Dolichos Catjang Burm. f., Fl. Ind. 161 (1768).

D. cylindricus (L.) Moench, Meth. Suppl. 48 (1802).

Vigna Catjang (Burm. f.) Walp. in Linnaea **13**: 533 (1839).

V. sinensis var. *Catjang* (Burm. f.) Chiov. in Ann. Inst. Bot. Roma **8**: 438 (1908)—T. Ito in Encycl. Jap. (Sansendo) **4**: 804 (1910), ut var. *Catiang* (Burm.) T. Ito—Makino in Journ. Jap. Bot. **8**: 18 (1932), ut var. *Catiang* (L.) Yatabe.

V. cylindrica (L.) Skeels in U. S. Dept. Agric. Bur. Pl. Ind. Bull. no. 282, 32 (1913).

V. unguiculata subsp. *cylindrica* (L.) van Eseltine in Hedrick, Vegetables New York **1** (2): 11 (1931)—Verdcourt, l.c. 544 (1970).

V. unguiculata subsp. *Catjang* (Burm. f.) Chiov., Raccolte Bot. Missionari Consolata nel Kenya 35 (1935), fide Verdcourt, l.c. 544 (1970).

NEPAL. Dingla–Doban, 1000 m, cult. (Jul. 2, 1972, nos. 724023, 724024 & 724025, fl.).

var. **sesquipedalis** (L.) Ohashi, stat. nov.

Dolichos sesquipedalis L., Sp. Pl. ed. 2, 1019 (1763).

Vigna sinensis var. *sesquipedalis* (L.) Ascherson et Schweinf., Ill. Fl. Egypt in Mem. Inst. Egypt. **2**: 69 (1889)—Makino in Journ. Jap. Bot. **8**: 18 (1932), ut var. *sesquipedalis* (L.) Koern.

V. sesquipedalis (L.) Fruhw., Anbau Hülsenfr. 254 (1898).

V. sinensis form. *Dschiuroku* T. Ito, l.c. 804 (1910).

V. sinensis subsp. *sesquipedalis* (L.) van Eseltine, l.c. 11 (1931).

V. Catiang var. *sinensis* form. *sesquipedalis* (L.) Makino, Ill. Fl. Nippon 404 (1940).

V. unguiculata subsp. *sesquipedalis* (L.) Verdcourt in Davies, Fl. Turkey **3**: 266 (1970); in Kew Bull. **24**: 544 (1970).

NEPAL. Dingla–Nessum, 800–1300 m, cult. (Jul. 2, 1972, no. 724026, fl.).

var. **unguiculata**

Dolichos unguiculatus L., Sp. Pl. ed. 1, 725 (1753).

D. biflorus L., l.c. 727 (1753).

D. sinensis L., Herb. Amb. 23 (1754), fide Verdcourt, l.c. 544 (1970).

Vigna sinensis (L.) Savi ex Hassk., Cat. Pl. Hort. Bogor. 279 (1844), sensu str.

V. sinensis subsp. *sinensis*: Mansf., Prodr. Enum. Sp. Pl. Agri-Hort. 209 (1959).

V. unguiculata subsp. *unguiculata*: Verdcourt in Kew Bull. **24**: 543 (1970).

NEPAL. Dingla-Doban, 800–1000 m, cult. (Jul. 2, 1972, no. 724027, fl.).

Dr. B. Verdcourt (1970–71) published a series of important papers on the tribe Phaseoleae. All the species of *Vigna* cited in the present enumeration were treated soundly in his paper, but, based on my observation on a number of fresh material cultivated widely in Japan and E. Himalaya, several infraspecific taxa of *Vigna unguiculata* may be better to regard as varieties. The three varieties have usually been distinguished by the difference in length of the mature legume, but the character varies often greatly. Differences in calyces between them are, however, apparently more important as a diagnostic character.

Vigna vexillata (L.) A. Rich., Hist. Fis. Pol. Nat. Isla Cuba **11**: 191 (1845); Ess. Fl. Cuba 440 (1846)–Baker in Fl. Brit. Ind. **2**: 206 (1876)–Wilczek in Fl. Congo Belge **6**: 379, pl. 29, fig. 18c (1954)–Verdcourt in Kew Bull. **24**: 553 (1970).

Phaseolus vexillatus L., Sp. Pl. ed. 1, 724 (1753).

P. pulniensis Wight, Icon. **1**: t. 202 (1839).

var. **angustifolia** (Schumach. et Thonn.) Baker in Fl. Trop. Afr. **2**: 200 (1871)–Verdcourt in Kew Bull. **24**: 554 (1970).

Plectrotropis angustifolia Schumach. et Thonn. in Schumach., Beskr. Guin. Pl. 338 (1827).

Phaseolus angustifolius Grah. in Wall., Cat. no. 5596 (1831–32), nom. nud.

Phaseolus fusiformis Grah. in Wall., l.c. no. 5607 (1831–32), nom. nud.

NEPAL. Sim Chotala–Gram, 900–1900 m, cult. (Aug. 20, 1972, no. 724021, fl.).

Distr. Tropics and subtropics of Asia, Australia and Africa.

Zornia gibbosa Spanoghe var. **gibbosa**: Fl. E. Himal. 165 (1966).

NEPAL. Barabise–Thale, 850–2050 m (Sep. 9, 1970).

GERANIACEAE (by Hiroshi Hara)

Geranium Donianum Sweet, Geran. **4**: sub t. 338 (1827)–Wallich, Cat. no. 8565 (1847–48)–Knuth in Engl., Pfl.-reich IV-129, Ht. **53**: 141 (1912).

G. multifidum (non Sweet, Feb. 1825) D. Don, Prodr. Fl. Nepal. 207 (Feb. 1825).

G. stenorrhizum Stapf in Bot. Mag. sub t. 9092 (1926), e typo.

NEPAL. Mul Kharka–Yatumbal, 3300 m (Jul. 7, 1970); Saju Pokhari–Topke Gola, 4400–3600 m (Jun. 16, 1972, fl.); Lama Chungbu–Thudam, 4500–3400 m (Jun. 24, 1972, no. 723181, fl.); Phujeng La–Topke Gola, 3900 m (Jun. 27, 1972, fl.); Singum Gompa–Gosainkund, 3300–4000 m (Aug. 23, 1972, no. 721838, fl. purple).

BHUTAN. Chomolhari Chakan, 4150 m (Nishioka, Sep. 6, 1966).

Distr. E. Himalaya (Nepal to Bhutan) and S. Tibet.

The name *Geranium multifidum* seems to have been published on the same date by D. Don and Sweet independently, but, as Sweet first noticed the fact and renamed D. Don's species as *G. Donianum*, his treatment has been followed.

Geranium Lambertii Sweet: Hara, Fl. E. Himal. **2**: 68 (1971). [Plate 4c]

NEPAL. Oo Kharka–Mul Kharka, 3500 m (Jul. 1, 1970, fl. white with purple veins); Mul Kharka, 3800 m (Jul. 7, 1970, fl.); Tingoang, Kalingchok, 3200 m (Sep. 12, 1970, fl. pale pink); Singum Gompa, 3200 m (Aug. 22, 1972, no. 721827, fl. pale pink).

Distr. Himalaya (Kumaon to Bhutan) and S. Tibet.

Geranium Nakaoanum Hara in Kihara, Fauna Fl. Nepal Himal. 276, f. 83 (1955).

NEPAL. Mul Kharka–Yatumbal, 3800–2700 m (Jul. 7, 1970, fl.); Topke Gola–Jalang Chhyongo, 3600–4300 m (Jun. 20, 1972, no. 723126, fl.); Kipuphu–Topke Gola, 4800–3600 m (Jun. 27, 1972, fl.); Gosainkund–Gopte, 3800 m (Aug. 25, 1972, no. 723128, fr.).

Distr. E. Himalaya (Nepal, Bhutan).

Geranium polyanthes Edgew. et Hook. f.: Hara, Fl. E. Himal. 167 (1966).

NEPAL. Topke Gola, 3600 m (Jun. 19, 1972, fl.); Thudam, 3400 m (Jun. 23, 1972, fl.); Topke Gola–Shewaden, 3400 m (Jun. 28, 1972, no. 723897, fl.); Thale Patil–Mangen, 3400–3100 m (Aug. 27, 1972, fl.).

DARJEELING. Tonglu, 3000 m (Jul. 30, 1972, fl.) Tonglu–Sandakphu, 3000–3600 m (Jul. 31, 1972, fl.); Sandakphu, 3600 m (Aug. 1, 1972, fl.).

Distr. Himalaya (Kumaon to Bhutan) and S. Tibet.

Geranium procurrens P. F. Yeo in Bot. Mag. n.s. t. 644 (1973). [Plate 4d]

G. Lambertii Sweet sensu Hara, Fl. E. Himal. 167 (1966).

G. Lambertii var. *Bachhousianum* Hara, Fl. E. Himal. 2: 68 (1971), excl. basionym.

NEPAL. Thale Patil–Mangen, 3400–3100 m (Aug. 27, 1972, fl.); Mangen–Khodang Danda, 3100–2500 m (Aug. 28, 1972, fl.).

Distr. Himalaya (Nepal, Sikkim).

As I pointed out in 1971, this plant is clearly distinguished from *G. Lambertii*, and in 1972 I confirmed the differences in their native habitats. The two species are also different in the direction of the fruiting pedicels. According to Dr. Yeo, *G. Bachhousianum* Regel is not a native of Nepal, and is identical with *G. psilostemon* Ledeb. (misprinted as *spilostemon* by Yeo) of Caucasus.

Geranium refractum Edgew. et Hook. f. in Fl. Brit. Ind. 1: 428 (1874)–Knuth, l.c. 135, f. 19 A–D (1912). [Plate 4e]

NEPAL. Thudam–Lama Chungbu, 4000–4100 m (Jun. 23 & 24, 1972, fl. white); Thudam–Kipuphu, 3400–4500 m (Jun. 26, 1972, fl.).

BHUTAN. Cheka, 3750 m (Nishioka, Jun. 22, 1966, fl.).

Distr. Himalaya (Nepal to Bhutan) and S. Tibet.

Geranium Wallichianum D. Don ex Sweet, Geran. 1: t. 90 (1821)–Fl. Brit. Ind. 1: 430 (1874)–Knuth, l.c. 194 (1912).

NEPAL. Thale Bisauna, 2800 m (Sep. 10, 1970, fl.); Thale Bisauna–Tingoang, 3100 m (Sep. 11, 1970, fl.); Trisuli Khola–Singum Gompa, 2600 m (Aug. 22, 1972, fl.).

Eight perennial species of *Geranium* collected by our Expeditions in Eastern Himalaya are clearly distinguished as follows:

- | | | |
|---|---|----------------------------|
| } | Peduncles crowded at the top of erect stems, subumbellate, 1-flowered, often short (5–20 mm), erect in fruit. Mericarp-bodies coarsely reticulate. Flowers red-purple 1.5–3 cm in diameter, petals obliquely ascending in the lower part. Sepals clothed with long spreading soft glandular hairs. Stigmatic branches ca. 1 mm long. Leaves orbicular in outline, deeply 5–9-lobed, lobes obovate incised at the top, ultimate lobules obtuse. Stipules connate | <i>G. polyanthes</i> |
| | Peduncles axillary solitary, 2- or 1-flowered. Mericarp-bodies smooth (not reticulate), often hirsute | 2 |

- 2 { Flowers small 1–1.5 cm in diameter, pale pink to rose-purple. Stigmatic branches 1–1.3 mm long. Ovary with very minute hairs. Sepals 4.5–6 mm long. Peduncles 2- or 1-flowered, with retrorse eglandular hairs. Stipules free linear-lanceolate. Leaves 1–4 cm long, lobes rhombic with ovate obtuse or acutish teeth *G. nepalense*
- 2 { Flowers large or medium-sized 2.5–6 cm in diameter. Stigmatic branches 1.5–6 mm long. Sepals 6–14 mm long 3
- 3 { Stipules connate, ovate or oblong-ovate, 6–15 mm long. Flowers 2.5–4 cm in diameter 4
- 3 { Stipules free, lanceolate or broad lanceolate, sometimes partially connate. Petals spreading, pink to dark red-purple 5
- 4 { Flowers nodding, petals reflexed, white with purple veins. Pedicels densely clothed with spreading partly glandular hairs. Style slender ca. 4 mm long, branches ca. 3 mm long. Filaments 9–11 mm long. Leaves deeply 5–7-lobed, lobes broad rhombic deeply incised. Stipules oblong-ovate *G. refractum*
- 4 { Flowers not nodding, petals spreading, rose-red-purple, white in the centre. Pedicels clothed with white long spreading or reflexed eglandular hairs. Style very short, branches 5–6 mm long. Filaments 5–7 mm long. Leaves 3–5-lobed, lobes broad rhombic often acuminate. Stipules ovate *G. Wallichianum*
- 5 { Leaves deeply 7–9-lobed, terminal lobe shorter than the others, lobes \pm ovate, deeply incised into linear or lanceolate narrow lobules. Flowers 2–3 cm in diameter. Sepals 6–10 mm long. Stigmatic branches 1.5–3 mm long 6
- 5 { Leaves 5-lobed to $\frac{3}{4}$ of the length, lobes rhombic, ultimate lobules \pm ovate. Flowers 3–6 cm in diameter. Sepals 6–14 mm long. Ovary white-hirsute. Stigmatic branches 4.5–7 mm long 7
- 6 { Peduncles 1-flowered, clothed with very short recurved hairs, bracts obtuse. Ovary minutely glandular-papillose. Mericarp glabrous. Sepals glabrescent. Filaments glabrous or ciliate, dilated in the lower part. Leaves orbicular in outline, glabrescent beneath, ultimate lobules more obtuse at the apex *G. Nakaoanum*
- 6 { Peduncles 2-flowered, clothed with retrorse appressed stiff hairs, bracts acutish. Ovary densely covered with white stiff hairs. Sepals appressed white-hairy on midrib and near margins. Filaments long-ciliate. Leaves clothed with long stiff hairs on nerves beneath, ultimate lobules acutish. *G. Donianum*
- 7 { Flowers nodding, pink rarely white with purple veins, larger 4–6 cm in diameter. Sepals 10–14 mm long, clothed with long and short pointed hairs. Stigmatic branches ca. 7 mm long. Filaments 8–11 mm long, anthers 2.5–3.5 mm long. Peduncles elongate. Pedicels clothed with eglandular pointed hairs, deflexed in fruit. Bracts lanceolate 9–20 mm long. Stipules free 8–20 mm long. *G. Lambertii*
- 7 { Flowers not nodding, dark red-purple with the black centre, 3–4 cm in diameter. Sepals 6–8 mm long, clothed with long spreading soft glandular hairs.

Stigmatic branches 4.5–5 mm long. Filaments 5–7 mm long, anthers 1.5–2 mm long. Pedicels densely covered with long spreading soft mostly glandular hairs, ascending even in fruit. Bracts shorter 3–6 mm long. Stipules 4–9 mm long, free sometimes partially connate *G. procurrens*

RUTACEAE (by Hiroo Kanai)

Boenninghausenia albiflora (Hook.) Meissn.: Kanai in Fl. E. Himal. 169 (1966).

NEPAL. Baguwa, 900 m (Apr. 23, 1969); Dunche–Singum Gompa, 2800 m (Jun. 4, 1969); Phulchoki, 2400 m (Aug. 9, 1969); Tanguni–Chipling, 2000 m (Aug. 21, 1969); Bhuktani–Sukaura, 900 m (Jan. 8, 1970); Barabise–Thale, 1800 m (Sep. 9, 1970); Khosori Khabre, 2000 m (Sep. 12, 1970); Ramche, 1500 m (Aug. 20, 1972); Thale, 1900 m (Aug. 21, 1972); Gul Bhanjyang–Latsu, 2300 m (Aug. 29, 1972).

SIKKIM. Gangtok, 1800 m (Jun. 27, 1967).

BHUTAN. Thimphu, 2500 m (Apr. 7, 1967); Tongsa–Tongsa Bridge, 2200 m (Apr. 19, 1967); Kyebaka, 1600 m (Apr. 26, 1967); Zami Bridge–Gasa, 2400 m (May 13, 1967).

Clausena excavata Burm. f., Fl. Ind. 87 (1768)–Hook. f., Fl. Brit. Ind. 1: 504 (1875)

NEPAL. Simra–Patlaia, 200 m (Apr. 17, 1969); Juleri, 300 m (Apr. 20, 1969); Dharan, 200 m (Jun. 1, 1972).

Distr. Tropical Himalaya (Nepal to Bhutan), India, Burma, and Malaysia.

Clausena pentaphylla DC., Prodr. 1: 538 (1824)–Fl. Brit. Ind. 1: 503 (1875).

NEPAL. Patlaia–Sakti Mohar Khola, 200 m (Apr. 18, 1969).

Distr. Tropical Himalaya (Kumaon to Nepal) and India.

Fagara oxyphylla (Edgew.) Engl.: Fl. E. Himal. 170 (1966).

NEPAL. Khiraule Bhanjyang–Lele Bhanjyang, 2000 m (Apr. 25, 1969); Sheopuri, 2700 m (Jun. 14, 1969); Tingoang–Harjung, 2400 m (Apr. 18, 1970); Gul Bhanjyang–Latsu, 2300 m (Aug. 29, 1972).

BHUTAN. Neylong–Charikhachor, 2400 m (Apr. 20, 1967); Tamji, 2200 m (May 13, 1967); Zami Bridge–Gasa, 2400 m (May 13, 1967); Dotanang, 2700 m (May 27, 1967).

Fagara tomentella (Hook. f.) Hand.-Mzt., Symb. Sin. 7: 624 (1933).

Zanthoxylum tomentellum Hook. f., Fl. Brit. Ind. 1: 493 (1875).

BHUTAN. Ratsoo–Ritang, 2100 m (Apr. 11, 1967); Tashiling–Tongsa Bridge, 2000 m (Apr. 16, 1967); Tongsa Bridge, 1900 m (Apr. 19, 1967); Ritang–Ratsoo, 2000 m (Apr. 23, 1967).

Distr. E. Himalaya (Sikkim and Bhutan).

Murraya Koenigii Spreng., Syst. Veg. 2: 315 (1828)–Fl. Brit. Ind. 1: 503 (1875).

NEPAL. Saraswati–Bakeya Khola, 500 m (Apr. 19, 1969).

Distr. Tropical Himalaya (Garhwal to Sikkim), India, and Ceylon.

Skimmia melanocarpa Rehd. et Wils.: Fl. E. Himal. 170 (1966).

NEPAL. Bagdwar, 2500 m (Dec. 31, 1969); Barati–Thale Bisauna, 2800 m (Apr. 16, 1970); Dunche–Singum Gompa, 2900 m (Aug. 22, 1972).

Zanthoxylum acanthopodium DC.: Fl. E. Himal. 171 (1966).

NEPAL. Dunche–Singum Gompa, 2300 m (Jun. 4, 1969); Mewa Khola–Papung, 2400 m (Jun. 29, 1972).

BHUTAN. Tongsa–Tongsa Bridge, 1900 m (Apr. 19, 1967).

Zanthoxylum armatum DC.: Fl. E. Himal. 171 (1966).

NEPAL. Godawari–Phulchoki, 2000 m (Jun. 23, 1967); Nagarkot, 2000 m (Jun. 24, 1967); Dunche–Singum Gompa, 3100 m (Jun. 4, 1969); Nigate Bhanjyang, 1900 m (Feb. 10, 1970); Shyaprubensi–Tangjet, 2000 m (Jun. 27, 1970); Mewa Khola–Papung, 2400 m (Jun. 29, 1972).

BHUTAN. Wangdu Phodrang, 1500 m (Apr. 9, 1967); Tongsa–Tongsa Bridge, 1900 m (Apr. 19, 1967); Choojom–Wangdu Phodrang, 1500 m (Apr. 27, 1967); Tinlegang, 1950 m (May 4, 1967); Tamji–Zami Bridge, 2200 m (May 13, 1967).

OCHNACEAE (by Hiroo Kanai)

Ochna pumila Hamilt. in D. Don, Prodr. Fl. Nepal. 224 (1825)–Bennett in Fl. Brit. Ind. 1: 524 (1875).

NEPAL. Simra–Patlaia, 200 m (Apr. 17, 1969. Small shrub, 30 cm tall, usually not branched. Leaves involute when young. Petals yellow. Anthers brownish yellow).

Distr. Himalaya (Kumaon, Nepal, Sikkim), India, and Burma (Pegu).

POLYGALACEAE (by Hiroshi Hara)

Polygala sibirica L., Sp. Pl. ed. 1, 702 (1753).

var. **elegans** (Wall. ex Royle) Hara in Journ. Jap. Bot. 47: 272 (1972).

P. myrsinites Royle, l.c. t. 19 A (Mar. 1834), nom. nud.

P. elegans Wall. [Cat. no. 4186 (1831), nom. nud.] ex Royle, Ill. Bot. Himal. 76 (Jun. 1834)–Chodat, Monogr. Polygal. 2: 350, t. 28, f. 12 & 13 (1893).

P. sibirica L. sensu Bennett in Fl. Brit. Ind. 1: 205 (1872), p.p.: Hara, Fl. E. Himal. 2: 69 (1971).

Distr. E. Himalaya (Garhwal to Bhutan), ?Khasia, S. E. Tibet, and Manipur.

ANACARDIACEAE (by Hiroo Kanai)

Buchanania latifolia Roxb., Fl. Ind. ed. 2, 2: 385 (1832)–Hook. f., Fl. Brit. Ind. 2: 23 (1876).

NEPAL. Simra–Patlaia, 2000 m (Apr. 17, 1969); Phurke Chour–Gothdanda, 600 m (Apr. 20, 1969).

Distr. Himalaya, India, and Burma.

This species is a tree, 10 m high, growing on dry south-faced slope with *Shorea robusta*.

Choerospondias axillaris (Roxb.) B. L. Burtt et A. W. Hill: Kanai in Fl. E. Himal. 186 (1966).

NEPAL. Nagarjun, 1500 m (Apr. 7, 1969, anthers orange yellow).

Lanna Wordier (Roxb.) Adelber in Blumea 6: 326 (1948).

Odina Wordier Roxb.: Fl. E. Himal. 186 (1966).

NEPAL. Patlaia–Sakti Mohar Khola, 200 m (Apr. 18, 1969); Dhara Pani–Mohamabedi Khola, 700 m (Jun. 3, 1972, fr. greenish when young, then dark reddish, juicy).

Rhus insignis Hook. f.: Fl. E. Himal. 186 (1966).

NEPAL. Saju Khola–Dingla, 1200 m (Jul. 1, 1972).

Rhus javanica L.: Fl. E. Himal. 186 (1966).

NEPAL. Phulchoki, 1700 m (Sep. 6, 1972).

Rhus parviflora Roxb., Fl. Ind. ed. 2, 2: 100 (1832)—Hook. f., Fl. Brit. Ind. 2: 9 (1876).

NEPAL. Doralghat, 700 m (Oct. 21, 1969).

Distr. W. Himalaya (Kumaon to Nepal) and India.

Rhus succedanea L. var. **sphaerocarpa** Hook. f., Fl. Brit. Ind. 2: 12 (1876): Fl. E. Himal. 187 (1966), in nota.

NEPAL. Phulchoki, 2400 m (Apr. 11, 1969); Thale-Dunche, 2000 m (Jun. 3, 1969); Tanguni-Chipling, 2000 m (Aug. 21, 1969); Mane Gaon-Thale, 2000 m (Jun. 24, 1970); Yatumbal-Chilime Khola, 2300 m (Jul. 8, 1970); Tute-Dor, 2400 m (Jun. 6, 1972); Papung-Bir Gaon, 1700 m (Jun. 30, 1972); Thale-Dunche, 2000 m (Aug. 21, 1972); Pati Bhanjyang-Bhorlang, 2200 m (Aug. 30, 1972).

DARJEELING. Thame, 2000 m (Aug. 12, 1972).

Distr. sp. Himalaya, India, Burma, Thailand, Indo-China, Malaysia, China, Formosa, Ryukyu, and Japan.

Rhus Wallichii Hook. f.: Fl. E. Himal. 187 (1966).

NEPAL. Thale-Dunche, 2000 m (Jun. 3, 1969); Mane Gaon-Thale, 2000 m (Jun. 24, 1970); Nessum, 1300 m (Jul. 3, 1972).

Semecarpus Anacardium L. f.: Fl. E. Himal. 187 (1966).

NEPAL. Sim Chotala-Bainse, 800 m (Jun. 7, 1969); Bagdeo-Saraswati, 400 m (Nov. 14, 1970); Tamur Bridge-Teku Nala, 400 m (Jun. 3, 1972); Dingla-Doban, 700 m (Jul. 2, 1972).

This species is found in *Shorea robusta* forest.

CELASTRACEAE (by Hiroshi Hara)

Cassine glauca (Rottb.) O. Kuntze: Hara, Fl. E. Himal. 188 (1966).

NEPAL. Dharan-Sanguri Bhanjyang, 800 m (Jun. 2, 1972, no. 720119, fl. yellow green); Mohamabedi Khola-Dhara Pani, 800 m (Jul. 9, 1972, fl.).

Distr. Tropical Himalaya (Kashmir to Nepal), India, Ceylon, Indo-China, and Malaysia.

Euonymus amygdalifolius Franch. in Bull. Soc. Bot. France 33: 453 (1886)—Blakelock in Kew Bull. 1951: 280 (1951).

NEPAL. Topke Gola-Shewaden, 3100 m (Jun. 28, 1972, no. 723662).

Distr. Himalaya (Kumaon to Sikkim), N. Burma, S. Tibet, and W. China (Yunnan).

Reissantia arborea (Roxb.) Hara in Journ. Jap. Bot. 40: 327 (Nov. 1965); Fl. E. Himal. 191 (1966)—Raju in Journ. Biol. Sci. 8: 56 (Dec. 1965).

NEPAL. S. of Dharan, 200 m (Jul. 1, 1972, no. 723654, fl.); Dhara Pani-Teku Nala, 1000–300 m (Jun. 3, 1972, fl.).

Distr. Tropical Himalaya (Nepal to N. Assam), Khasia, N. Burma, and W. China.

SABIACEAE (by Hiroo Kanai)

Meliosma dilleniifolia (Wall.) Walpers: Hara, Fl. E. Himal. 194 (1966); 2: 74 (1971).

NEPAL. Khirojet, 2300 m (Jun. 28, 1970, tree, 5 m high with fragile branches. Perianth 3 with 2 small and 1 large, pale yellowish white. Filament folded at its half way with

2 short projections at the folding. Folding of filament released and the filament spring outward dispersing pollen by a slight touch to the projection); Phulchoki, 2600 m (Oct. 20, 1970).

DARJEELING. Phalut-Ratho Chu, 2900 m (Aug. 4, 1972).

Sabia leptandra Hook. f. et Thoms.: Fl. E. Himal. 194 (1966); **2**: 74 (1971).

NEPAL. Mane Gaon-Thale, 2000 m (Jun. 24, 1970, fr. blue with minute punctuations. Sarcocarp blue).

Sabia paniculata Edgew. in Hook. f. et Thoms., Fl. Ind. **1**: 211 (1855)—Hook. f., Fl. Brit. Ind. **2**: 3 (1876).

NEPAL. Phurke Chour, 400 m (Apr. 20, 1969, climber, young fruits white).

Distr. Himalaya (Garhwal to Nepal). New to Nepal.

BALSAMINACEAE (by Hiroshi Hara)

Impatiens amplexicaulis Edgew. in Trans. Linn. Soc. **20**: 37 (1851)—Hook. f., Fl. Brit. Ind. **1**: 469 (1875); in Rec. Bot. Surv. Ind. **4**: 8 (1904).

NEPAL. Langtang-Kyangjing, 3600 m (Jul. 13, 1970); Thudam, 3400 m (Jun. 25, 1972, no. 720737, fl. pink).

Distr. Himalaya (Punjab to Nepal).

Impatiens arguta Hook. f. et Thoms.: Hara, Fl. E. Himal. 194 (1966); **2**: 74 (1971).

NEPAL. Chitre, 2400 m (Jul. 7, 1972, no. 721162, fl.).

DARJEELING. Ratho Chu-Raman, 2400 m (Aug. 4 1972, fl.); Raman-Rimbick, 1900–2400 m (Aug. 5, 1972, fl.); Palmajua, 2200 m (Aug. 7, 1972, fl.).

Distr. E. Himalaya (E. Nepal to Bhutan), S. Tibet, Khasia, Manipur, Burma, and W. China (var.).

Impatiens bicornuta Wall.: Fl. E. Himal. 195 (1966); **2**: 75 (1971).

NEPAL. Thale-Dunche, 2000 m (Jun. 25, 1970, fl.); Phulchoki, 2500 m (Jul. 15, 1972, fl.); Gram-Dunche, 1900 m (Aug. 21, 1972, no. 721724, fl.); Khodang Danda-Latsu, 2300 m (Aug. 29, 1972, fl.).

DARJEELING. Tonglu-Sandakphu, 2800–3600 m (Jul. 31, 1972, fl.).

var. **micrantha** Hara, var. nov.

Differt a typo floribus minoribus, labello 10–12 mm longo.

NEPAL. Dunche-Singum Gompa, 2000–2500 m (Kanai, Hara & Ohba, Aug. 22, 1972, no. 723214, fl. light pink. Holotype in π).

Distr. sp. Himalaya (Garhwal to NEFA).

The colour of flowers is variable in this species. In Central Nepal, the flowers are generally rose-pink or light purple outside, but in the Darjeeling District, they are yellow tinged with brown-purple. Var. *micrantha* forms a separate colony from the typical one.

Impatiens cymbifera Hook. f., Fl. Brit. Ind. **1**: 474 (1875); in Rec. Bot. Surv. Ind. **4**: 14 & 20 (1905).

NEPAL. Trisuli Khola, 2065 m (Jun. 3, 1969, no. 69896, fl.).

SIKKIM. Lagyap, 2200 m (Hara & Pradhan, Sep. 13, 1964, fl.).

Distr. E. Himalaya (Nepal, Sikkim).

Hooker f. (1875) described this species in the original description apparently by mistake as 'spurless'. The type specimen at Kew collected from Lachoong,

Sikkim (Hooker f. 1849) has slender curved spur 6–8 mm long, and it is clearly shown also in the drawing by Hooker f. himself on the type sheet.

Impatiens exilis Hook. f.: Fl. E. Himal. 195 (1966).

NEPAL. Dhara Pani, 1000 m (Jul. 10, 1972, no. 721226, fl.).

SIKKIM. Rumtek, Gangtok, 1800 m (Jun. 27, 1969, fl.); Gangtok–Middle Camp, 800–900 m (Jun. 28, 1969).

Distr. E. Himalaya (Nepal to Bhutan).

Impatiens falcifer Hook. f.: Fl. E. Himal. 195 (1966).

NEPAL. Mere Danda, 3200 m (Aug. 23, 1969, fl.); Oo Kharka, 3400 m (Jul. 7, 1970, fl.); Kuri–Charikot, 3250–2000 m (Sep. 29, 1970, fl.); Phulchoki, 2650 m (Jul. 15, 1972, fl.); Gopte–Thale Patil, 3400 m (Aug. 26, 1972, fl.).

DARJEELING. Tonglu–Sandakphu, 2900 m (Jul. 31, 1972, fl.).

Distr. E. Himalaya (Nepal, Sikkim).

The flowers are yellow with dark red spots or without spot.

Impatiens Gamblei Hook. f. in Rec. Bot. Surv. Ind. **4**: 15 & 20 (1905).

NEPAL. Tinjure Phedi–Tinjure, 2800 m (Jul. 6, 1972, no. 721126, fl. rose-purple).

DARJEELING. Tonglu, 3000 m (Jul. 30, 1972); Tonglu–Sandakphu, 3000–3500 m (Jul. 31, 1972); Sandakphu, 3500 m (Aug. 1, 1972).

Distr. E. Himalaya (E. Nepal, Sikkim).

Impatiens occultans Hook. f. in Rec. Bot. Surv. Ind. **4**: 17 & 22 (1905).

NEPAL. Thale Patil–Rock Shelter I, 3500–3270 m (Aug. 24, 1969, fl.); Gosainkund, 3900 m (Aug. 23, 1972, no. 721860, fl. white).

DARJEELING. Phalut, 3600 m (Aug. 3, 1972, fl. white).

Distr. E. Himalaya (Nepal, Sikkim).

Impatiens serrata Benth. in Wall., Cat. no. 4771 (1831), nom. nud.] ex Hook. f. et Thoms. in Journ. Linn. Soc. **4**: 136 (1860)—Hook. f., Fl. Brit. Ind. **1**: 473 (1875), p.p.; in Rec. Bot. Surv. Ind. **4**: 10 (1904); **4**: 18 & 23 (1905).

I. serrulata Hook. f., l.c. **4**: 7 & 10 (1904).

NEPAL. Tsedang Pokhari, 3000 m (Aug. 23, 1969, fl.); Singum Gompa, 3200 m (Aug. 22, 1972, no. 723205, fl.); Mangan–Khodang Danda, 3100–2500 m (Aug. 28, 1972, fl.).

Distr. Himalaya (Kumaon to Bhutan).

Impatiens sulcata Wall. in Roxb., Fl. Ind. ed. Carey, **2**: 458 (1824)—Hook. f. et Thoms. in Journ. Linn. Soc. **4**: 129 (1860)—Hook. f., Fl. Brit. Ind. **1**: 469 (1875); in Rec. Bot. Surv. Ind. **4**: 19 (1905).

I. gigantea Edgew. in Trans. Linn. Soc. **20**: 38 (1846).

NEPAL. Singum Gompa–Gosainkund, 3300 m (Aug. 23, 1972, fl.).

Distr. Himalaya (Kashmir to Bhutan).

Impatiens urticifolia Wall. in Roxb., Fl. Ind. ed. Carey, **2**: 457 (1824)—Hook. f. et Thoms. in Journ. Linn. Soc. **4**: 152 (1860), incl. α et γ —Fl. Brit. Ind. **1**: 474 (1875).

NEPAL. Oo Kharka, 3400 m (Jul. 1, 1970, fl.); Bhuje, 2700 m (Jul. 4, 1972, fl.); Tinjure, 2900 m (Jul. 6, 1972, no. 723228, fl.); Gopte, 3500 m (Aug. 25, 1972, fl.); Gopte–Thale Patil, 3500–3400 m (Aug. 26, 1972, no. 723223, fl.).

DARJEELING. Phalut, 3500 m (Aug. 3, 1972, fl. brown-purple).

Distr. E. Himalaya (Nepal to Bhutan) and S. Tibet.

Impatiens Wallichii Hook. f. in Rec. Bot. Surv. Ind. **4**: 15 & 20 (1905).

I. discolor DC. sensu Wall., Cat. no. 4767 (1831), p.p.

NEPAL. Mul Kharka, 3800 m (Jul. 1, 1970, fl.); Singum Gompa-Gosainkund, 3200-3700 m (Aug. 23, 1972, no. 723222, fl. yellowish white).

Distr. E. Himalaya (Nepal, Sikkim).

RHAMNACEAE (by Yasuiti Momiyama)

Berchemia flavescens (Wall.) Brongniart: Momiyama in Fl. E. Himal. 197 (1966); **2**: 76 (1971).

NEPAL. Langtang Gorge-Syerpagaon, 2900-2600 m (Jul. 17, 1970, fl., "Fruits blue black"); Shewaden, 2600 m (Jun. 29, 1972, bud); Tinjure Phedi, 2700 m (Jul. 6 1972, fl. & fr.).

DARJEELING. Phalut-Raman, 3600-2100 m (Aug. 4, 1972, fl.).

Rhamnus virgatus Roxb.: Fl. E. Himal. 198 (1966); **2**: 77 (1971).

NEPAL. Yatumbal-Tangjet, 2700-1750 m (Jul. 8, 1970, fr.).

var. **flavidus** (Momiyama) Momiyama, comb. nov.

Rhamnus flavidus Momiyama in Fl. E. Himal. **2**: 76 (1971).

NEPAL. Balaju, Kathmandu, 1300 m (Jun. 16, 1967, fr. Holotype in π).

Distr. E. Himalaya (Nepal).

Haec planta a typo pilositate tantum diversa.

Zizyphus mauritiana Lam.: Fl. E. Himal. 198 (1966); **2**: 77 (1971).

NEPAL. Shyaprubensi-Tangjet, 1500-1800 m (Jun. 27, 1970, bud).

Zizyphus rugosa Lam.: Fl. E. Himal. 77 (1971).

NEPAL. Dhara Pani-Tamur Bridge, 1000-300 m (Jun. 3, 1972, young fruits round, green after yellowish).

VITACEAE (by Yasuiti Momiyama)

Ampelocissus latifolia (Roxb.) Planch. in Journ. la Vigne am. Des. **1884**: 374 (1884); in DC., Monogr. Phan. **5**: 370 (1887).

Vitis latifolia Roxb. [Hort. Beng. 18 (1814), nom. nud.] Fl. Ind. ed. 2, **1**: 661 (1832)-Laws. in Fl. Brit. Ind. **1**: 652 (1875).

NEPAL. Bir Gaon-Dingla, 1600-1000 m (Jul. 1, 1972, fl.).

Distr. Himalaya (Kumaon, Moradabad, and Nepal), Assam, and W. Peninsula.

Ampelocissus nervosa (Laws.) Planch. in DC., Monogr. Phan. **5**: 372 (1887).

Vitis nervosa Laws. in Fl. Brit. Ind. **1**: 650 (1875).

NEPAL. Dunche, 1800 m (Jun. 26, 1970, fl.); Bir Gaon-Dingla, 1600-1000 m (Jul. 1, 1972, fr.).

Distr. Himalaya (Nepal, Sikkim).

Ampelocissus rugosa (Laws.) Planch. in DC., Monogr. Phan. **5**: 376 (1887).

Vitis lanata Roxb. var. *rugosa* Laws. in Fl. Brit. Ind. **1**: 651 (1875).

NEPAL. Bir Gaon-Dingla, 1600-1000 m (Jul. 1, 1972, fl.); Gram-Dunche, 1900 m (Aug. 21, 1972, fl.).

Distr. Himalaya (Garhwar, Nepal), Assam, and Tenasserim.

Ampelocissus sikkimensis (Laws.) Planch.: Momiyama in Fl. E. Himal. 198 (1966).

NEPAL. Gram-Dunche, 1900-2000 m (Aug. 21, 1972, fl.).

Distr. E. Himalaya (E. Nepal, Sikkim) and Assam.

Cissus javana DC.: Fl. E. Himal. 199 (1966); **2**: 78 (1971).

NEPAL. Sanguri Bhanjyang-Dharan, 1300–400 m (Jul. 10, 1972).

Leea acuminata Wall. ex C. B. Clarke: Fl. E. Himal. 199 (1966); **2**: 78 (1971).

NEPAL. South of Dharan, 200 m (Jun. 1, 1972, fl.).

Distr. E. Himalaya (Nepal to N. Assam), Garrow Hills, Manipur, Thailand, and Indo-China.

Leea aspera Wall. [in Roxb., Fl. Ind. ed. Carey, **2**: 468 (1824), nom. nud., ad nota] ex Edgew. in Trans. Linn. Soc. **20**: 36 (1846)—C. B. Clarke in Journ. Bot. **19**: 136 (1881).

L. herbacea Hamilt. ex C. B. Clarke sensu Momiyama in Fl. E. Himal. **2**: 78 (1971), p.p.

L. robusta Roxb. sensu Momiyama in Fl. E. Himal. **2**: 79 (1971).

NEPAL. Pokhara, 900 m (Jun. 18, 1967, fl., ut *L. robusta*); Godawari (May 28, 1969, ut *L. robusta*); Shyaprubensi, 1500 m (Jun. 27, 1970); Okhre Danra-Deorali, 2000–1900 m (Sep. 2, 1970, "Fruits depressed globose, grayish blue.").

DARJEELING. Ghum, 2150–2300 m (Jun. 8, 1967, fl., ut *L. robusta*).

SIKKIM. Gangtok-Temi, 800–1620 m (Jun. 28, 1969, fl., ut *L. herbacea*).

Distr. Himalaya (Kashmir, Kumaon to Nepal), Assam, and W. Peninsula.

Leea bracteata C. B. Clarke in Journ. Bot. **19**: 164 (1881).

L. robusta Roxb. sensu Laws. in Fl. Brit. Ind. **1**: 667 (1875), p.p.

NEPAL. Jaspur-Jureli, 300–340 m (Apr. 20, 1969).

Distr. E. Himalaya (Nepal, Sikkim), Oudh Terai, Assam, and Indo-China.

Leea herbacea Hamilt. ex C. B. Clarke: Fl. E. Himal. 200 (1966); **2**: 78 (1971), p.p.

DARJEELING. Darjeeling-Tista, 2300–400 m (Aug. 10, 1972, fr.).

Distr. E. Himalaya (Nepal to Bhutan), Khasia, Burma, and Thailand.

Tetrastigma lanceolarium (Roxb.) Planch. in DC., Monogr. Phan. **5**: 423 (1887)—Suessenguth in Engl. et Prantl, Pfl.-fam. 2 Aufl. **20d**: 322, fig. 95 (1953).

Cissus lanceolaria Roxb., Fl. Ind. ed. Carey, **1**: 430 (1820).

Vitis lanceolaria Wall., Cat. no. 6013, a–d, h (1831–32)—Laws. in Fl. Brit. Ind. **1**: 660 (1875).

T. dubium (Laws.) Planch. sensu Momiyama in Fl. E. Himal. 200 (1966).

NEPAL. Dharan-Dhara Pani, 400–1300 m (Jun. 2, 1972, fr.).

DARJEELING. Takdah, 1700 m (Apr. 19, 1960, fr., ut *T. dubium*); Takdah-Rayang, 2500 m (Apr. 20, 1960, fr., ut *T. dubium*); Rayang (Apr. 21, 1960, fr., ut *T. dubium*).

Distr. India, E. Himalaya (Nepal, Sikkim), Assam, and Burma.

Tetrastigma obtectum (Wall.) Planch. in DC., Monogr. Phan. **5**: 434 (1887).

Vitis obtecta Wall., Cat. no. 6026 (1831–32)—Laws. in Fl. Brit. Ind. **1**: 657 (1875).

Tetrastigma burmanicum Momiyama in Fl. E. Himal. **2**: 79 (1971), excl. basionym.

NEPAL. Godawari-Phulchoki, 1600–2500 m (Jun. 26, 1967, fr., ut *T. burmanicum*); Deorali-Chitlang, 1900–1500 m (Sep. 3, 1970, "Fruits 1-seeded, green, then grayish purple and then black, globose, sarcocarps blood red. Seeds flat, orbicular, soft, pale green.").

BHUTAN. Ratsoo, 2000 m (Apr. 24, 1967, fl., ut *T. burmanicum*).

Distr. Himalaya (Kumaon to Nepal) and W. China (Yunnan, Kweichou, Szechuan).

Tetrastigma serrulatum (Roxb.) Planch.: Fl. E. Himal. 201 (1966); **2**: 80 (1971).

NEPAL. Nagarjun, Kathmandu, 1500 m (Apr. 24, & 29, 1970, ster.); Dor, 2600 m (Jun. 6, 1972, fl.); Chitre-Teku Nala, 2400–800 m (Jul. 8, 1972); Gram-Dunche, 1900–2000 m (Aug. 21, 1972, fl.); Bhorlang-Sundarijar, 2400–1400 m (Aug. 31, 1972).

DARJEELING. Raman-Rimbick, 2400–2200 m (Aug. 5, 1972, fr.).

Vitis parvifolia Roxb.: Fl. E. Himal. 201 (1966); **2**: 80 (1971).

NEPAL. Phulchoki, 1500–2700 m (Apr. 11, 1969, fl.).

TAMARICACEAE (by Hiroshi Hara)

Myricaria rosea W. W. Smith in Not. Bot. Gard. Edinb. **10**: 52 (1917)–Hand.-Mzt., Symb. Sin. **7**: 373 (1931)–Hara in Trans. Bot. Soc. Edinb. **41**: 344 (1972).

M. prostrata Hook. f. et Thoms. ex Benth. et Hook. f., Gen. Pl. **1**: 161 (1862), P.P.

M. germanica Desv. var. *prostrata* (Benth. et Hook. f.) Dyer in Fl. Brit. Ind. **1**: 250 (1874), p.p.–Hara, Fl. E. Himal. 211 (1966).

NEPAL. Topke Gola, 3800 m (Jun. 18, 1972, fl.); Lama Chungbu-Thudam, 4000 m (Jun. 24, 1972, no. 723060, fl.).

BHUTAN. Chamsa-Yabu Thang, 3400 m (May 15, 1967, fl.); Laya-Laum Thang, 4050 m (May 18, 1967, fl.); Chawa Gassar-Seanchu Passa, 3900–4700 m (May 20, 1967, fl.); Shodu-Barshong, 3900 m (May, 24 1967, fl.).

Distr. Himalaya (Kumaon to Bhutan), S. Tibet, and W. China.

VIOLACEAE (by Hiroshi Hara)

Viola betonicifolia J. E. Smith in Rees, Cyclop. **37**: *Viola* no. 7 (1817)–Jacobs et D. M. Moore in Fl. Males. **7**: 202 (1971).

V. Patrinii var. *nepaulensis* Gingins ex DC., Prodr. **1**: 293 (1824).

V. caespitosa D. Don, Prodr. Fl. Nepal. 205 (1825).

V. Patrinii DC. sensu Hook. f. et Thoms. in Fl. Brit. Ind. **1**: 183 (1872).

V. betonicifolia subsp. *nepalensis* (Ging.) W. Becker in Engl., Bot. Jahrb. Beibl. **120**: 166 (1917).

BHUTAN. Thimphu, 2450 m (Apr. 6, 1967, fl.); Dochu La-Wangdu Phodrang, 1800 m (Apr. 9, 1967, fl.); Tashiling-Tongsa, 2300–1900 m (Apr. 16, 1967, fl.); Ratsoo-Samtengang, 2100–2800 m (Apr. 25, 1967, fl.); Bhotokha-Rinchu, 1450–1500 m (May 8, 1967); Khosa-Tamji, 1800–2200 m (May 11, 1967, fl.).

f. **pubescens** Hara, f. nov.

Petioli pedunculique dense minute pubescentes, pilis brevibus reclinatis vel subpatentibus. Etiam paginae foliorum saepe minute pubescentes.

BHUTAN. Nyatoka-Samtengang, 1500–2100 m (Apr. 10, 1967, fl.); Ratsoo-Samtengang, 2000–2800 m (Apr. 25, 1967, fl.); Samtengang-Choojom, 1500–2100 m (Apr. 26, 1967); Thimphu, 2450 m (Kanai et al. Apr. 30, 1967, no. 15658, fl. Holotype in π); Tzatogang-Dotanang, 3200–2700 m (May 27, 1967, fl.).

Distr. sp. Himalaya, India, east to S. Japan, south to Malaysia, and Australia.

The specimens from Bhutan cited above are very variable. As compared with

typical *V. betonicifolia*, the stipules are often pale-coloured, the petioles are sometimes much shorter, the base of leaves is rarely sagittate as in subsp. *novoguineensis* Moore, the flowers are pale pink to violet, and the plants are occasionally very dwarf. A form with minutely pubescent leaves, petioles and peduncles is named here as f. *pubescens*. Another form with broader cordate leaves also occurs in Bhutan, and further studies are much needed.

Viola bhutanica Hara in Journ. Jap. Bot. **48**: 356, f. 2 (1973).

BHUTAN. Thimphu, 2450 m (Apr. 29, 1967, no. 15620. Holotype in TI; Apr. 6, 7 & 30, 1967, fl.); Dotanang-Thimphu, 2500–2600 m (May 28, 1967, fl.).

Distr. Endemic to Bhutan.

Among the acaulescent species from Himalaya, this species is characterized in having broad ovate leaves which are deeply cordate at the base and are distinctly pilose above with long white spreading hairs.

Viola bulbosa Maxim. in Bull. Acad. Sci. St.-Pétersb. **23**: 334 (1877)—O. Stapf in Kew Bull. **1894**: 370 (1894).

V. tubrifera Franch.: Hara, Fl. E. Himal. **2**: 82 (1971).

Distr. Himalaya (Nepal to Bhutan), S. Tibet, and W. China.

Viola canescens Wallich in Roxb., Fl. Ind. ed. Carey, **2**: 450 (1824)—Watt in Journ. Linn. Soc. **18**: 379, t. 11B (1881)—W. Becker in Beih. Bot. Centralbl. **40** (2): 110 (1920).

V. serpens Wall. var. *canescens* (Wall.) Hook. f. et Thoms. in Fl. Brit. Ind. **1**: 184 (1872), p.p.

BHUTAN. Dochu La-Wangdu Phodrang, 1800–1450 m (Apr. 9, 1967, fl. white or pink-violet with violet veins); Kybaka-Samtengang, 1600 m (Apr. 10, 1967, fl. pale violet); Tinlegang-Gon Chungang, 1950–1800 m (May 5, 1967, fl.); Punakha-Bhotokha, 1400–1450 m (May 7, 1967, fl.).

Distr. Himalaya (Kashimir to Bhutan).

Viola paravaginata Hara: Fl. E. Himal. **2**: 82 (1972).

NEPAL. Minchin Dhap-Mul Pokhari, 2900–2500 m (Oct. 29, 1963); Godawari-Phulchoki, 2500–2800 m (May 29, 1969); Tinjure Phedi, 2700 m (Jul. 6, 1972, fr.).

BHUTAN. Tashiling-Tongsa, 2300–2000 m (Apr. 14, 1967, fl.); Tongsa-Tratang, 2200–2700 m (Apr. 17, 1967, fl.); Chendebi-Rukubi, 2500 m (Apr. 21, 1967, fl. pale violet); Longtepang-Ritang, 3000–2600 m (Apr. 22, 1967, fl.); Gasa-Pari La, 2800 m (May 14, 1967, fl.); Tzatogang-Dotanang, 3200–2700 m (May 27, 1967, fl. white with violet veins).

Distr. E. Himalaya (Nepal to Bhutan).

This species seems to be closely related to *V. moupinensis* Franchet of West China. The latter, however, has barbate lateral petals and sometimes ascending stem-like stolons which are foliate in the upper part.

Viola pilosa Blume, Cat. Gew. Buitenz. 57 (1823); Bijdr. 57 (1825)—Jacobs et D. M. Moore in Fl. Males. **7**: 207, f. 16 & 17 (1971), excl. *V. glaucescens* Oudem.

V. serpens Wall. ex Gingins in DC., Prodr. **1**: 296 (1824): Fl. E. Himal. 213 (1966).

V. aspera Gingins in DC., l.c. 295 (1824).

V. palmaris Hamilt. ex DC., l.c. 298 (1824).

V. serpens var. *glabra* Hook. f. et Thoms. in Fl. Brit. Ind. 1: 184 (1872), excl. syn.

NEPAL. Phulchoki, 2000–3000 m (Jun. 26, 1967; Jun. 10, 1969 & May 28, 1972, fl. & fr.); Dunche, 2100 m (Jun. 3, 1969); Dunche–Gosainkund, 2000–3000 m (Jun. 4, 1969, fl.); Sheopuri, 2700 m (Jun. 14, 1969, fl.); Chitre, 2400 m (Jun. 5, 1972, fl.); Tute-Dor, 2500–2600 m (Jun. 6, 1972); Suke–Hile Chok, 2900–3500 m (Jun. 11, 1972, fl.).

DARJEELING. Tonglu, 3100 m (Apr. 30, 1970, fl.); Phalut–Raman, 3600–2100 m (Aug. 4, 1972, fr.).

BHUTAN. Chimakhoti, 2350 m (Apr. 4, 1967, fl.); Tsarza La–Ritang, 2800–2000 m (Apr. 11, 1967, fl.); Chendebi–Neylong, 2400 m (Apr. 14, 1967); Tashiling–Tongsa, 2300–1900 m (Apr. 16, 1967); Ritang–Ratsoo, 2600–2000 m (Apr. 23, 1967); Ratsoo, 2000 m (Apr. 24, 1967); Gon Chungnang, 1800 m (May 5, 1967), Mishichen–Khosa, 1600–1800 m (May 10, 1967); Tamji–Gasa, 2200 m (May 13, 1967, fl.); Gasa–Chamsa, 2800–3700 m (May 14, 1967, fl.); Tzatogang–Dotanang, 2800 m (May 27, 1967, fl.).

Distr. Afghanistan, Himalaya, Assam, Burma, Indo-China, China, and Malaysia.

This species is very variable especially in hairiness. The Himalayan plants are often less hairy, and *V. palmaris* was named to a glabrescent form.

Viola pilosa, *V. canescens*, *V. Thomsonii* Oudem. and *V. glaucescens* Oudem. are closely related, but are distinguished as follows:

- | | | |
|---|---|--|
| 1 | } | Style subtruncate at the apex (not marginate nor rostellate). Petioles hairy, at least retrorse-pilose in the upper part. Capsules subglobose, seeds generally punctate-scabrous 2 |
| | | Style marginate and shortly rostellate at the apex. Petioles & peduncles glabrous. Capsules elongate oblong, seeds smooth 3 |
| 2 | } | Leaves cordate-ovate-lanceolate-ovate, acuminate or long-acuminate, thin, white-pilose above or glabrescent. Stipules broad-lanceolate shorter-fimbriate. All upper petals often barbate. Capsules hairy or glabrous . . . <i>V. pilosa</i> |
| | | Leaves ovate-reniform-cordate, obtuse-roundish at the apex, thickish, canescent-pilose. Petioles densely retrorse-pubescent. Stipules lanceolate longer-fimbriate, often brown. Capsules hairy <i>V. canescens</i> |
| 3 | } | Leaves oblong-ovate-cordate-ovate, acutish, slightly white-pilose. Stipules lanceolate long-setaceo-fimbriate, often dark brown. Peduncles with longer bracteoles often in the upper part. Sepal-appendages often unequal, some elongate <i>V. Thomsonii</i> |
| | | Leaves cordate or roundish cordate, shortly acuminate or obtuse, glabrous or sparsely short-pilose. Stipules often broad-lanceolate. Peduncles with narrow bracteoles about at the middle. Sepal-appendages short . . . <i>V. glaucescens</i> |

Viola Wallichiana Ging. ex DC., Prodr. 1: 300 (1824)–Becker in Beih. Bot. Centralbl. 34 (2): 262 (1916)–Kanai in Journ. Jap. Bot. 46: 317 (1971).

V. reniformis Wall. in Roxb., Fl. Ind. ed. Carey 2: 451 (1824).

V. biflora L. sensu Hook. f. et Thoms. in Fl. Brit. Ind. 1: 182 (1872), p.p.

NEPAL. Sheopuri, Kathmandu, 2700 m (Jun. 14, 1969, no. 673286, fl.); Thale-Dunche, 2000 m (Jun. 25, 1970, fl.); Langtang Gorge, 2640 m (Jul. 17, 1970, fl.); Dor, 2600 m (Jun. 6, 1972, fl.); Dor–Tinjure, 2800 m (Jun. 7, 1972, fl.); Lamo Pokhari, 2900 m (Jun. 8, 1972, fl.); Topke Gola–Shewaden, 3000 m (Jun. 28, 1972, fl.); Bhujee–

Gupha Pokhari, 2900 m (Jul. 4, 1972, no. 721081, fl.); Tinjure, 2900 m (Jul. 6, 1972, fl.); Gram-Thale, 2000 m (Aug. 21, 1972, fl. & fr.); Mangen-Khodang Danda, 2800 m (Aug. 28, 1972, fl.).

DARJEELING. Tonglu-Sandakphu, 2800–3900 m (Jul. 13, 1969, fl.); Phalut-Mt. Singalila, 3900 m (Jul. 17, 1969, fl.).

Distr. Himalaya (Nepal to Bhutan).

PASSIFLORACEAE (by Hiroshi Hara)

Passiflora napalensis Wall., Tent. Fl. Nepal. 20, t. 11 (1824)—Masters in Fl. Brit. Ind. **2**: 600 (1879). [Plate 5e]

P. geminiflora D. Don, Prodr. Fl. Nepal. 63 (1825)—de Wilde in Blumea **20**: 243 (1972).

Anthactinia nepalensis (Wall.) M. Roem., Syn. Monogr. Pepon. **1**: 190 (1846).

NEPAL. Mul Pokhari-Dumhan, 2000–700 m (Oct. 30, 1963, fr.); Dumhan-Taplejung, 700–2000 m (Nov. 1, 1963, fr.); Taplejung, 2000 m (Nov. 2, 1963, no. 6306613, fr.); Dhara Pani-Sanguri Bhanjyang, 1200 m (Jul. 10, 1972, no. 721235, fl.).

Distr. Himalaya (Nepal to Bhutan), Assam, and Burma.

BEGONIACEAE (by Hiroshi Hara)

Begonia dioica Hamilt. ex D. Don, Prodr. Fl. Nepal. 223 (1825). [Plate 5d]

B. tenella D. Don, l.c. 223 (1825).

B. amoena Wall. [Cat. no. 3682 (1831), nom. nud.] ex A. DC., Prodr. **15** (1): 327 (1864)—C. B. Clarke in Fl. Brit. Ind. **2**: 642 (1879).

NEPAL. Sim Chotala-Gram, 1500–1900 m (Aug. 20, 1972, no. 723653, fl.).

DARJEELING. Siri Khola-Rimbick, 2000–2200 m (Aug. 5, 1972, ♀-fl.); Rimbick-Palmajua, 1500–2200 m (Aug. 6, 1972, ♂-fl.); Palmajua, 2200 m (Aug. 7, 1972, ♀-fl.).

Distr. Himalaya (Punjab to Sikkim).

Begonia flagellaris Hara in Journ. Jap. Bot. **48**: 358, f. 3 (1973).

NEPAL. Pulchoki, Kathmandu, 2200–2700 m (Aug. 9, 1969, fl.); Chipling-Ingyur, 2160–2440 m (Aug. 21, 1969, fl.); Gul Bhanjyang-Latsu, 2300–2400 m (Aug. 29, 1972, no. 723648, fl. Holotype in π).

Distr. Endemic to Nepal.

The plants have long creeping leafy stolons, and bear ascending inflorescences at their lower nodes.

Begonia Hatacoa Hamilt. ex D. Don, Prodr. Fl. Nepal. 223 (1825)—Hara in Journ. Jap. Bot. **47**: 143 (1972).

B. rubro-venia Hook. f.: Hara, Fl. E. Himal. 215 (1966); **2**: 85 (1971).

NEPAL. Dhara Pani-Sanguri Bhanjyang, 1200 m (Jul. 10, 1972, no. 721233, fl.).

Begonia leptoptera Hara in Journ. Jap. Bot. **48**: 98, pl. 1 (1973).

B. adscendens C. B. Clarke sensu Hara, Fl. E. Himal. **2**: 83 (1971).

NEPAL. Kiwa-Taplethok, 1500 m (Nov. 5, 1963, fr.); Taplethok-Helok, 1400–1500 m (Nov. 6, 1963, no. 6304546, fr.); Thale-Thale Bisauna, 2500 m (Sep. 10, 1970, no. 4032, fl. Holotype in π).

Distr. Endemic to Nepal.

The species differs from *Begonia Josephii* A. DC. in having non-peltate maculate leaves, simple umbellate inflorescences, and lanceolate narrow wing of capsules.

Begonia ovatifolia A. DC. in Ann. Sci. Nat. ser. 4, **11**: 132 (1859); Prodr. **15** (1): 328 (1864)—Fl. Brit. Ind. **2**: 642 (1879).

DARJEELING. Tista, 400 m (Aug. 10, 1972, fl.).

Distr. E. Himalaya (Nepal, Sikkim) and Khasia.

ELAEAGNACEAE (by Yasuichi Momiyama)

Elaeagnus caudata Schlecht. ex Momiyama in Fl. E. Himal. **2**: 85, fig. 7 (1971)—Momiyama et Hara in Journ. Jap. Bot. **48**: 264 (1973).

Elaeagnus infundibularis Momiyama apud Momiyama et Hara in Journ. Jap. Bot. **48**: 262, fig. 3 (1973).

E. arborea Roxb. sensu D. Don, Prodr. Fl. Nepal. 67 (1825)—Momiyama in Fl. E. Himal. 216 (1966); **2**: 85 (1971).

NEPAL. Kakani, Kathmandu (Dec. 16, 1969, no. 674486, fl. Holotype in τ_1).

Distr. E. Himalaya (Nepal to Bhutan).

Elaeagnus Kanaii Momiyama apud Momiyama et Hara in Journ. Jap. Bot. **48**: 264, fig. 4 (1973).

NEPAL. Chilime—Khirojet, 1800 m (Jun. 28, 1970, no. 68, fr. Holotype in τ_1).

Distr. Nepal.

MELASTOMATACEAE (by Hiroshi Hara)

Sonerila khasiana C. B. Clarke in Fl. Brit. Ind. **2**: 539 (1879)—C.E.C. Fischer in Kew Bull. **1932**: 199 (1932.)

NEPAL. Latsu—Pati Bhanjyang, 1900 m (Aug. 30, 1972, no. 723110, fl. rose-purple).

Distr. E. Himalaya (Nepal), Assam, S. Tibet, and N. Burma.

ARALIACEAE (by Hiroo Kanai)

Acanthopanax cissifolius (Griff.) Harms.: Hara in Fl. E. Himal. **2**: 90 (1971).

NEPAL. Phulchoki, 2500 m (May 28, 1972); Topke Gola, 3600 m (Jun. 28, 1972).

BHUTAN. Thimphu, 2300 m (Apr. 30, 1967).

Aralia cachemirica Decne.: Mizushima in Fl. E. Himal. 225 (1966).

NEPAL. Langtang Gorge—Syerpagaon, 2400 m (Jul. 17, 1970).

Brassaiopsis mitis C. B. Clarke: Fl. E. Himal 226 (1966).

NEPAL. Mewa Khola, 2100 m (Jun. 29, 1972).

DARJEELING. 2200 m (Jul. 25, 1969).

BHUTAN. Khosa—Tamji, 2000 m (May 11, 1967).

Hedera nepalensis K. Koch: Fl. E. Himal. 226 (1966).

NEPAL. Sheopuri, 2500 m (Sep. 22, 1970); Phulchoki, 2600 m (Oct. 21, 1970).

DARJEELING. 2100 m (Jul. 23, 1972).

BHUTAN. Putli Bhir—Pasikha, 2000 m (Apr. 4, 1967); Thimphu, 2500 m (Apr. 7, 1967); Samtengang—Sena Thang, 2500 m (Apr. 11, 1967); Tsarza La—Ratsoo, 2200 m (Apr. 11, 1967); Tongsa—Tratang, 2400 m (Apr. 17, 1967); Ritang—Ratsoo, 2000 m (Apr. 23, 1967); Rinchu—Mishichen, 1500 m (May 9, 1967); Khosa—Tanji, 1900 m (May 11, 1967).

Macropanax dispermus (Bl.) O. Kuntze: Fl. E. Himal. 227 (1966).

NEPAL. Phulchoki, 2000 m (Nov. 3, 1970).

DARJEELING. Batasi, 1900 m (Aug. 9, 1972).

Pentapanax Leschenaultii (Wight et Arnott) Seemann: Fl. E. Himal. 227 (1966).

NEPAL. Thale-Dunche, 1900-2000 m (Jun. 3, 1969 & Jun. 25, 1970); Bagdwar, Sheopuri, 2500 m (Jun. 15, 1969); Mane Gaon-Thale, 1800 m (Jun. 24, 1970); Phulchoki, 2500 m (May 28, 1972); Tope Gola-Shewaden, 3000 m (Jun. 28, 1972).

DARJEELING. Mekma-Tonglu, 2800 m (Jul. 30, 1972).

BHUTAN. Tzatogang-Dotanang, 2700 m (May 27, 1967); Thimphu-Dochu La, 2800 m (May 30, 1967).

Schefflera impressa (C. B. Clarke) Harms: Fl. E. Himal. 228 (1966).

NEPAL. Phulchoki, 2500 m (Jul. 15, 1972).

UMBELLIFERAE (by Hiroo Kanai)

Acronema Hookeri (C. B. Clarke) Wolff. in Engl., Pfl.-reich, IV-228, Ht. 90: 323 (1927).

Pimpinella Hookeri C. B. Clarke in Fl. Brit. Ind. 2: 686 (1879).

NEPAL. Kutumsang-Tsedang Pokhari, 2500 m (Aug. 22, 1969. On tree. Petals purple with elongate tip).

Distr. E. Himalaya (Nepal and Sikkim).

Cortia depressa (D. Don) C. Norman in Journ. Bot. 75: 94 (1937).

Athamanta depressa D. Don, Prodr. Fl. Nepal. 184 (1825).

C. Lindleyi DC., Prodr. 4: 187 (1830)—C. B. Clarke in Fl. Brit. Ind. 2: 701 (1879).

NEPAL. Gadje-Surjakund, 4000 m (Aug. 26, 1969); Topke Gola, 3800 m (Jun. 18, 1972); Thudam-Lama Chungbu, 3900 m (Jun. 23, 1972); Gosainkund, 4300 m (Aug. 27, 1972).

Distr. Himalaya (Kumaon to Bhutan).

Cortia Hookeri C. B. Clarke in Fl. Brit. Ind. 2: 702 (1879).

NEPAL. Gosainkund, 4300 m (Aug. 27, 1969).

Distr. E. Himalaya (Nepal and Sikkim).

Pimpinella achilleifolia (DC.) C. B. Clarke in Fl. Brit. Ind. 2: 684 (1879).

Ptychotis achilleifolia DC., Prodr. 4: 109 (1830).

NEPAL. Tanguni-Chipling, 2100 m (Aug. 21, 1969).

Distr. Himalaya (Kumaon to Sikkim).

Pleurospermum apiolens C. B. Clarke in Fl. Brit. Ind. 2: 705 (1879).

NEPAL. Gadje, 3900 m (Aug. 26, 1969. Bracteoles whitish. Petals yellowish green. Discs green).

Distr. E. Himalaya (Nepal and Sikkim).

Pleurospermum Benthami (DC.) C. B. Clarke in Fl. Brit. Ind. 2: 703 (1879).

Hymenolaena Benthamii DC., Prodr. 4: 246 (1830).

NEPAL. Phulchoki, 2600 m (Aug. 9, 1969).

Distr. Nepal.

Pleurospermum dentatum (DC.) Benth. in Benth. et Hook. f., Gen. Pl. 1: 915 (1867)—C. B. Clarke in Fl. Brit. Ind. 2: 704 (1879).

Hymenolaena dentata DC., Prodr. 4: 245 (1830).

NEPAL. Gotiora-Gadje, 3600 m (Aug. 25, 1969, petals yellowish dark green with white margin).

Distr. Himalaya (Kumaon to Sikkim).

Pleurospermum rotundatum (DC.) Benth. in Benth. et Hook. f., Gen. Pl. **1**: 915 (1867)—C. B. Clarke in Fl. Brit. Ind. **2**: 703 (1879).

Hymenolaena rotundata DC., Prodr. **4**: 245 (1830).

NEPAL. Hile Dhap-Mane, 3400 m (Aug. 24, 1969, petals patent, not incurved, purple with a white stripe on each).

Selinum tenuifolium Wall. [Cat. no. 579 (1829), nom. nud., p.p.] ex C. B. Clarke in Fl. Brit. Ind. **2**: 700 (1879).

NEPAL. Rock Shelter I, 3270 m (Aug. 24, 1969).

Distr. Himalaya (Kashmir to Bhutan).

Trachydium obtusiusculum (DC.) C. B. Clarke in Fl. Brit. Ind. **2**: 673 (1879).

Hymenolaena obtusiuscula DC., Prodr. **4**: 246 (1830).

NEPAL. Tsedang Pokhari-Panghu Danda, 3100 m (Aug. 23, 1969).

Distr. Himalaya (Nepal and Sikkim).

CORNACEAE (by Hiroshi Hara)

Helwingia himalaica Hook. f. et Thoms. ex C. B. Clarke: Hara, Fl. E. Himal. 232 (1966); **2**: 92 (1971). [Plate 5a, b]

Confer a critical study of the genus on pages 393-413.

DICOTYLEDONEAE—SYMPETALAE

PRIMULACEAE (by Hiroshi Hara)

Primula Buryana Balfour f. in Kew Bull. **1922**: 151 (1922)—W. W. Smith et Fletcher in Journ. Linn. Soc. **52**: 323 (1942).

NEPAL. Saju Pokhari—Topke Gola, 3600–4400 m (Jun. 16, 1972, fl. white); Topke Gola, 3600 m (Jun. 17, 1972, fl.); Topke Gola—Jalang Chhyongo, 3600–4300 m (Jun. 20, 1972, fl.); Thudam—Kipuphu, 3400–4500 m (Jun. 26, 1972, fl.); Kipuphu—Topke Gola, (Jun. 27, 1972, fl.).

Distr. Himalaya (E. Nepal).

Primula Dickieana G. Watt in Journ. Linn. Soc. **20**: 9, t. 8A (1882)—Hook. f., Fl. Brit. Ind. **3**: 491 (1882)—W. W. Smith et Fletcher in Trans. Bot. Soc. Edinb. **33**: 216 (1942).

P. Pantlingii King in Journ. Asiat. Soc. Beng. **55**: 228, t. 9 (1886).

NEPAL. Hile Chok—Ghopte, 3500 m (Jun. 12, 1972, fl. yellow); Ghopte—Gosa, 3500–4100 m (Jun. 13, 1972, fl.).

Distr. E. Himalaya (Nepal to Bhutan), S. Tibet, N. Burma, and W. China.

Primula megalocarpa Hara in Journ. Jap. Bot. **49**: 133 (1974).

P. Stuartii Wall. var. 4. *macrocarpa* G. Watt in Journ. Linn. Soc. **20**: 12 (Dec. 18, 1882).

P. Stuartii var. 4. *macrocarpa* Hook. f., Fl. Brit. Ind. **3**: 491 (Dec. 1882).

P. nivalis Pall. var. *macrocarpa* (Hook. f., G. Watt) Pax in Engl., Bot. Jahrb. **10**: 208 (1888), in nota; in Engl., Pfl.-reich IV-237, Ht. **22**: 104 (1905).

P. macrophylla D. Don var. *macrocarpa* (Hook. f., G. Watt) W. W. Smith et Fletcher in Trans. Roy. Soc. Edinb. **60**: 590 (1942).

NEPAL. Saju Pokhari—Topke Gola, 4200 m (Jun. 16, 1972, fl. white. Holotype in π); Topke Gola, 3800 m (Jun. 19, 1972, fr.); Topke Gola—Jalang Chhyongo, 3600–4300 m (Jun. 20, 1972, fl. pink).

BHUTAN. Upper Chomolhari Chakan, 4350 m (Nishioka, Sep. 6, 1966).

Distr. E. Himalaya (Nepal to Bhutan) and S. Tibet.

This species is clearly separated from *P. macrophylla* D. Don by paler-coloured (white, pink or mauve) flowers with broad obcordate bilobed corolla-lobes, calyces cleft nearly to the base into obtuse lobes, fewer-flowered umbell, and thick larger capsules 18–30 mm long and 8–10 mm across. Typical *P. macrophylla* has generally deep violet-purple flowers, oblong or elliptic corolla-lobes roundish at the apex, more acutish calyx-lobes, and smaller capsules generally 9–15 mm long and 5–6 mm across.

Primula prenantha Balfour f. et W. W. Smith in Not. Bot. Gard. Edinb. **9**: 191 (1916)—W. W. Smith et Fletcher in Trans. Bot. Soc. Edinb. **33**: 166 (1941).

NEPAL. Hile Chok—Ghopte, 3500 m (Jun. 12, 1972, fl. yellow).

Distr. E. Himalaya (Nepal to Bhutan), N. Assam, S. Tibet, and N. Burma.

Primula soldanelloides G. Watt in Journ. Linn. Soc. **20**: 10, t. 11C (1882)—

Fl. Brit. Ind. **3**: 493 (1882)—Pax in Engl., Pfl.-reich IV-237, Ht. **22**: 69, f. 24C (1905)—W. W. Smith et Fletcher in Journ. Linn. Soc. **52**: 331 (1942).

NEPAL. Phujiang La, 4500 m (Jun. 27, 1972, fl. white).

Distr. E. Himalaya (Nepal to Bhutan) and S. Tibet.

Primula spathulifolia (Hook. f.) Craib in Journ. Roy. Hort. Soc. **39**: 190 (1913)—W. W. Smith et Fletcher in Trans. Bot. Soc. Edinb. **33**: 245 (1942).

P. minutissima Jacq. ex DC. var. *spathulata* Hook. f., Fl. Brit. Ind. **3**: 494 (1882).

NEPAL. Gosa-Banduke Pokhari, 4100–4200 m (Jun. 14, 1972, fl. rose).

Distr. E. Himalaya (Nepal, Sikkim).

Primula strumosa Balfour f. et Cooper in Not. Bot. Gard. Edinb. **9**: 201 (1916)—W. W. Smith et Fletcher in Trans. Roy. Soc. Edinb. **61**: 305 (1944).

NEPAL. Hile Chok-Ghopte, 3500 m (Jun. 12, 1972, fl. orange-yellow); Ghopte-Gosa, 3500–4100 m (Jun. 13, 1972, fl.); Gosa, 4100 m (Jun. 14, 1972, fl.); Banduke Pokhari, 4200–4000 m (Jun. 15, 1972, fl.); Thudam-Kipudonsu, 3800 m (Jun. 26, 1972, fl.).

Distr. E. Himalaya (Nepal, Bhutan) and S. Tibet.

Primula Stuartii Wall. in Roxb., Fl. Ind. ed. Carey, **2**: 20 (1824); Tent. Fl. Nepal. 44, t. 34 (1824)—Balfour in Bot. Mag. t. 4356 (1848)—W. W. Smith et Fletcher in Trans. Roy. Soc. Edinb. **60**: 607 (1942).

NEPAL. Hile Chok-Ghopte, 3500 m (Jun. 12, 1972, fl. cream yellow); Banduke Pokhari-Saju Pokhari, 4200–4000 m (Jun. 15, 1972, fl. yellow).

Distr. Himalaya (Punjab to Nepal).

Primula tenuiloba (Hook. f.) Pax in Engl., Bot. Jahrb. **10**: 204 (1888)—W. W. Smith et Fletcher in Trans. Bot. Soc. Edinb. **33**: 250 (1942).

P. muscoides Hook. f. var. *tenuiloba* Hook. f. in Journ. Linn. Soc. **20**: 15, t. 13A (1882); Fl. Brit. Ind. **3**: 495 (1882).

NEPAL. Jalang Chhyongo-Thudam, 3400–4600 m (Jun. 21, 1972, fl. pale pink or white); Thudam-Kipuphu, 3400–4500 m (Jun. 26, 1972, fl.); Kipuphu-Topke Gola, 4500–3600 m (Jun. 27, 1972, fl.).

Distr. E. Himalaya (Nepal to Bhutan) and S. Tibet.

GENTIANACEAE (by Hiroshi Hara)

Cotylanthera paucisquama C. B. Clarke in Fl. Brit. Ind. **4**: 94 (1883).

[Plate 6d]

C. yunnanensis W. W. Smith in Not. Bot. Gard. Edinb. **13**: 158 (1911).

DARJEELING. Palmajua, 2200 m (Aug. 7, 1972, fl. pale mauve).

Distr. E. Himalaya (Sikkim) and W. China (Yunnan).

Swertia Kingii Hook. f., Icon. Pl. **20**: 34, t. 1442 (1883)—C. B. Clarke in Fl. Brit. Ind. **4**: 734 (1885).

NEPAL. Mangan, 3100 m (Aug. 23, 1969, fl.; Aug. 28, 1972, no. 722014, fl. greenish blue).

Distr. E. Himalaya (Nepal to Bhutan) and S. Tibet.

Swertia multicaulis D. Don, Prodr. Fl. Nepal. 127 (1825)—C. B. Clarke in Fl. Brit. Ind. **4**: 129 (1883).

NEPAL. Surjakund, Gosainkund, 4450 m (Aug. 26, 1969, fr.); Kipuphu, 4500 m (Jun. 26, 1972, no. 720785, fl. deep blue-purple); Kipuphu-Topke Gola, 4800–3600 m (Jun. 27, 1972, fl.).

Distr. E. Himalaya (Nepal to Bhutan) and S. Tibet.

ASCLEPIADACEAE (by Hiroshi Hara)

Ceropegia Hookeri C. B. Clarke in Fl. Brit. Ind. **4**: 73 (1883)—Huber in Mem. Soc. Broter. **12**: 47, t. 1, fig. 11 (1957), var. *Hookeri*.

NEPAL. Tinjure, 2900 m (Jun. 7 & Jul. 6, 1972, fl.).

Distr. E. Himalaya (Nepal, Sikkim) and S. Tibet.

Gongronema nepalense (Wall.) Decaisne in DC., Prodr. **8**: 624 (1844), ut *nepalense*—C. B. Clarke in Fl. Brit. Ind. **4**: 33 (1883).

Gymnema nepalense Wall., Tent. Fl. Nepal. 49, t. 38 (1826).

NEPAL. Bainse—Sim Chotala, 600–900 m (Aug. 19, 1972, no. 723162, fl.).

Distr. Himalaya (Kumaon to Sikkim) and Assam.

Holostemma Ada-kodien J. A. Schultes, Syst. Veg. **6**: 95 (1820).

Sarcostemma annulare Roth, Nov. Sp. 178 (1821).

H. Rheedei Wall., Pl. As. Rar. **2**: 51 (1831)—Wight, Icon. **2**: t. 597 (1840–43)—Fl. Brit. Ind. **4**: 21 (1883).

Asclepias annularia Roxb. [Hort. Beng. 20 (1814), nom. nud.] Fl. Ind. ed. 2, **2**: 37 (1832).

H. Brunonianum Royle, Ill. Bot. Himal. 276, t. 66 (1836).

H. annularis (Roth) Schum. in Engl., Pfl.-fam. **4** (2): 250, f. 71J–K (1896)—Santapau et Irani in Bot. Mem. Univ. Bombay **4**: 53, f. 8 (1962).

NEPAL. Teku Nala, 800 m (Jul. 9, 1972, no. 721200, fl. white outside, purple inside).

Distr. Himalaya, India, Ceylon, and Burma.

Asclepias annularia Roxb., Hort. Beng. 20 (1814) is nomen nudum without citing Rheede.

Leptadenia reticulata (Retz.) Wight et Arnott, Contr. Bot. Ind. 47 (1834)—Wight, Icon. **2**: t. 350 (1840)—Fl. Brit. Ind. **4**: 63 (1883)—Bullock in Kew Bull. **1955**: 291 (1955).

Cynanchum reticulatum Retz., Obs. Bot. **2**: 15 (1781).

NEPAL. Tamur Bridge, 300 m (Jul. 9, 1972, no. 721207, fl. green-yellow).

Distr. Tropical Himalaya, India, Ceylon, Burma, Mauritius, and Madagascar.

Telosma pallida (Roxb.) Craib in Kew Bull. **1911**: 418 (1911).

Asclepias pallida Roxb. [Hort. Beng. 20 (1814), nom. nud.] Fl. Ind. ed. 2, **2**: 48 (1832).

Pergularia pallida (Roxb.) Wight et Arnott, Contr. Bot. Ind. 42 (1834)—Wight, Icon. **2**: t. 585 (1840–43)—Fl. Brit. Ind. **4**: 38 (1883).

NEPAL. Dhara Pani—Tamur Bridge, 400 m (Jun. 3, 1972, fl. green-yellow; Jul. 9, 1972, no. 723163, fl.).

Distr. Tropical Himalaya, India, and Burma.

LABIATAE (by Gen Murata)

Ajuga bracteosa Wall. ex Benth. in Wall., Pl. As. Rar. **1**: 59 (1830)—Boiss., Fl. Orient. **4**: 799 (1879)—Hook. f., Fl. Brit. Ind. **4**: 702 (1885)—Collet, Fl. Siml. 406 (1902)—Mukerjee, Lab. Ind. 224 (1940)—Rech. f., Sym. Afghan. **1**: 13 (1954)—Murata in Kitamura, Fl. Afghan. 327 (1960)—Hedge in Not. Bot. Gard. Edinb.

27: 150 (1967).

A. remota Benth., l.c. 59 (1830).

NEPAL. Shyaprubensi, 1500 m (Jul. 10, 1970); Khanging–Langtang Gorge, 2300–2800 m (Jul. 11, 1970); Thale–Thale Bisauna, 2500–2750 m (Sep. 10, 1970); Sim Chotala–Gram, 900–1900 m (Aug. 20, 1972); Gram–Dunche, 1900–2000 m (Aug. 21, 1972).

Distr. Abyssinia, Afghanistan, Himalaya, and Tibet.

Ajuga lobata D. Don: Murata in Fl. E. Himal. 271 (1966); 2: 113 (1971).

NEPAL. Jarjare, 2080 m (May 2, 1970); Phulchoki, 2200–2700 m (May 28, 1972); Hile–Chitre, 1900–2400 m (Jun. 5, 1972); Chitre–Tute, 2300–2400 m (Jun. 6, 1972); Chauke–Mul Pokhari, 2600–2900 m (Jun. 8, 1972); Lamo Pokhari–Gupha Pokhari, 2800–2900 m (Jun. 10, 1972); Chauke–Dor, 2600–2900 m (Jul. 6, 1972).

Anisomeles indica (L.) O. Kuntze: Murata in Fl. E. Himal. 272 (1966); in S.E. Asian Studies 8: 492 (1971)–Keng in Gard. Bull. Sing. 24: 34 (1969).

NEPAL. Khosori Khabre, 1500 m (Sep. 12, 1970).

Distr. India, Ceylon, Himalaya (Nepal), Burma, Thailand, Indo-China, Malaya, Indonesia, Philippines, China, Formosa, and Ryukyu Isls.

Clinopodium umbrosum (H.-Bieb.) C. Koch: Fl. E. Himal. 272 (1966); 2: 114 (1971).

NEPAL. Khanging–Langtang Gorge, 2300–2800 m (Jul. 11, 1970); Thale–Kalingchok, 2500 m (Sep. 10, 1970); Thale Bisauna–Tingoang, 2900 m (Sep. 11, 1970); Dhara Pani–Dharan, 400–1300 m (Jul. 10, 1972); Sim Chotala–Gram, 1800–1900 m (Aug. 20, 1972); Dunche–Singum Gompa, 1900–3200 m (Aug. 22, 1972).

DARJEELING. East Side, 2100 m (Jul. 23, 1972).

Distr. Caucasus, Iran, Afghanistan, Himalaya, Burma, Java, China (Yunnan, Szechuan), and Formosa.

Coleus Forskohlii (Willd.) Briq.: Fl. E. Himal. 273 (1966); 2: 114 (1971).

NEPAL. Kuli Khani, 1450 m (Sep. 2–3, 1970).

Colquhounia coccinea Wall.: Fl. E. Himal. 273 (1966); 2: 114 (1971).

NEPAL. Khirojet–Yatumbal, Langtang valley, 2250 m (Jun. 29, 1970); Phulchoki, south of Kathmandu (Sep. 19, 1970 & Jul. 15, 1972); Gram–Dunche, 1900–2000 m (Aug. 21, 1972).

Distr. Himalaya (Kumaon to Bhutan), Assam, N. Burma, N. Thailand, and China (Yunnan).

Craniotome versicolor Reichb.: Murata in Fl. E. Himal. 273 (1966); in Act. Phytotax. Geobot. 24: 79 (1969).

NEPAL. Makwampur Garhi–Dunge Garhi, 600–1000 m (Nov. 16, 1970).

Distr. Himalaya (Nepal, Sikkim), Burma, Indo-China, and W. China (Yunnan).

Dracocephalum speciosum Benth. in Wall., Pl. As. Rar. 2: 65 (1831)–Hook. f. in Bot. Mag. t. 6281 (1877); Fl. Brit. Ind. 4: 665 (1885)–Kudo, Lab. Sino-Jap. Prodr. 241 (1929)–Hand.-Mzt., Symb. Sin. 7: 918 (1936)–Mukerjee, Lab. Ind. 137 (1940)–Murata in Act. Phytotax. Geobot. 24: 79 (1969).

DARJEELING. Sandakphu–Phalut, 3300 m (Aug. 2, 1972); Phalut–Singalila, 3600–3700 m (Aug. 3, 1972).

Distr. Himalaya (Simla to Bhutan), Tibet, and W. China (Yunnan).

Elsholtzia eriostachya (Benth.) Benth., Lab. Gen. Sp. 163 (1833)–Fl. Brit. Ind. 4: 645 (1885)–Mukerjee, Lab. Ind. 91 (1940)–Kitamura et Murata in Ki-

hara, Fauna Fl. Nepal Himal. 211 (1955)—Murata in Act. Phytotax. Geobot. **24**: 80 (1969).

NEPAL. Thale Bisauna—Kalingchok, 2800 m (Sep. 11, 1970); Singum Gompa—Gosainkund, 3600 m (Aug. 23, 1972).

Distr. Himalaya (Kumaon to Sikkim).

The flower of this species is yellow.

Elsholtzia flava Benth.: Murata in Fl. E. Himal. 274 (1966); in Act. Phytotax. Geobot. **24**: 80 (1969).

NEPAL. Chitlang—Chandragiri, 2000 m (Sep. 4, 1970); Khodang Danda—Latsu, 2100–2500 m (Aug. 29, 1972); Phulchoki, 1500 m (Sep. 6, 1972).

Distr. Himalaya (Kumaon to Sikkim) and Assam.

Elsholtzia fruticosa (D. Don) Rehder: Murata in Fl. E. Himal. 274 (1966); in Act. Phytotax. Geobot. **24**: 80 (1969).

NEPAL. Thale—Jangdang Kharka, 2500 m (Sep. 23, 1970).

Distr. Himalaya (Kashmir to Bhutan), Assam, Tibet, and China.

Elsholtzia strobilifera Benth.: Fl. E. Himal. 274 (1966).

NEPAL. Thale Bisauna—Kalingchok, 2800 m (Sep. 11, 1970); Sano Tingsang—Thulo Tingsang, 3000 m (Sep. 26, 1970); Lukthang, 3300 m (Sep. 27, 1970).

Eriophyton Wallichianum Benth. in Wall., Pl. As. Rar. **1**: 63 (1830)—Fl. Brit. Ind. **4**: 695 (1885)—Mukerjee, Lab. Ind. 162 (1940)—Kitamura et Murata in Kihara, Fauna Fl. Nepal Himal. 211 (1955)—Murata in Act. Phytotax. Geobot. **24**: 81 (1969).

NEPAL. Singum Gompa—Gosainkund, 3200–4200 m (Aug. 23, 1972).

Distr. Himalaya (Nepal to Bhutan), Tibet, and China (Yunnan).

Lamium album L.: Fl. E. Himal. **2**: 115 (1971).

NEPAL. Para Gaon—Khirojet, 2300–2250 m (Jun. 28, 1970).

Leonotis nepetaefolia R. Br., Prodr. 504 (1810)—Hook. in Bot. Mag. t. 3700 (1839)—Fl. Brit. Ind. **4**: 691 (1885)—Mukerjee, Lab. Ind. 185 (1940)—Kitamura et Murata in Kihara, Fauna Fl. Nepal Himal. 212 (1955)—Murata in Act. Phytotax. Geobot. **24**: 83 (1969).

NEPAL. Chaurangi Phedi—Gairi, 350–550 m (Jan. 8, 1970).

Distr. Africa, tropical Himalaya, tropical Asia, and America.

Leucas lanata Benth. in Wall., Pl. As. Rar. **1**: 61 (1830)—Fl. Brit. Ind. **4**: 681 (1885)—Mukerjee, l.c. 178 (1940)—Murata in S.E. Asian Studies **8**: 506 (1971).

L. collina Dalz. in Hook., Kew Journ. **2**: 338 (1850).

Marrubium mollissimum D. Don, Prodr. Fl. Nepal. 112 (1825).

NEPAL. Khanging—Serpagaon, 2400 m (Jul. 11, 1970).

Distr. India, Himalaya (Nepal), Burma, and N. Thailand.

Leucas mollissima Wall.: Murata in Fl. E. Himal. 278 (1966); **2**: 115 (1971); in S.E. Asian Studies **8**: 507 (1971).

NEPAL. Godawari, 1500 m (Sep. 8, 1970).

Distr. India, Himalaya (Nepal), Burma, Thailand, Laos, Malaya, Vietnam, and China (Yunnan, Hupeh).

Melissa axillaris (Benth.) Bakh. f.: Fl. E. Himal. **2**: 115 (1971).

NEPAL. Chitre—Hile, 2200 m (Jul. 8, 1972).

DARJEELING. Raman-Rimbick, 2000 m (Aug. 5, 1972); Batasi-Mani Bhanjyang, 2000–2100 m (Aug. 9, 1972).

Melissa flava Benth.: Fl. E. Himal. **2**: 116 (1971).

NEPAL. Godawari-Phulchoki, 2700–3000 m (Jun. 10, 1969); Phulchoki, Kathmandu, 1970 m (Oct. 21, 1970).

Micromeria biflora Benth.: Fl. E. Himal. 279 (1966); **2**: 116 (1971).

NEPAL. Chobar, Kathmandu, 1200 m (Jun. 17, 1967); Shyaprubensi-Khanging, 1500–2300 m (Jul. 10, 1970); Barabise, 850 m (Sep. 9, 1970); Khosori Khabre, 1500 m (Sep. 12, 1970); Sim Chotala-Gram, 900–1900 m (Aug. 20, 1972); Bhorlang-Sundarijar, 1400–2400 m (Aug. 31, 1972).

Microtoena insuavis (Hance) Prain ex Briq. in Engl. et Prantl, Pfl.-fam. IV, **3a**: 269 (1897)–Murata in Fl. E. Himal. 279 (1966); in S.E. Asian Studies **8**: 508 (1971)–Keng in Gard. Bull. Sing. **24**: 117 (1969).

NEPAL. Dor-Chitre, 2300–2600 m (Jul. 7, 1972); Chitre, 2400 m (Jul. 8, 1972).

Distr. Himalaya (Nepal to Assam), Thailand, Vietnam, Malaya, Sumatra, Java, New Guinea, and China (Yunnan, Kweichow, Kwangtung).

Nepeta lamiopsis Benth. ex Hook. f., Fl. Brit. Ind. **4**: 659 (1885)–Mukerjee, Lab. Ind. 124 (1940)–Kitamura et Murata in Kihara, Fauna Fl. Nepal Himal. 214 (1955)–Murata in Act. Phytotax. Geobot. **24**: 84 (1969).

NEPAL. Langtang-Kyangjing, 3600 m (Jul. 13, 1970); Topke Gola-Jalang Chhyongo, 3700 m (Jun. 20, 1972); Thudam, 3400 m (Jun. 22, 1972); Thudam-Lama Chungbu, 3500 m (Jun. 23, 1972); Lama Chungbu-Slesa, 4200–4500 m (Jun. 24, 1972); Kipu-phu-Topke Gola, 3600–4800 m (Jun. 27, 1972); Topke Gola-Shewaden, 2600–3600 m (Jun. 28, 1972).

Distr. Himalaya (Nepal to Bhutan) and Tibet.

Notochaete hamosa Benth.: Fl. E. Himal. 279 (1966); **2**: 116 (1971).

NEPAL. Deorali, 1900 m (Sep. 2, 1970).

DARJEELING. Raman-Rimbick, 1900–2400 m (Aug. 5, 1972).

Ocimum Basilicum L.: Murata in Fl. E. Himal. 279 (1966); in S.E. Asian Studies **8**: 509 (1971).

BHUTAN. Chimakhoti-Phuntsholing, 900–2000 m (Jun. 2, 1967).

Distr. India, Himalaya, S.E. Asia, S. China, Formosa, and Polynesia.

Organum vulgare L.: Fl. E. Himal. **2**: 116 (1971).

NEPAL. Dunche-Singum Gompa, 1900–3000 m (Aug. 22, 1972).

Orthosiphon incurvus Benth.: Fl. E. Himal. 280 (1966).

NEPAL. Bir Gaon-Dingla, 1000–1600 m (Jul. 1, 1972).

Phlomis breviflora Benth.: Fl. E. Himal. **2**: 116 (1971).

DARJEELING. Sandakphu-Phalut, 3200–3600 m (Aug. 2, 1972).

Phlomis macrophylla Wall., Pl. As. Rar. **1**: 62 (1830)–Fl. Brit. Ind. **4**: 692 (1885)–Mukerjee, Lab. Ind. 196 (1940)–Kitamura et Murata in Kihara, Fauna Fl. Nepal Himal. 215 (1955).

NEPAL. Oo Kharka-Mul Kharka, 3700 m (Jul. 1, 1970).

Distr. Himalaya (Punjab to Sikkim).

Phlomis rotata Benth. ex Hook. f.: Fl. E. Himal. **2**: 116 (1971).

NEPAL. Topke Gola-Jalang Chhyongo, 4100 m (Jun. 20, 1972).

Phlomis setigera Falc. ex Benth.: Fl. E. Himal. 280 (1966); **2**: 116 (1971).

NEPAL. Thudam, 3400 m (Jun. 22, 1972); Lama Chungbu—Thudam, 3400–4500 m (Jun. 24, 1972).

DARJEELING. Sandakphu, 3600 m (Aug. 1, 1972); Sandakphu—Phalut, 3200–3600 m (Aug. 2, 1972).

Phlomis tibetica Marquand et Shaw: Fl. E. Himal. 280 (1966); **2**: 116 (1971).

NEPAL. Saju Pokhari, 4000 m (Jun. 15, 1972).

Plectranthus mollis (Ait.) Spreng., Syst. **2**: 690 (1825)—Santapau in Rec. Bot. Surv. Ind. **16**: 243 (1953)—Banerji in Rec. Bot. Surv. Ind. **19**: 76 (1966)—Murata in Act. Phytotax. Geobot. **24**: 86 (1969).

P. incanus Link, Enum. Hort. Berol. **2**: 120 (1822): Fl. E. Himal. 280 (1966).

Ocimum molle Ait., Hort. Kew. **2**: 322 (1789).

NEPAL. Sim Chotala—Gram, 900–1900 m (Aug. 20, 1972).

Distr. India, Himalaya (Nepal, Sikkim), and Khasia.

Pogostemon benghalensis (Burm. f.) O. Kuntze, Rev. Gen. Pl. 529 (1891)—Merr. in Philip. Journ. Sci. **19**: 378 (1921), ut *benghalense*.

Origanum benghalense Burm. f., Fl. Ind. 128, t. 38, fig. 3 (1768).

P. plectranthoides Desf. in Ann. Mus. Par. **2**: 155, t. 6 (1808)—Benth. in Wall., Pl. As. Rar. **1**: 31 (1830)—Hook. in Bot. Mag. t. 3238 (1833)—Fl. Brit. Ind. **4**: 632 (1885)—Mukerjee, Lab. Ind. 69 (1940).

Mentha secenda Roxb., Hort. Beng. 44 (1814), nom. nud.

O. indicum Roth, Nov. Sp. 265 (1821).

NEPAL. Patlaia—Sakti Mohar Khola, 200 m (Apr. 18, 1969); Nijgar, 200 m (Apr. 19, 1969); Dharan—Dhara Pani, 400–1300 m (Jun. 2, 1972).

Distr. India and Himalaya (Nepal).

Pogostemon glaber Benth. in Wall., Pl. As. Rar. **1**: 31 (1830)—Fl. Brit. Ind. **4**: 633 (1885)—Doan in Lecomte, Fl. Gén. Indo-Chine **4**: 973 (1936)—Mukerjee, Lab. Ind. 72 (1940)—Murata in S.E. Asian Studies **8**: 514 (1971).

NEPAL. Makwampur Garhi—Dunge Garhi, 600–1000 m (Nov. 16, 1970).

Distr. Himalaya (Nepal, Sikkim), Khasia, Thailand, Laos, and China (Yunnan).

Prunella vulgaris L.: Fl. E. Himal. 281 (1966); **2**: 117 (1971).

NEPAL. Mane Gaon—Thale, 1500 m (Jun. 24, 1970); Tingoang, 3100 m (Sep. 11, 1970); Nessum—Puntapla, 1900 m (Jul. 3, 1972); Chauke—Dor, 2600–2900 m (Jul. 6, 1972); Chitre—Teku Nala, 800–2400 m (Jul. 8, 1972).

DARJEELING. Mani Bhanjyang—Tonglu, 2000–3000 m (Jul. 30, 1972).

BHUTAN. Tamji—Gasa, 2200–2800 m (May 13, 1967).

Rabdosia Coetsa (Hamilt. ex D. Don) Hara in Journ. Jap. Bot. **47**: 194 (1972).

Isodon Coetsa (Hamilt. ex D. Don) Kudo: Murata in Fl. E. Himal. 275 (1966); in Act. Phytotax. Geobot. **24**: 82 (1969).

NEPAL. Phulchoki, 2000 m (Sep. 6, 1972).

Rabdosia lophanthoides (Hamilt. ex D. Don) Hara in Journ. Jap. Bot. **47**: 197 (1972).

Hysopus lophanthoides Hamilt. ex D. Don, Prodr. Fl. Nepal. 110 (1825).

Isodon striatus (Benth.) Kudo: Fl. E. Himal. 277 (1966).

NEPAL. Makwampur Garhi-Dunge Garhi, 600-1000 m (Nov. 16, 1970); Thale Bisauna, 2800 m (Sep. 10, 1970).

Distr. Himalaya (Kashmir to Bhutan), Assam, Burma, Laos, Thailand, Vietnam, and S.W. China.

This is one of the very variable species in the Himalayan *Rabdosia*. The tall vigorous form with nearly glabrous oblong leaves is sometimes separated as var. *Gerardianus*.

Rabdosia phulchokiensis Murata, sp. nov.

Herba perennis. Caulis quadrangularis 40-100 cm altus ramosus pilis recurvatis breviusculis obtectus, internodiis 5-6 cm longis 2-3 mm crassis. Folia opposita petiolata, petiolis 6-20 mm longis, laminis ovatis vel ovato-oblongis 3-6 cm longis 2-3.5 cm latis, supra hirsutis, subtus glanduloso-punctatis et ad nervos hirsutis, nervis prominentibus, apice acutis, basi late cuneatis, margine serrato-dentatis, dentibus obtusis. Folia floralia conformia gradatim minora. Cymae e foliorum axillis longe pedunculatae 5-9-florae, pedunculis gracilimis 1-2 cm longis hirsutis, pedicellis 1-5 mm longis, bracteis oblongo-lanceolatis minutis. Calyx campanulatus 2 mm (in fructu 3 mm) longus, extus glanduloso-punctatus et piloso-tomentosus, intus glaber, 5-dentatus, dentibus deltoideis obtusis vel subacutis ca. 0.8 mm longis. Corolla 5.5-7 mm longa bilabiata; tubo brevi ad faucem gradatim dilatato non gibboso intus piloso, labio inferiore obovato naviculari 2.5 mm longo 2 mm lato apice rotundo, labio superiore 4-lobulato erecto nigro-purpureato quam inferiore multo brevior. Stamina stylisque longe exserta, filamentis ad basin pilosis, antheris nigro-purpuratis. Nuculae laeves.

NEPAL. Phulchoki, 2400-2700 m (Kanai & Chuma, Sep. 19, 1970, no. 17. Holotype in TI); loc. cit., 2540 m (Oct. 19, 1970, no. 674806).

This species is distinguished from *R. lophanthoides* in having dark brownish purple flowers and not elongated fruiting calyces.

Rabdosia repens (Wall.) Hara in Journ. Jap. Bot. **47**: 199 (1972).

Plectranthus repens Wall. ex Benth. in Wall., Pl. As. Rar. **2**: 17 (1830).

Isodon repens (Wall.) Murata: Fl. E. Himal. 276 (1966).

NEPAL. Thale Bisauna-Tingoang, 2750-3100 m (Sep. 11, 1970); Phulchoki, 2400-2700 m (Sep. 19, 1970); Thale-Jangdang Kharka, 3000 m (Sep. 23, 1970).

Rabdosia scrophularioides (Wall. ex Benth.) Hara in Journ. Jap. Bot. **47**: 200 (1972).

Plectranthus scrophularioides Wall. ex Benth. in Wall., Pl. As. Rar. **2**: 16 (1830).

Isodon scrophularioides (Wall. ex Benth.) Murata in Fl. E. Himal. 276 (1966); in Act. Phytotax. Geobot. **24**: 82 (1969).

NEPAL. Thale Bisauna, 2800 m (Sep. 10, 1970); Phulchoki, 2560 m (Oct. 20, 1970); Shewaden-Mewa Khola, 2200 m (Jun. 29, 1972); Mangen-Khodang Danda, 2500-3100 m (Aug. 28, 1972).

DARJEELING. Tonglu-Sandakphu, 2600-3000 m (Jul. 31, 1972).

Rabdosia ternifolia (D. Don) Hara in Journ. Jap. Bot. **47**: 201 (1972).

Isodon ternifolius (D. Don) Kudo: Murata in Fl. E. Himal. 277 (1966); in S.E. Asian Studies **8**: 504 (1971).

NEPAL. Makwampur Garhi-Dunge Garhi, 600-1000 m (Nov. 16, 1970).

Salvia campanulata Wall. ex Benth.

var. **hirtella** Stibal: Fl. E. Himal. 281 (1966).

NEPAL. Tingoang, 3100 m (Sep. 11, 1970).

DARJEELING. Tonglu–Sandakphu, 2800–3600 m (Jul. 31, 1972).

In our specimens, the flowers are purplish red.

var. **nepalensis** Stibal in Fedde, Rep. **39**: 179 (1936)—Mukerjee, Lab. Ind. 114 (1940).

S. Smithii sensu Kitamura et Murata in Kihara, Fauna Fl. Nepal Himal. 215 (1955).

NEPAL. Tingoang, 3100 m (Sep. 12, 1970).

Distr. var. Himalaya (Nepal).

This variety is characterized in having yellow flowers and cupshaped calyces which are 4-gonous in bloom, truncate, and laterally much compressed after blooming.

Salvia coccinea L.: Murata in Fl. E. Himal. 281 (1966); in Act. Phytotax. Geobot. **24**: 87 (1969).

NEPAL. Godawari, south of Kathmandu (Sep. 8, 1970); Dingla–Doban, 800–1000 m (Jul. 2, 1972).

Distr. Introduced from Mexico.

Scutellaria barbata D. Don: Fl. E. Himal. **2**: 117 (1971).

NEPAL. Chobar, Kathmandu, 1200 m (Jun. 7, 1967); Godawari (Sep. 8, 1970).

Scutellaria discolor Colebr.: Murata in Fl. E. Himal. 281 (1966); in Act. Phytotax. Geobot. **24**: 88 (1969); in S.E. Asian Studies **8**: 515 (1971)—Keng in Gard. Bull. Sing. **24**: 165 (1969).

NEPAL. Nagarkot, 2000 m (Jun. 24, 1967); Godawari (Sep. 8, 1970); Khosori Khabre, 1500 m (Sep. 12, 1970); Papung–Bir Gaon, 1600–2000 m (Jun. 30, 1972); Dingla–Nessum, 800–1900 m (Jul. 2, 1972); Dhara Pani–Sanguri Bhanjyang, 1000–1300 m (Jul. 10, 1972); Bainse–Sim Chotala, 600–900 m (Aug. 19, 1972).

Distr. Himalaya, Assam, Thailand, Laos, Cambodia, Vietnam, China (Yunnan), and Malaysia (Sumatra to Moluccas).

Scutellaria grossa Wall. ex Benth. in Wall., Pl. As. Rar. **1**: 67 (1830)—Fl. Brit. Ind. **4**: 669 (1885)—Mukerjee, Lab. Ind. 146 (1940)—Kitamura et Murata in Kihara, Fauna Fl. Nepal Himal. 215 (1955)—Murata in Act. Phytotax. Geobot. **24**: 88 (1969).

NEPAL. Dunche–Singum Gompa, 1900–3200 m (Aug. 22, 1972).

Distr. Himalaya (Kashmir to Bhutan).

Scutellaria repens Hamilt. ex D. Don: Murata in Fl. E. Himal. 281 (1966); in Act. Phytotax. Geobot. **24**: 88 (1969)—Banerji in Rec. Bot. Surv. Ind. **19**: 77 (1966).

NEPAL. Barabise–Thale, 850–2050 m (Sep. 9, 1970); Khosori Khabre, 1500 m (Sep. 12, 1970); Mokaibari, 2000 m (Sep. 30, 1970).

Scutellaria scandens D. Don: Fl. E. Himal. **2**: 117 (1971).

NEPAL. Phulchoki, 2200–2700 m (May 28, 1972).

Scutellaria violacea Heyne ex Benth. in Wall., Pl. As. Rar. **1**: 66 (1830)—Fl. Brit. Ind. **4**: 668 (1885)—Doan in Lecomte, Fl. Gén. Indo-Chine **4**: 1007 (1936)—

Mukerjee, Lab. Ind. 145 (1940)—Murata in S.E. Asian Studies **8**: 516 (1971).

DARJEELING. East Birch Hill Road, 2100 m (Jul. 22, 1972); Darjeeling, 2000 m (Jul. 25, 1972); Raman—Rimbick, 1900–2400 m (Aug. 5, 1972); Palmajua—Batasi, 2100–2200 m (Aug. 8, 1972); Batasi—Mani Bhanjyang, 2000–2100 m (Aug. 9, 1972).

Distr. India, Himalaya, Thailand, China (Kiangsi), and Java.

Stachys melissaefolia Benth.: Fl. E. Himal. **2**: 117 (1971).

NEPAL. Thale Bisauna—Tingoang, 2750–3100 m (Sep. 11, 1970); Tingoang—Khosori Khabre, 3000 m (Sep. 12, 1970); Lukthang—Mogarcheko Danda, 3200–3400 m (Sep. 27, 1970); Dunche—Singum Gompa, 1900–3200 m (Aug. 22, 1972).

Teucrium quadrifarium Hamilt.: Murata in Fl. E. Himal. 282 (1966); in S.E. Asian Studies **8**: 516 (1971)—Keng in Gard. Bull. Sing. **24**: 175 (1969).

NEPAL. Makwampur Garhi—Dunge Garhi, 600–1000 m (Nov. 16, 1970).

Distr. Himalaya (Kashmir to Sikkim), Khasia, Burma, Thailand, Cambodia, Vietnam, Sumatra, and S. China.

Teucrium viscidum Blume: Murata in Fl. E. Himal. 282 (1966); in S.E. Asian Studies **8**: 517 (1971)—Keng in Gard. Bull. Sing. **24**: 176 (1969).

DARJEELING. Darjeeling—Kalimpong, 300–1300 m (Jun. 8, 1967).

Distr. Himalaya, India, S.E. Asia, China, Formosa, Korea, and S. Japan.

SCROPHULARIACEAE (by Takasi Yamazaki)

Lagotis Clarkei Hook. f., Fl. Brit. Ind. **4**: 559 (1885).

NEPAL. Kipuphu—Topke Gola, 3600–4800 m (Jun. 27, 1972, no. 72190).

Distr. Himalaya (E. Nepal to Sikkim).

Lagotis kunawurensis (Royle ex Benth.) Ruprecht in Mem. Acad. Sci. St.-Pétersb., ser. 7, **14**: 64 (1869)—Pennell in Acad. Nat. Sci. Philadelphia, Monogr. **5**: 68 (1943).

Gymnandra kunawurensis Royle ex Benth., Scroph. Ind. 47 (1835).

L. glauca Gaertn. var. *kunawurensis* (Royle ex Benth.) Hook. f., Fl. Brit. Ind. **4**: 560 (1885).

L. glauca Gaertn. var. *sikkimensis* Hook. f., l.c. 560 (1885).

L. kunawurensis var. *sikkimensis* (Hook. f.) Yamazaki in Fl. E. Himal. 286 (1966).

Distr. Himalaya (Baltistan to Bhutan) and S.E. Tibet.

Hooker f. recognized three varieties in *L. glauca*, i.e., var. *cashmeriana*, var. *kunawurensis* and var. *sikkimensis*. But, one of them is *Lagotis cashmeriana* (Royle) Ruprecht, and the other two are identical.

Lagotis pharica Prain in Journ. Asiat. Soc. Beng. **65**: 62, pl. 1 (1896)—Li in Brittonia **8**: 24 (1954)—Yamazaki in Journ. Jap. Bot. **46**: 244 (1971).

L. ramalana (non Batalin) Yamazaki in Fl. E. Himal. **2**: 119 (1971), p.p.

Lindenbergia Hookeri C. B. Clarke in Fl. Brit. Ind. **4**: 261 (1884)—Yamazaki in Journ. Jap. Bot. **46**: 244 (1971).

L. bhutanica Yamazaki in Journ. Jap. Bot. **45**: 145, pl. 9 (1970); Fl. E. Himal. **2**: 119 (1971).

Distr. E. Himalaya (Sikkim to Bhutan).

Pedicularis albiflora (Hook. f.) Prain in Journ. Asiat. Soc. Beng. **58**: 273 (1889); in Ann. Bot. Gard. Calc. **3**: 156, pl. 17 C, D (1890)—Tsoong in Bull. Brit.

Mus. Bot. **2**: 31 (1955).

P. asplenifolia Floerke var. *albiflora* Hook. f., Fl. Brit. Ind. **4**: 315 (1884).

NEPAL. Hile Chok-Ghopte, 4100 m, (Jun. 12, 1972, corolla lips pale yellow, helmet yellow with purple patches); Saju Pokhari-Topke Gola, 4000-4400 m (Jun. 16, 1972, flowers yellow); Thudam-Kipuphu, 4300 m (Jun. 26, 1972, flowers yellow).

Distr. E. Himalaya (Nepal to Bhutan).

Pedicularis bifida (Buch.-Ham.) Pennell in Acad. Nat. Sci. Philadelphia, Monogr. **5**: 144 (1943)—Yamazaki in Kihara, Fauna Fl. Nepal Himal. 218 (1955)—Tsoong in Bull. Brit. Mus. Bot. **2**: 31 (1955).

Rhinanthus bifidus Buch.-Ham. ex D. Don, Prodr. Fl. Nepal. 94 (1825).

*P. carnos*a Wall., Pl. As. Rar. **2**: 44, t.154 (1831)—Fl. Brit. Ind. **44**: 313 (1884)—Prain in Ann. Bot. Gard. Calc. **3**: 151, pl. 14A (1891).

NEPAL. Tanguni-Chipling, 2150 m (Aug. 21, 1969, fl. rose); Deorali-Chitalang, 1900 m (Sep. 3, 1970, fl. pink); Barabise-Thale, 1800 m (Sep. 9, 1970); Gram-Thale, 1900 m (Aug. 21, 1972).

Distr. Himalaya (Kangra, Nepal to Bhutan).

Pedicularis diffusa Prain in Journ. Asiat. Soc. Beng. **62**: 7, t. 1 (1893)—Tsoong in Fl. Reip. Popul. Sin. **68**: 185, pl. 40, 1-4 (1963).

NEPAL. Janga La, 4450 m (Jun. 21, 1972).

Distr. E. Nepal, Sikkim, and S.E. Tibet.

Pedicularis Elwesii Hook. f., Fl. Brit. Ind. **4**: 312 (1884)—Prain in Ann. Bot. Gard. Calc. **3**: 127, pl. 8A (1890)—Li in Proc. Acad. Nat. Sci. Philadelphia **101**: 144, pl. 12, f. 192 (1949)—Yamazaki in Kihara, Fauna Fl. Nepal Himal. 219 (1955)—Tsoong in Fl. Reip. Popul. Sin. **68**: 323, f. 73, 1-3 (1963).

NEPAL. Jalang Chhyongo-Janga La, 4200-4600 m (Jun. 21, 1972); Thudam-Lama Chungbu, 4500 m, (Jun. 23, 1972, fl. rose purple); Thudam-Kipuphu, 4200-4500 m (Jun. 26, 1972).

Distr. E. Himalaya (E. Nepal to Bhutan), S.E. Tibet, and W. China (Yunnan).

Pedicularis gracilis Wall. ex Bentham, Scroph. Ind. 52 (1835)—Prain in Ann. Bot. Gard. Calc. **3**: 137, pls. 19 & 20D (1890)—Pennell, l.c. 131 (1943)—Tsoong in Act. Phytotax. Sin. **3**: 307 (1954); in Fl. Reip. Popul. Sin. **68**: 78 (1963).

P. stricta Wall., Cat. no. 414 (1829), nom. nud.—Bentham, Scroph. Ind. 52 (1835), in syn.

P. Brunoniana Wall., Cat. no. 422 (1829), nom. nud.—Bentham, l.c. 52 (1835), in syn., non Pennell (1943).

P. gracilis Wall. var. *typica* f. *vera*, f. *stricta* et f. *prostrata* Prain in Ann. Bot. Gard. Calc. **3**: 137-138 (1890).

P. gracilis Wall. subsp. *stricta* (Wall. ex Prain) Tsoong in Act. Phytotax. Sin. **3**: 307 (1954); in Fl. Reip. Popul. Sin. **68**: 78 (1963).

NEPAL. Tharpu Khunga, 1200-2700 m (Nov. 27, 1963); Baroya Khimty-Thakma Khora (Nov. 12, 1963); Thale-Thale Bisauna, 2700 m & 2800 m (Sep. 10, 1970); Phulchoki, south of Kathmandu, 2500 m (Sep. 18, 1970, fl. pink).

Distr. Himalaya (Hazara to E. Nepal).

Pedicularis kansuensis Maxim. in Bull. Acad. Sci. St.-Pétersb. **27**: 516 (1881); **32**: 596, f. 116 (1888)—Tsoong in Fl. Reip. Popul. Sin. **68**: 167, pl. 33, 5-8

(1963).

NEPAL. Thudam-Lama Chungbu, 4160 m (Jun. 24, 1972).

Distr. Himalaya (E. Nepal), Tibet, and China (Sikang and Kansu). New to Nepal.

Pedicularis lamjungensis Yamazaki in Journ. Jap. Bot. **45**: 167, f. 11 & 17 (1970).

NEPAL. Mul Kharka, Chilime Khola, 4000 m (Jul. 3, 1970).

Distr. Himalaya (C. Nepal).

Pedicularis longiflora Rudolph var. **tubiformis** (Klotz.) Tsoong in Act. Phytotax. Sin. **3**: 278 (Jan. 1955); in Bull. Brit. Mus. Bot. **2**: 7 (Nov. 1955); in Fl. Reip. Popul. Sin. **68**: 365 (1963).

P. tubiformis Klotz. in Klotz. et Garcke, Bot. Ergebn. Reis. Prinz. Waldem. 106, t. 57 (1862).

P. tubiflora Fischer sensu Hook. f., Fl. Brit. Ind. **4**: 315 (1884), p. p.

P. longiflora Rudolph subsp. *tubiformis* (Klotz.) Pennell, l.c. 150 (1943).

NEPAL. Kyangjing, Langtang Khola, 3600 m (Jul. 14, 1970, fl. yellow with dark brownish purple spots).

Distr. Himalaya (Baltistan to Bhutan), S.E. Tibet, and China (Sikang and Yunnan).

Pedicularis microcalyx Hook. f., Fl. Brit. Ind. **4**: 315 (1884)—Prain in Ann. Bot. Gard. Calc. **3**: 149, pl. 16, C (1890)—Tsoong in Bull. Brit. Mus. Bot. **2**: 33 (1955); in Fl. Reip. Popul. Sin. **68**: 140 (1963).

NEPAL. Ghopte-Gosa, 3500–4100 m (Jun. 13, 1972); Topke Gola, 3700 m (Jun. 19, 1972, fl. pink); Thudam-Kipuphu, 3700 m (Jun. 26, 1972, fl. rose).

Distr. E. Himalaya (E. Nepal to Bhutan) and S.E. Tibet.

Pedicularis Oederi Vahl var. **heteroglossa** Prain in Journ. Asiat. Soc. Beng. **58**: 276, pl. 2 (1889); in Ann. Bot. Gard. Calc. **3**: 182, pl. 34, B, C (1890)—Pennell, l.c. 141 (1943)—Tsoong in Fl. Reip. Popul. Sin. **68**: 332 (1963), ut *P. oederi* subsp. *oederi* var. *heteroglossa*.

NEPAL. Lama Chungbu-Slesa, 4500 m. (Jun. 24, 1972, fl. yellow, helmet purplish).

Distr. Himalaya (Tehri to E. Nepal) and S.E. Tibet.

Pedicularis Pennelliana Tsoong in Act. Phytotax. Sin. **3**: 307 (1955), ut *pannelliana*.

P. gracilis Wall. var. *macrocarpa* Prain in Ann. Bot. Gard. Calc. **3**: 138, pl. 20, A–C (1890).

P. Brunoniana Wall. ex Pennell, l.c. 128 (1943), non Wall.

P. gracilis Wall. var. *sinensis* Li in Proc. Acad. Sci. Philad. **100**: 279, pl. 16, f. 15 (1948).

P. gracilis Wall. subsp. *macrocarpa* (Prain) Tsoong in Act. Phytotax. Sin. **3**: 307 (1955).

P. gracilis Wall. subsp. *sinensis* (Li) Tsoong in Fl. Reip. Popul. Sin. **68**: 79 (1963).

NEPAL. Tsedang Pokhari-Panghu Danda, 3000–3100 m (Aug. 23, 1969); Langtang Gorge-Langtang, 3000 m (Jul. 12, 1970); Thale Bisauna-Tingoang, 3000 m (Sep. 11, 1970); Tingoang-Khosori Khabre, 3100 m (Sep. 12, 1970); Kuri-Charikot, 3100 m (Sept. 29, 1970); Singum Gompa, 3600 m (Aug. 23, 1972); Gopte-Thale Patil, 3200–

3500 m (Aug. 26, 1972); Mangan, 3100 m (Aug. 28, 1972).

DARJEELING. Kala Pokhari—Sandakphu (Sep. 16, 1964); Sandakphu—Gairibas, 3400 m (Sep. 17, 1964); Sandakphu, 3600 m (Aug. 1, 1972).

Distr. Himalaya (Bashar to Bhutan) and W. China (S.E. Sikang, Yunnan).

Pedicularis Pennelliana seems to be a distinct species occurring in the higher Himalayan range and western China. This is similar to *P. gracilis* in habit. The former has the somewhat swollen and much pilous (sometimes glabrous) calyx. The calyx-lobes, the length of which is not exceeding their width, have apparently dentate and everted margin. The capsules of *P. Pennelliana* are narrowly ovoid—ensiform and 7–11 mm long 3–4 mm broad. However, *P. gracilis* has the narrow and glabrous calyx. The calyx-lobes, the length of which is exceeding the width, have rounded and ciliolate margin. The capsules of this species are ovoid or narrowly ovoid and 6–9 mm long 3–5 mm broad.

P. gracilis var. *macrocarpa* and var. *sinensis* resembles more *P. Pennelliana* than *P. gracilis*. According to Pennell, *P. gracilis* is an annual and *P. Pennelliana* is a perennial, but the latter seems to be annual or biennial. Therefore, they cannot be distinguished from each other by the growth form.

Pedicularis porrecta Wall. ex Bentham, Scroph. Ind. 52 (1835)—Prain, l.c. 141, pl. 20, A–C (1890)—Pennell, l.c. 128 (1943).

NEPAL. Gadje—Surjakund, 4000 m (Aug. 26, 1969).

Distr. Himalaya (Chamba to Sikkim).

Pedicularis pseudoregeliana Tsoong in Bull. Brit. Mus. Bot. 2: 11 (1955).

NEPAL. Gosainkund—Surjakund, 4400 m (Aug. 26, 1969); Gosa, 4100 m. (Jun. 14, 1972, fl. dark rose, lower lips pink).

Distr. Himalaya (Central and Eastern Nepal).

Pedicularis Regeliana Prain in Journ. Asiat. Soc. Beng. 58: 274 (1889); in Ann. Bot. Gard. Calc. 3: 169, pl. 10, C (1890)—Tsoong in Bull. Brit. Mus. Bot. 2: 33 (1955).

NEPAL. Hile Chok—Ghopte, 3500 m (Jun. 12, 1972, fl. reddish pink); Banduke Pokhari—Saju Pokhari, 4000–4200 m (Jun. 15, 1972); Singum Gompa—Gosainkund, 3900 m (Aug. 23, 1972).

DARJEELING. Phalut—Singalila, 3200 m (Aug. 3, 1972, fl. rose).

Distr. E. Himalaya (C. Nepal to Bhutan).

Pedicularis Roylei Maxim. in Bull. Acad. Imp. Sci. St.-Pétersb. 27: 517 (1881)—Prain in Ann. Bot. Gard. Calc. 3: 173, pl. 33, B, C (1890)—Pennell, l.c. 119 (1943)—Li in Proc. Acad. Nat. Sci. Philad. 100: 321, f. 46 (1948)—Tsoong in Fl. Reip. Popul. Sin. 68: 157 (1963).

P. verticillata L. sensu Hook. f., Fl. Brit. Ind. 4: 309 (1884).

P. rupicoloides Yamazaki in Act. Phytotax. Geobot. 15: 147 (1954); in Kihara, Fauna Fl. Nepal Himal. 221, f. 57, 58 (1955).

NEPAL. Gosa, near Kobche, 4100 m (Jun. 14, 1972); Saju Pokhari—Topke Gola, 4000 m (Jun. 16, 1972); Topke Gola—Jalang Chhyongó, 4000 m (Jun. 20, 1972, no. 720628, fl. pink); Jalang Chhyongó—Janga La, 4200–4600 m (Jun. 21, 1972).

Distr. Himalaya (Hazara to Bhutan), S.E. Tibet, and China.

Pedicularis rupicoloides of C. Nepal was characterized by the larger corolla and the

shallowly lobed leaves, but is identical with *P. Roylei* subsp. *megalantha* Tsoong. The subspecies was described from Sikang but occurs also in Marma, W. Nepal (Stainton no. 4959).

Pedicularis schizorrhincha Prain in Journ. Asiat. Soc. Beng. **58**: 260 (1889); in Ann. Bot. Gard. Calc. **3**: 163, pl. 25, C (1891)—Tsoong in Fl. Reip. Popul. Sin. **68**: 305, pl. 67, 3–5 (1963).

NEPAL. Gosainkund, 4200 m (Aug. 26, 1969; Aug. 24, 1972).

Distr. E. Himalaya (C. Nepal to Bhutan) and S.E. Tibet.

Pedicularis Scullyana Prain ex Maxim. in Bull. Acad. Sci. St.-Pétersb. **32**: 529, t.1, 6 (1888)—Prain in Ann. Bot. Gard. Calc. **3**: 127, pl. 9, A–C (1890)—Tsoong in Bull. Brit. Mus. Bot. **2**: 34 (1955), ut *sculleyana*—Yamazaki in Kihara, Fauna Fl. Nepal Himal. 224 (1955).

NEPAL. Kyangjing, 3800 m (Jul. 13, 1960); Gotiora-Gadje, 3300–3700 m (Aug. 25, 1969, fl. yellow); Gosainkund, 4200 m (Aug. 26, 1969, fl. yellow); Topke Gola-Jalang Chhyongo, 3700 m (Jun. 20, 1972, fl. yellow); Singum Gompa-Gosainkund, 3200–4200 m (Aug. 23, 1972, fl. yellow).

Distr. Himalaya (Nepal and Sikkim).

Pedicularis siphonantha D. Don, Prodr. Fl. Nepal. 95 (1825)—Prain in Ann. Bot. Gard. Calc. **3**: 113, pl. 2, A (1890), p. p.—Pennell, l.c. 156 (1943)—Tsoong in Fl. Reip. Popul. Sin. **68**: 373, pl. 87, 4–6 (1963).

P. Hookeriana Wall. sensu Yamazaki in Kihara, Fauna Fl. Nepal Himal. 220 (1955).

NEPAL. Gosainkund, Tsedang Pokhari, 3000 m (Aug. 23, 1969, fl. pink); Langtang-Kyangjing, 3500 m (Jul. 13, 1970); Mogaecheko Danda, 3400 m (Sep. 27, 1970); Banduke Pokhari-Saju Pokhari, 4000–4200 m (Jun. 15, 1972); Saju Pokhari-Topke Gola, 4000 m (Jun. 16, 1972); Topke Gola, 3600 m (Jun. 17, 1972); Lama Chungbu-Slesa, 4200–4500 m (Jun. 24, 1972); Thudam, 3400 m (Jun. 25, 1972); Singum Gompa-Gosainkund, 3200–4200 m (Aug. 23, 1972).

SIKKIM. Jongri, 4100 m (May 23, 1960, no. 6023).

BHUTAN. Chomolhari, Chakan, 4100 m (Nishioka, Sep. 6, 1966, no. 11199).

Distr. E. Himalaya (C. Nepal to Bhutan).

Pedicularis Hookeriana of the central Himalaya was distinguished by Pennell (1943) from *P. siphonantha* of the eastern Himalaya, but many intermediate forms are found in central and eastern Nepal. It seems to be more suitable that *P. Hookeriana* is regarded as a geographic subspecies of *P. siphonantha*, but it may be necessary to reinvestigate based on ample material.

Pedicularis terrenoflora Yamazaki, sp. nov. (Ser. Curvipes).

Caulis gracilis prostratus 10–20 cm longus patente fuscato-villosus. Folia radicalia majora, petiolis 3–4 cm longis patente villosis, laminis oblongo-ovatis 2.5–3 cm longis 1.8–2 cm latis pinnatisectis, segmentis 4–6 jugis ovato-oblongis acutis pinnatipartitis, laciniis oblongis arguti-serratis. Folia caulina petiolis 0.5–1 cm longis patente fuscato-villosis, laminis oblongo-ovatis vel ovatis 1–2 cm longis 0.8–1.5 cm latis supra glabris subtus pilosis pinnatipartitis, segmentis ovatis vel oblongis acutis pinnatifidis, lobis arguti-serratis. Flores ad axillares foliorum solitarii, pedicellis erectis 3–8 mm longis patente fuscato-villosis. Calyx tubuloso-cam-

panulatus amplicollis apice 5-lobatus 8–10 mm longus 3–4 mm latus, tubo 6–8 mm longo patente fuscato-villoso, lobis 4 lateralibus ovatis vel orbiculato-ovatis argute inciso-serratis 2–3 mm longis 1.5–2 mm latis glabris, lobo postico subminore rare subnullo. Corolla 20–22 mm longa, tubo recto 15–17 mm longo 2 mm lato calyce subduplo longiore glabro. Galea arcuato-incurva glabra, pars antherigera ca. 2.5 mm lata, margine antice ad medium breviter bidentata sparse punctata, rostro subarcuato ca. 5 mm longo apice integro, labio inferiore dilatato ca. 10 mm longo et lato margine minutissime piloso 3-lobato, lobis lateralibus majoribus, lobo medio parvo 3.5 mm longo 7 mm lato apice emarginato. Stamina infra tubum inserta, filamentis anticis glabris posticis sparse pilosis. Capsula ignota.

P. amplicollis affinis, sed a qua caulibus repentissimis patente fuscato-villosis, serris foliorum argutioribus, lobis calycis majoribus differt.

NEPAL. Shewaden–Mewa Khola, 2200 m. On rock with mosses. Flowers pink. (Kanai, Ohashi, K. Iwatsuki, Ohba, Z. Iwatsuki & Shakya, Jun. 29, 1972, no. 720925. Holotype in π).

Pedicularis Wallichii Bunge ex Walper, Rep. Bot. Syst. **3**: 415 (1844)—Prain in Ann. Bot. Gard. Calc. **3**: 156, pl. 17, A–B (1890)—Tsoong in Fl. Reip. Popul. Sin. **68**: 342, pl. 78, 5 (1963).

NEPAL. Hile Chok–Ghopte, 4100 m (Jun. 12, 1972, lips pink, helmet purple); Ghopte–Gosa, 3500–4100 m (Jun. 13, 1972); Banduke Pokhari–Saju Pokhari, 4000–4200 m (Jun. 15, 1972); Saju Pokhari–Topke Gola, 4000 m (Jun. 16, 1972); Topke Gola, 3600 m (Jun. 17, 1972).

Distr. E. Himalaya (C. Nepal to Bhutan), S.E. Tibet, and W. China (Sikang).

Pedicularis Wallichoides Yamazaki in Journ. Jap. Bot. **46**: 246, f. 3, pl. 12, 5 (1971).

NEPAL. Mul Karka, Chilime Khola, 3800–4000 m (Jul. 3, 1970).

Distr. Himalaya (W. and C. Nepal).

Scrophularia pauciflora Benth in Scroph. Ind. 17 (1835)—Fl. Brit. Ind. **4**: 253 (1883).

S. sikkimensis Yamazaki in Journ. Jap. Bot. **37**: 263, f. 1, 1–2 (1962); in Fl. E. Himal. 290 (1966); **2**: 120 (1971), syn. nov.

Distr. E. Himalaya (E. Nepal to Bhutan).

Scrophularia pauciflora was described by Benth and by Hooker f. as having no staminodium, but this character is variable and some specimens from eastern Nepal have a small sterile filament. Therefore, *S. sikkimensis* can not be distinguished from the former species.

Wulfenia Amherstiana (Wall.) Benth

var. ***nepalensis*** (Yamazaki) Yamazaki in Journ. Jap. Bot. **46**: 249 (1971).

W. nepalensis Yamazaki in Journ. Jap. Bot. **45**: 177, f. 24, pl. 9 (1970); in Fl. E. Himal. **2**: 119 (1971).

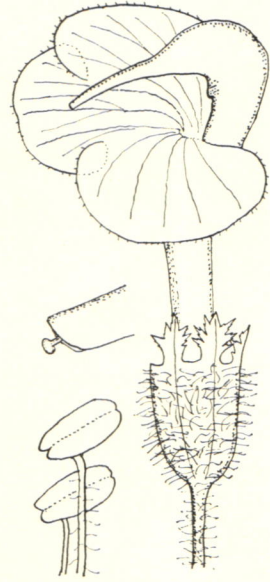


Fig. 11. Flower of *Pedicularis terrenoflora* Yamazaki, $\times 6$.

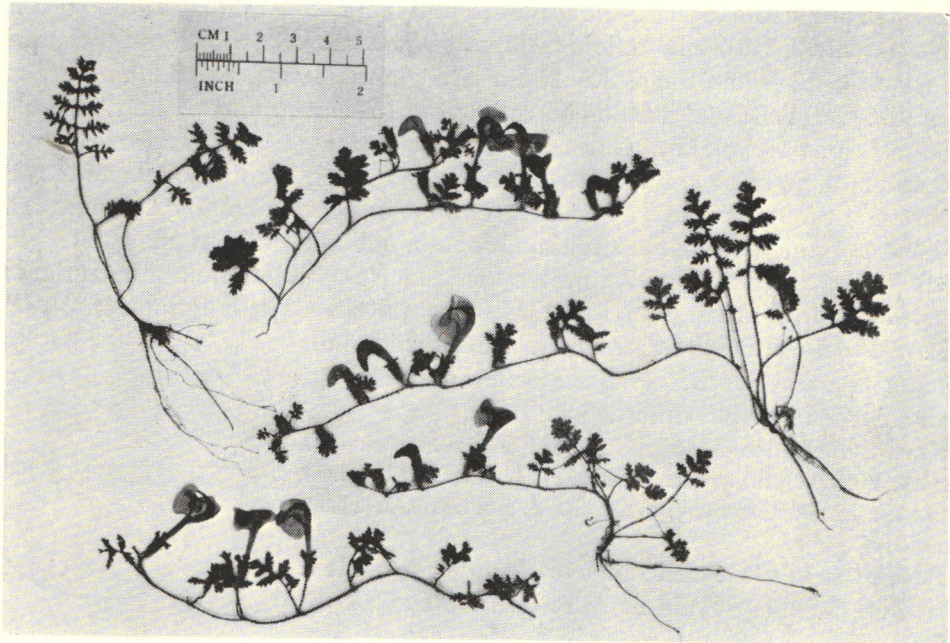


Fig. 12. *Pedicularis terrenoflora* Yamazaki.

Dist. Himalaya (C. Nepal).

GESNERIACEAE (by Hiroshi Hara)

Chirita calva C. B. Clarke in Fl. Brit. Ind. **4**: 358 (1884). [Plate 6b]

C. glabra (non Miquel, 1856) C. B. Clarke, Comm. et Cyrt. Beng. 105, t. 73 (1874).

DARJEELING. Raman-Rimbick, 1900–2400 m (Aug. 5, 1972, fl. purple).

Distr. Himalaya (Sikkim).

Didymocarpus aromaticus Wall. ex D. Don, Prodr. Fl. Nepal. 123 (1825), ut *aromatica*—Hara in Journ. Jap. Bot. **47**: 273 (1972).

D. subalternans Wall. [Cat. no. 782 (1829), nom. nud.] ex R. Brown in Bennett, Pl. Jav. Rar. 118 (1840)—C. B. Clarke in Fl. Brit. Ind. **4**: 347 (1884), cum var. *curvicapsa*.

NEPAL. Duche Gyang—Thodang Danda, 2300 m (Aug. 22, 1969, fl. dark purple); Ramche—Gram, 1900 m (Aug. 20, 1972, no. 723137, fl.).

Distr. Himalaya (Kumaon to Sikkim).

The nomenclatural problems regarding the conserved genus *Didymocarpus* and the identity of the species *D. aromaticus* were discussed in detail by Hara (1972).

Didymocarpus cinereus D. Don, Prodr. Fl. Nepal. 122 (1825), ut *cinerea*—C. B. Clarke in Fl. Brit. Ind. **4**: 346 (1884).

D. obtusa Wall. [Cat. no. 786 (1829), nom. nud.] ex R. Brown in Bennett, l.c. 118 (1840)—C. B. Clarke, Comm. et Cyrt. Beng. 91, t. 61 (1874).

NEPAL. Sundarijar—Mul Kharka, 1450 m (Aug. 20, 1969); Sim Chotala—Ramche,

1300 m (Aug. 20, 1972, no. 721657, fl. violet-purple).

Distr. Himalaya (Nepal).

Didymocarpus oblongus Wall. ex D. Don, Prodr. Fl. Nepal. 123 (1825), ut *oblonga*—Wall., Pl. As. Rar. **2**: 34, t. 140 (1831)—C. B. Clarke, Comm. et Cyrt. Beng. 86, t. 56 (1874); in Fl. Brit. Ind. **4**: 346 (1884).

NEPAL. Phulchoki, Kathmandu, 2000 m (Aug. 9, 1969, fl.); Shewaden—Papung, 2600–2000 m (Jun. 29, 1972, no. 723133, fl.); Papung—Bir Gaon, 1800 m (Jun. 30, 1972, fl.); Nessum—Bhuje, 1300–2700 m (Jul. 3, 1972, fl.).

Distr. Himalaya (Nepal, Sikkim) and Assam.

Didymocarpus pedicellatus R. Brown in Bennett, Pl. Jav. Rar. 118 (1840)—C. B. Clarke, Comm. et Cyrt. Beng. 94, t. 64 (1874); in Fl. Brit. Ind. **4**: 345 (1884).

NEPAL. Sim Bhanjyang, 2500 m (Jul. 26, 1969); Saju Khola—Dingla, 1200 m (Jul. 1, 1972, no. 720996, fl. deep purple glossy).

Distr. Himalaya (Punjab to Bhutan).

Didymocarpus primulifolius D. Don, Prodr. Fl. Nepal. 123 (1825), ut *primulifolia*—Hara in Journ. Jap. Bot. **47**: 273 (1972).

D. aromatica Wall. [Cat. no. 785 (1829), nom. nud.] Pl. As. Rar. **2**: 34, t. 141 (1831), excl. figs. 4–7—R. Brown in Bennett, Pl. Jav. Rar. 118 (1840)—C. B. Clarke, Comm. et Cyrt. Beng. 87, t. 57 (1874), excl. fig. pl. fr.; in Fl. Brit. Ind. **4**: 347 (1884); non *D. aromatica* Wall. ex D. Don (1825).

D. oblongus Wall. ex D. Don sensu Hara, Fl. E. Himal. **2**: 122 (1971).

NEPAL. Khirojet—Yatumbal, 2500 m (Jun. 29, 1970, fl.); Langtang Gorge—Syerpa-gaon, 2500 m (Jul. 17, 1970, fl.); Phulchoki, 2200–2700 m (Jul. 15, 1972, fl. dark violet-purple).

Distr. Himalaya (Nepal).

Didymocarpus pulcher C. B. Clarke in DC., Mongr. Phan. **5**: 79 (1883), ut *pulchra*; in Fl. Brit. Ind. **4**: 348 (1884).

D. subalternans DC. sensu C. B. Clarke, Comm. et Cyrt. Beng. 85, t. 55 (1874).

DARJEELING. Observatory Hill, 2200 m (Jul. 24, 1972, fl.); Raman—Rimbick, 2400–1900 m (Aug. 5, 1972, fl.); Rimbick—Palmajua, 2100 m (Aug. 6, 1972, no. 721526, fl. purple); Palmajua, 2200 m (Aug. 7, 1972, fl.).

Distr. E. Himalaya (Nepal to Bhutan).

The plant is very near to *D. aromaticus* Wall. ex D. Don, but has generally larger corollae and calyces, and longer capsules.

Lysionotus atropurpureus Hara in Journ. Jap. Bot. **48**: 359, f. 4 (1973).

[Plate 6a]

L. ternifolia DC. sensu C. B. Clarke, Comm. et Cyrt. Beng. 81 (1874), p.p.

L. serrata D. Don sensu C. B. Clarke in Fl. Brit. Ind. **4**: 344 (1884), p.p.: Hara, Fl. E. Himal. 299 (1966), p.p.

NEPAL. Mul Pokhari—Gorzu Kosir, 2200 m (Oct. 30, 1963, fr.); Bhandukay Bhanjyang, 3000–2000 m (Dec. 3, 1963, fr.).

DARJEELING. Birch Hill, 2100 m (Apr. 7, 1960, fr.); Kurseong, 1600 m (Apr. 12, 1960, fr.); Rimbick, 2200 m (May 6, 1960, fr.); Siri Khola—Rimbick, 2100–2200 m (Aug. 5, 1972, no. 723147, fl. Holotype in τ); Palmajua, 2200 m (Aug. 7, 1972, fl.); Palmajua—Batasi, 2200–2100 m (Aug. 8, 1972, fl.).

Distr. E. Himalaya (Nepal, Sikkim).

This species is clearly separated from *L. serratus* D. Don by axillary filiform spreading peduncles, smaller dark violet-purple corollae which are quite glabrous outside, more spreading calyx-lobes, and shorter styles about 5 mm long.

Lysionotus serratus D. Don: Hara, Fl. E. Himal. 299 (1966), ut *serrata*, p.p.

NEPAL. Sim Chotala-Gram, 1000-1800 m (Aug. 20, 1972, fl. mauve).

BHUTAN. Phuntsholing, 900 m (Apr. 3, 1967, fr.); Punakha-Bhotokha, 1450 m (May 7, 1967, fr.).

Distr. Himalaya (Kumaon to NEFA), Assam, and N. Burma.

Platystemma violoides Wall.: Hara, Fl. E. Himal. 2: 122 (1971).

[Plate 6c]

NEPAL. Phulchoki, 2700 m (Aug. 9, 1969, fl.); Trisuli Khola, 2000 m (Aug. 22, 1972, no. 721787, fl. violet).

Distr. Himalaya (Simla to Bhutan).

CAPRIFOLIACEAE (by Hiroshi Hara)

Lonicera asperifolia (Decaisne) Hook. f. et Thoms.: Hara, Fl. E. Himal. 2: 125 (1971).

NEPAL. Lama Chungbu, 4200 m (Jun. 23, 1972, no. 720697, fl. cream); Lama Chungbu-Thudam, 4500-3400 m (Jun. 24, 1972).

Distr. Turkestan, Himalaya (Kashmir to Bhutan), and Tibet.

Lonicera lanceolata Wall.: Fl. E. Himal. 2: 125 (1971).

NEPAL. Topke Gola, 3600 m (Jun. 28, 1972, no. 723978, fl.).

Distr. Himalaya (Nepal to Bhutan), S. Tibet, N. Burma, and W. China.

Lonicera myrtilloides Purpus: Fl. E. Himal. 2: 125 (1971).

NEPAL. Topke Gola, 3600 m (Jun. 18, 1972, fl.); Thudam, 3400 m. (Jun. 22, 1972, fl.; Jun. 24, 1972, fl. pinkish); Topke Gola-Shewaden, 3600-2600 m (Jun. 28, 1972, no. 723983, fl.).

Distr. E. Himalaya (Nepal, Sikkim).

Lonicera Myrtilus Hook. f. et Thoms.: Fl. E. Himal. 2: 126 (1971).

NEPAL. Topke Gola, 3600 m (Jun. 19, 1972, no. 720558, fl.); Lama Chungbu-Thudam, 4500-3400 m (Jun. 24, 1972, fl.).

Distr. Himalaya (Kashmir to Bhutan), S. Tibet, N. Burma, and W. China.

Lonicera rupicola Hook. f. et Thoms. in Journ. Linn. Soc. 2: 168 (1858)-C. B. Clarke in Fl. Brit. Ind. 3: 13 (1880)-Rehder, Syn. Lonicera 46 (1903).

NEPAL. Lama Chungbu-Thudam, 4500-3400 m (Jun. 24, 1972, fl.).

Distr. Himalaya (Kumaon to Bhutan), S. Tibet, and ?W. China.

Viburnum cylindricum Hamilt. ex D. Don, Prodr. Fl. Nepal. 142 (1825).

V. coriaceum Blume, Bijdr. 656 (1826)-Hara, Fl. E. Himal. 319 (1966); 2: 127 (1971).

Distr. Himalaya (Kumaon to NEFA), Assam, N. Burma, Indo-China, W. China, and Malaysia.

Kern (in Reinwardtia 1: 118, 1951) had doubts about the identity of *Viburnum cylindricum* Hamilt. ex D. Don judged from the original description. However, having examined its holotype (Nepal, ad Narainhetty, Hamilton in BM), I noticed that the leaves are glabrous beneath excepting the axils of veins, and the type is

quite identical with the plants called *V. coriaceum* Blume.

Viburnum nervosum D. Don, Prodr. Fl. Nepal. 141 (1825)—Stapf in Bot. Mag. t. 9063, in textu (1925)—Hara in Journ. Jap. Bot. **47**: 275 (1972).

V. cordifolium Wall. ex DC.: Fl. E. Himal. 319 (1966); **2**: 127 (1971).

Distr. Himalaya (Kumaon to Bhutan), N. Assam, S. Tibet, N. Burma, and W. China.

Following the opinion of Dr. Stapf, I adopted *Viburnum nervosum* D. Don for *V. cordifolium* Wall., although D. Don's type is missing.

VALERIANACEAE (by Hiroshi Hara)

Nardostachys grandiflora DC., Prodr. **4**: 624 (1830); Mém. Valér. 8, t. 2 (1832).

Valeriana Jatamansi Jones sensu D. Don in Lambert, Ill. Cinchona 180, t. (1821)—Wall., Cat. no. 431 (1829).

Patrinia Jatamansi D. Don, Prodr. Fl. Nepal. 159 (1825), quoad descr., excl. basionym et syn. Vahl.

Fedia grandiflora Wall., Cat. no. 1187 (1829), nom. nud.

N. Jatamansi DC., Prodr. **4**: 624 (1830), quoad descr. tantum, excl. basionym et syn. Vahl; Mém. Valér. 7, t. 1 (1832)—Royle, Ill. Bot. Himal. 242, t. 54 (1835–36?)—C. B. Clarke in Fl. Brit. Ind. **3**: 211 (1881)—Hook. f. in Bot. Mag. t. 6564 (1881).

N. gracilis Kitamura in Act. Phytotax. Geobot. **15**: 134 (1954); in Kihara, Fauna Fl. Nepal Himal. 235, f. 64 (1955).

NEPAL. Saju Pokhari—Topke Gola, 3600–4400 m (Jun. 16, 1972); Topke Gola—Jalang Chhyongo, 3600–4300 m (Jun. 20, 1972, fl.); Phujeng La—Topke Gola, 3900 m (Jun. 27, 1972, fl.).

BHUTAN. Below Tremo La, 4500 m (Nishioka, Jun. 23, 1966, fl.).

Distr. Himalaya (Garhwal to Bhutan), Tibet, and W. China.

The plant name of a famous Indian drug 'Jatamansi' (Indian Spikenard) which is the rhizome of *Nardostachys* is very confusing.

In 1770 Jones first published a name *Valeriana Jatamansi* for a plant which he supposed to be 'Jatamansi', but the flowering plant described by him with figures was different from true 'Jatamansi', and was a species of *Valeriana* in the present sense. Roxburgh in 1795 illustrated *Valeriana Jatamansi* in colour, but it was also a mixture of the flowering plant of *Valeriana* and the rhizome of *Nardostachys*. D. Don (1821) is the first botanist who observed a real plant of 'Jatamansi' (*Nardostachys*) and in 1825 he described it as *Patrinia Jatamansi* in his Prodr. Fl. Nepal. p. 159, but he cited *Valeriana Jatamansi* Jones and also *V. spica* Vahl as a synonym which is not *Nardostachys*. Presumably D. Don considered that *Valeriana Jatamansi* Jones is a mixture of two different plants, and tried to restrict his *Patrinia Jatamansi* to true 'Jatamansi'. In other words, *Patrinia Jatamansi* D. Don is not a new name, but still derived from *Valeriana Jatamansi* Jones, and he intended to select true 'Jatamansi' as its lectotype.

DC. in his Mém. Valér. (1832) clearly described and illustrated 'Jatamansi' as *Nardostachys Jatamansi*. But this name was first published by DC. in his Prodr.

4 (1830), and his treatment there is almost the same as in the case of D. Don citing *Valeriana Jatamansi* Jones and also *V. spica* Vahl.

However, as above mentioned, Jones' botanical description of *Valeriana Jatamansi* was wholly based on a species of *Valeriana* (*V. Wallichii* DC.) (cf. Hara, Fl. E. Himal. 2: 128, 1971), although he considered it as the original plant of 'Jatamansi' by mistake. So the name *V. Jatamansi* cannot be adopted for 'Jatamansi'. Also both names *Patrinia Jatamansi* and *Nardostachys Jatamansi* based on *Valeriana Jatamansi* Jones cannot be used for true 'Jatamansi'.

The earliest correct name for 'Jatamansi' is *Nardostachys grandiflora* DC. (1830). The species is very variable in the size of flowers and also in the shape and size of leaves. The flowers vary from 1 cm to 2 cm in length. The leaves are generally oblanceolate, attaining 30 cm long and 4.5 cm wide, but sometimes linear-oblanceolate only 2 cm long and about 3 mm wide, and sometimes almost oblong 3 cm long and 1.5 cm wide, with 5 main nerves.

DIPSACACEAE (by Hiroshi Hara)

Morina longifolia Wall. [Cat. no. 426 (1829), nom. nud.] ex DC., Prodr. 4: 644 (1830)—Wall., Pl. As. Rar. 3: 1, t. 202 (1831)—Bot. Mag. t. 4092 (1844)—C.B. Clarke in Fl. Brit. Ind. 3: 216 (1881).

NEPAL. Langtang-Kyangjing, 3600 m (Jul. 13, 1970, fl.); Thale Bisauna-Tingoang, 3000 m (Sep. 11, 1970, fl.); Singum Gompa, 3000–3300 m (Aug. 22, 1972, no. 721825; Aug. 23, 1972, fl.).

Distr. Himalaya (Kashmir to Bhutan).

Morina nepalensis D. Don, Prodr. Fl. Nepal. 161 (1825)—C. B. Clarke in Fl. Brit. Ind. 3: 217 (1881).

M. nana Wall. [Cat. no. 424 (1829), nom. nud.] ex DC., Prodr. 4: 645 (1830).

M. betonicoides Benth. in Hook., Icon. Pl. 12: 63, t. 1171 (1873)—Bot. Mag. t. 6966 (1887)—Pai in Fedde, Rep. 44: 116 (1938)—Yamazaki in Fl. E. Himal. 321 (1966); 2: 128 (1971).

NEPAL. Langtang Gorge-Kyangjing, 2800–3600 m (Jul. 12 & 13, 1970, fl.); Hile Chok-Ghopte, 3500 m (Jun. 12, 1972, fl.); Bhanduke Pokhari-Saju Pokhari, 4200–4000 m (Jun. 15, 1972, fl.); Saju Pokhari-Pass, 4300 m (Jun. 16, 1972, fl.); Thudam-Lama Chungbu, 3400–4200 m (Jun. 23, 1972, fl.); Lama Chungbu-Thudam, 4500–3400 m (Jun. 24, 1972, fl.).

DARJEELING. Sandakphu, 3800–3900 m (Jul. 14, 15 & 20, 1969, fl.; Aug. 1, 1972); Mt. Singalila, 3900 m (Jul. 17, 1969, fl.).

Distr. Himalaya (Nepal to Bhutan), Assam, S. E. Tibet, N. Burma, and W. China.

Morina polyphylla Wall. [Cat. no. 425 (1829), nom. nud.] ex DC., Prodr. 4: 644 (1830)—C. B. Clarke in Fl. Brit. Ind. 3: 216 (1881).

NEPAL. Mul Kharka-Oo Kharka, 3500 m (Jul. 7, 1970).

BHUTAN. Cheka-Tremo La, 4000 m (Nishioka, Jun. 23, 1966).

Distr. Himalaya (Garhwal to Bhutan).

Triplostegia glandulifera Wall. [Cat. no. 436 (1829), nom. nud.] ex DC., Prodr. 4: 642 (1830)—v. Steenis in Fl. Males. 4: 291 (1951); Fl. E. Himal. 321 (1966).

NEPAL. Gyang–Thodang Danda, 2250–2470 m (Aug. 22, 1969, fl.); Thale Bisauna–Tingoang, 3000 m (Sep. 11, 1970, fl.); Sano Tingsang, 2900 m (Sep. 26, 1970, fl.); Chauke–Dor, 2800 m (Jul. 6, 1972, fl.); Khodang Danda–Latsu, 2500–2100 m (Aug. 29, 1972, fl. & fr.).

DARJEELING. Gairibas–Sandakphu, 2800–3600 m (Sep. 16, 1964, fl. & fr.; Jul. 31, 1972); Sandakphu–Phalut, 3300–3900 m (Jul. 16 & 19, 1969; Aug. 2, 1972, fl.); Mekma–Tonglu, 2600–3000 m (Jul. 30, 1972, fl.).

Distr. Himalaya (Garhwal to Bhutan), S. E. Tibet, N. Burma, W. & C. China, Formosa, and Malaysia (Celebes, New Guinea).

CAMPANULACEAE (by Hiroshi Hara)

Asyneuma fulgens (Wall.) Briquet in *Candollea* **4**: 334 (1931)—Damboldt in *Boissiera* **17**: 63 (1970).

Campanula fulgens Wall. in Roxb., *Fl. Ind.* ed. Carey, **2**: 99 (1824)—C. B. Clarke in *Fl. Brit. Ind.* **3**: 442 (1881).

NEPAL. Mane Gaon–Thale, 1240–2000 m (Jun. 24, 1970, fl.); Trisuli Khola–Singum Gompa, 2900 m (Aug. 22, 1972, fl.).

Distr. Himalaya (Nepal to Bhutan), Khasia, Manipur, S. India, S. Tibet, and W. & S. China.

Codonopsis dicentrifolia (C. B. Clarke) W.W. Smith in *Rec. Bot. Surv. Ind.* **4**: 388 (1913)—Anthony in *Not. Bot. Gard. Edinb.* **15**: 187 (1926).

Wahlenbergia? *dicentrifolia* C. B. Clarke in *Fl. Brit. Ind.* **3**: 430 (1881).

NEPAL. Lukthang–Kalingchok, 3400 m (Sep. 28, 1970, no. 674644, fl. violet purple & fr.).

Distr. E. Himalaya (Nepal, Sikkim).

Codonopsis javanica (Blume) Hook. f., *Ill. Himal. Pl.* 116, t. 16B (1855)—Moeliono et Tuyn in *Fl. Males.* **6**: 119, f. 7 (1960).

Campanumaea javanica Blume, *Bijdr.* 727 (1826)—*Fl. Brit. Ind.* **3**: 435 (1881).

DARJEELING. Batasi–Mani Bhanjyang, 2000 m (Aug. 9, 1972, fl. whitish with purple nerves).

Distr. E. Himalaya (Sikkim, Bhutan), Assam, S. India, Burma, Thailand, Indo-China, China, and Malaysia.

Codonopsis purpurea Wall. in Roxb., *Fl. Ind.* ed. Carey, **2**: 105 (1824)—*Fl. Brit. Ind.* **3**: 431 (1881)—Chipp in *Journ. Linn. Soc.* **38**: 390 (1908)—Anthony, *l.c.* 185 (1926).

NEPAL. Phulchoki, 2400 m (Aug. 9, 1969, fl.); Thale–Thale Bisauna, 2200 m (Sep. 10, 1970, fl.); Gram–Dunche, 1900–2000 m (Aug. 21, 1972, fl.); Trisuli Khola, 2000 m (Aug. 22, 1972, no. 723166, fl. dark purple).

Distr. Himalaya (Kumaon, Nepal), Khasia, and W. China.

Codonopsis thalictrifolia Wall. in Roxb., *Fl. Ind.* ed. Carey, **2**: 106 (1824)—*Fl. Brit. Ind.* **3**: 432 (1881)—Chipp, *l.c.* 381 (1908)—Anthony, *l.c.* 186 (1926)—Nannfeldt in *Not. Bot. Gard. Edinb.* **16**: 159 (1931).

Glosocomia tenera D. Don, *Prodr. Fl. Nepal.* 158 (1825), *nom. superfl.*

NEPAL. Lama Chungbu, 4200 m (Jun. 23, 1972, fl.); Singum Gompa–Gosainkund, 3200–4200 m (Aug. 23, 1972, fl.).

Distr. E. Himalaya (Nepal, Sikkim).

Cyananthus microphyllus Edgew. in Trans. Linn. Soc. **20**: 81 (1846)—Ballard in Bot. Mag. t. 9598 (1940)—Weibel in Candollea **17**: 85 (1960).

C. linifolius Wall. [Cat. no. 3722 (1831), nom. nud.] ex Hook. f. et Thoms. in Journ. Linn. Soc. **2**: 20 (1857)—Fl. Brit. Ind. **3**: 434 (1881).

C. nepalensis Kitamura in Act. Phytotax. Geobot. **15**: 109 (1954); in Kihara, Fauna Fl. Nepal Himal. 241, f. 67 (1955).

NEPAL. Lukthang—Kuri, 3400 m (Sep. 28, 1970, no. 674648, fl. blue).

Distr. Himalaya (Garhwal to Sikkim) and S. Tibet.

The species is variable, and our specimen has small narrow and often glabrescent leaves.

Cyananthus spathulifolius Nannfeldt in Act. Hort. Gothob. **5**: 30, f. 1 (1930)—Cowan in New Fl. & Silva **10**: 185 (1938).

NEPAL. Kipuphu, 4500 m (Jun. 27, 1972, no. 720800, fl. yellow); Topke Gola—Shewaden, 3100 m (Jun. 28, 1972, fl. yellow).

BHUTAN. Gyumbetang, 3800 m (Nishioka, Sep. 4, 1965).

Distr. E. Himalaya (Nepal to Bhutan) and W. China.

COMPOSITAE (by Siro Kitamura)

Ageratum conizoides L.: Kitamura in Fl. E. Himal. 330 (1966); **2**: 131 (1971).

NEPAL. Doban, 800 m (Jul. 2, 1972); Sim Chotala—Gram, 900–1900 m (Aug. 20, 1972).

Ainsliaea latifolia (D. Don) Schultz-Bip.: Fl. E. Himal. 330 (1966); **2**: 132 (1971).

NEPAL. Topke Gola—Shewaden, 3600–2600 m (Jun. 28, 1972).

Anaphalis Busua (Hamilt.) DC.: Fl. E. Himal. 331 (1966); **2**: 132 (1971), ut *A. Busua* (Ham.) Handel-Mazzetti.

NEPAL. Dunche—Singum Gompa, 2000–3200 m (Aug. 22, 1972); Khodang Danda—Latsu, 2500–2400 m (Aug. 29, 1972).

Anaphalis contorta (D. Don) Hooker f.: Fl. E. Himal. 331 (1966); **2**: 132 (1971).

NEPAL. Gram—Dunche, 1900 m–2000 m (Aug. 21, 1972); Dunche—Singum Gompa, 2000–3200 m (Aug. 22, 1972); Gosainkund 4000–4400 m (Aug. 24, 1972).

Anaphalis margaritacea (L.) Benth. et Hooker f.: Fl. E. Himal. 331 (1966); **2**: 132 (1971).

NEPAL. Dunche—Singum Gompa, 2000–3200 m (Aug. 22, 1972); Thale Patil—Mangen, 3400–3100 m (Aug. 27, 1972).

DARJEELING. Palmajua—Batasi, 2200–2100 m (Aug. 8, 1972).

The leaves are linear-lanceolate, 7–10 cm long, 4–8 mm broad, and just like those of Japanese plants.

Anaphalis Royleana DC., Prodr. **6**: 272 (1837)—Kitamura in Act. Phytotax. Geobot. **23**: 10 (1968).

NEPAL. Thudam, 3400 m (Jun. 22, 1972, before flowering); Singum Gompa—Gosainkund, 3200–4200 m (Aug. 23, 1972); Thale Patil—Mangen, 3400–3100 m (Aug. 27, 1972).

Distr. Himalaya (Kunawar to Sikkim), Tibet, and Formosa.

Anaphalis triplinervis (Sims) C. B. Clarke: Fl. E. Himal. 332 (1966); **2**: 133 (1971).

DARJEELING. Sandakphu, 3600 m (Aug. 1, 1972).

var. **intermedia** (DC.) Airy-Shaw: Fl. E. Himal. 332 (1966); **2**: 133 (1971).

Helichrysum stoloniferum D. Don, Prodr. Fl. Nepal. 176 (1825), non (L. f.) Willd. (1804).

Elichrysum nepalense Sprengel, Syst. **3**: 485 (1826).

Antennaria triplinervis β . *cuneifolia* DC., Prodr. **6**: 270 (1838).

Antennaria triplinervis γ . *intermedia* DC., l.c. 270 (1838).

Anaphalis mucronata β . *polycephala* DC., l.c. 272 (1838).

Anaphalis nubigena DC., l.c. 272 (1838)—Hook. f., Fl. Brit. Ind. **3**: 279 (1881), p.p.

Anaphalis nubigena var. *intermedia* Hook. f., l.c. 280 (1881).

Anaphalis cuneifolia (DC.) Hook. f., l.c. 280 (1881).

Anaphalis nepalensis (Sprengel) Hand.-Mzt., Symb. Sin. **7**: 1099 (1936)—Kitamura in Kihara, Fauna Fl. Nepal Himal. 245 (1955); in Act. Phytotax. Geobot. **23**: 9 (1968).

NEPAL. Topke Gola—Shewaden, 3600–2600 m (Jun. 28, 1972); Dunche—Singum Gumpa, 2000–3200 m (Aug. 22, 1972); Singum Gumpa—Gosainkund, 3200–4200 m (Aug. 23, 1972).

DARJEELING. Sandakphu, 3600 m (Aug. 1, 1972).

var. **monocephala** (DC.) Airy-Shaw in Bot. Mag. t. 9396 (1935).

Anaphalis monocephala DC., Prodr. **6**: 272 (1838).

A. mucronata DC., Prodr. **6**: 272 (1838), excl. var.—C. B. Clarke, Comp. Ind. 106 (1876).

A. nubigena var. *nubigena* proper: Hook. f., Fl. Brit. Ind. **3**: 280 (1881), p.p.

A. Nagasawae Hayata in Bot. Mag. Tokyo **20**: 15 (1906).

NEPAL. Hile Chok—Ghopte, 3500–3500 m (Jun. 12, 1972); Banduke Pokhari—Saju Pokhari, 4200–4000 m (Jun. 15, 1972); Lama Chungbu—Thudam, 4200–3400 m (Jun. 24, 1972); Samdan, 4400 m (Jun. 24, 1972); Kipuphu—Topke Gola, 4600–3600 m (Jun. 27, 1972); Gosainkund, 4000–4400 m (Aug. 24, 1972).

Distr. sp. Afghanistan (var. *intermedia*); and Himalaya, China, and Formosa (var. *monocephala*).

Anaphalis xylorhiza Schultz-Bipontinus ex Hook. f.: Fl. E. Himal. **2**: 133 (1971).

NEPAL. Lama Chungbu—Thudam, 4200–3400 m (Jun. 24, 1972).

Distr. Himalaya (Kumaon to Bhutan) and Tibet.

Artemisia japonica Thunberg: Fl. E. Himal. 333 (1966); **2**: 133 (1971).

A. parvifolia Roxb. ex D. Don, Prodr. Fl. Nepal. 181 (1825)—DC., Prodr. **6**: 100 (1838)—Fl. Brit. Ind. **3**: 322 (1881).

A. glabrata DC. in Wight, Contrib. 20 (1834); Prodr. **6**: 100 (1838).

NEPAL. Gram—Dunche, 1900–2000 m (Aug. 21, 1972); Dunche—Singum Gumpa, 2000–3200 m (Aug. 22, 1972).

A. parvifolia Kitamura in Fauna and Flora of Nepal Himalaya is not *A. parvifolia* Roxb. ex D. Don, but *A. subdigittata* Mattf.

Artemisia Roxburghiana Besser in Bull. Soc. Nat. Moscow **9**: 57 (1836)—Fl. Brit. Ind. **3**: 326 (1881)—Kitamura in Act. Phytotax. Geobot. **23**: 12 (1968).

NEPAL. Dunche—Singum Gumpa, 2000–3200 m (Aug. 22, 1972); Singum Gumpa—Gosainkund, 3200–4200 m (Aug. 23, 1972); Gopte—Thale Patil, 3500–3400 m (Aug. 26,

1972).

Distr. Afghanistan, Karakoram, and Himalaya (Kashmir to Nepal).

Aster albescens (DC.) Hand.-Mzt.: Fl. E. Himal. 333 (1966); **2**: 133 (1971).

NEPAL. Dunche-Singum Gumpa, 2000-3200 m (Aug. 22, 1972).

Stem 1 m high. Ligular florets pale violet.

Aster asteroides (DC.) O. Kuntze, Rev. Gen. 315 (1891)-Kitamura in Act. Phytotax. Geobot. **23**: 16 (1968).

Heterochaeta asteroides DC., Prodr. **5**: 282 (1836).

A. Heterochaeta Benth. in Benth. et Hook. f., Gen. Pl. **2**: 272 (1873).

NEPAL. Topke Gola, 3600 m (Jun. 19, 1972); Topke Gola-Jalang Chhyongo, 3600-4300 m (Jun. 20, 1972); Jalang Chhyongo-Thudam, 4200-3400 m (Jun. 21, 1972); Lama Chungbu-Thudam, 4200-3400 m (Jun. 24, 1972).

Roots tuberous. Stem densely glandular, 6-11 cm tall. Ligules uniseriate, intensely purple-blue (like the corolla of *Wisteria floribunda*). Tube pilose. Pappus double.

The type locality of this species is Kashmir.

Aster diplostephioides (DC.) C. B. Clarke, Comp. Ind. 45 (1876)-Kitamura in Act. Phytotax. Geobot. **23**: 16 (1968).

Heterochaeta diplostephioides DC., Prodr. **5**: 282 (1836).

NEPAL. Thudam-Lama Chungbu, 3700 m (Jun. 23, 1972).

Distr. Himalaya (Kashmir to Sikkim) and Tibet.

Aster flaccidus Bunge, Enum. Alt. 77 (1835)-Kitamura in Kihara, Fauna Fl. Nepal Himal. 248 (1955).

DARJEELING. Phalut-Raman, 3600-2400 m (Aug. 4, 1972).

Distr. Pamir, Karakoram, Himalaya, Kuenlun, Tianshan, Altai, Mongolia, Siberia, and China.

Aster himalaicus C. B. Clarke, Comp. Ind. 43 (1876)-Fl. Brit. Ind. **3**: 250 (1881)-Onno in Bibl. Bot. **103**: 54 (1932)-Grierson in Not. Bot. Gard. Edinb. **26**: 122 (1965).

NEPAL. Gosainkund, 4000-4400 m (Aug. 24, 1972).

BHUTAN. Near Lingsh Dzong, 4100 m (Nishioka, Sep. 9, 1966).

Distr. Himalaya (Nepal, Sikkim, Bhutan), Assam, Burma, and Tibet.

The involucre scales of this species are broader (3.5-4 mm) than those of *A. tricephalus*.

Aster Stracheyi Hook. f., Fl. Brit. Ind. **3**: 250 (1881)-Kitamura in Kihara, Fauna Fl. Nepal Himal. 249 (1955).

NEPAL. Topke Gola, 3600 m (Jun. 19, 1972); Kipuphu-Topke Gola, 4500-3600 m (Jun. 27, 1972).

Distr. Himalaya (Kumaon, Nepal).

Stroniferous plant. Roots numerous, robust and long, from the creeping rhizome. Ligules intensely purple blue. Pappus simple.

Aster tricephalus C.B. Clarke, Comp. Ind. 43 (1876)-Fl. Brit. Ind. **3**: 250 (1881)-Grierson in Not. Bot. Gard. Edinb. **26**: 117 (1965).

DARJEELING. Mane Bhanjyang-Tonglu, 2200-3150 m (Jul. 11, 1969); Sandakphu-Phalut, 3970-3930 m (Jul. 16 & 19, 1969); Tonglu-Sandakphu, 3000-3600 m (Jul. 31,

1972); Sandakphu–Phalut, 3600–3600 m (Aug. 2, 1972).

Distr. Himalaya.

Stem 50–60 cm tall, cauline leaves numerous, inferior ones withered at the flowering time, middle and superior ones overlapping each other, even to the base of the head. The involucre scales are narrow, 1.5 mm broad.

Bidens pilosa L. var. **minor** (Bl.) Sherff: Fl. E. Himal. **2**: 133 (1971).

NEPAL. Papung–Bir Gaon, 2000–1600 m (Jun. 30, 1972); Gram–Dunche, 1900–2000 m (Aug. 21, 1972).

Brachyactis anomalum (DC.) Kitamura, comb. nov.

Erigeron anomalum DC., Prodr. **5**: 293 (1836).

B. menthadora Benth in Hook., Icon. Pl. **12**: t. 1106 (1876)—Fl. Brit. Ind. **3**: 252 (1881)—Ling in Act. Phytotax. Sin. **11**: 429 (1973).

B. indica C. B. Clarke, Comp. Ind. 49 (1876).

NEPAL. Gopte–Thale Patil, 3500–3400 m (Aug. 26, 1972).

Distr. Himalaya (Kashmir to Sikkim) and S. Tibet.

This species belongs to *Erigeron* in the broad sense. The outer involucre scales are herbaceous and are longer than or as long as the inner ones. The tube florets are fewer (ca. 8) than the ligular florets. The ligule is longer than the filiform style branches.

Cacalia chenopodiifolia (DC.) Kitamura ex H. Koyama in Mem. Fac. Sci. Kyoto Univ. ser. Biol. 2, **2**: 170 (1969).

Senecio chenopodiifolius DC., Prodr. **6**: 364 (1838).

NEPAL. Gopte–Thale Patil, 3500–3400 m (Aug. 26, 1972).

Distr. Himalaya (Kashmir to Bhutan).

Cacalia Mortoni (C. B. Clarke) Kitamura ex H. Koyama, l.c. 166 (1969).

Senecio Mortoni C. B. Clarke, Comp. Ind. 208 (1876).

Ligularia Mortoni (C. B. Clarke) Hand.-Mzt. in London Journ. Bot. **76**: 289, in obs. (1838).

DARJEELING. Tonglu–Sandakphu, 3000–3600 m (Jul. 31, 1972); Sandakphu, 3600 m (Aug. 1, 1972).

Distr. E. Himalaya (Sikkim, Bhutan).

Cacalia pentaloba Hand.-Mzt. in Act. Hort. Gothob. **12**: 298 (1938)—H. Koyama, l.c. 172 (1969).

Prenanthes quinqueloba DC., Prodr. **7**: 195 (1838).

Senecio quinquelobus (DC.) Hooker f., Fl. Brit. Ind. **3**: 353 (1881).

C. quinqueloba (DC.) Kitamura in Kihara, Fauna Fl. Nepal Himal. 249 (1955), non Thunberg (1800).

NEPAL. Thudam–Kipuphu, 3400–4500 m (Jun. 26, 1972, before flowering).

DARJEELING. Sandakphu–Phalut, 3600–3000 m (Aug. 2, 1972, before flowering).

Distr. Himalaya (Garhwal to Bhutan).

Carpesium nepalense Lessing: Fl. E. Himal. 334 (1966); **2**: 134 (1971).

NEPAL. Phulchoki, 2200–2700 m (Jul. 15, 1972); Khodang Danda–Latsu, 2500–2400 m (Aug. 29, 1972).

DARJEELING. Raman–Rimbick, 2400–2200 m (Aug. 5, 1972).

Carpesium trachelifolium Less.: Fl. E. Himal. 335 (1966).

NEPAL. Chitre, 2400 m (Jul. 8, 1972); Phulchoki, 1500–2200 m (Sep. 6, 1972).

DARJEELING. Tonglu-Sandakphu, 3000-3600 m (Jul. 31, 1972); Palmajua-Batasi, 2000-2100 m (Aug. 8, 1972).

Chrysanthellum indicum DC., Prodr. **5**: 631 (1836)-Kitamura in Kihara, Fauna Fl. Nepal Himal. 250 (1955).

NEPAL. Bainse-Sim Chotala, 600-900 m (Aug. 19, 1972); Sim Chotala-Gram, 900-1900 m (Aug. 20, 1972).

Distr. Tropical Africa, Madagascar, India, and Himalaya.

Cicerbita macrantha (C. B. Clarke) Beauverd: Fl. E. Himal. 336 (1966).

NEPAL. Gosainkund-Gopte, 4200-3500 m (Aug. 25, 1972); Gopte-Thale Patil, 3500-3400 m (Aug. 26, 1972); Mangen-Khodang Danda, 3100-2500 m (Aug. 28, 1972).

Distr. Himalaya (Nepal to Bhutan).

Root very thick, 5-10 cm long, 1.5 cm in diameter.

Cirsium argyranthum DC.: Fl. E. Himal. 336 (1966); **2**: 135 (1971).

NEPAL. Hile-Chitre, 1900-2400 m (Jun. 5, 1972).

Cirsium phulchokiense Kitamura in Act. Phytotax. Geobot. **26**: 16 (1974).

NEPAL. Phulchoki, 1500 m (Sep. 6, 1972).

Distr. Himalaya (Nepal).

Cirsium verutum (D. Don) Sprengel: Kitamura in Fl. E. Himal. 336 (1966); **2**: 135 (1971); in Act. Phytotax. Geobot. **23**: 76 (1968).

Cirsium involucreatum DC., Prodr. **6**: 639 (1838).

Cnicus verutus D. Don, Prodr. Fl. Nepal. 167 (1825).

DARJEELING. Tonglu-Sandakphu, 3000-3600 m (Jul. 31, 1972).

Cirsium Wallichii DC.: Fl. E. Himal. **2**: 135 (1971).

NEPAL. Gram-Dunche, 1900-2000 m (Aug. 21, 1972).

Conyza japonica Less.: Kitamura in Fl. E. Himal. 336 (1966); **2**: 135 (1971); in Act. Phytotax. Geobot. **23**: 76 (1968).

NEPAL. Hile-Mure, 2000 m (Jun. 5, 1972); Sim Chotala-Gram, 900-1900 m (Aug. 20, 1972).

Conyza stricta Willdenow

var. **pinnatifida** (D. Don) Kitamura in Fl. E. Himal. 337 (1966).

NEPAL. Sim Chotala-Thale, 970-2200 m (Jun. 2, 1969); Papung-Bir Gaon, 2000-1600 m (Jun. 30, 1972).

Cremanthodium Decaisnei C. B. Clarke, Comp. Ind. 168 (1876)-Kitamura in Kihara, Fauna Fl. Nepal Himal. 251 (1955).

NEPAL. Jalang Chhyongo-Thudam, 4200-3400 m (Jun. 21, 1972); Kipuphu-Phujeng La, 4700 m (Jun. 27, 1972).

Distr. sp. Himalaya (Kashmir to Bhutan), Tibet, and China.

Cremanthodium oblongatum C. B. Clarke, Comp. Ind. 168 (1876).

C. Nakaoi Kitamura in Act. Phytotax. Geobot. **15**: 105 (1954).

NEPAL. Thudam-Lama Chungbu, 3400-4200 m (Jun. 23, 1972); Singum Gompa-Gosainkund, 3200-4200 m (Aug. 23, 1972); Gosainkund, 4000-4400 m (Aug. 24, 1972).

Distr. Himalaya (Nepal, Sikkim), Tibet, and W. China.

Leaves oblong penninerved.

Cremanthodium reniforme Benth.: Fl. E. Himal. 337 (1966).

NEPAL. Singum Gompa-Gosainkund, 3200-4200 m (Aug. 23, 1972); Gosainkund-Gopte, 4200-3500 m (Aug. 25, 1972).

DARJEELING. Sandakphu, 3600 m (Aug. 1, 1972).

Cremanthodium retusum (DC.) Good in Journ. Linn. Soc. **48**: 278 (1929).

Ligularia retusa DC., Prodr. **6**: 314 (1838).

Senecio retusus Wall. ex Hook. f., Fl. Brit. Ind. **3**: 350 (1881).

Ligularia nigro-pilosa Kitamura in Act. Phytotax. Geobot. **15**: 107 (1954).

NEPAL. Gosainkund-Gopte, 4200–3500 m (Aug. 25, 1972).

DARJEELING. Phalut-Singalila, 3600–3700 m (Jul. 17, 1969, before flowering; Aug. 3, 1972); Phalut, 3600 m (Jul. 18, 1969, before flowering).

Distr. Himalaya (Nepal, Sikkim, Bhutan), Assam, Tibet, and W. China (Yunnan).

A very variable species. The stem densely nigro-pilose above, not slightly araneose as in the description of Good. Cauline leaves several (4–5), reniform, pubescent or glabrous beneath. Head solitary or racemose, smaller than that of *C. reniforme*. Involucre 8–15 mm long. Pappus white or darty brown.

Dichrocephala Benthamii C. B. Clarke: Fl. E. Himal. 337 (1966); **2**: 136 (1971).

NEPAL. Hile-Mure, 200 m (Jun. 5, 1972).

Dichrocephala integrifolia (L. f.) O. Kuntze: Fl. E. Himal. 338 (1966); **2**: 136 (1971).

DARJEELING. Raman-Rimbick, 2400–2200 m (Aug. 5, 1972).

Dubyaea hispida DC.: Kitamura in Fl. E. Himal. 338 (1966); in Act. Phytotax. Geobot. **23**: 130 (1969).

Crepis bhotanica Hutchinson in Kew Bull. **1916**: 189 (1916).

DARJEELING. Sandakphu, 3600 m (Aug. 1, 1972); Sandakphu-Phalut, 3600 m (Aug. 2, 1972).

Eclipta prostrata (L.) L.: Fl. E. Himal. 338 (1966); **2**: 136 (1971).

NEPAL. Mohamabedi Khola, 400 m (Jul. 9, 1972).

Erigeron bellidioides (D. Don) Benth in Benth et Hook. f., Gen. Pl. **2**: 280 (1873)—C. B. Clarke, Comp. Ind. 55 (1876)—Fl. Brit. Ind. **3**: 256 (1881).

Aster bellidioides D. Don, Prodr. Fl. Nepal. 177 (1825)—Wallich, Pl. As. Rar. **2**: 1, t.101 (1831).

Stenactis bellidioides Nees, Aster 274 (1832)—DC., Prodr. **5**: 299 (1836).

NEPAL. Gram-Dunche, 1900–2000 m (Aug. 21, 1972).

DARJEELING. Tonglu-Sandakphu, 3970 m (Jul. 13, 1969); Sandakphu-Phalut, 3970–3930 m (Jul. 16, 1969).

BHUTAN. Tongsa-Uto La Road, 2200–2950 m (Apr. 17, 1967); Tzatogang-Dotanang, 3200–2700 m (May 27, 1967); Dotanang-Thimphu, 2700–2450 m (May 28, 1967).

Distr. Himalaya.

Erigeron canadensis L.: Fl. E. Himal. 338 (1966); **2**: 136 (1971).

NEPAL. Gram-Dunche, 1900–2000 m (Aug. 21, 1972).

SIKKIM. Gangtok-Temi, 900–1620 m (Jun. 28, 1969).

Erigeron multiradiatus (Lindley) Benth. in Benth et Hook. f., Gen. Pl. **2**: 280 (1873)—Hook. f., Fl. Brit. Ind. **3**: 256 (1881)—Ling in Act. Phytotax. Sin. **11**: 410 (1973).

Aster inuloides D. Don, Prodr. Fl. Nepal. 178 (1825), non *Erigeron inuloides* Poiret, Encycl. Suppl. **5**: 464 (1817).

Stenactis multiradiata Lindley ex DC., Prodr. **5**: 299 (1836).

NEPAL. Lama Chungbu–Thudam, 4200–3400 m (Jun. 24, 1972).

Distr. Himalaya.

Erigeron sumatrensis Retz.: Fl. E. Himal. 338 (1966); **2**: 137 (1971).

NEPAL. Sim Chotala–Gram, 900–1900 m (Aug. 20, 1972).

Erigeron uniflorus L., Sp. Pl. ed. 1, 864 (1753)–Kitamura in Kihara, Fauna Fl. Nepal Himal. 259 (1955).

Heterochaeta erigeroides DC., Prodr. **5**: 282 (1836).

E. acris var. *erigeroides* (DC.) C. B. Clarke, Comp. Ind. 54 (1876).

E. alpinus L. var. *uniflora* Hook. f., Fl. Brit. Ind. **3**: 256 (1881).

NEPAL. Above Dunche–Gosainkund, 2065–3000 m (Jun. 4, 1969).

Distr. Europe, Caucasia, Afghanistan, Himalaya, Siberia, and North America.

Gnaphalium affine D. Don: Fl. E. Himal. 339 (1966).

NEPAL. Phulchoki, 2200–2700 m (May 28, 1972); Hile–Chitre, 1900–2400 m (Jun. 5, 1972); Chitre–Dor, 2400–2600 m (Jun. 6, 1972); Chauke–Dor, 2700–2600 m (Jul. 6, 1972).

Jurinea Dolomiaea Boiss., Fl. Orient. Suppl. 311, in obs. (1888).

Dolomiaea macrocephala DC. in Guill., Arch. Bot. **2**: 330 (1833); Prodr. **6**: 542 (1838)–Royle, Ill. Bot. Himal. **2**: pl. 57 (1839)–Ling in Act. Phytotax. Sin. **10**: 87 (1965).

J. macrocephala (DC.) Bentham in Bentham et Hook. f., Gen. Pl. **2**: 474 (1873), non DC. (1837)–C. B. Clarke, Comp. Ind. 237 (1876)–Hook. f., Fl. Brit. Ind. **3**: 378 (1881).

NEPAL. Singum Gompa–Gosainkund, 3200–4200 m (Aug. 23, 1972).

Distr. Himalaya (Kashmir to Nepal).

Heads 4 cm long including florets. Involucre 3.5 cm long when dried, outer involucre scales lanceolate or ovato-lanceolate, inner oblong-lanceolate, setulose in the upper part. Corolla 27–30 mm long, narrow part of tube 17–20 mm long. Pappus 25 mm long, upper part darty purple brown, lower part brown, bristles numerous barbellate, attenuate at the apex.

A very remarkable species with numerous radical leaves and very short stem. The style branches and the corollas are just like those of the typical *Jurinea*, respectively.

Lactuca Lessertiana (DC.) C. B. Clarke, Comp. Ind. 270 (1876)–Kitamura in Act. Phytotax. Geobot. **23**: 142 (1969).

Mulgedium? *Lessertiana* DC., Prodr. **7**: 251 (1838).

Melanoseris lyrata Decaisne in Jacquemont, Voy. **4** (Bot.): 101, t. 109 (1844).

NEPAL. Singum Gompa–Gosainkund, 3200–4200 m (Aug. 23, 1972); Gosainkund, 4400 m (Aug. 24, 1972).

Distr. Himalaya (Kashmir to Bhutan).

Leibnitzia nepalensis (Kunze) Kitamura: Fl. E. Himal. 341 (1966); **2**: 138 (1971).

DARJEELING. Sandakphu–Tonglu, 3600–3100 m (Jul. 21, 1969).

Ligularia amplexicaulis DC., Prodr. **6**: 314 (1838).

NEPAL. Gosainkund–Gopte, 4200–3500 m (Aug. 25, 1972).

Distr. Himalaya (Kashmir to Bhutan).

Ligularia corymbosa DC., Prodr. **6**: 314 (1838)—C. B. Clarke, Comp. Ind. 205 (1876).

DARJEELING. Sandakphu, 3600 m (Jul. 20, 1969; Aug. 1, 1972).

BHUTAN. Ha La-Kyu La, 3400 m (S. Nakao, Aug. 8, 1958, no. 726 KYO).

Distr. Himalaya (Kashmir to Bhutan).

Ligularia Fischerii (Ledeb.) Turcz., Cat. Fl. Baic. Dahur. n. 644 (1837).

Cineraria Fischerii Ledeb., Index Sem. Hort. Dorp. 17 (1820).

L. racemosa DC., Prodr. **6**: 314 (1838).

L. sibirica var. *racemosa* (DC.) Kitamura in Kihara, Fauna Fl. Nepal Himal. 266 (1955).

NEPAL. Phulchoki, 2000–2700 m (Jul. 15, 1972).

Distr. Himalaya, China, Korea, Japan, East Siberia, and Saghalien.

Myriactis nepalensis Less.: Fl. E. Himal. 342 (1966); **2**: 139 (1971).

NEPAL. Sim Chotala-Gram, 900–1900 m (Aug. 20, 1972); Gram-Dunche, 1900–2000 m (Aug. 21, 1972); Khodang Danda-Latsu, 2500–2400 m (Aug. 29, 1972).

DARJEELING. Sandakphu, 3600 m (Aug. 1, 1972); Sandakphu-Phalut, 3600 m (Aug. 2, 1972).

Picris hieracioides L.

subsp. **kaimaensis** Kitamura: Fl. E. Himal. 342 (1966); **2**: 139 (1971).

NEPAL. Gram-Dunche, 1900–2000 m (Aug. 21, 1972).

Saussurea auriculata (DC.) Sch.-Bip.: Fl. E. Himal. **2**: 139 (1971).

DARJEELING. Phalut-Singalila, 3600–3700 m (Aug. 3, 1972); Phalut-Raman, 3600–2400 m (Aug. 4, 1972).

Saussurea leontodontoides (DC.) Handel-Mazzetti, Symb. Sin. **7**: 1155 (1936).

Aplotaxis leontodontoides DC., Prodr. **6**: 539 (1838).

S. Kunthiana C. B. Clarke, Comp. Ind. 225 (1876)—Hook. f., Fl. Brit. Ind. **3**: 369 (1881).

NEPAL. Singum Gompa-Gosainkund, 3200–4200 m (Aug. 23, 1972).

Distr. Himalaya (Kashmir to Sikkim) and W. Tibet.

Saussurea nepalensis Sprengel, Syst. Veg. **3**: 380 (1826)—Kitamura in Act. Phytotax. Geobot. **24**: 6 (1969).

S. eriostemon Wall. ex C. B. Clarke, Comp. Ind. 229 (1876).

NEPAL. Singum Gompa-Gosainkund, 3200–4200 m (Aug. 23, 1972).

Distr. Himalaya (Nepal, Bhutan) and Tibet.

Head 3 cm in diameter. Outer puppus bristles coroniform. Achenes smooth.

Saussurea uniflora Wall. ex Hook. f., Fl. Brit. Ind. **3**: 366 (1881).

NEPAL. Gosainkund, 4000–4400 m (Aug. 24, 1972).

Distr. Nepal and Sikkim.

Saussurea Yakla C. B. Clarke, Comp. Ind. 227 (1876)—Kitamura in Act. Phytotax. Geobot. **24**: 9 (1969).

NEPAL. Gosainkund-Gopte, 4200–3500 m (Aug. 25, 1972).

Distr. Himalaya (Nepal, Sikkim, Bhutan).

This species is distinct by the muricate achenes. Outer puppus bristles form a corona.

Senecio alatus Wall. ex DC.: Fl. E. Himal. 343 (1966).

NEPAL. Gopte-Thale Patil, 3500-3400 m (Aug. 26, 1972).

Senecio chrysanthemoides DC.: Fl. E. Himal. 343 (1966); **2**: 140 (1971).

NEPAL. Topke Gola-Shewaden, 3600-2600 m (Jun. 28, 1972); Thale Patil-Mangen, 3400-3100 m (Aug. 27, 1972).

DARJEELING. Sandakphu, 3600 m (Jul. 31, 1972).

Sonchus arvensis L.: Fl. E. Himal. 345 (1966); **2**: 140 (1971).

NEPAL. Phulchoki, 2000-2700 m (Jul. 15, 1972).

Soro-seris pumila Stebbins in Mem. Torrey Bot. Club. **19**: 38 (1940)-Kitamura in Act. Phytotax. Geobot. **24**: 10 (1969).

NEPAL. Gosainkund, 4000-4400 m (Aug. 24, 1972).

Distr. Himalaya (Nepal, Sikkim) and Tibet.

Tridax procumbens L.: Fl. E. Himal. 346 (1966); **2**: 141 (1971).

NEPAL. Tamur Bridge, 300 m (Jul. 9, 1972).

Wedelia Wallichii Less.: Fl. E. Himal. **2**: 142 (1971).

NEPAL. Sim Chotala-Gram, 900-1900 m (Aug. 20, 1972).

DARJEELING. Tonglu, 3100 m (Jul. 22, 1969); Batasi-Mani Bhanjyang, 2100-2000 m (Aug. 9, 1972).

MONOCOTYLEDONEAE

NAJADACEAE (by Hiroo Kanai)

Najas minor All., Fl. Pedem. 2: 221 (1785)—Hook. f., Fl. Brit. Ind. 6: 569 (1893).

NEPAL. Satmuhne-Pokhara, 600 m (Jan. 15, 1970).

Distr. Old World.

HYDROCHARITACEAE (by Hiroshi Hara)

Blyxa echinosperma (C. B. Clarke) Hook. f., Fl. Brit. Ind. 5: 661 (1888)—den Hartog in Fl. Males. 5: 391, f. 6a (1957), excl. syn. *B. lancifolia* Hook. f.

Hydrotrophus echinospermus C. B. Clarke in Journ. Linn. Soc. 14: 8, t. 1 (1873).

B. ceratosperma Maxim. ex Aschers. et Gürke in Engl., Pfl.-fam. II, 2 (1): 253 (1889)—Nakai in Journ. Jap. Bot. 19: 248, f. 1b (1943)—Ohwi, Fl. Jap. ed. Engl. 129 (1965).

B. bicaudata Nakai, l.c. 249, f. 1a (1943).

NEPAL. Pokhara, 900 m (Jun. 18, 1967, no. 672774, fr.).

Distr. Nepal, India, Ceylon, Burma, Indo-China, China, Japan, Malaysia, and Australia.

Our specimen has shorter seeds 3 mm in length including the tails at both ends, and corresponds to *Blyxa ceratosperma* Maxim. of Japan, while typical *B. echinosperma* has seeds 8–10 mm long including the long tails.

GRAMINEAE (by Jisaburo Ohwi)

Anthoxanthum sikkimense (Maxim.) Ohwi in Bull. Sci. Mus. Tokyo 18: 8 (1947)—Bor, Grass. Ind. 431 (1960).

Hierochloe sikkimense Maxim. in Bull. Acad. Sci. St. Pétersb. 32: 626 (1888).

H. gracillima Hook. f., Fl. Brit. Ind. 7: 223 (1896).

A. gracillimum (Hook. f.) Mez in Fedde, Rep. 17: 291 (1921).

NEPAL. Kyangjing, Langtang Khola, 3800 m (Jul. 15, 1970, no. 672587).

Distr. E. Himalaya (Nepal and Sikkim).

Arundinella Hookeri Munro ex Keng in Nat. Centr. Univ. Sci. Rep., ser. B, 2 (3): 50 (1936).

A. villosa Arn. ex Steud. var. *himalaica* Hook. f., Fl. Brit. Ind. 7: 73 (1896).

NEPAL. Kyangjing–Langtang, 3400–3800 m (Jul. 16, 1970).

Distr. Himalaya (Nepal to Bhutan), Tibet, and N. Burma.

Brachiaria ramosa (L.) Stapf: Hsu in Fl. E. Himal. 353 (1966).

NEPAL. South of Dharan, 200 m (Jun. 1, 1972); Doban, 800 m (Jul. 2, 1972); Sim Chotala–Ramche, 1000 m (Aug. 20, 1972).

Brachiaria villosa (Lam.) A. Camus: Fl. E. Himal. 354 (1966).

NEPAL. Sim Chotala, 900 m (Aug. 20, 1972).

Brachypodium sylvaticum (Huds.) P. Beauv.: Fl. E. Himal. 354 (1966).

DARJEELING. Sandakphu-Phalut, 3200-3600 m (Aug. 2, 1972).

Chrysopogon aciculatus (Retz.) Trin.: Fl. E. Himal. 355 (1966); Ohwi in Fl. E. Himal. 2: 144 (1971).

NEPAL. Barabise-Thale, 850-2050 m (Sep. 9, 1970).

Danthonia Jacquemontii Bor in Kew Bull. 1952: 80 (1952).

var. **minor** (Hook. f.) Bor in Kew Bull. 1952: 81 (1952); Grass. Ind. 479 (1960).

D. cachemyriana Hook. f. var. *minor* Hook. f., Fl. Brit. Ind. 7: 282 (1896).

D. Cumminsii Hook. f., l.c. 282 (1896).

NEPAL. Tingoang-Khosori Khabre, 3000 m (Sep. 12, 1970, no. 672848B).

Deschampsia caespitosa (L.) P. Beauv., Ess. Agrost. 91, 160 (1812)-Hook. f., Fl. Brit. Ind. 7: 273 (1896)-Bor, Grass. Ind. 435 (1960).

Aira caespitosa L., Sp. Pl. ed. 1, 64 (1753).

Agrostis caespitosa (L.) Salisb., Prodr. Stirp. 25 (1796).

NEPAL. Thudam-Kipudonsu, 3600 m (Jun. 26, 1972).

Distr. Temperate to arctic regions in Northern Hemisphere and Africa.

Digitaria adscendens (HBK) Henr.: Fl. E. Himal. 358 (1966).

NEPAL. Doban, 800 m (Jul. 2, 1972); Sim Chotala, 900 m (Aug. 20, 1972).

Digitaria cruciata (Nees) A. Camus: Fl. E. Himal. 358 (1966).

NEPAL. Gram-Dunche, 1900-2000 m (Aug. 21, 1972).

Digitaria longiflora (Retz.) Pers.: Fl. E. Himal. 358 (1966).

NEPAL. Sim Chotala, 900 m (Aug. 20, 1972).

Digitaria microbachne (Presl) Henr.: Fl. E. Himal. 359 (1966).

NEPAL. Sanguri Bhanjyang-Dharan, 800 m (Jul. 10, 1972).

Duthiea nepalensis Bor in Kew Bull. 1953: 550 (1954); Grass. Ind. 436 (1960).

NEPAL. Kyangjing, Langtang Khola, 3800 m (Jul. 15, 1970, no. 672591).

Distr. Himalaya (Nepal).

Echinochloa colonum (L.) Link: Fl. E. Himal. 360 (1966).

NEPAL. Doban, 800 m (Jul. 2, 1972); Sim Chotala-Gram, 900 m (Aug. 20, 1972).

Eleusine indica (L.) Gaertn.: Fl. E. Himal. 360 (1966).

NEPAL. Dhara Pani-Sanguri Bhanjyang, 1100 m (Jul. 10, 1972).

Eragrostis atrovirens (Desf.) Trin. ex Steud.: Fl. E. Himal. 361 (1966).

NEPAL. Teku Nala-Hile, 800-1900 m (Jun. 4, 1972).

Eragrostis unioloides (Retz.) Nees ex Steud.: Fl. E. Himal. 363 (1966).

NEPAL. Nijgar-Patlaia, 100 m (Nov. 15, 1970).

Eragrostis viscosa (Retz.) Trin. in Mém. Acad. Sci. St. Pétersb. sér. 6, 1: 397 (1830).

Poa viscosa Retz., Obs. Bot. 4: 20 (1786).

E. tenella var. *viscosa* (Retz.) Stapf in Fl. Brit. Ind. 7: 315 (1896).

NEPAL. Doban, 800 m (Jul. 2, 1972).

Distr. Himalaya, India, and Africa.

Eulalia mollis (Griseb.) O. Kuntze: Fl. E. Himal. 364 (1966).

NEPAL. Khodang Danda-Latsu, 2100-2500 m (Aug. 29, 1972).

Festuca gigantea (L.) Vill., Hist. Pl. Dauph. 2: 110 (1787)-Stapf in Fl. Brit. Ind. 7: 353 (1896)-Bor, Grass. Ind. 538 (1960).

NEPAL. Gram, 1900 m (Aug. 21, 1972).

Distr. Temperate Asia, introduced into N. America.

Festuca leptopogon Stapf: Fl. E. Himal. 364 (1966); **2**: 144 (1971).

NEPAL. Tinjure Phedi-Tinjure, 2800 m (Jul. 6, 1972).

Festuca ovina L., Sp. Pl. ed. 1, 73 (1753)—Bor, Grass. Ind. 539 (1960).

F. valesiaca Schleich. ex Gaud., Agrost. Helvet. **1**: 242 (1811)—Stapf in Fl. Brit. Ind. **7**: 348 (1896).

NEPAL. Oo Kharka—Mul Kharka, 3800 m (Jul. 1, 1970); Hile Chok, 3800 m (Jun. 12, 1972).

Distr. Temperate regions of the world.

Festuca polycolea Stapf: Fl. E. Himal. 364 (1966).

NEPAL. Gosainkund, 4400 m (Aug. 24, 1972).

Helictotrichon virescens (Nees ex Steud.) Henr.: Fl. E. Himal. 364 (1966).

NEPAL. Gopte—Thale Patil, 3400–3500 m (Aug. 26, 1972).

Imperata cylindrica (L.) P. Beauv. var. **major** (Nees) C. E. Hubb. ex Hubb. et Vaughan: Fl. E. Himal. 366 (1966); **2**: 144 (1971).

NEPAL. Nigale—Kuwa Pani, 1800 m (Jun. 4, 1972); Sim Chotala—Gram, 900–1900 m (Aug. 20, 1972).

Isachne albens Trin.: Fl. E. Himal. 366 (1966).

DARJEELING. Batasi (Aug. 9, 1972).

Neyraudia arundinacea (L.) Henr. in Meded. Herb. Leid. no. 58, 8 (1929), in obs.—Bor, Grass. Ind. 518 (1960).

Aristida arundinacea L., Mant. Pl. Alt. 186 (1771).

Arundo madagascariensis Kunth, Rev. Gram. **1**: 273, t. 48 (1830).

N. madagascariensis (Kunth) Hook. f., Fl. Brit. Ind. **7**: 305 (1896), p.p., excl. var. *Zollingeri*.

NEPAL. Makwampur Garhi—Siwanta, 700–1200 m (Apr. 21–22, 1969); Kagne—Samari Bhanjyang, 950 m (Jan. 7, 1970).

Distr. Tropical Africa, Mascarenes, and Himalaya (Kumaon to Nepal).

Oryza minuta J. S. Presl ex C. B. Presl, Rel. Haenk. **1**: 208 (1830)—Bor, Grass. Ind. 605 (1960).

O. officinalis Wall. [Cat. no. 8635 (1848), nom. nud.] ex Watt, Dict. Econ. Prod. Ind. **5**: 501 (1891).

O. latifolia Hook. f., Fl. Brit. Ind. **7**: 92 (1896), non Desv. (1813).

NEPAL. Nijgar—Patlaia, 100 m (Nov. 15, 1970, no. 674970).

Distr. Himalaya (Nepal, Sikkim), Assam, Burma, and Malaysia.

Panicum psilopodium Trin.: Fl. E. Himal. 370 (1966).

NEPAL. Sim Chotala—Gram, 900–1900 m (Aug. 20, 1972).

Poa annua L.: Fl. E. Himal. 372 (1966); **2**: 145 (1971).

NEPAL. Tute—Dor, 2600 m (Jun. 6, 1972).

Poa khasiana Stapf: Fl. E. Himal. 373 (1966).

NEPAL. Kokim Pokhari—Hati Surde, 2900 m (Jun. 11, 1972).

Poa pagophila Bor: Fl. E. Himal. 373 (1966).

NEPAL. Janga La—Thudam, 3600 m (Jun. 21, 1972); Slesa—Lama Chungbu, 4300 m (Jun. 24, 1972); Phujeng La—Topke Gola, 4000 m (Jun. 27, 1972).

Pogonatherum paniceum (Lam.) Hack.: Fl. E. Himal. 373 (1966).

NEPAL. Dhankuta, 1300 m (Jun. 4, 1972).

Saccharum spontaneum L.: Fl. E. Himal. 374 (1966).

NEPAL. Latsu-Bhorlang, 1700–2400 m (Aug. 30, 1972).

Setaria palmifolia (Koen.) Stapf: Fl. E. Himal. 376 (1966).

NEPAL. Gram-Dunche, 1900–2000 m (Aug. 21, 1972).

DARJEELING. Batasi, 2100 m (Aug. 9, 1972).

CYPERACEAE (by Tetsuo Koyama)

Bulbostylis barbata (Rottboell) C. B. Clarke: T. Koyama in Fl. E. Himal. 380 (1966).

NEPAL. Dhara Pani-Sanguri Bhanjyang, 1000 m (Jul. 10, 1972).

Bulbostylis densa (Wallich ex Roxb.) Hand.-Mzt. ex Karsten et Schenk: Fl. E. Himal. 380 (1966).

NEPAL. Bhorlang-Pati Bhanjyang, 2100–2200 m (Aug. 21, 1969); Tsendang Pokhari, 3000 m (Aug. 23, 1969); Dakchin Kali, 1500 m (Aug. 31, 1969); Thale-Thale Bisauna, 2200 m (Sep. 10, 1970).

Distr. India, Himalaya, Ceylon, China, and Japan.

Carex atrata L. subsp. **pullata** (Boott) Kükenthal in Engl., Pfl.-reich. IV–20, Ht. 38: 400 (1909).

C. atrata L. var. *pullata* Boott, Ill. Carex 3: 114, t. 364 (1862).

C. Duthiei C. B. Clarke in Hook. f., Fl. Brit. Ind. 6: 731 (1894): Fl. E. Himal. 381 (1966).

NEPAL. Mul Kharka-Chilime Khola, 4000 m (Jul. 4, 1970); Banduke Pokhari-Saju Pokhari, 4000–4200 m (Jun. 15, 1972); Lama Chungbu-Slesa, 4200–4500 m (Jun. 24, 1972); Thudam, 3400 m (Jun. 25, 1972).

Distr. India, Himalaya, and C. & S. W. China.

Subspecies *pullata* differs from subsp. *atrata* primarily in the taller habit and in the culms that are scabrous in the upperpart toward the inflorescence. The narrowly ovate utricles of subsp. *pullata* tend to be slightly more elongated than the ovate to ovate-oval ones in subsp. *atrata*. These characters, however, do not permit a clearcut separation due to the presence of the plants of intermediate status. In the collection from East Nepal (Jun. 24, 1972), for instance, culms are not scabrous at all, but the utricles are narrowly ovate with a rather gradually produced beak.

Carex atrofusca Schkuhr subsp. **minor** (Boott) T. Koyama, stat. nov.

C. ustulata Wahlenberg var. *minor* Boott, Ill. Carex 1: 71, t. 194, f. 1 (1858).

C. atrofusca Schkuhr var. *angustifructus* et var. *minor* (Boott) Kükenthal in Pfl.-reich. IV–20, Ht. 38: 554 (1909)–Ohwi et T. Koyama in Kihara, Fauna Fl. Nepal Himal. 86 (1955).

C. ustulata Wahlenberg sensu C. B. Clarke in Fl. Brit. Ind. 6: 734 (1894).

C. atrofusca Schkuhr sensu Ohwi in Fl. E. Himal. 2: 146 (1971).

NEPAL. Lama Chungbu-Slesa, 4500 m (Jun. 24, 1972).

Distr. Pamir, Himalaya (Nepal, Sikkim), and E. Tibet.

Subspecies *minor* differs from European subsp. *atrofusca* in the more conspicuously creeping rhizomes. The differences in utricles as claimed by Kükenthal are valid. Determination as to whether or not the Asian subspecies involves more than two

entities still awaits further investigation.

Carex cruenta Nees in Wight, Contrib. Bot. Ind. 128 (1834)—C. B. Clarke in Fl. Brit. Ind. **6**: 734 (1894)—Kükenthal in Pfl.-reich. IV-20, Ht. **38**: 555, f. 91 E, F (1909).

NEPAL. Banduke Pokhari—Saju Pokhari, 4000 m (Jun. 15, 1972).

Distr. Endemic to Himalaya, from Kashmir to Sikkim and to Tibet.

Carex decora Boott: Fl. E. Himal. 381 (1966); **2**: 146 (1971).

NEPAL. Phulchoki—Kathmandu (Nov. 3, 1970); Gram—Thale, 1900 m (Aug. 21, 1972).

Carex diluta M. v. Bieberstein, Fl. Taur. Caucas. **2**: 388 (1808); **3**: 614 (1819)—C. B. Clarke in Fl. Brit. Ind. **6**: 737 (1894)—Kükenthal in Pfl.-reich. IV-20, Ht. **38**: 659 (1909).

NEPAL. Kyangjing—Langtang Khola, 3600–3900 m (Jul. 15, 1970).

Distr. S. Europe, Mediterranean Region, W. & C. Asia, Pakistan, and Himalaya (Nepal).

This species has apparently not previously been documented from Nepal. I have seen another collection, Stainton, Sykes & Williams 760 (BM), from Central Nepal. These collections mark a range extension of Central Asian elements into central Nepal.

Carex filicina Nees: Fl. E. Himal. 381 (1966); **2**: 147 (1971).

NEPAL. Chipu Danda, 2100 m (Aug. 20, 1969); Gram—Dunche, 1900–2000 m (Aug. 21, 1972).

Distr. Eastern India to Malaysia, extending also from the Himalayas through south-central Chinese Continent to Formosa. Common as undergrowth of forests throughout the range with wide variation.

Carex finitima Boott: Fl. E. Himal. 382 (1966); **2**: 147 (1971).

NEPAL. Mul Kharka—Oo Kharka, 3720 m (Jul. 7, 1970).

Distr. Nepal, Sikkim, Malaysia and assumingly in S. China.

The collection cited above falls under the criterion of var. *attenuata* of Kükenthal in its smaller habit with leaves and bracts which are much shorter than the culms. I have not been convinced, however, if this variety can be held as valid; it may only reflect an ecological condition.

Carex foliosa D. Don: Fl. E. Himal. **2**: 147 (1971).

NEPAL. Phulchoki, 2200–2700 m (May 28, 1972).

Distr. Himalaya (Kashmir to Sikkim) and India (Nilghiri).

Carex hebecarpa C. A. Meyer subsp. **ligulata** (Nees) T. Koyama, stat. nov.

C. ligulata Nees in Wight, Contrib. Bot. Ind. 127 (1834)—Boott, Ill. Carex **1**: 45, t. 113 (1858)—C. B. Clarke in Fl. Brit. Ind. **6**: 747 (1894).

C. hebecarpa C. A. Meyer var. *ligulata* (Nees) Kükenthal in Pfl.-reich. IV-20, Ht. **38**: 745 (1909).

NEPAL. Phulchoki (Nov. 3, 1970).

Distr. Himalaya, India, Ceylon, China, and Japan.

The differences between *C. hebecarpa* and *C. ligulata* are minute. The latter is separable from the former only in the narrower leaf blades, which are 6 to 11 mm vs. 1.5–5 mm. When the Japanese plants are compared with *C. hebecarpa* from India, the utricles tend to be longer for 1 to 1.5 mm, but this difference was not

seen in Ceylonese and Indian plants. The broad-leaved *C. ligulata* is no more than a subspecific taxon under *C. hebecarpa*.

Carex hirtella Drejer, Symbol. Caricol. 21 (1844)—C. B. Clarke in Fl. Brit. Ind. 6: 744 (1894)—Kükenthal in Pfl.-reich. IV-20, Ht. 38: 561, f. 92 (1909).

NEPAL. Langtang-Kyangjing, 3500 m (Jul. 13, 1970).

Distr. Afghanistan and Himalaya.

Carex inanis Kunth: Fl. E. Himal. 2: 147 (1971).

C. Schlagintweitiana Böckl., Cyper. Nov. 1: 48 (1888)—C. B. Clarke in Fl. Brit. Ind. 6: 743 (1894)—Ohwi et T. Koyama in Kihara, Fauna Fl. Nepal Himal. 90 (1955).

C. setigera D. Don var. *Schlagintweitiana* (Böckl.) Kükenthal in Pfl.-reich. IV-20, Ht. 38: 419 (1909).

NEPAL. Khanging-Langtang Gorge, 2600–2800 m (Jul. 11, 1970); Gupha Pokhari, 2800 m (Jun. 10, 1972); Thudam, 3400 m (Jun. 25, 1972); Tute-Chitre, 2300–2400 m (Jul. 7, 1972).

Distr. Asian highlands from C. Asia through Kashmir to Sikkim.

Carex inanis differs from closely related *C. setigera* in the awnless glumes and less inflated utricles as well as in its relatively slenderer habit. Generally *C. inanis* has rhizomes, which are not quite stoloniferous like those of *C. setigera*, but this character is not always quite clear as the underground parts of *C. inanis* at times creep short. Examination of the type of *C. Schlagintweitiana* has shown that it is identical with *C. inanis*.

Carex inclinis Boott ex C. B. Clarke: Fl. E. Himal. 2: 147 (1971).

C. setigera D. Don var. *inclinis* Boott ex C. B. Clarke in Fl. Brit. Ind. 6: 728 (1894), pro syn.

NEPAL. Yatumbal-Chilime, 2700 m (Jul. 8, 1970).

Distr. E. Himalaya (C. Nepal to Sikkim).

Carex incurva Lightfoot, Fl. Scot. 2: 544, t. 24, f. 1 (1777)—C. B. Clarke in Fl. Brit. Ind. 6: 700 (1894)—Kükenthal in Pfl.-reich. IV-20, Ht. 38: 113, f. 22 A-C (1909).

NEPAL. Slesa-Lama Chungbu, 4300 m (Jun. 24, 1972).

Distr. Arctic Eurasia and North America; also alpine regions of Europe, Central Asia, and perhaps antarctic South America.

Carex infusata Nees in Wight, Contrib. Bot. Ind. 125 (1834).

C. alpina Swartz var. *infusata* (Nees) Boott, Ill. Carex 3: 113 (1862).

C. tricuspidata Böckeler, Cyper. Nov. 1: 45 (1888).

C. alpina Swartz subsp. *infusata* (Nees) Kükenthal in Pfl.-reich. IV-20, Ht. 38: 386 (1909).

NEPAL. Gupha Pokhari, 2800 m (Jun. 10, 1972).

Distr. Afghanistan and Himalaya (Kashmir and Sikkim).

Asian *C. infusata* can be segregated from European *C. alpina* in the conspicuously racemose inflorescences and in the ovate-acute pistillate glumes, which always surpass the subtending utricle. In these characters I have not seen so far any intermediate phases. Nevertheless these two species are so closely resembling, Kükenthal might be correct after all in interpreting *C. infusata* as a subspecies of

C. alpina.

Carex laeta Boott, Ill. *Carex* **1**: 69, t. 188 (1858)—C. B. Clarke in Fl. Brit. Ind. **6**: 745 (1894)—Kükenthal in Pfl.-reich. IV-20, Ht. **38**: 490 (1909).

C. laeta Boott var. *major* Boott, l.c. 69 (1858).

C. pisanensis T. Koyama in Kihara, Fauna Fl. Nepal Himal. 87, f. 3 (1955).

NEPAL. Kyangjing, Langtang Khola, 3800 m (Jul. 15, 1970).

Distr. Himalaya (Nepal and Sikkim).

Carex Lehmannii Drejer, Symbol. Caricol. 13, t. 2 (1844)—C. B. Clarke in. Fl. Brit. Ind. **6**: 730 (1894)—Kükenthal in Pfl.-reich. IV-20, Ht. **38**: 387 (1909).

NEPAL. Kyangjing, Langtang Khola, 3800 m (Jul. 14, 1970).

Distr. Himalaya and alpine regions of China and Japan.

Carex longipes D. Don: Fl. E. Himal. 382 (1966); **2**: 147 (1971).

NEPAL. Mul Kharka—Chipu, 2350 m (Aug. 20, 1969).

Distr. Himalaya, India, Indo-China, and C. China.

Carex melanantha C. A. Meyer ex Ledebour, Fl. Alt. **4**: 216 (1833)—C. B. Clarke in Fl. Brit. Ind. **6**: 733 (1894)—Kükenthal in Pfl.-reich. IV-20, Ht. **38**: 391, f. 61, E-G (1909).

NEPAL. Oo Kharka—Mul Kharka, 3550 m (Jul. 1, 1970); Mul Kharka—Yatumbal, 3700 m (Jul. 7, 1970).

Distr. Turkestan, Afghanistan, Himalaya (Nepal), and S. Siberia.

Carex munda Boott: Fl. E. Himal. 383 (1966).

NEPAL. Mul Kharka—Chilime, 3800–4100 m (Jul. 2, 1970); Kokim Pokhari—Hati Surde, 3200 m (Jun. 11, 1972); Hile Chok—Ghopte, 3500 m (Jun. 12, 1972); Lama Chungbu—Thudam, 4200–3400 m (Jun. 24, 1972); Thudam, 3400 m (Jun. 25, 1972).

Carex Nakaoana T. Koyama: Fl. E. Himal. 383 (1966).

NEPAL. Gotiora—Gadje, 3280–3950 m (Aug. 25, 1969); Kyangjing, Langtang Khola, 3500–3900 m (Jul. 15, 1970).

This differs from *C. haematostoma* in the completely glabrous pistillate glumes and relatively slenderer habit, and from *C. hirtella* in the short-beaked utricles, which are not hairy on both sides.

Carex nubigena D. Don: Fl. E. Himal. 383 (1966); **2**: 147 (1971).

NEPAL. Kuwa Pani—Hile, 1900 m (Jun. 4, 1972); Hile—Mure, 2000 m (Jun. 5, 1972); Tute—Dor, 2600 m (Jun. 6, 1972); Topke Gola, 3700 m (Jun. 19, 1972).

Distr. Afghanistan, India, Ceylon, Himalaya, and China.

Carex obscura Nees in Wight, Contrib. Bot. Ind. 126 (1834)—C. B. Clarke in Fl. Brit. Ind. **6**: 731 (1894)—Kükenthal in Pfl.-reich. IV-20, Ht. **38**: 388 (1909).

NEPAL. Surjakund (Aug. 26, 1969).

Distr. Himalaya (Kashmir to Sikkim) and Tibet.

Carex rara Boott: Fl. E. Himal. 384 (1966).

NEPAL. Lamo Pokhari, 2900 m (Jun. 9, 1972); Gupha Pokhari, 2800 m (Jun. 10, 1972).

Distr. Himalaya, China, and Japan (subsp. *biwensis*).

Carex Rochebrunii Franch. et Savat.: Fl. E. Himal. 384 (1966).

NEPAL. Gupha Pokhari, 2800 m (Jun. 10, 1972).

Because the plants from the Himalayas tend to be slenderer with fewer spikes than in the Japanese plants Kükenthal classified a number of Nepalese specimens

as his var. *remotaeformis*. The differences between the Himalayan and Japanese populations of this species should be further looked into.

Cyperus¹⁾ **brevifolius** (Rottboell) Hasskarl: Fl. E. Himal. 385 (1966); **2**: 149 (1971).

Kyllinga brevifolia Rottboell, Descr. Icon. 13, t. 4, f. 3 (1773).

NEPAL. Ingyur-Gul Bhanjyang, 2240–2100 m (Aug. 22, 1969); Khodang Danda-Latsu, 2400–2500 m (Aug. 29, 1972).

Distr. Widely spread with a number of local variants in the tropical, subtropical and warm-temperate regions of the world.

Cyperus difformis L.: Fl. E. Himal. 386 (1966).

NEPAL. Dakchin Kali-Okhre Danra, 1600 m (Sep. 1, 1970).

Distr. Tropical, subtropical and warm-temperate regions of the Old World. The occurrence of this species in the Neotropics may possibly be of introduced origin. Common weed in rice fields.

Cyperus diffusus Vahl: Fl. E. Himal. 386 (1966); **2**: 149 (1971).

NEPAL. Dingla-Doban, 700 m (Jul. 2, 1972).

Distr. Pantropic with many local variants in the Neotropics.

Cyperus Iria L.: Fl. E. Himal. 387 (1966); **2**: 150 (1971).

NEPAL. Doban, 800 m (Jul. 2, 1972); Sim Chotala-Gram, 900–1900 m (Aug. 20, 1972).

Distr. Cosmopolitan. A common weed in cultivated field. Assumably a native of W. Asia.

Cyperus niveus Retzius, Obs. Bot. 5, 12 (1791)–Kükenthal in Pfl.-reich. IV–20, Ht. **101**: 288 (1935)–T. Koyama in Contrib. Inst. Bot. Univ. Montreal no. 70, 29 (1957).

NEPAL. Shyaprubensi, 1500 m (Jun. 27, 1970).

Distr. Asian highlands from Iran and Afghanistan through Himalaya to S.W. China and Tonkin.

Cyperus pumilus L.: Fl. E. Himal. 388 (1966).

Pycrus pumilus (L.) Domin in Bibl. Bot. **85**: 417 (1915).

NEPAL. Sim Chotala-Gram, 900–1900 m (Aug. 20, 1972).

Cyperus sanguinolentus Vahl: Fl. E. Himal. 388 (1966); **2**: 150 (1971).

Pycrus sanguinolentus (Vahl) Nees [in Linnaea **9**: 238 (1835), comb. nud.] ex C. B. Clarke in Fl. Brit. Ind. **6**: 590 (1893).

NEPAL. Ingyur-Gul Bhanjyang, 2100–2240 m (Aug. 22, 1969).

Cyperus tenuiculmis Böckeler in Linnaea **36**: 286 (1870)–Kern in Reinwardtia **3**: 30 (1954)–T. Koyama in Quart. Journ. Taiwan Mus. **14**: 169 (1961).

C. Zollingeri sensu C. B. Clarke in Fl. Brit. Ind. **6**: 613 (1893), non Steudel.

NEPAL. Dakchin Kali-Deorali, 1600 m (Sep. 1–2, 1970); Sim Chotala-Gram, 900–1900 m (Aug. 20, 1972).

Distr. Tropical Africa, Himalaya, India, Malaysia, Australia, and Formosa.

1) Nowadays the general practice among cyperologists is to split the genus *Cyperus* s. lat. into at least five genera: *Cyperus* s. str., *Pycrus*, *Mariscus*, *Kyllinga* and *Torulium*. Although the author will follow this concept in his other treatments, Kükenthal's traditional concept is followed here to maintain the consistency in generic systems in this series of report.

Eleocharis congesta D. Don: Fl. E. Himal. 390 (1966); **2**: 150 (1971).

NEPAL. Ingyur-Gul Bhanjyang, 2100–2240 m (Aug. 22, 1969).

Distr. India, Himalaya, Indo-China, S. China, and Japan (subsp. *japonica*).

Fimbristylis complanata (Retz.) Link: Fl. E. Himal. 390 (1966).

NEPAL. Chitlang, 1750 m (Sep. 4, 1970); Phulchoki, 2400–2700 m (Sep. 19, 1970).

Distr. Pantropic, also extending northwards to Japan and China.

Fimbristylis dichotoma (L.) Vahl: Fl. E. Himal. 391 (1966); **2**: 150 (1971).

NEPAL. Sundarijar-Mul Kharka, 1680 m (Aug. 20, 1969); Tanguni-Chipling, 2000 m (Aug. 21, 1969); Bainse-Mane Gaon, 700–1240 m (Jun. 23, 1970); Chitlang, 1750 m (Sep. 4, 1970); Barabise-Thale, 850–2050 m (Sep. 9, 1970); Sim Chotala, 900 m (Aug. 20, 1972).

Fimbristylis falcata (Vahl) Kunth, Enum. Pl. **2**: 239 (1837).

Scirpus falcatus Vahl, Enum. Pl. **2**: 275 (1806).

Trichelostylis junciformis Nees in Wight, Contrib. Bot. Ind. 106 (1834).

F. junciformis (Nees) Kunth, Enum. Pl. **2**: 239 (1837)—C. B. Clarke in Fl. Brit. Ind. **6**: 647 (1893).

NEPAL. Simra-Patlaia, 200 m (Apr. 17, 1969).

Distr. Madagascar, Ceylon, India, Himalaya, Thailand, Indo-China, and Malaysia.

Fimbristylis littoralis Gaudich.: Fl. E. Himal. 391 (1966).

NEPAL. Sim Chotala, 900 m (Aug. 20, 1972).

Distr. Widely distributed in the Palaeotropics, also extending northwards to China and Japan; assumingly naturalized in the Neotropics.

This is *Fimbristylis miliacea* of many authors including C. B. Clarke (in Hook. f., Fl. Brit. Ind. **6**: 644, 1893). According to S. T. Blake (in Journ. Arn. Arb. **35**: 216, 1954), the Linnaean specimen of *Scirpus miliaceus*, on which Linnaeus handwriting, "*miliaceus*", appears, represents *F. quinquangularis* Kunth, and for this reason Blake has referred the name *F. miliacea* to *F. quinquangularis*. The binomial, *F. littoralis*, becomes the correct name for the species that has been commonly passing as *F. miliacea*. Although I follow Blake's view in this treatment, there is still arguments about this typification (cf. Kern in Taxon **3**: 246, 1954).

Fimbristylis Pierotii Miquel, Ann. Mus. Bot. Lugd.-Bat. **2**: 145 (1865)—C. B. Clarke in Fl. Brit. Ind. **6**: 642 (1893).

NEPAL. Dunche-Shyaprubensi, 1600 m (Jun. 26, 1970).

Distr. N. India, Himalaya, C. & S. China, Korea, Japan, and the Philippines.

This species superficially resembles *F. stolonifera*, especially because of its slender stolons covered with brown scales, but can be easily segregated from it by the glumes, which are at least in part disposed distichously against the spirally imbricated ones in the latter. Namely, *F. Pierotii* belongs to the section *Abildgaardia*.

Kobresia curticeps (C. B. Clarke) Kükenthal in Pfl.-reich. IV-20, Ht. **38**: 47 (1909).

Carex curticeps C. B. Clarke in Fl. Brit. Ind. **6**: 729 (1894).

NEPAL. Thudam, 3400 m (Jun. 25, 1972).

Distr. E. Himalaya.

A well marked species by its large, paniculiform inflorescences, which become quasi-lateral with the erect lowest bract.

Kobresia curvata Kükenthal in Pfl.-reich. IV-20, Ht. **38**: 48, f. 12 (1909).

Carex curvata Boott, Ill. *Carex* **1**: 2, t. 5 (1858), non Knaf (1847)—C. B. Clarke in Fl. Brit. Ind. **6**: 728 (1894).

NEPAL. Yatumbal—Oo Kharka, 3400 m (Jun. 30, 1970); Oo Kharka—Mul Kharka, 3700 m (Jul. 1, 1970); Mul Kharka—Yatumbal, 3800–2700 m (Jul. 7, 1970); Kyangjing, Langtang, 3800 m (Jul. 15, 1970); Thudam, 3400 m (Jun. 25, 1972).

Distr. E. Himalaya (Nepal and Sikkim).

Kobresia Deasyi C. B. Clarke in Kew Bull. Add. Ser. **8**: 68 (1908).

K. pamiroalaica Ivanova in Journ. Bot. U.R.S.S. **24**: 418 (1939).

K. pamiralaica Ivanova in Schreder, Fl. Uzbek. **1**: 347 & 540 (1941).

NEPAL. Kyangjing, Langtang, 3900 m (Jul. 15, 1970).

Distr. Afghanistan, Pamir, and Himalaya (Nepal).

Kobresia pamiralaica, easily recognizable by the rather robust habit with thickish cylindrical inflorescences as long as 6 cm, has an earlier valid name, *K. Deasyi*. Examination of Clarke's type at Kew verified this identity.

Kobresia Duthiei C. B. Clarke in Fl. Brit. Ind. **6**: 697 (1894).

NEPAL. Mane—Thale Patil, 3500 m (Aug. 24, 1969); Lukthang—Kuri, 3400 m (Sep. 28, 1970).

Distr. Himalaya.

Kobresia laxa Nees in Wight, Contrib. Bot. Ind. 119 (1834)—C. B. Clarke in Fl. Brit. Ind. **6**: 698 (1894)—Kükenthal in Pfl.-reich. IV-20, Ht. **38**: 47, f. 11 (1909).

NEPAL. Kyangjing—Langtang Gorge, 3800–3000 m (Jul. 16, 1970).

Distr. Himalaya.

This is one of the commonest species of *Kobresia* in Nepal, and is characteristic in the elongated spikes with bright red-brown glumes, which are disposed in diffuse paniculiform inflorescences.

Kobresia nepalensis (Nees) Kükenthal in Pfl.-reich. IV-20, Ht. **38**: 40, f. 9 (1909).

Uncinia nepalensis Nees in Wight, Contrib. Bot. Ind. 129 (1834).

Carex linearis Boott, Ill. *Carex* **1**: 51, t. 136 (1858)—C. B. Clarke in Fl. Brit. Ind. **6**: 712 (1894).

NEPAL. Mul Kharka—Chilime Khola, 3800–4100 m (Jul. 6, 1970); Langtang—Kyangjing (Jul. 13, 1970).

Distr. Himalaya (Nepal and Sikkim).

Kobresia pygmaea (C. B. Clarke) C. B. Clarke: Fl. E. Himal. **2**: 151 (1971).

Hemicarex pygmaea C. B. Clarke in Journ. Linn. Soc. **20**: 383 (1883).

NEPAL. Langtang—Kyangjing, 3500 m (Jul. 13, 1970).

Distr. Himalaya and Tibet.

Among the small species of Himalayan *Kobresia* this can be identified relatively easily by the bisexual fruiting spikelets, which normally bear a staminate flower on the rhacheola.

Kobresia seticulmis Böckeler in Linnaea **39**: 3 (1875)—C. B. Clarke in Fl.

Brit. Ind. **6**: 695 (1894)—Kükenthal in Pfl.-reich. IV-20, Ht. **38**: 92 (1909).

NEPAL. Thale Patil-Rock Shelter, 3400 m (Aug. 24, 1969); Mul Kharka-Chilime Khola, 4000 m (Jul. 3, 1970); Hile Chok-Ghopte, 3550 m (Jun. 12, 1972).

Distr. Himalaya (Kumaon, Nepal, and Sikkim).

Kobresia trinervis (Nees) Böckeler in Linnaea **39**: 4 (1875), in adnota—C. B. Clarke in Fl. Brit. Ind. **6**: 695 (1894)—Kükenthal in Pfl.-reich. IV-20, Ht. **38**: 43, f. 10 (1909).

Carex trinervis Nees in Wight, Contrib. Bot. Ind. 120 (1834), non Degland (1807).

NEPAL. Mul Kharka-Chilime Khola, 3800–4110 m (Jul. 3, 1970).

Distr. Himalaya (Sikkim and adjoining Tibet) and Yunnan.

A distinct dioecious species with rather broad leaves and showy inflorescences.

Kobresia uncinoides (Boott) C. B. Clarke in Fl. Brit. Ind. **6**: 698 (1894)—Kükenthal in Pfl.-reich. IV-20, Ht. **38**: 46 (1909).

Carex uncinoides Boott, Ill. Carex **1**: 8, t. 23 (1858).

NEPAL. Topke Gola, 3800 m (Jun. 18, 1972).

Distr. E. Himalaya, Tibet, and S.W. China (Yunnan and Kansu).

Kobresia Williamsii T. Koyama in Bot. Mag. Tokyo **86**: 279, f. 3 (1973).

NEPAL. Thudam-Lama Chungbu, 3600 m (Jun. 23, 1972).

Distr. Himalaya (C. & E. Nepal).

A distinct species with long-creeping rhizomes and partially paniculiform inflorescences. Although superficially resembling *K. uncinoides* it is quite dissimilar thereto by the completely glabrous perigynia in addition to the creeping rhizomes.

Scirpus planifolius Grimm in Nov. Act. Nat. Cur. 3, App. 259 (1767)—Ohwi et Koyama in Kihara, Fauna Fl. Nepal Himal. 90 (1955).

Schoenus compressus L., Sp. Pl. ed. 1, 43 (1753).

Blasmus compressus (L.) Panzer ex Link, Hort. Bot. Berol. **1**: 278 (1827).

NEPAL. Langtang-Langtang Khola, 3400 m (Jul. 12, 1970); Langtang-Kyangjing, 3500 m (Jul. 13, 1970).

Distr. Europe, C. Asia, Pakistan, N. India, Himalaya, and S.W. China.

ARACEAE (by Hiroshi Hara)

Arisaema costatum (Wall.) Mart.: Hara, Fl. E. Himal. **2**: 152 & 332, pls. 6c & 17, f. 50C (1971).

NEPAL. Thodang Danda-Duche Gyang, 2300 m (Aug. 30, 1969, young fr.); Thale-Dunche, 2200 m (Jun. 25, 1970, fl.); Thale-Thale Bisauna, 2050–2750 m (Sep. 10, 1970, fr.); Sinduwa-Bhalukhop, 2300 m (Jun. 5, 1972, no. 720189, fl.); Chitre-Dor, 2300–2600 m (Jun. 6 & Jul. 7, 1972); Chauke-Dor, 2900–2600 m (Jul. 6, 1972, fl.); Chitre-Hile, 2400–1900 m (Jul. 8, 1972, young fr.).

Distr. C. & E. Nepal.

Arisaema echinatum (Wall.) Schott: Fl. E. Himal. **2**: 152 & 351, pl. 20c-d, f. 55M (1971).

NEPAL. Yatumbal, 2700 m (Jun. 30, 1970, fl.); Phulchoki, 2600 m (Jun. 20, 1970 & Jul. 15, 1972); Dor-Chauke, 2600–2700 m (Jun. 7 & Jul. 6, 1972, no. 723076, fl.).

Distr. C. & E. Nepal.

Arisaema exappendiculatum Hara: Fl. E. Himal. 395, pls. 8a-c & 23

(1966); **2**: 153 & 353, pl. 20a-b, f. 56 (1971).

NEPAL. Sinduwa-Chitre, 2200-2300 m (Jun. 5, 1972, no. 720190, fl.); Chitre-Dor, 2300-2600 m (Jun. 6 & Jul. 7, 1972, young fr.); Dor-Chauke, 2600-2900 m (Jun. 7, 1972, fl. & Jul. 6, 1972); Chitre-Hile, 2400-1900 m (Jul. 8, 1972, young fr.).

Distr. C. & E. Nepal.

Arisaema vexillatum Hara et Ohashi in Journ. Jap. Bot. **48**: 99, pl. 1 right, f. 1 (1973).

NEPAL. Thudam, 3400 m (Jun. 24, 1972, no. 723074. Holotype in π ; Jun. 26, 1972).

Distr. Endemic to E. Nepal.

JUNCACEAE (by Yoshisuke Satake)

Juncus albescens Satake in Fl. E. Himal. **2**: 161, f. 13 (1971).

NEPAL. Lamo Pokhari, 2900 m (Jun. 9, 1972, young fl.).

Distr. E. Himalaya (Nepal and Bhutan).

Juncus bhutanensis Satake: Fl. E. Himal. **2**: 162 (1971).

NEPAL. Gadje-Gosainkund, 3920-4260 m (Aug. 26, 1969, fl.); Suke-Hile Chok, 2900-3500 m (Jun. 11, 1972, fl.); Saju Pokhari-Topke Gola, 3600-4400 m (Jun. 16, 1972, fl.); Lama Chungbu-Thudam, 3400-4500 m (Jun. 24, 1972, fl.); Mul Kharka, 3800-4100 m (Jul. 3, 1970, fl.); Gosainkund-Gopte, 3500-4400 m (Aug. 25, 1972, young fr.).

Distr. E. Himalaya (Nepal to Bhutan).

Juncus Clarkei Buchen.: Satake in Fl. E. Himal. 402 (1966).

BHUTAN. Chamsa-Yabu Thang, 3200-3700 m (May 15, 1967, fr.).

Juncus effusus L.: Fl. E. Himal. 402 (1966); **2**: 162 (1971).

NEPAL. Tangjet-Khirojet, 1750-2300 m (Jun. 28 1970, fr.).

Juncus Grisebachii Buchen.: Fl. E. Himal. 402 (1966).

NEPAL. Dobate-Rock Shelter II, 3220-3550 m (Aug. 24, 1969, fl.); Tingoang-Khosori Khabre, 3000 m (Sep. 12, 1970, fl.); Gopte-Thale Patil, 3200-3500 m (Aug. 26, 1972, fl.).

Distr. E. Himalaya (Nepal to Bhutan).

Juncus leucanthus Royle ex D. Don: Fl. E. Himal. 403 (1966); **2**: 163 (1971).

NEPAL. Suke-Hile Chok, 2900-3500 m (Jun. 11, 1972, fl.).

Distr. E. Himalaya (Nepal to Bhutan).

Juncus luteocarpus Satake: Fl. E. Himal. **2**: 163 (1971).

NEPAL. Bhorlang-Ingyur, 1750-2440 m (Aug. 21, 1969, fl.); Thudam, 3400 m (Jun. 25, 1972, fl.); Topke Gola-Shewaden, 2600-3600 m (Jun. 28, 1972, fl.).

Distr. E. Himalaya (Nepal and Bhutan).

Juncus monticola Steud.: Fl. E. Himal. 403 (1966); **2**: 163 (1971).

NEPAL. Ingyur-Gul Bhanjyang, 2100-2240 m (Aug. 22, 1969, young fr.); Hile-Chitre, 1900-2400 m (Jun. 5, 1972, young fl.); Nessum-Bhuje, 1300-2700 m (Jul. 3, 1972, fl.); Bhuje-Chauke, 2700-2900 m (Jul. 4, 1972, fr.).

Distr. India and Himalaya to Japan.

Juncus sikkimensis Hook. f.

var. **monocephalus** Hook. f., Fl. Brit. Ind. **6**: 399 (1892)-Buchen., Junc. 234 (1906).

NEPAL. Rock Shelter II-Gadje, 3220-3950 m (Aug. 25, 1969, fr.); Mul Kharka, 3800-

4100 m (Jul. 2–3, 1970, fl.).

Distr. Nepal and Sikkim.

According to Dr. H. Kanai, the plant is common in the locality, and the flowers are small, but very pretty, characterized by the dark brown perianth-segments, included yellow anthers, exerted styles, and elongate salmon pink stigmas in anthesis.

Juncus sphacelatus Decne.: Fl. E. Himal. 403 (1966).

NEPAL. Gadge–Gosainkund, 3920–4450 m (Aug. 26, 1969, young fr.); Mul Kharka, Chilime Khola, 3800–4100 m (Jul. 3 & 6, 1970, fl.); Lama Chungbu–Thudam, 3400–4500 m (Jun. 24, 1972, fl.).

Distr. Afghanistan and Himalaya.

Juncus sphenostemon Buchen.: Fl. E. Himal. 403 (1966); **2**: 164 (1971).

NEPAL. Singum Gompa, 3000 m (Jun. 4, 1969, fl.); Oo Kharka–Mul Kharka, 3400–3800 m (Jul. 1, 1970, young fr.); Thale–Thale Bisauna, 2050–2750 m (Sep. 10, 1970, fl.).

Juncus Thomsonii Buchen.: Fl. E. Himal. **2**: 164 (1971).

NEPAL. Lukthang–Kuri, 3250–3650 m (Sep. 28, 1970, fr.).

Luzula oligantha Samuelss.: Fl. E. Himal. **2**: 164 (1971).

NEPAL. Rock Shelter II–Gadge, 3200–3950 m (Aug. 25, 1969, fr.); Yatumbal–Oo Kharka, 2700–3400 m (Jun. 30, 1970, fr.); Oo Kharka–Mul Kharka, 3400–3800 m (Jul. 1, 1970, fr.); Mul Kharka, Chilime Khola, 3800–4100 m (Jul. 3, 1970); Gram–Dunche, 1900–2000 m (Aug. 21, 1972, fl.).

DARJEELING. Phalut–Singalila, 3600–3700 m (Aug. 3, 1972, fr.).

Luzula plumosa E. Meyer: Fl. E. Himal. **2**: 164 (1971).

NEPAL. Thale Bisauna–Tingoang, 2770–3240 m (Apr. 17, 1970, young fl.); Dor–Chauke, 2600–2900 m (Jun. 7, 1972, fr.).

LILIACEAE (by Hiroshi Hara, *Smilax* by Tetsuo Koyama)

Chlorophytum arundinaceum Baker in Journ. Linn. Soc. **15**: 323 (1876)–Hook. f., Fl. Brit. Ind. **6**: 333 (1892).

C. breviscapum Dalzell sensu Hook. f., Fl. Brit. Ind. **6**: 333 (1892), quoad pl. ex Sikkim: Hara, Fl. E. Himal. 406 (1966).

Distr. Himalaya (Nepal to Bhutan), Khasia, ?S. India, and Burma.

Chlorophytum khasianum Hook. f., Fl. Brit. Ind. **6**: 334 (1892), e typo–Hand.-Mzt., Symb. Sin. **7**: 1194 (1936).

C. arundinaceum Baker sensu Hara, Fl. E. Himal. 406 (1966).

Distr. Himalaya (Nepal to Bhutan), Khasia, N. Burma, and W. China.

Disporum leucanthum Hara in Journ. Jap. Bot. **47**: 114 (1972).

DARJEELING. Kurseong, 1550 m (Togashi, Apr. 12, 1960, no. 6602. Holotype in π).

Distr. E. Himalaya (Sikkim).

This species is clearly distinguished from *Disporum cantoniense* (Lour.) Merrill in having terminal few-flowered inflorescences, white widely opening flowers, and smooth pedicels and tepals.

Lilium nanum Klotzsch ex Klotzsch et Garcke, Reis. Prinz Waldem. 53 (1862)–Sealy in Kew Bull. **1950**: 283, f. 4 E–O (1950).

Fritillaria oxypetala Royle sensu Hook. in Bot. Mag. t. 4731 (1853).

F. Stracheyi Hook. f., Fl. Brit. Ind. **6**: 353 (1892).

Nomocharis nana (Klotzsch) E. H. Wilson, Lilies E. Asia 13 (1925)—Evans in Not. Bot. Gard. Edinb. **15**: 16, t. 202 & 203 (1925)—Woodcock et Stearn, Lilies of World 388 (1950).

NEPAL. Banduke Pokhari—Saju Pokhari, 4200 m (Jun. 15, 1972, fl.); Saju Pokhari—Topke Gola, 4200 m (Jun. 16, 1972, no. 723064, fl.); Lama Chungbu, 4200 m (Jun. 23, 1972, fl.); Kipudonsu—Kipuphu, 4300 m (Jun. 26, 1972, no. 720779, fl. violet purple outside).

Distr. Himalaya (Punjab to NEFA), S.E. Tibet, and W. China.

f. **flavidum** (Rendle) Hara, comb. nov.

Fritillaria flavida Rendle in Journ. Bot. **44**: 45 (1906).

NEPAL. Banduke Pokhari—Saju Pokhari, 4200 m (Jun. 15, 1972, fl.); Saju Pokhari—Topke Gola, 4200 m (Jun. 16, 1972, no. 720532, fl. pale yellow); Lama Chungbu, 4200 m (Jun. 24, 1972, fl.).

Lilium Wallichianum J. A. et J. H. Schutles, Syst. Veg. **7** (2): 1689 (1830)—Fl. Brit. Ind. **6**: 349 (1892)—Woodcock et Stearn, Lilies of World 361 (1950).

var. **neilgherrense** (Wight) Hara, comb. nov.

Lilium neilgherrense Wight, Icon. **6**: 20, t. 2031–2 (1853)—Baker in Bot. Mag. t. 6332 (1877)—Elwes, Monogr. Lilium t. 6 (1877)—Fl. Brit. Ind. **6**: 350 (1892)—Woodcock et Stearn, l.c. 287, f. 83 (1950).

L. tubiflorum Wight, l.c. 20, t. 2033–4 (1853).

L. Wallichianum Roem. et Schult. sensu Wight, l.c. t. 2035 (1853).

L. neilgerricum Lemaire, Ill. Hort. **10**: t. 353 (1863).

L. longiflorum Thunb. subsp. *neilgherrense* (Wight) Baker in Gard. Chron. **1871**: 479 (1871).

NEPAL. Shyaprubensi, 1500 m (Jun. 26, 1970, no. 672052, fl. white, yellowish inside the tube).

Distr. Himalaya (C. Nepal) and S. India.

The leaves are lanceolate and 1–2 cm wide, and the Nepalese plants agree with those from the Nilghiri Mts.

Lloydia flavonutans Hara in Journ. Jap. Bot. **49**: 202 (1974).

Lloydia Delavayi Franch. sensu Hara, Fl. E. Himal. 408 & 655, f. 63f (1966).

NEPAL. Ghopte—Gosa, 4000 m (Jun. 13, 1972, fl.); Topke Gola, 3600 m (Jun. 17, 1972, fl.).

Distr. Himalaya (Nepal to N. Assam) and S. Tibet.

This species has nodding yellow flowers with reddish orange patches at the basal part, smooth inner tepals without crests, and ovary acutish at the apex. *L. Delavayi* Franch. is a densely gregarious plant wrapped by dead leaves in the basal part, and has oblong-obovate inner tepals pilose inside in the lower part, and longer filaments and styles.

Lloydia longiscapa Hook., Icon. Pl. **9**: t. 834 (1852)—Franch. in Journ. de Bot. **12**: 195 (1898)—Hara, Fl. E. Himal. 655, f. 63b (1966).

Gagea pulchella Wall., Cat. no. 5064 (1832), nom. nud.

NEPAL. Ghopte—Gosa, 4000 m (Jun. 13, 1972, fl.); Banduke Pokhari—Saju Pokhari, 4100 m (Jun. 15, 1972, fl.); Thudam—Kipuphu, 3400–4500 m (Jun. 26, 1972, fl.).

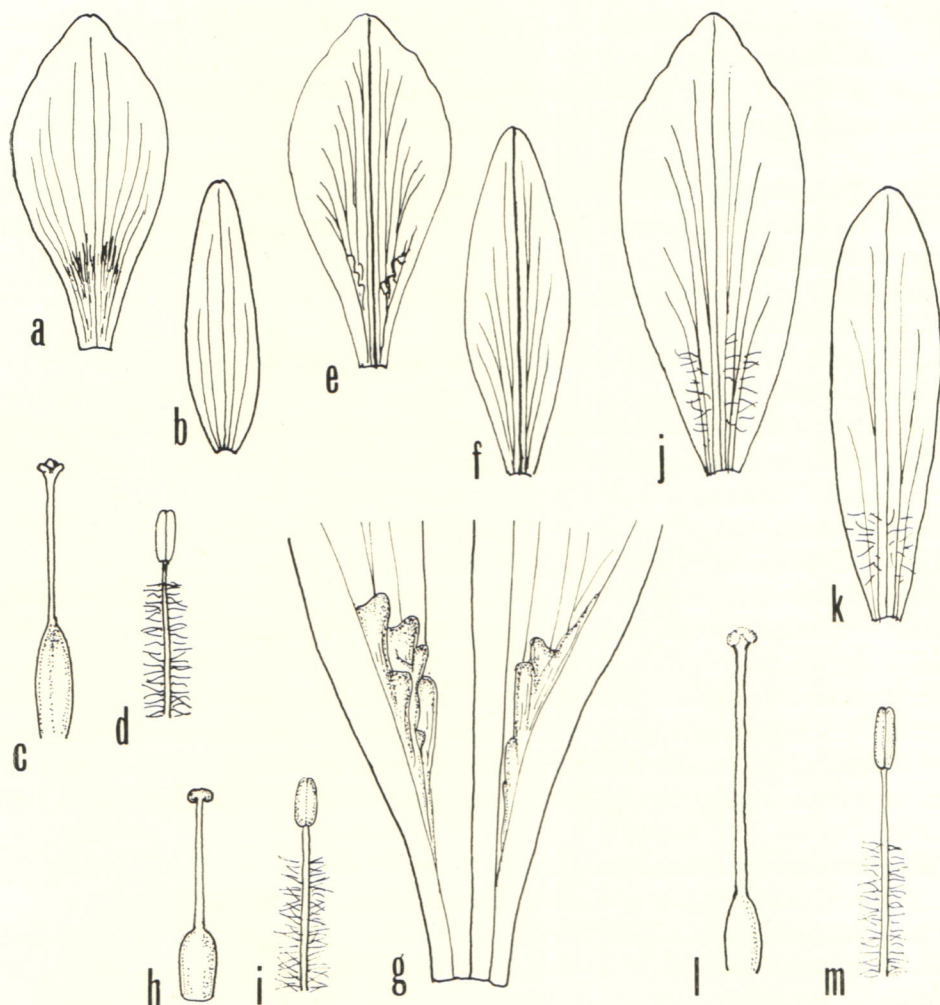


Fig. 13. *Lloydia flavonutans* Hara (a-d), *L. tibetica* Baker (e-i), and *L. Delavayi* Franch (j-m). a, e & j. Inner tepal. $\times 3$, b, f & k. Outer tepal. $\times 3$, c, h & l. Pistil. $\times 3$, d, i & m. Stamen. $\times 3$, g. A part of inner tepal. $\times 10$.

Distr. Himalaya (Kashmir to Bhutan), S. Tibet, and W. China.

Lloydia serotina (L.) Reichb.

var. **para** (Marq. et Shaw) Hara, Fl. E. Himal. 2: 166 (1971).

NEPAL. Hile Chok-Ghopte, 3500 m (Jun. 12, 1972, fl.); Ghopte-Gosa, 3900 m (Jun. 13, 1972, no. 720375, fl.); Gosa-Banduke Pokhari, 4100-4200 m (Jun. 14, 1972, fl.); Saju Pokhari-Topke Gola, 4400-3600 m (Jun. 16, 1972, fl.).

Distr. Himalaya (Nepal to Bhutan) and S. Tibet.

It is noteworthy that in this variety some specimens have no fold at the base of tepals, but some have a transverse fold near the base of tepals as in typical *L. serotina*.

Lloydia tibetica Baker in Hook., Icon. Pl. t. 2216 (1892).

NEPAL. Mul Kharka, Chilime, 4100 m (Jul. 2, 1970, no. 672229, fl. yellow).

Distr. Himalaya (Nepal), S. Tibet, and W. China.

This species is characterized in having inner tepals with crest on both sides in the lower part, yellow flowers with greenish veins, ovary obtuse at the apex, and flat leaves 2–4 mm wide.

Paris polyphylla Smith¹⁾ in Rees, Cyclop. **26**: *Paris* no. 2 (1813)—Hara in Journ. Fac. Sci. Univ. Tokyo Bot. **10**: 175 (1969); Fl. E. Himal. **2**: 167 (1971).

var. **polyphylla**

P. polyphylla var. *brachystemon* Franch.: Hara, l.c. 176 (1969); l.c. **2**: 167 (1971).

var. **Wallichii** Hara, var. nov.

P. polyphylla Smith sensu Wall., Icon. Pl. As. Rar. **2**: 24, t. 126 (1831)—Hara, l.c. 175, f. 1A–D (1969).

Planta saepe robusta. Folia vulgo obovato-oblonga apice longe acuminata basi saepe rotundata, petiolis distinctis longis. Petala anguste linearia valde exserta, interdum ad 8 cm longa. Antherae longae lineares.

SIKKIM. Yoksam (Hara et al. May 17, 1960, no. 7738. Holotype in π).

The type specimen of *Paris polyphylla* Smith (Fig. 14) is a slender race which has narrow leaves cuneate at the base, short petioles, generally smaller flowers, and shorter anthers, and it is rather near to var. *brachystemon* Franch. Var. *Wallichii* is a common race in the Himalayas, and it is more robust, and has larger broader leaves often roundish at the base, distinct longer petioles, and often larger flowers with longer petals and longer anthers. Some intermediate forms between these two races also occur here and there. But the two varieties keep their characters unchanged, even when they have been cultivated side by side in Japan for several years.

Polygonatum curvistylum Hua in Journ. de Bot. **6**: 424 (1892).

P. graminifolium Hook. sensu Hara, Fl. E. Himal. **2**: 168 (1971).

NEPAL. Singum Gompa, 2900 m (Aug. 22, 1972).

Distr. Himalaya (Nepal to Bhutan) and W. China.

Smilax ferox Wallich [Cat. no. 5129 (1830), nom. nud.] ex Kunth: T. Koyama in Fl. E. Himal. 415 (1966); **2**: 171 (1971).

NEPAL. Khodang Danda–Gul Bhanjyang, 2300 m (Aug. 29, 1972).

DARJEELING. Palmajua, 2200 m (Aug. 7, 1972).

Distr. Himalaya, N. Burma, N. Indo-China, and S. & S.W. China.

Smilax glaucophylla Klotzsch: Fl. E. Himal. 415 (1966); **2**: 171 (1971).

NEPAL. Phulchoki, 2200–2700 m (May 28, 1972); Dunche–Singum Gompa, 2000–3200 m (Aug. 22, 1972).

Distr. Himalaya.

Smilax menispermoidea A. DC.: Fl. E. Himal. 415 (1966); **2**: (1971).

DARJEELING. Mani Bhanjyang–Tonglu, 2000–3000 m (Jul. 30, 1972).

Smilax ovalifolia Roxburgh: Fl. E. Himal. 417 (1966).

NEPAL. Tamur Bridge–Mohamabedi Khola, 300 m (Jul. 9, 1972).

Distr. India, Himalaya, Burma, Thailand, and Indo-China.

1) Type: NEPAL, Narainhetty (Hamilton, Mar. 13, 1803, in Smith Herb. at the Linnean Soc., London).



Fig. 14. *Paris polyphylla* Smith in Herb. Smith at Linnean Society, London. a. Type: Nepal, Narainhetty (Buch.-Ham. Mar. 13, 1803), b. var. *Wallichii* Hara: Nepal (Wallich ann. 1819).

Smilax vaginata Decne. in Jacquemont, Voy. **4** (Bot.): 169, t. 169 (1844).
NEPAL. Topke Gola–Shewaden, 3600–2600 m (Jun. 28, 1972).

Distr. Himalaya; subsp. *stans* occurring in China and Japan.

Smilax zeylanica L., Sp. Pl. ed. 1, 1429 (1753)–A. DC., Monogr. Phaner. **1**: 190 (1878)–Hook. f., Fl. Brit. Ind. **6**: 310 (1892)–T. Koyama in Adv. Front. Pl. Sci. **4**: 50 (1961).

S. indica Vitman, Summa Pl. **4**: 422 (1790).

S. Hochennackeri Kunth, Enum. Pl. **5**: 240 (1850).

NEPAL. Dhara Pani–Mohamabedi Khola, 700 m (Jun. 3, 1972); Dingla–Nessum,

1000–1300 m (Jul. 2, 1972).

Distr. Himalaya, India, and Ceylon; subsp. *Hemsleyana* occurring in N. Thailand.

Streptopus parasimplex Hara et Ohashi in Journ. Jap. Bot. **48**: 101, f. 2B (1973).

S. simplex D. Don sensu Hara, Fl. E. Himal. 417 (1966), p.p.

NEPAL. Kokim Pokhari, 3200 m (Jun. 11, 1972); Hile Chok–Ghopte, 3500 m (Jun. 12, 1972); Topke Gola, 3600 m (Jun. 18, 1972); Thudam, 3400 m (Jun. 22, 1972, no. 723120, fl. Holotype in τ); Lama Chungbu–Thudam, 4500–3400 m (Jun. 24, 1972).

SIKKIM. Migothang–Nayathang, 4200–3300 m (Jun. 1, 1960); Nayathang–Chia Bhanjyang, 3500–3100 m (Jun. 2, 1960).

Distr. E. Himalaya (Nepal to Bhutan).

Streptopus simplex D. Don, Prodr. Fl. Nepal. 48 (1825)–Hara, Fl. E. Himal. 417 (1966), p.p.; **2**: 173, t. 11a (1971); in Journ. Jap. Bot. **48**: 102, f. 2A (1973), in adnota.

Distr. E. Himalaya (Nepal, Sikkim).

Type: NEPAL, Gosainthan (Wallich s.n. Aug. 1819 in BM).

Recently the specimen cited above which is considered as the type of D. Don was found in the British Museum, and it has deeply trifid styles. *Streptopus parasimplex* is different from typical *S. simplex* by narrower leaves generally less than 2 cm wide, and shortly trifid styles with short lobes 1–1.5 mm long.

Tupistra nutans Wall. in Bot. Reg. **15**: t. 1223 (1829)–Bot. Mag. t. 3054 (1831)–Fl. Brit. Ind. **6**: 324 (1892).

SIKKIM. Pamianchi–Tingling Bridge (May 15, 1960); cult. in Tokyo from Sikkim (Dec. 7, 1972, fl.).

Distr. E. Himalaya (Nepal, Sikkim) and Khasia.

MUSACEAE (by Hiroshi Hara)

Ensete glaucum (Roxb.) Cheesman in Kew Bull. **1947**: 101 (1948).

Musa glauca Roxb., Corom. Pl. t. 300 (1819); Fl. Ind. ed. Carey, **2**: 490 (1824)–Baker in Fl. Brit. Ind. **6**: 262 (1892).

NEPAL. Illam, 1200 m (Dec. 7, 1963, fl.).

Distr. Nepal, India, Burma, Thailand, and Malaysia.

This may be *Musa nepalensis* Wallich in Roxb., Fl. Ind. ed. Carey, **2**: 492 (1824) (cf. a note by Cheesman, l.c. 101, 1948).

Musa Balbisiana Colla, Mem. Gen. Musa 56 (1820)–Cheesman in Kew Bull. **1948**: 14 (1948).

M. sapientum L. sensu Baker in Fl. Brit. Ind. **6**: 262 (1892), p.p.

NEPAL. Ghorwa–Sanichare, 200–300 m (Dec. 10, 1963, fl.).

Distr. Tropical Himalaya (Nepal, Sikkim), India, Ceylon, Burma, Thailand, and Malaysia.

The identification is provisional. More material from E. Himalaya is needed for critical studies of this group.

ZINGIBERACEAE (by Hiroshi Hara)

Roscoea capitata Smith in Trans. Linn. Soc. **13**: 461 (1822)–Wall., Pl. As.

Rar. **3**: t. 255 (1832)—Baker in Fl. Brit. Ind. **6**: 208 (1890).

NEPAL. Trisuli Khola, 2000 m (Aug. 22, 1972, fl. purple); Singum Gompa, 3200 m (Aug. 23, 1972, fl.).

Distr. Himalaya (Nepal).

ORCHIDACEAE (by Takasi Tuyama)

Anoectochilus lanceolatus Lindley, Gen. Sp. Orch. 499 (1840); in Journ. Linn. Soc. **1**: 179 (1857)—King et Pantl., Orch. Sikkim. 295, t. 392 (1898).

[Plate 7f]

Odontochilus lanceolatus (Lindley) Bentham [in Bentham et Hooker f., Gen. Pl. **3**: 589 (1883), comb. nud.] ex Hooker f., Fl. Brit. Ind. **6**: 101 (1890); in Ann. Bot. Gard. Calc. **5**: 59, t. 89 (1895).

DARJEELING. Around Simkuna, 2200 m, on mossy rocks by a ravine in the forest (Aug. 10, 1972).

Distr. Temperate E. Himalaya (Darjeeling, Sikkim) and Khasia.

Colour of the flower is as shown in Pl. 7f. Lindley says "Lip white with brown fringes." According to Mr. Ohba's field note, "lip bright yellow, the other tepals greenish". Inside the short spur there are two falcately recurved calli located longitudinally, one in each subdivided chamber of the spur. This feature seems characteristic to the species.

J. D. Hooker says that the lip is golden yellow in his Flora of British India, but later in his "A Century of Indian Orchids", it is violet-purple including the sepals and petals. J. D. Hooker says that the colour is variable. Our plants agree in colour very well with that of King and Pantling.

Anthogonium gracile Lindley: Tuyama in Fl. E. Himal. 425 (1966).

NEPAL. Sheopuri, 2500 m (Jul. 22, 1970); Latsu-Bhorlang, 1700 m (Aug. 30, 1972).

DARJEELING. Sandakphu-Phalut, 3600-3200 m (Aug. 2, 1972); Raman-Rimbick, 3600-3200 m (Aug. 5, 1972); Rimbick-Palmajua, 2200-1500 m (Aug. 6, 1972); Darjeeling-Thame, 2200-2000 m (Aug. 12, 1972).

Aphyllorchis alpina King et Pantling, Orch. Sikkim. 261, t. 347 (1898).

NEPAL. Dor-Chitre, 2600-2300 m (Jul. 7, 1972).

DARJEELING. Phalut-Raman, 3500-2100 m (Aug. 4, 1972); Batassi, 2200-2100 m (Aug. 8, 1972).

The specimens were collected too late in the flowering season and were in poor condition. Determination was made on general appearance, strongly deflexed floral bracts, and the rhizomes with imbricating small hard scales. The semiorbicular lobules on the margins at the base of the lip, and the stigma with irregular lobulated margin were also taken into consideration.

Calanthe brevicornu Lindley: Tuyama in Fl. E. Himal. **2**: 179 (1971).

NEPAL. Bhalukhop-Chitre, 2400 m (Jun. 5, 1972); Mewa Khola, 2100 m (Jun. 29, 1972).

June 5-specimen was collected on a rather dark ground in *Castanopsis-Symplocos* forest with an undergrowth of *Mahonia* and *Viburnum* (fide Dr. Ohashi). At Mewa Khola, eastern Nepal, this was found scattered under a *Schima Wallichii* forest in the deep shade place (fide Dr. Kanai).

Calanthe Mannii Hooker: Fl. E. Himal. **2**: 180 (1971).

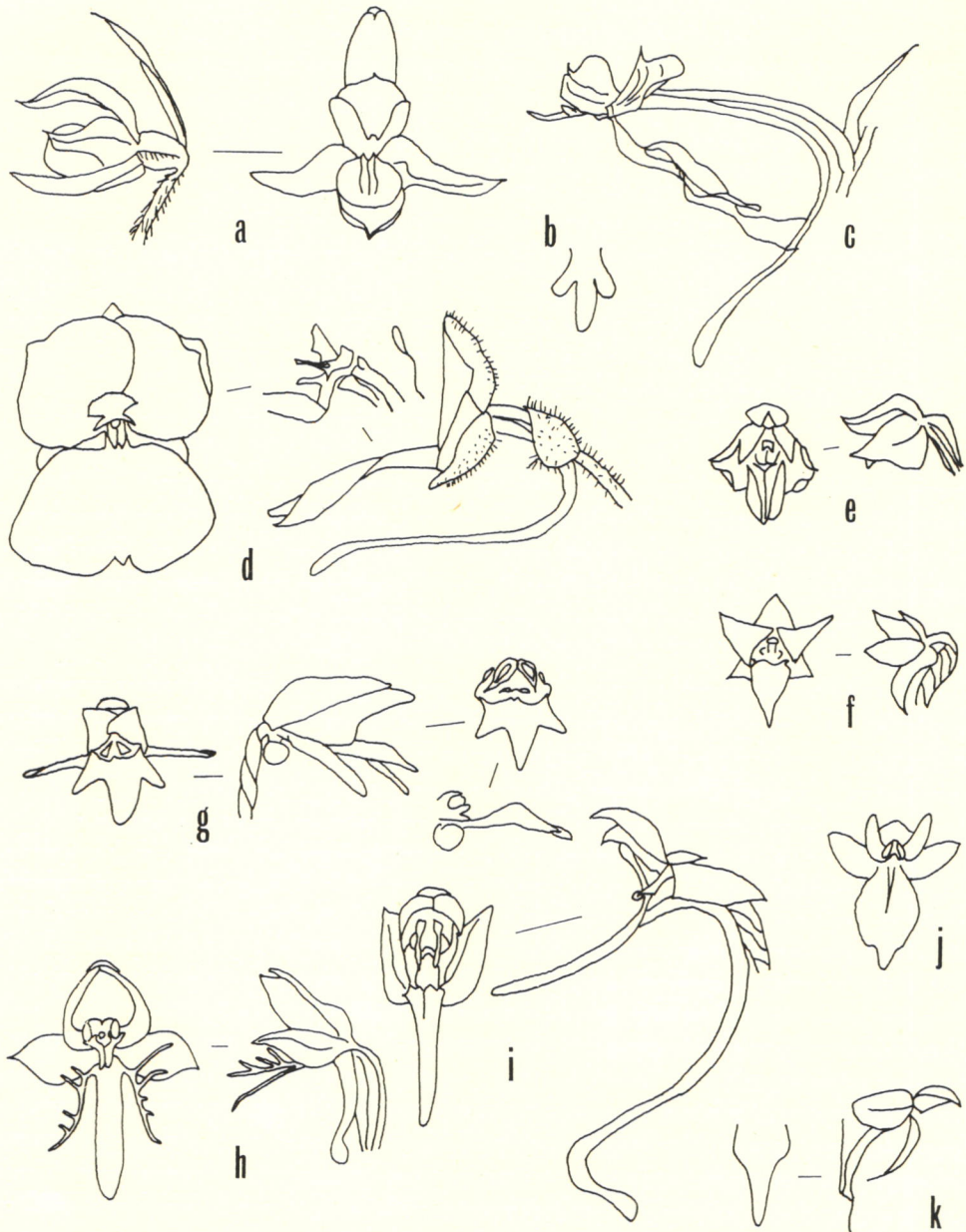


Fig. 15. Various Himalayan Orchids (1). Dr. Kanai's field sketches at the place of collection. Redrawn by Miss K. Nishikawa. All the figures were originally drawn in various size to represent the natural posture. a. *Cypripedium elegans*, b. *Habenaria fallax*, c. *H. commelinifolia*, d. *Diplomeris hirsuta*, e. *Goodyera repens*, f. *Herminium congestum*, g. *Habenaria goodyeroides*, h. *H. pectinata*, i. *H. arcuata*, j. *Herminium Josephii*, and k. *H. pugioniforme*.

NEPAL. Bilbatay Bhanjyang-Hati Surde, 2400-2900 m (Oct. 27, 1963); Helok-Ilandanda, 1800 m (Nov. 8, 1963); Birwa-Yektin, 2800 m (Nov. 28, 1963); Chitre-Basanta-

pur, 2400 m (Jun. 6, 1972); Shewadan-Mewa Khola, 2600–2100 m (Jun. 29, 1972).

According to Dr. Ohashi's photograph taken on 6 June, the flower does not open widely in the full-blossom. The sepals and petals are brownish, the lip is yellow becoming paler towards the side-lobes, and the spur greenish.

Calanthe puberula Lindley, Gen. Sp. Orch. 252 (1833)—Hook. f., Fl. Brit. Ind. 5: 848 (1890)—King et Pantl., Orch. Sikkim. 166, t. 224 (1898).

DARJEELING. Palmajua, 2200 m (Aug. 7, 1972); Palmajua-Batasi, 2200–2100 m (Aug. 8, 1972).

These specimens were collected under a *Castanopsis* forest on the fairly dark ground (fide Dr. Kanai). In additions to these, living plant was cultivated to bloom by Dr. Hara at Karuizawa of Central Honshu, side by side with the Japanese *Calanthe reflexa*. This Himalayan species closely resembles the Japanese *Calanthe reflexa* not only in general appearance but also in floral structure. These two species have well-fascicled leaves with the short petioles being hidden in between. The Himalayan plant differs from the Japanese in the following: Tepals not strongly reflexed, basal part of the midlobe of the lip broader, and the anterior side dentation of the column not so prominent compared with the Japanese. In addition, in the Japanese plant the column is wider in front view than the Himalayan and often has small but prominent hooks on both sides at the top of the column anteriorly. Some of these features distinguishing the two species were already pointed out by Schlechter in 1916.

Calanthe tricarinata Lindley: Fl. E. Himal. 2: 180 (1971).

NEPAL. Tinjure-Dor, 2900–2600 m (Jul. 6, 1972).

The flower of this plant is fairly variable and the above-mentioned specimen has the tepals light green, with the lip reddish brown. The midlobe of the lip is thinly margined with white, and the basal part of it including side-lobes is pure white except for the apical part of the side-lobes, which are tinged with brownish spots or dots. The ridges on the lip are also variable. In this plant, the ridges are three in number; they are thickly callose, depressedly undulating with many obtuse lobulated heads. Compare with that of figs. a and b in Pl. 8 of Hara: Fl. E. Himal. second rep. (1971), where the said ridges are plate-like and prominent.

Calanthe trulliformis King et Pantling in Journ. Asiat. Soc. Beng. 64: 337, t. 2 (1895); Orch. Sikkim. 168, t. 226 (1898). [Plate 7e]

NEPAL. Dor-Chitre, 2600–2300 m (Jul. 7, 1972).

DARJEELING. Below Raman, 2400 m (Aug. 4, 1972).

Distr. Temperate Himalaya (E. Nepal to Sikkim).

This plant seems rather rare in the Himalayan region. Flowers are directed horizontally or a little nodding. The spur is less than 2 mm long, and is not cylindrical but dorsiventrally compressed, the apex being truncately subbilobed. The lip is narrowly trowel-shaped or often like the shape of a violin with the narrowed portion in the middle, the margins being irregularly undululate and often involuted at the subapical part. The lip is white as a whole, but at the base between the ridges it is brownish yellow. Sepals and petals are brown, greenish yellow between the nerves and the margins and at the apex. Spur is white.

King and Pantling say that this plant is allied to *Calanthe puberula*, but no con-

vincing evidence can be found in their explanation. They say that the leaves are sessile, but in our specimen in full blossom those are apparently long-petioled.

Coelogyne corymbosa Lindley: Fl. E. Himal. 428 (1966); **2**: 181 (1971).

NEPAL. Chitre-Tute, 2400–2300 m (Jun. 6, 1972); Dor, 2600 m (Jun. 7, 1972); Lamo Pokhari, 2900 m (Jun. 9, 1972); Bhorlang-Sundarijar, 2400–1400 m (Aug. 31, 1972).

Cryptochilus lutea Lindley: Fl. E. Himal. 430 (1966).

DARJEELING. Palmajua, 2200 m (Aug. 7, 1972).

Cypripedium elegans Reichenbach f. in Flora **69**: 561 (1886)—Fl. Brit. Ind. **6**: 169 (1890)—King et Pantl., Orch. Sikkim. 341, t. 446 (1898)—Kränzl., Orch. Gen. Sp. **1**: 29 (1897). [Plate 7c]

NEPAL. Topke Gola, 3600 m (Jun. 17, 1972).

Distr. E. Nepal, Sikkim, and E. Tibet.

This was collected only once by us during our several expeditions to E. Himalaya. J. D. Hooker's and King and Pantling's descriptions are based on a single specimen that was collected by Pantling at Lacen Valley, alt. 10,000 ft. We were lucky enough to have six plants, all with good flowers. The place of collection was among the mosses in a low formation of procumbent juniper and willow spp. The plant was sporadically scattered. According to Dr. Kanai's field note, and photographs, the tepals are all pale green, except the basal part striped with pale purple. The saccate lip has three prominent ridges in front. According to the description and the figure of King and Pantling, the colour of the flower is brownish with darker lines of the same colour. The hair on the peduncle is villous and if not artificially disturbed by pressing it is retrose directed. King and Pantling describe that the height of the entire plant does not exceed four inches (ca. 10 cm). Our plants are between 6 and 15 cm, each bearing one flower. Detailed description and affinity of this plant will be given later.

Dendrobium chrysanthum Wallich ex Lindley: Fl. E. Himal. **2**: 184 (1971).

DARJEELING. Lodhoma Khol, 1500 m (Aug. 6, 1972, on rocks).

Dendrobium eriaeflorum Griffith: Fl. E. Himal. 432 (1966); **2**: 184 (1971).

NEPAL. Sim Chotala, 900 m (Aug. 19, 1972); Gram-Dunche, 1900–2000 m (Aug. 21, 1972).

King and Pantling say that Khasia Hill specimens are invariably smaller than those of Sikkim. In my study, the size of the flowers varies considerably even in the same collection. For example; the largest and the smallest flowers of the cited specimen measured as follows; the largest flower has a dorsal sepal 9.5 mm long, and the epichile of the lip as long as the former. Here the measurement was made as they are in natural posture, i.e. curved or convex parts are not spread artificially when measured. In the smallest flowers, the dorsal sepal and the epichile are 7.0 mm and 7.5 mm long, respectively.

Dendrobium Pierardi Roxburgh: Fl. E. Himal. 433 (1966); **2**: 185 (1971).

NEPAL. Sanguri Bhanjyang, 1200 m (Jun. 2, 1972, epiphytic on the trunk of *Schima Wallichii*).

According to Dr. Kanai's field note, corolla is white, the lip yellow with the slightest nuance of light green nerved with purple inside becoming suddenly rose purple at the base.

Dendrobium porphyrochilum Lindley: Fl. E. Himal. 433 (1966); **2**: 185 (1971).

NEPAL. Godawari-Phulchoki, 2100–3000 m (May 29, 1969, no. 69827); Phulchoki, 2700 m (Jun. 10, 1969, no. 726217); Sim Chotala, 900 m (Aug. 19, 1972).

Flowers are dirty greenish yellow, with the lip dark purplish (Dr. Hara's field note). In this species the size of the flowers is quite variable. The variability, perhaps, depends on soil condition or some other circumstantial conditions. At first, I paid attention to the small-flowered specimen no. 726217. Comparison of size was made between this specimen and no. 69827. The method of measurement was the same as in the case of *Dendrobium eriaeflorum*. In no. 69827 and no. 726217, the petal measured 7.0 mm and 5.5 mm, the epichile 5.5 mm and 4.5 mm in the fully expanded flower. In the other specimens collected, however, there are intermediate sizes due to individual differences, and no local differentiation is found in this respect.

Diplomeris hirsuta Lindley, Gen. Sp. Orch. 330 (1835)—Hook. f., Fl. Brit. Ind. **6**: 167 (1890)—King et Pantl., Orch. Sikkim. 337, t. 443 (1898)—Kränzl., Orch. Gen. Sp. **1**: 471 (1898). [Plate 7a, b]

Diplochilos hirsutum Lindley [in Wall. Cat. no. 7065 (1832), nom. nud.] in Bot. Rey. sub. t. 1499 (1832).

NEPAL. Sim Chotala, 900 m (Aug. 19 & 20, 1972). On mossy rocks along the brooklets in sunny places near villages. Flowers are white with a faint yellow centre, that is the column, the basal parts of tepals including the lip are tinged with light yellow. The spur is cylindrical recurving slightly to the anterior side, attaining to 4.5–5.0 cm in length. (It is described by J. D. Hooker as 1.5 inch (ca. 3.8 mm) long).

Distr. Tropical Himalaya (Nepal, Sikkim to Bhutan).

According to the transparencies made by the members of the expedition, oral information and Dr. Kanai's field note, the flower is pure white with the slightest nuance of yellow in the centre. J. D. Hooker states that the tuber is globose; in our dried specimen, however, it is fusiform and about 1 cm long. The spur is longer than described by J. D. Hooker (1.5 inch long), actually attaining 5.0–5.5 cm, which is incurved forwards slightly and then pendulous. A small schematic reconstruction of the flower is shown in my figures. These are based on the slides and a rough sketch made at the place of collection by Dr. Kanai. According to Dr. Hara, there is only one type collection by Wallich in several larger herbaria in the United Kingdom, and our area of collection in C. Nepal mentioned above is believed to be the second following Wallich, so far as Nepal is concerned. According to the members of the 1972 expedition, the area of this plant was very small and was estimated to be less than 2 square meters. They refrained from collecting extra specimens so as not to disturb the natural habitat.

In Dr. A. D. Hookes: Encyclopedia of Cultivated Orchids, p. 174 (1965), there is a description of non-cultivated orchids, that reads as follows: "Four species of *Diplomeris* are known to date, but unfortunately none of them seems to be present in contemporary collections, though they are among the more unique of terrestrial orchids. A member of the subtribe Habenarinae, these plants are all inhabitants of the mountains of North India and China, where they typically grow on exposed

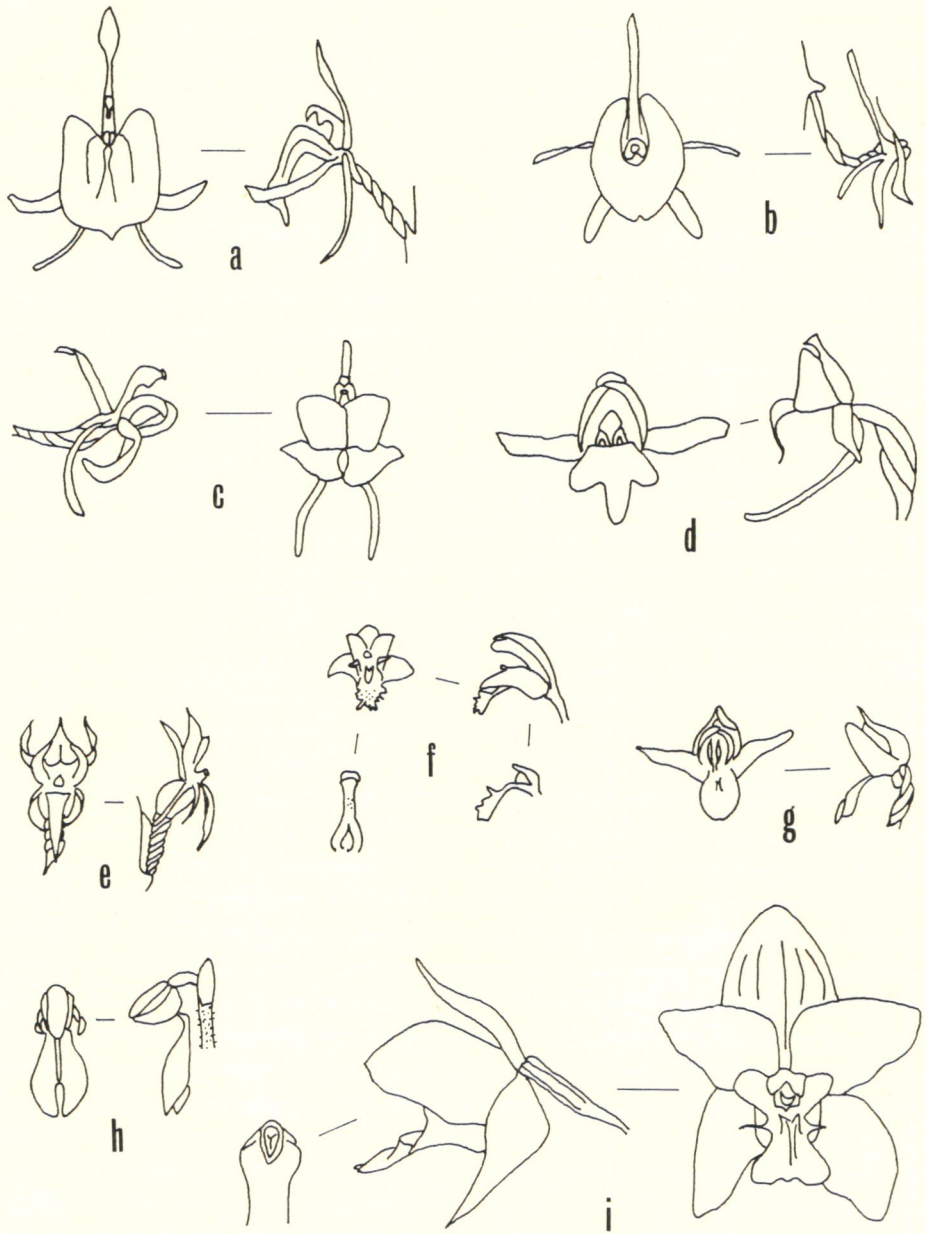


Fig. 16. Various Himalayan Orchids. (2). Dr. Kanai's field sketches at the place of collection. a. *Liparis Glossula*, b. *Malaxis acuminata*, c. *Liparis nervosa*, d. *Orchis habenarioides* alliance from Langtang, Nepal (This species is not studied yet and are deleted from the enumeration of Tuyama), e. *Malaxis muscifera*, f. *Oreorchis micrantha*, g. *Orchis spathulata*, h. *Listera pinetorum*, i. *Spathoglottis ixioides*.

rock-outcroppings. They bear large, roundish leaves, these prostrate on the substratum, and erect, one-flowered inflorescences. The flowers are typically of considerable size, great intricacy of structure, and unique beauty. Nothing is known of the genetic ties of this charming and neglected genus."

Further study will be published in the separate paper.

Epipactis Helleborine (Linnaeus) Crantz, Stirp. Austr. 467 (1769), emend. Watson et Coulter in Asa Gray, Manual ed. 6, 504 (1890)—Mansf. in Fedde, Repert. **45**: 238 (1938).

Serapis Helleborine Linnaeus, Sp. Pl. ed. 1, 949 (1753).

Epipactis latifolia (Hudson) Allioni, Fl. Ped. Mont. **2**: 151 (1785)—Hook. f., Fl. Brit. Ind. **6**: 125 (1890).

NEPAL. Above Dunche—Gosainkund, 2065–3000 m (Jun. 4, 1969, sterile); Singum Gompa, 3200 m (Aug. 22, 1972, old flowers).

Distr. N. Africa, Europe, temperate Himalaya (Kashmir, Nepal, Sikkim), and N. Asia.

This is what Hooker f. recognized as *E. latifolia* Swartz in his Flora on page 125 (1890). Only two collections were examined; one is a single sterile plant, the other includes two plants with old flowers.

Sir J. D. Hooker states in his Flora var. *intrusa* Hook. f. from Sikkim, alt. 11,000 ft. (probably at Gnatong) that it is 'very slender, leaves few, small, flowers few very distant, epichile without calli'. According to Lindley this specimen n. 232 is mixed with *E. latifolia*. Our specimens appear to be so-called typical *latifolia*. In a moistened old flower specimen from Singum Gompa, a couple of prominent calli are found on both sides of the midrib two-thirds downwards of the whole length of the epichile from the apex. I can say nothing taxonomically on these specimens. King and Pantling mentioned on the erose edge on the epichile, which I have failed to find.

Eria dasyphylla Parish et Reichenbach f. in Trans. Linn. Soc. **30**: 147 (1874)—Hook. f., Fl. Brit. Ind. **5**: 808 (1890)—Seidenf. et Smitinand, Orch. Thail. 285, f. 213 (1960).

NEPAL. Siwanta—Tsinging, 850–1000 m (Apr. 23, 1969, on the bark of a tree).

Distr. Tropical Himalaya (Nepal, Sikkim), Burma, Thailand, and Laos.

Our flowers are too old to permit minute dissection. The resultant structures I could have seen are not contradictory to the descriptions of this species, made by J. D. Hooker and others. Determination was mainly dependent on the vegetative appearances. J. D. Hooker says that the floral bracts under a flower are cupular, while the description and figures of King et Pantling and those of Seidenfaden et Smitinand show that they are lanceolate. In my observation, the uppermost bract is often cupular with or without indistinct laminar apex. Bracts of lower level transformed to unilaterally elongated sheath-like shape attaining finally to sheathed bracts provided with distinct laminar portion, which is often exerting the cupulate bract.

Eria muscicola Lindley: Fl. E. Himal. 434 (1966).

NEPAL. Papung—Bir Gaon, 2000–1600 m (Jun. 30, 1972).

Eulophia herbacea Lindley, Gen. Sp. Orch. 182 (1833)—Dalz. et Gibs., Bomb.

Fl. 265 (1861)—Hook. f., Fl. Brit. Ind. **6**: 2 (1890)—Duthie in Ann. Bot. Gard. Calc. **9**: 123, t. 106 (1906).

NEPAL. Shyaprubensi—Tangjet, 1500–1800 (Jun. 27 & Jul. 9, 1970).

Distr. Garwhal, Nepal, Koncan, and Bengal.

Our specimen and Dr. Kanai's photograph of the flower agree in every detail with the description and the figure given by Duthie. The sepals are green and the lip and petals are white.

The specimens were collected on narrow ridge line under a *Pinus Griffithii*-forest with *Habenaria intermedia*.

Gastrochilus distichus (Lindley) O. Kuntze: Fl. E. Himal. 435 (1966); **2**: 187 (1971).

NEPAL. Hile—Chitre, 1900–2400 m (Jun. 5, 1972).

Gastrodia Dyeriana King et Pantling in Journ. Asiat. Soc. Beng. **64**: 342 (1895); Orch. Sikkim. 259, t. 345 (1898). [Plate 7d]

DARJEELING. Palmajua, 2200 m (Aug. 7, 1972).

Distr. Sikkim.

Only one specimen was met with by a path which penetrates an evergreen oak forest. Stems 62 cm high, including floriferous spike attaining 16.5 cm, bearing 17 bracts.

Judging from the specimen and photographs, it seems that the basal portion of the flower tube is first disorganized and drops off from the rest of the flower, leaving the weakened column on the ovary. Refer to Fig. 18, a–d. This is quite the same condition as I have observed in *Gastrodia nipponica* and *G. confusa* in Japan.

Geodorum purpureum R. Brown in Aiton, Hort. Kew. ed. 2, **5**: 207 (1813)—Hook. f., Fl. Brit. Ind. **6**: 16 (1890)—King et Pantl., Orch. Sikkim. 181, t. 245 (1898)—? Seidenf. et Smitin., Orch. Thail. 472, fig. 350, pl. 20 (1961).

NEPAL. Dingla, 1000 m (Jul. 2, 1972).

Distr. Ceylon, tropical Himalaya (Nepal eastward to Bhutan), Bengal, Assam, Burma, and ?Thailand.

The unicate specimen was collected under the sparse forest. Unfortunately, however, the flowers were a little too early in the flowering season for correct determination. A better flower was dissected and examined under the microscope. A lateral sepal is 1.3 cm long, and a petal examined seemed to be 1.0 cm long. A lip pressed right laterally was examined. It is as long as the petal. The lip is gradually ventricose in the lower half, with the margins rather regularly repand through all its margins with acute sinus. The column is short and thick, about 3.5 mm long and 2.0 mm thick, with a dentate apex and a couple of protuberances on the sub-apical anterior margins, the anther already having dropped off.

Drs. Seidenfaden and Smitinand on page 475 of the literature cited above tentatively divided the *Geodorum* alliance of Thailand into 2 groups, i.e. one group that flowers in April to June having less developed vegetative parts, with the petioles of the leaves still hidden, and an other group that flowers mainly in July to August, with the petioles at the time of flowering being quite long and free of the sheaths. According to their classification, our plant belongs apparently

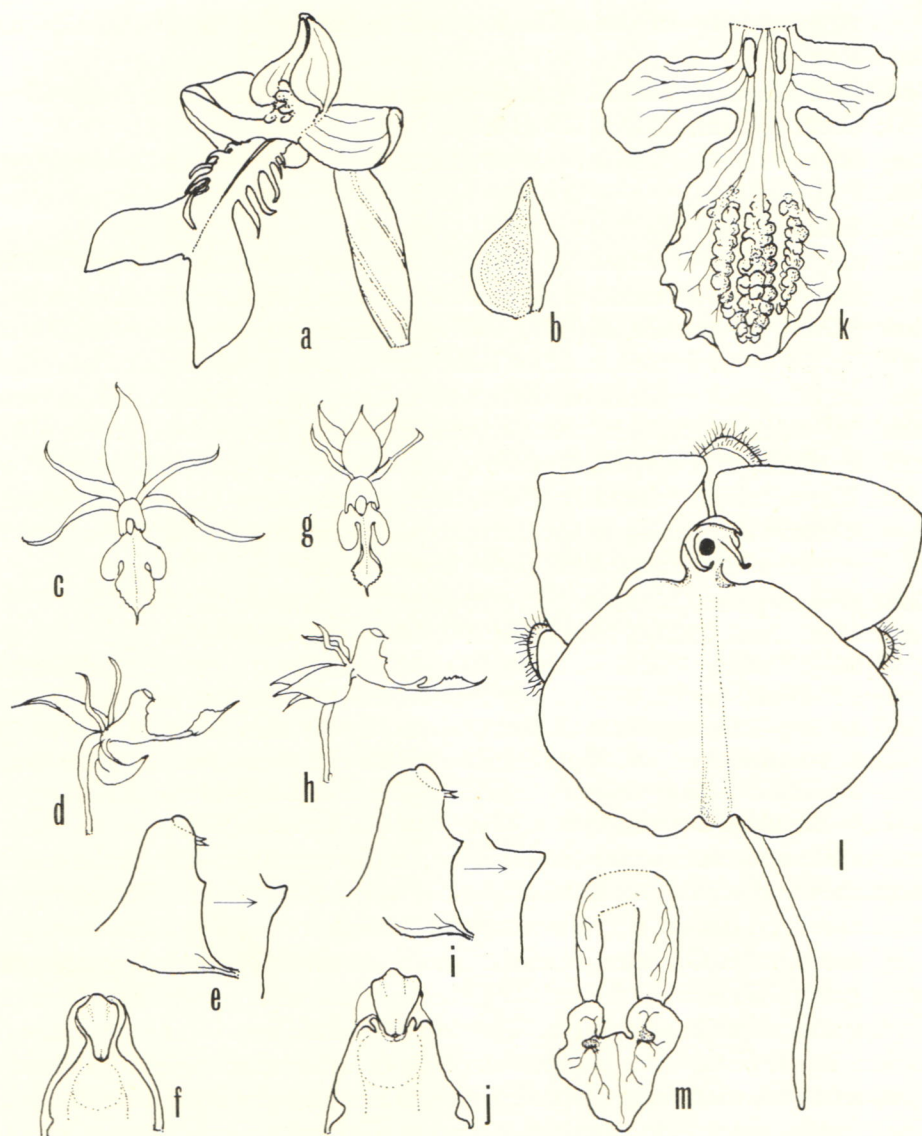


Fig. 17. Himalayan Orchid Flowers* (1). a, b. *Anoectochilus lanceolatus* (Simkuna, Aug. 10, 1972). a. Flower, oblique anterior view, \times ca. 2, b. Petal, \times ca. 2. c–f. *Calanthe puberula* (Palmajua, Aug. 7, 1972). c, d. Flowers, anterior and lateral views, \times ca. 1. e, f. Columns, lateral and anterior views, \times ca. 2. g–j. *Calanthe reflexa* (Japanese plant). g, h. Flowers, anterior and lateral views, \times ca. 1. i, j. Columns, lateral and anterior views, \times ca. 2.5. k. *Calanthe tricarinata* (Tinjure–Dor, Jul. 6, 1972). Lip, spread out, \times ca. 2. l. *Diplomeris hirsuta* (Sim Chotala, Aug. 19 & 20, 1972). Flower, anterior view, \times ca. 1.8. m. *Epipactis Helleborine* (Singung Gompa, Aug. 22, 1972). Lip, \times ca. 5.7.

(c–j. fresh materials, l, m. from a transparency of Dr. Hara).

*If not otherwise mentioned, all the sketches included in Figs. 17–22 are drawn from moistened specimens. Hence in many instances, the posture of the flowers illustrated here is artificial.

to the first group. My determination is tentative, and so is the distribution mentioned above.

Goodyera Hemsleyana King et Pantling in Journ. Asiat. Soc. Beng. **65**: 342 (1895); Orch. Sikkim. 281, t. 373 (1898).

DARJEELING. Palmajua, 2200 m (Aug. 7, 1972, ster., cultivated and flowered, pressed on Jul. 29 & 30, 1974).

Distr. Sikkim.

This was actually collected by Prof. Hara, and carefully brought back to Japan. Cultivation was made at Karuizawa, Central Honshu, by him. It began to flower from the middle of July, 1974. Examination was made on the fresh flower (Fig. 18, f-n). It well matches King and Pantling's description and figure. Leaves are distinctly reticulated with white. The sepals reddish brown outside covered by thick erect hair that is multicellular. The dorsal sepal oblong-lanceolate, obtuse at the apex, 3-nerved, and the lateral sepals similar but a little oblique. The petals translucently white, narrowly rhomboid-oblong, angustate on both ends unequal cohering to the dorsal sepal to make a hood. The apical part of the lip seems a little constricted in the flower examined.

Goodyera repens (Linnaeus) R. Brown: Fl. E. Himal. 436 (1966).

NEPAL. Phulchoki, 2000-2770 m (May 29, 1969, ster.-flowered on Jul. 30, 1974; Aug. 9, 1969); Tsedang Pokhari-Dobate, 3000-3230 m (Aug. 23, 1969); Thale Bisauna-Tingoang, 3000 m (Sep. 11, 1970); Tingoang-Khosori Khabre, 3000 m (Sep. 12, 1970); Thulo Tingsang-Tingsang, 3200-2900 m (Sep. 25, 1970); Lamo Pokhari, 2900 m (Jun. 9, 1972, ster.-flowered on Jul. 30, 1974); Chauke-Dor, 2900 m (Jul. 6, 1972); Singum Gumpa-Gosainkund, 3200-4200 m (Aug. 23, 1972); Hile Dhap-Mangen, 3100 m (Aug. 27, 1972); Mangen-Khodang Danda, 3100-2500 m (Aug. 28, 1972).

In my statement on this plant in 1966, I have discussed variation in the hairiness of the scapes and sepals on one plant which was the only one collected by us at that time. Several dozens of specimens were thereafter collected from the many localities listed above. On examination of these, hairiness on the scape and sepals is found general feature of this species in the Himalayan region as is found in plant of Japan and its neighbouring area. The degree of hairiness is due to individual variation. In the Himalayan plants, there are often more densely hairy individuals as compared with the average Japanese plants. Hence, there is no basis to separate the Himalayan plant such as subsp. *marginata* Kitamura. Dr. Maekawa proposed a new variety name for the Himalayan plants on page 465 of his elaborate work on the Japanese orchids, *The Wild Orchids of Japan in Color*, 1971, because he assumed that they usually have glabrous scapes. This newly proposed name, however, cannot be tenable because of the fact explained above and also it is not in accordance with the International Code. It is noteworthy that the Himalayan plant has in many cases larger, thicker leaves, and the spike (floriferous part of the stem) attains to 17 cm in length, and as more densely flowered. In the Japanese plants, the length of the spike commonly ranges between 2 and 5 cm. Dr. Hara has cultivated the long-spiked form of Himalaya at Karuizawa which borne flowers quite the same in size and structure as of the common Japanese form, but this still retained the Himalayan features explained above.

In dissecting the dried Himalayan *Goodyera repens* specimen, I noticed 4 longitudinal callosities among the 5 main nerves at the base of the saccate part of the lip. These, on examination of the living Himalayan plant, proved to be small longitudinal ridges arising abruptly and gradually attenuating downwards. These are also observed in the all Eastern Asiatic specimens I have examined, and seem to have been overlooked by the earlier authors.

Scape 22 cm long, spike 10.7 cm long, retrorsely hairy on the scape and the spike. Pilosity on the sepals is poor, but there are some hairs mainly on the lateral sepals.

Habenaria¹⁾ (§ Hologlossa) **arcuata** (Lindley) Hooker f.: Fl. E. Himal. 2: 188 (1971).

NEPAL. Phulchoki, 2700 m (Jun. 10, 1969; Jun. 10 & 20, 1970); Yatumbal–Oo Kharka, 2700–3400 m (Jun. 30, 1970).

Additional specimens were found in abundance. Further comparison with the Japanese *Habenaria japonica* will be published in a separate paper. This was collected sporadically in the calcareous area on the humus under a sparse evergreen forest.

Habenaria (§ PlatyGLOSSa) **arienata** Hooker f.: Fl. E. Himal. 2: 188 (1971).

H. pectinata D. Don var. *arienata* Kränzlin, Orch. Gen. Sp. 1: 405 (1898).

NEPAL. Baroya Khimty, 2500 m (Nov. 11, 1963, old fls.); Bhorlang–Pati Bhanjyang, 2300–1750 m (Aug. 21, 1967); Dunche, 1900 m (Aug. 22, 1969).

DARJEELING. Ubayuri-dani, 2200 m (Jul. 25, 1972); Phalut–Raman, 3600–2100 m (Aug. 4, 1972); Raman–Rimbick, 2400–1900 m (Aug. 5, 1972); Palmajua–Batasi, 2200–2100 m (Aug. 8, 1972); Darjeeling–Lopchu, 2200–800 m (Aug. 12, 1972).

Flowers greenish. The habitat is the sunny grassy slope with the exposed rocks scattered thereabout with few stands of *Quercus semecarpifolia*.

Habenaria (§ Hologlossa) **Bakeriana** King et Pantling: Fl. E. Himal. 2: 189 (1971).

NEPAL. Tsedang Pokhari–Panghu Danda, 3600 m (Aug. 23, 1969); Mul Kharka–Yatumbal, 3200 m (Jul. 7, 1970); Nessum–Bhuje, 1300–2700 m (Jul. 3, 1972); Bhuje–Chauke, 2700–2900 m (Jul. 4, 1972); Chauke–Dor, 2900–2600 m (Jul. 6, 1972); Tinjure, 2900 m (Jul. 6, 1972).

DARJEELING. Tonglu–Sandakphu, 2800–3600 m (Jul. 31, 1972); Sandakphu–Phalut, 3200–3600 m (Aug. 2, 1972); Phalut, 3600 m (Aug. 3, 1972).

Habenaria (§ Hologlossa) **Biermanniana** King et Pantling in Journ. Asiat. Soc. Beng. 64: 343 (1895); Orch. Sikkim. 318, t. 419 (1898).

Platanthera Biermanniana (King et Pantling) Kränzl., Orch. Gen. Sp. 1: 636 (1899).

NEPAL. Minchin Dhap–Mul Pokhari, 2500 m (Oct. 29, 1963); Baroya Khimty–Thakma Khola, 3200 m (Nov. 12, 1963); Ingyur–Tsedang Pokhari, 2100–3000 m (Aug. 22, 1969).

Distr. Temperate Himalaya (C. Nepal and Sikkim).

Characteristics of this species in the dried condition are that the whole plant

1) In treating *Habenaria* and its allied genera, I have included *Platanthera*, *Peristylis*, etc. under the genus *Habenaria*, as the delimitation between these genera is not convincing.

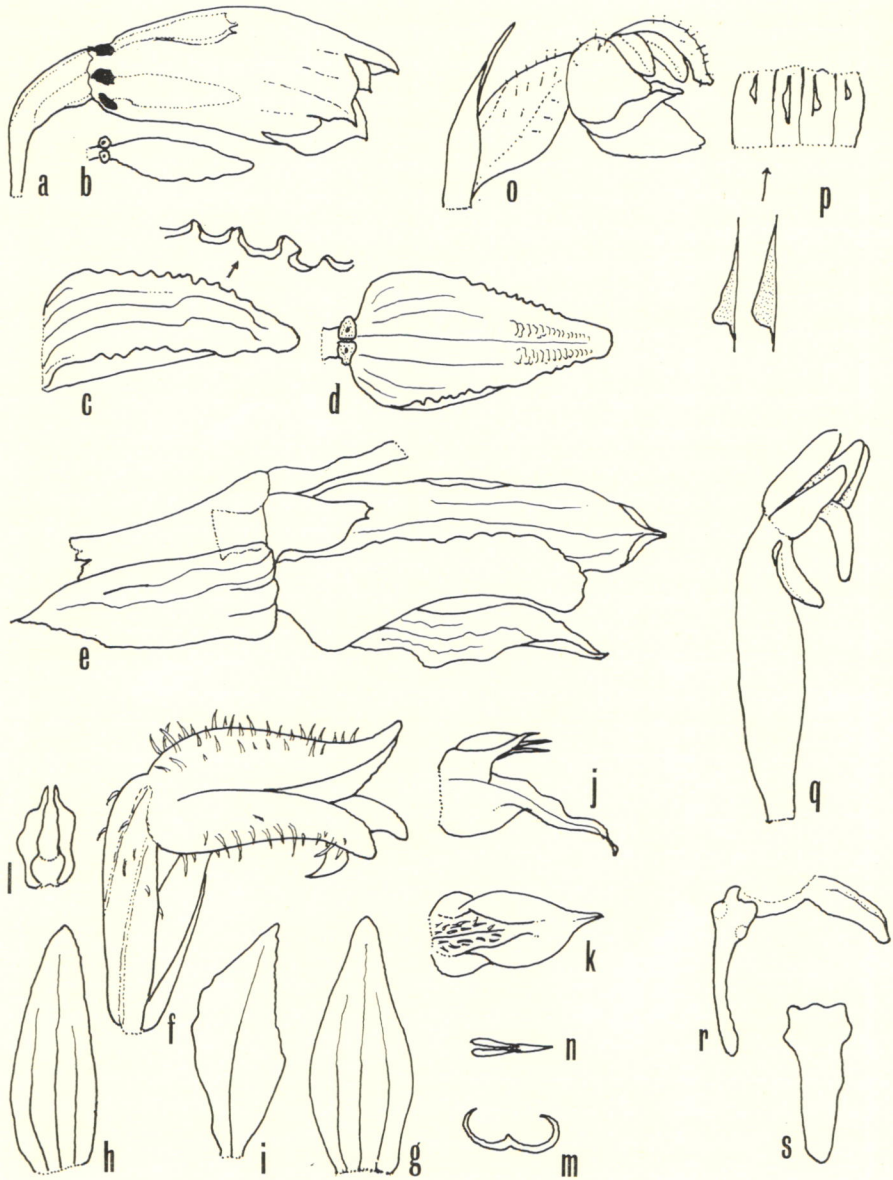


Fig. 18. Himalayan Orchid Flowers (2). a-d. *Gastrodia Dyeriana* (Palmajua, Aug. 7, 1972). a. Flower, lateral view with column and lip seen through flower-tube, \times ca. 5.5, b. Lip, slightly deformed, \times ca. 5.5, c, d. Lips, oblique lateral and upper views, with the basal portion cut off, \times ca. 11, e. *Geodorum purpureum* (Dingla, Jul. 2, 1972). Flower, dorsal sepal and one of the petals are partly broken, \times ca. 4.3. f-n. *Goodyera Hemsleyana* (Palmajua, Aug. 7, 1972). f. Flower with bract, g, h. Sepals, dorsal and lateral views, i. Petal, j. Lip and column, lateral view, k. Lip, upper view, l. Column, upper view, with the anther taken out, m. Hypochile, transection, \times ca. 8, n. Pollinium, f-l & n \times ca. 6.5. o, p. *Goodyera repens* (Phulchoki, May 29, 1969). o. Flower, with bract, \times ca. 6, p. Lower portion of hypochile, with thin lamellae between the nerves, \times ca. 12. q-s. *Habenaria Biermanniana* (Ingyur-Tsedang Pokhari, Aug. 22, 1969). q. Flower, \times ca. 4.8, r. Lip with spur, s. Lip, anterior view, r-s \times ca. 6.2.

becomes blackish, and the scape is hardened, which is thick when alive as compared with the similar species. The leaves are thick in texture and chartaceous when dry. A remarkable feature of this species is the expanded part of the leaf-blade, which is comparatively smaller than the rest of the leaf, i.e., the vaginating or amplexicaul part of the basal part of lamina and the petiole. The flowers on the specimen are too old for minute examination, but the rough sketches were made. As to the shape of the lip, King and Pantling say "lip fleshy, much decurved, linear oblong, tapering slightly to the obtuse apex, with minute and tooth-like side lobes; spur as long as the lip, curved subclavate, dorsally compressed". In this concern, Dr. Kränzlin says that the lip (he erroneously writes "Die Petalen") has on the outsides a suggestion of anterior division in the shape of an obtuse triangle. He could not examine the specimen, but had a chance to see the plate of King and Pantling. In my observation "the triangle" is a somewhat amorphous outgrowth directed obliquely upwards from the margin of the lip.

Habenaria (§ Trimeroglossa) **commelinifolia** Wallich [Cat. no. 7037 (1832), nom. nud.] ex Lindley, Gen. Sp. Orch. 325 (1835)—Hook. f., Fl. Brit. Ind. **6**: 143 (1890)—Kränzlin in Engler, Bot. Jahrb. **16**: 137 (1893); Orch. Gen. Sp. **1**: 322 (1898), ut *commelynifolia*—Duthie in Ann. Bot. Gard. Calc. **9**: 183, t. 134 (1906)—Gagnepain et Guillaumin in Lecomte, Fl. Gen. Indochine **6**: 612 (1934)—Seidenf. et Smitin., Orch. Thail. 41, fig. 31 (1959).

Orchis commelinifolia Roxburg, Fl. Ind. ed. 2, **3**: 451 (1832).

Platanthera commelinifolia Lindley [in Wall., Cat. no. 7037 (1832), nom. nud.] ex Kränzlin, l.c. 322 (1898), ut *commelinaefolia*.

NEPAL. Betrawati—Sim Chotala, 900 m (Aug. 19, 1972).

Distr. Tropical W. Himalaya (Simla, Kumaon, Garhwal, C. Nepal), Peninsular India (Konkan, Kanar), Upper Burma, Thailand, and Cochinchina.

It seems rather rare in Nepal.

Habenaria (§ Hologlossa) **densa** Wallich ex Lindley: Fl. E. Himal. 437 (1966); **2**: 189 (1971).

NEPAL. Latsu—Bhorlang, 1700–2400 m (Aug. 30, 1972).

DARJEELING. East Side, 2100 m (Jul. 23, 1972); Phalut—Raman, 3600–2100 m (Aug. 4, 1972).

This species is perhaps one of the most commonly distributed *Habenaria* throughout the whole area we have botanized during 1960 to 1972. By the photograph taken by Dr. Kanai between Phalut and Raman the natural posture of the flower was confirmed. The beaked portion of the ovary is gradually incurved with its apex directed stright downwards, hence the hood consists of the dorsal sepal and the petals that are pointed horizontally. The lateral sepals are strongly reflexed and incurved with their apices close together. The lip is directed downwards or a little reflexed backwards. The spur is cylindrical or a little narrowed to the base and suddenly ending in an obtuse apex, directed backwards and slightly arcuated in alignment with the beak of the ovary. These postures are somewhat different from that of King and Pantling's specimen. In the dried specimen or even in a boiled specimen, the narrowed portion of the spur is often too much emphasized as compared with the fresh material.

Habenaria (§ *Platyglossa*) **dentata** (Swartz) Schlechter: Fl. E. Himal. 437 (1966).

NEPAL. Bainse-Sim Chotala, 600–900 m (Aug. 19, 1972).

Habenaria (§ *Hologlossa*) **Elizabethae** Duthie in Journ. Asiat. Soc. Beng. 71 (2): 44(1902); in Ann. Bot. Gard. Calc. 9: 191, t. 143 (1906)—Collett, Fl. Siml. 505 (1902); ed. 2, 505 (1921).

NEPAL. Bilbatay Bhanjyang-Hati Surde, 2400–2900 m (Oct. 27, 1963); Hati Surde-Minchin Dhap, 2600–2900 m (Oct. 28, 1963); Minchin Dhap-Mul Pokhari, 2500 m (Oct. 29, 1963); Tsedang Pokhari-Dobate, 3000–3230 m (Aug. 23, 1969); Khanging-Langtang Gorge, 2600 m (Jul. 11, 1970); Thale Bisauna-Tingoang, 2750–3100 m (Sep. 11, 1970).

DARJEELING. Phalut-Raman, 3600–2400 m (Aug. 4, 1972).

Distr. Temperate Himalaya (Garhwal, Simla to Darjeeling).

The plant is slender with commonly two leaves, which are lanceolate in shape and rather thin in texture. The small flowers are well spaced on the strict spike, and the floral bracts are shorter than the ovary. At a glance, the bracts are not conspicuous. The small spur is slightly grooved longitudinally on both anterior and posterior surfaces throughout. The shape of the lip seems to be considerably variable as shown in Fig. 19.

Habenaria (§ *Peristylis*) **fallax** (Lindley) King et Pantling, Orch. Sikkim. 325, t. 428 (1898).

Peristylis fallax Lindley, Gen. Sp. Orch. 298 (1835)—Kränzl., Orch. Gen. Sp. 1: 512 (1898).

Herminium fallax Lindley [in Wallich. Cat. no. 7412 (1832), nom. nud.] ex Hook. f., Fl. Brit. Ind. 6: 129 (1890); Icon. Pl. t. 2198 (1894).

NEPAL. Bilbatay Bhanjyang-Hati Surde, 2400–2900 m (Oct. 27, 1963); Langtang Gorge-Langtang, 3400 m (Jul. 12, 1970); Tinjure, 2900 m (Jul. 6, 1972).

Distr. Temperate Himalaya (Kumaon to Sikkim).

The plant has one leaf only, and the spike is very densely flowered with the exerting floral bracts giving the very distinct appearance specific to this kind. The densely flowered nature of this plant is seen in J. D. Hooker's figure, where the floral bracts are rather smaller than our plants. As to the shape of the lip, D. J. Hooker says very variable. In this respect refer to Fig. 19.

J. D. Hooker says that the spike of this species is densely or sparsely flowered. Ours are among the former, while the one figured by Pantling is of the latter, with the bracts shorter than or equaling the ovary as is described and figured by King. In these respects King and Pantling's plant might have been the extreme form.

Habenaria (§ *Peristylis*) **goodyeroides** D. Don: Fl. E. Himal. 438 (1966).

NEPAL. Tangjet-Shyaprubensi, 2240–1500 m (Jul. 9, 1970); Bir Gaon-Dingla, 1600–1000 m (Jul. 1, 1972); Sim Chotala-Gram, 900–1900 m (Aug. 20, 1972).

According to King and Pantling, flowers are white or creamy, and the sepals are tinged with brown. According to Dr. Kanai, the flower is pale greenish yellow, spotted with dirty brown at the base of the lip, and the spur being translucent. Dr. Hara's field note reads that the flower is light ochraceous yellow, or dirty yellowish white. Under the microscope, petals are thicker in texture as of the lip,

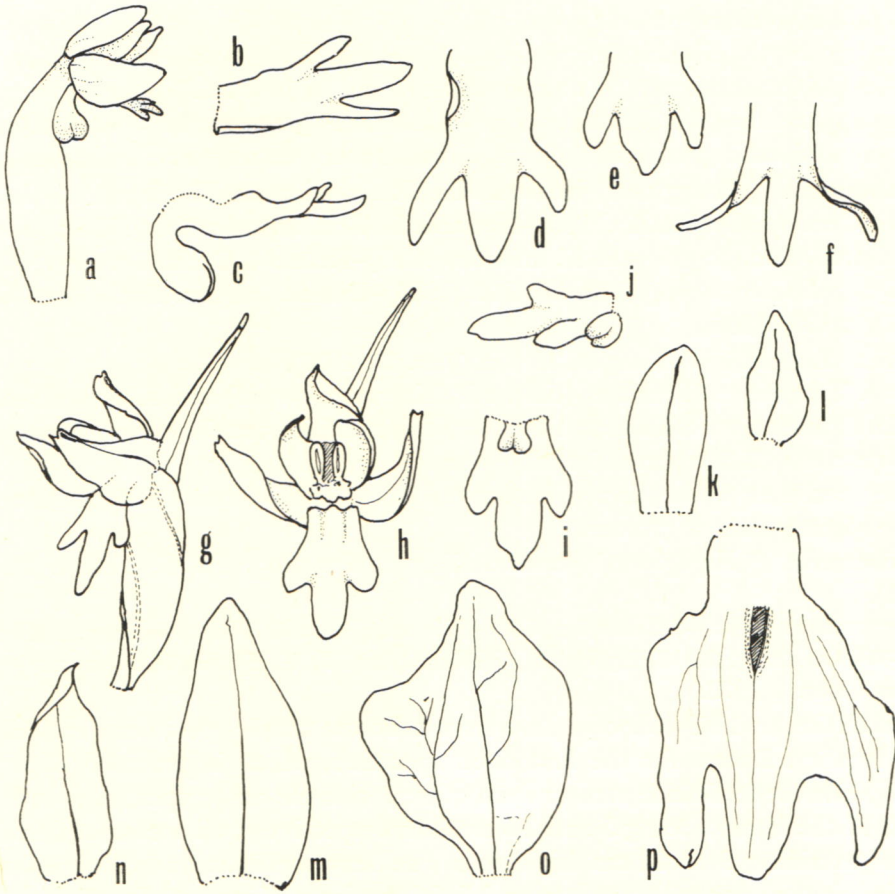


Fig. 19. Himalayan Orchid Flowers (3). a-f. *Habenaria Elizabethae* (a: Khan-ging-Langtang Gorge, Jul. 11, 1970). a. Flower, lateral view, $\times 4$, b. Lip, upper oblique view, \times ca. 14, c. Lip, lateral view, \times ca. 10, d-f. Lips, upper portions, \times ca. 14. g-l. *Habenaria fallax* (Tinjure, Jul. 6, 1972). g, h. Flowers, oblique anterior and anterior views, i, j. Lips, oblique upper and upper views, k. Dorsal sepal, l. Petal, g-l \times ca. 6. m-p. *Habenaria goodyeroides* (Sim Chotala-Gram, Aug. 20, 1972). m. Dorsal sepal, n. Lateral sepal, o. Petal, p. Lip, m-p \times ca. 16.

and they are celluloso-papillose, and especially more so as to the lip. The size of the flower is variable. For example, the dorsal sepals of the fully expanded flowers from two plants collected in different localities are 5.7, 4.7, and 4.0 mm respectively. Persistently, however, there are always low and thin convergent calli in a parallel pair at the base of the lip, and a longitudinal depression in between. In our collection, I could not find *Habenaria goodyeroides* var. *affinis* (D. Don) King et Pantling, l.c. 327, t. 430-bis (1898), ut var. *affinis* L. [= *Habenaria affinis* D. Don, Prodr. Fl. Nepal. 25 (1825)].

In D. Don's Obs. (Observation) of *Habenaria affinis* we read "Praecedenti (*H. goodyeroides*) valde sicut (ut sit) affinis; sed omnibus partibus triplo minor," and Lindley's var. β (syn. *Habenaria affinis* Don) is followed by 'floribus minoribus,

spicis foliisq. brevioribus'.

In their key to Sikkimese species of *Habenaria*, King and Pantling says that "Lip . . . with a horizontally oblong collum near its base . . .". The last description is apparently their addition of new characters given to the variety. Dealing with the *Habenaria goodyeroides* group, I have never seen any such horizontal calli.

Habenaria (§ *PlatyGLOSSA*) **intermedia** D. Don, Prodr. Fl. Nepal. 24 (1825)—Lindl., Gen. Sp. Orch. 322 (1835)—Hook. f., Fl. Brit. Ind. **6**: 138 (1890); in Ann. Bot. Gard. Calc. **5**: 65, sub *H. arienata* (1895)—Kränzl., Orch. Gen. Sp. **1**: 403 (1898); in Engler, Bot. Jahrb. **16**: 191 (1900)—Duthie in Ann. Bot. Gard. Calc. **9**: 180, t. 131 (1906).

NEPAL. Shyaprubensi—Tangjet, 2200 m (Jun. 27, 1970).

Distr. Temperate Himalaya (Kashmir, Kumaon, Nepal) and Khasia Hills.

J. D. Hooker cited Sikkim as a locality of this orchid, but Duthie says that there are no records of the species from the area.

The specimen was collected under a *Pinus Griffithii*-forest on the ridge line on the slightly shaded ground.

Habenaria (§ *Hologlossa*) **juncea** King et Pantling: Fl. E. Himal. **2**: 189 (1971).

DARJEELING. Phalut—Sandakphu, 3300–3970 m (Jul. 19, 1969); Sandakphu—Phalut, 3200–3600 m (Aug. 2, 1972); Phalut, 3600 m (Aug. 3, 1972); Phalut—Raman, 3600–2100 m (Aug. 4, 1972.)

In addition to 1969-collection, we have collected ample specimens around the same locality. Except for the first cited specimen, which is provided with two leaves, with the leaf-blade stouter than others, with the acute apex, and with the length of the lamina being 5 and 2.5 cm long respectively, all the other plants are slender attaining 9 to 22 cm high with one leaves elliptic to broadly oblong, rounded at the apex with the lamina 1.5–5.0 cm long. King and Pantling's plant is 12 inches (about 30 cm) high, with the solitary leaves 1.5–2.5 inches (3.8–6.4 cm) long, subacute at the apex.

Habenaria (§ *Hologlossa*) **latilabris** (Lindley) Hooker f.: Fl. E. Himal. 438 (1966); **2**: 189 (1971).

NEPAL. Barabise—Thale, 2000 m (Sep. 9, 1970); Chauke—Dor, 2900–2600 m (Jul. 6, 1972); Gram—Dunche, 1900–2000 m (Aug. 21, 1972); Dunche—Singum Gompa, 1900–3200 m (Aug. 22, 1972).

DARJEELING. East Birch Hill Road, 2100 m (Jul. 22, 1970); Sandakphu—Phalut, 3200–3600 m (Aug. 2, 1972).

There are variations in hairiness on the sepals due to individual differences. In some instances, the specimen seems to be almost glabrous under the lens. It revealed to be a matter of degree, when examined under microscope. Refer to plate 9 of this volume.

Habenaria (§ *Hologlossa*) **nematocaulon** Hooker f., Fl. Brit. Ind. **6**: 154 (1890)—King et Pantling, Orch. Sikkim. 316, t. 416 (1898).

Platanthera nematocaulon (Hooker f.) Kränzlin, Orch. Gen. Sp. **1**: 942 (1901).

DARJEELING. Tonglu—Sandakphu, 1800–3600 m (Jul. 31, 1972).

Distr. Alpine Himalaya (Darjeeling, Sikkim).

Only one collection including 4 plants is in my hands. They are very small and slender plants attaining to 14–22 cm in height. One leaf is borne 4–5 cm above the tuber, with the leaf-blade narrowly and linearly oblong, subacute at the apex. Above this leaf, 2–4 small leaves with the leaf-blades less than 1 cm are expanding horizontally, gradually becoming smaller and intergrading into the bracts. The spike is short, 1.5–3.0 cm long, densely and secondly flowered. Floral bracts are equal to or shorter than the ovary. The lateral sepals and the petals adnate to the base of the lip.

Habenaria (§ Phyllostachya) **obcordata** (Buch.-Ham. ex D. Don) Fyson, Fl. Nilg. & Puln. Hill-Tops **1**: 405, t. 258 (1915).

Orchis obcordata Buch.-Ham. ex D. Don., Prodr. Fl. Nepal. (1825).

Gymnadenia obcordata (Buch.-Ham. ex D. Don) Reichb. f., Otia **2**: 32 (1869).

Phyllomphax obcordata (Buch.-Ham. ex D. Don) Schlechter in Fedde, Repert. Beih. **4**: 119 (1919)–Fyson, Fl. S. Ind. Stat. **2**: 594, t. 528 (1932).

NEPAL. Tangjet–Shyaprubensi, 1750–2240 m (Jul. 9, 1970); Shyaprubensi–Dunche, 1500–2000 m (Jul. 19, 1970).

Distr. Temperate Himalaya (Kumaon, Nepal).

Wallich Catalogue no. 7050 includes three plants, i.e. Wallich's own collection, a specimen from Hort. Bot. Calc., and R. Blinkworth's. These three show good match with our specimens cited above. This species belongs to a very unique plant group as explained by J. D. Hooker in his Fl. Brit. Ind. **6**: 132 (1890). I have, however, no idea yet on the generic segregation of this group of plants from *Habenaria* or *Platanthera* as has been done by Schlechter.

Habenaria (§ Platyglossa) **pectinata** D. Don, Prodr. Fl. Nepal. 24 (1825)–Lindl., Gen. Sp. Orch. 321 (1835)–Hook. f., Fl. Brit. Ind. **6**: 137 (1890)–King et Pantl., Orch. Sikkim. 310, t. 406 (1898)–Kränzl., Orch. Gen. Sp. **1**: 405 (1898); in Engler, Bot. Jahrb. **16**: 192 (1900).

NEPAL. Shyaprubensi–Khangang, 1500–2300 m (Jul. 10, 1970); Shyaprubensi–Dunche, 1500–2000 m (Jul. 19, 1970); Shewaden–Papung, 2600–2000 m (Jun. 29, 1972); Papung–Bir Gaon, 2000–1600 m (Jun. 30, 1972); Gram–Thale, 1900 m (Aug. 21, 1972); Dunche–Singum Gompa, 2200–3200 m (Aug. 22, 1972).

Distr. Temperate Himalaya (Simla, Nepal, Sikkim) and Khasia.

There are views that *Habenaria arienata* can not be separable from *Habenaria pectinata* as a distinct species. Already in 1890, in his Flora of British India **6**: 138 under the entry of *Habenaria arienata*, J. D. Hooker states as follows: So similar in a dried state to *H. pectinata* as to be with difficulty distinguishable, and though separated by Lindley, perhaps only a variety. Both species are similar in becoming blackish when dry, whole stature of plant, the large and broad floral bracts, size and form of the flower including those of the lip and in addition almost the same general appearance. Lateral sepals similarly strongly curved backward. King and Pantling say, in their diagnostic key to these two species, that in the former species, *Habenaria pectinata*, the petals are not dilated at the base on the outer side, and is not pubescent on the inner side. According to them, in *Habenaria arienata* the case is contrary. My observation on the distinctness of the species is as follows. In *Habenaria pectinata*, the flowers are more congested, while in *Habenaria arienata*

they are well spaced on the same growth condition. In addition, the hood formed by the cohesion of the dorsal sepal and the petals is kept only for a short time after unfolding, in sharp contrast to *Habenaria arienata* which retains its hood until to shortly before the withering. In the former, the petals and sepals are green with the lip a little lighter in colour and its segments thicker than the former and in addition the spur is a little exceeding, equalling, or being shorter than the ovary. In the latter, however, tepals are pale greenish white, the lip is paler coloured, its segments are thinner and filamentous, and the spur is long exceeding the ovary. King and Pantling describe that the leaves are linear-lanceolate and acuminate in the former, and they are narrowly elliptic in the latter. Actually, however, the range of variation is overlapping each other in both species, and the distinction between the two is not so sharp in this respect. The place of collection at Gram-Thale is a grassland with the surviving small patch of *Pinus Roxburghii*, and that at Dunche-Singum Gompa is the abandoned paddy field owing to the land slide. The Dunche-Singum Gompa specimen is pubescent on the inner side of the petal. This kind of specimen might have been taken as a intergrading form between *Habenaria pectinata* and *H. arienata* by the botanist who could not examine the plant alive, and might gave them a basis to treat one as a variety of the other. From all the explanation given above, however, such a treatment cannot be tenable.

Habenaria (§ Dipyla) **secundiflora** Hooker f., Fl. Brit. Ind. **6**: 165 (1890); Icon. Pl. t. 2321 (1895)—King et Pantl., Orch. Sikkim. 330, t. 433 (1898).

Peristylis secundiflorus (Hooker f.) Kränzlin, Orch. Gen. Sp. **1**: 518 (1898).

NEPAL. Phulchoki, 2400–2700 m (Sep. 19, 1970).

Distr. Subalpine Himalaya (Kumaon, Nepal, Sikkim, Bhutan) and S. Tibet (Chumbi).

Habenaria (§ Hologlossa) **sikkimensis** Hooker f., Fl. Brit. Ind. **6**: 155 (1890)—King et Pantl., Orch. Sikkim. 317, t. 417 (1898).

Platanthera sikkimensis (Hook. f.) Kränzlin, Orch. Gen. Sp. **1**: 621 (1898).

NEPAL. Hati Surde-Minchin Dhap, 2600–2900 m (Oct. 28, 1963); Dor-Chauke, 2600–2900 m (Jun. 7, 1972).

Kränzlin says, this species is remarkable for its foliaceous, large, recurving floral bracts.

Habenaria (§ Hologlossa) **stenantha** Hooker f., Fl. Brit. Ind. **6**: 153 (1890)—King et Pantl., Orch. Sikkim. 314, t. 412 (1898).

NEPAL. Hati Surde-Minchin Dhap, 2600–2900 m (Oct. 28, 1963); Minchin Dhap-Mul Pokhari, 2600 m (Oct. 29, 1963); Siling Tzokupa, 2100 m (Nov. 21, 1963).

DARJEELING. Palmajua-Batasi, 2200–2100 m (Aug. 8, 1972).

Kränzlin includes this species under *H. latilabris* (Lindl.) Hook. f. (Orch. Gen. Sp. **1**: 442, 1898), but it can not be tenable.

On examination of Dr. Hara's photograph at Thale Patil, alt. 3400 m on Aug. 27, 1972, the natural posture of the flower and its parts were clarified. The ovary with its beaked part strongly arcuate as a whole with the apex pointing downwards often keeping its apex lower than the place of insertion of the flower. Hence the floral bract which is shorter than the ovary is pressed under the curved ovary.

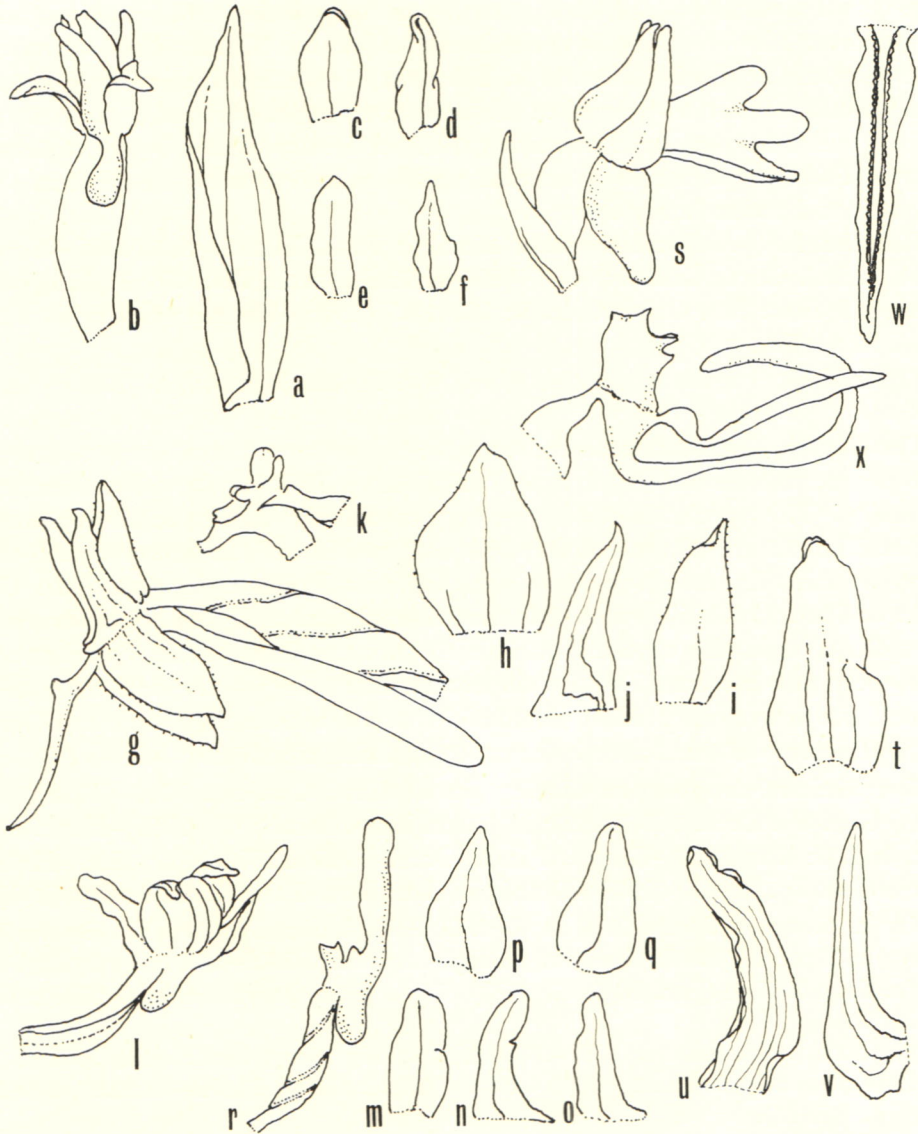


Fig. 20. Himalayan Orchid Flowers (4). a-f. *Habenaria juncea* (Phalut-Sandakphu, Jul. 19, 1969). a. Bract, b. Flower, oblique ventral view, c. Dorsal sepal, d, e. Lateral sepals, f. Petal, a-f \times ca. 6. g-k. *Habenaria latilabris* (Sandakphu-Phalut, Aug. 2, 1972), g. Flower, oblique ventral view, h. Dorsal sepal, i. Lateral sepal, j. Petal, k. Column with portions of ovary, lip, and spur, g-k \times ca. 5. l-r. *Habenaria nematocaulon* (Tonglu-Sandakphu, Jul. 31, 1972), l. Flower, lateral view, m. Dorsal sepal, n, o. Lateral sepals, p, q. Petals, r. Flower without sepals and petals, l-r \times ca. 5.5. s. *Habenaria secundiflora* (Phulchoki, Sep. 19, 1970). Flower with bract, lateral view, \times ca. 6, t-x. *Habenaria sikkimensis* (Hati Surde-Minchin Dhap, Oct. 28, 1963). t. Dorsal sepal, u. Lateral sepal, v. Petal, w. Lip, spread out, x. Column with lip, spur, and upper portion of ovary, t-x \times ca. 6.

The dorsal sepal forms the hood with the petals pointing horizontally or a little downwards. The lateral sepals are deflexed backwards. The flat lip is straight and suddenly bent obliquely downwards. The spur is cylindrical pointing to the back straight and horizontally, or often slightly recurving downwards, its apex being quite obtuse. In the dried condition the spur is narrowed half way of the total length. There are a couple of lamellate calli on both sides of the midvein of the lip, as is to be seen in my figure.

Habenaria (§ *Ate*) **stenopetala** Lindley: Fl. E. Himal. 439 (1966)—Hook. f. in Ann. Bot. Gard. Calc. **5**: 177 (1895)—Kränzl., Orch. Gen. Sp. **1**: 358 (1898)—Duthie in Ann. Bot. Gard. Calc. **9**: 63, t. 95 (1906)—Withner, Orchids 133, pl. 48, f. 22 (1959).

NEPAL. Ghatte—Khebang, 2400–1700 m (Nov. 19, 1963); Phulchoki, 1600 m (Sep. 6, 1972).

The Ghatte—Khebang specimen seems, in the moistened condition, to have very thin petals, and the nerves on it are conspicuous. This may be due to the drying condition. This species is said to be very commonly distributed throughout the India. The stature of the whole plant and the size of the flower is said to be very variable. Kränzlin says that var. *polytricha* Hook. f. in Ann. Bot. Gard. Calc. **5**: 64, t. 96 (1895), which ‘has the all tepals including the lip are drawn out (ausgezögen) into the capillary ends’, is the extreme form of the typical one, and that every possible transitional form occurs. According to the field note of Dr. Kanai, the flower observed at Phulchoki is white with a slight nuance of green. Natural posture of the flower is shown by Dr. Kanai’s sketch.

Herminium congestum Lindley [in Wallich, Cat. no. 7068 (1832), nom. nud.] Gen. Sp. Orch. 305 (1835); in Journ. Linn. Soc. **3**: 43 (1859)—Hook. f., Fl. Brit. Ind. **6**: 130 (1890)—King et Pantl., Orch. Sikkim. 335, t. 440 (1898)—Kränzl., Orch. Gen. Sp. **1**: 930 (1901)—Duthie in Ann. Bot. Gard. Calc. **9**: 199 (1906).

NEPAL. Bhuspate Danra, 2800 m (Dec. 2, 1963, flowered at Shinjuku Gyoen Park, Tokyo on Apr. 26, 1964); Langtang Gorge—Langtang, 2800–3400 m (Jul. 12, 1970); Topke Gola, 3700 m (Jun. 18 & 19, 1972); Topke Gola—Shewaden, 3600–2600 m (Jun. 28, 1972).

DARJEELING. Sandakphu, 3790–3800 m (Jul. 15, 1969); Sandakphu, 3600 m (Jul. 16, 1969); Sandakphu—Phalut, 3600–3200 m (Aug. 2, 1972); Phalut—Raman, 3600–2100 m (Aug. 4, 1972).

BHUTAN. Tremo La—Chek, 4000 m (K. Nishioka, Jun. 23, 1966).

Distr. Alpine Himalaya (Baltistan, Kumaon, Nepal, Sikkim to Bhutan).

Herminium Josephii Reichenbach f. in Flora **54**: 276 (1872), ut *Josephii*—Hook. f., Fl. Brit. Ind. **6**: 129 (1890)—King et Pantl., Orch. Sikkim. 335, t. 441 (1898)—Kränzl., Orch. Gen. Sp. **1**: 534 (1898).

NEPAL. Langtang Gorge—Langtang, 2800–3400 m (Aug. 12, 1970).

Distr. Subalpine Himalaya (C. Nepal, Sikkim, Bhutan).

At present, the above-mentioned locality is the easternmost outpost of this species. Leaves 2–3, linearly oblanceolate, the scape naked. Against the description of King et Pantling, the lip is yellow green except the longitudinally ridged portion coloured with green (fide Dr. Kanai). The two ridges are located on both

sides of and very near to the midrib extending from the base, attaining to half the total length of the lip, with converging apieces.

Herminium lanceum (Thunberg) Vuijk: Fl. E. Himal. **2**: 190 (1971).

NEPAL. Sundarijar-Bhorlang, 1400-2400 m (Aug. 20, 1969; Aug. 31, 1972); Sim Chotala-Gram, 900-1900 m (Aug. 20, 1972); Gram-Dunche, 1900-2000 m (Aug. 21, 1970); Dunche-Singum Gompa, 1900-3000 m (Aug. 22, 1972).

DARJEELING. Phalut-Raman, 3600-2100 m (Aug. 4, 1972); Raman-Rimbick, 2400-2200 m (Aug. 5, 1972); Rimbick-Palmajua, 2200 m (Aug. 6, 1972); Palmajua-Batasi, 2200-2100 m (Aug. 8, 1972); Batasi-Mani Bhanjyang, 2100-2000 m (Aug. 9, 1972).

Perhaps one of the most commonly distributing species among the tribe Basi-tonae in the Himalayan region.

Herminium monophylla (D. Don) Hunt et Summerhayes in Kew Bull. **20**: 51 (1966).

Neottia monophylla D. Don, Prodr. Fl. Nepal. 27 (1825).

Herminium gramineum Lindley [in Wallich, Cat. no. 7413 (1832), nom. nud.] Gen. Sp. Orch. 305 (1835); in Royle, Ill. Bot. Himal. Mount. 370, t. 87, f. 3 (1835)-Hook. f., Fl. Brit. Ind. **6**: 131 (1890)-Kränzl., Orch. Gen. Sp. **1**: 535 (1898).

NEPAL. Barabise-Thale, 800-2000 m (Sep. 9, 1970).

Distr. Subtropical Himalaya (Kumaon, Garhwal, Nepal).

This specimen is much smaller than the commonly described form. It is only 3.3-5.0 cm high with one leaf that is linear and strongly recurving, and with hyaline sheath under the leaf.

Herminium pugioniforme Lindley ex Hooker f.: Fl. E. Himal. **2**: 190 (1971).

NEPAL. Thale Patil-Rock Shelter II, 3270-3220 m (Aug. 24, 1969); Oo Kharka-Mul Kharka, 3400-3800 m (Jul. 1, 1970); Mul Kharka, 3800 m (Jul. 3, 1970).

DARJEELING. Sandakphu, 3500 m (Aug. 1, 1972); Sandakphu-Phalut, 3300 m (Aug. 2, 1972).

Distr. Subalpine Himalaya (Kashmir, Garhwal, Nepal, Darjeeling, Sikkim).

Dr. Kanai gives a sketch at the place of collection for Mul Kharka plant, which shows the sepals deflexed from the base backwards. In my observation of the lip, the deflexed anterior portion of the lip has a couple of sinuses in its basal edge. I am not sure that these correspond to what King and Pantling call 'deep oval parallel pits'. The colour of the flower is green (fide Dr. Kanai).

Herminium quinquelobum King et Pantling in Journ. Asiat. Soc. Beng. **65**: 130 (1896); Orch. Sikkim. 332, t. 435 (1898)-Kränzl., Orch. Gen. Sp. **1**: 930 (1901).

Herminium fallax Hook. f. sensu Tuyama in Fl. E. Himal. 440 (1966).

NEPAL. Minchin Dhap-Mul Pokhari, 2900-2500 m (Oct. 29, 1963); Mul Pokhari-Dumhan, 2500-700 m (Oct. 30, 1963).

Distr. Temperate Himalaya (Nepal, Darjeeling, Sikkim).

As Hooker f. and Kränzlin already pointed out, this looks, in general appearance, like *Herminium lanceum* (Thunb.) Vuijk (= *H. angustifolium* Benth). In the former, however, the ovaries are strict and standing up closely pressed to the axis of the spike, while in the latter they are spread out.

Ione scariosa (Lindley) King et Pantling, Orch. Sikkim. 161, t. 219 (1898).

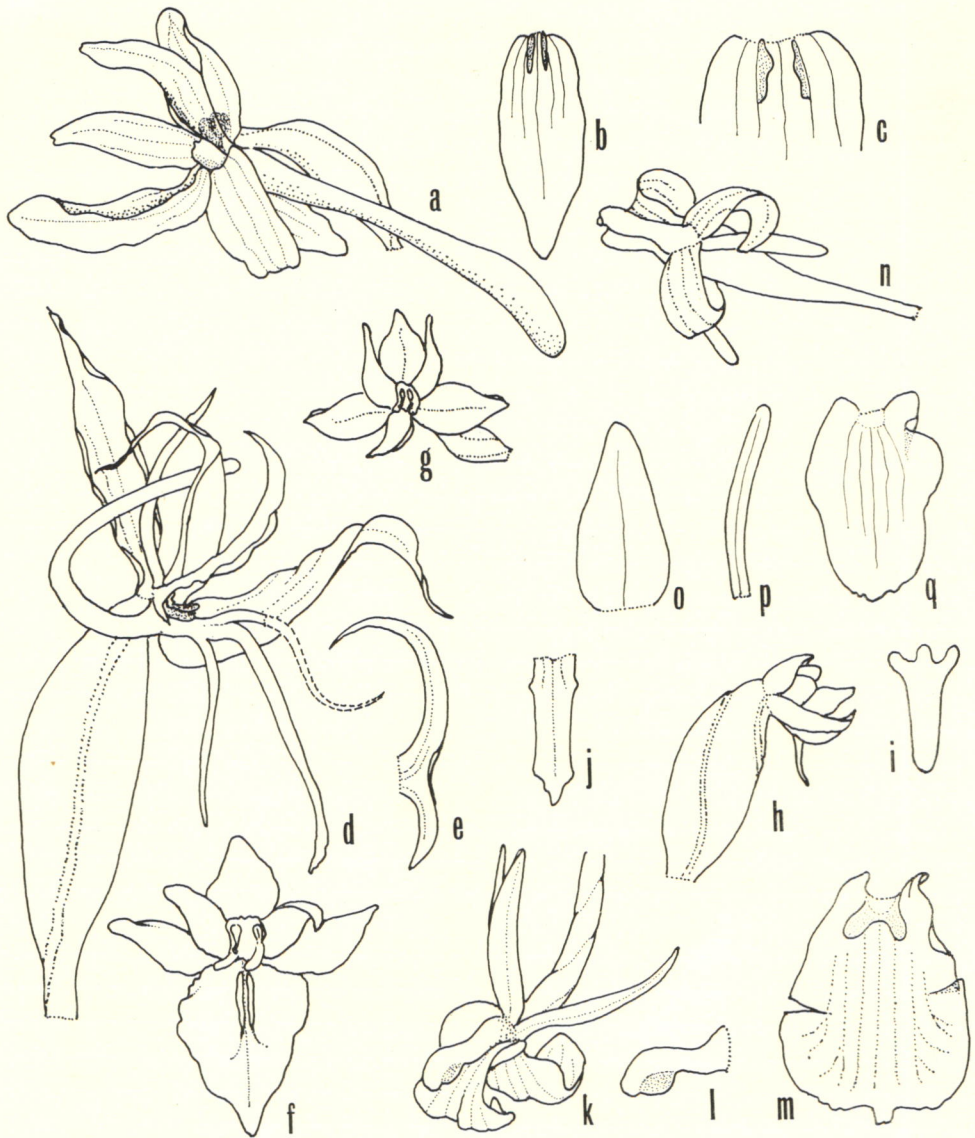


Fig. 21. Himalayan Orchid Flowers (5). a-c. *Habenaria stenantha* (Palmajua-Batasi, Aug. 8, 1972). a. Flower, $\times 3$, b. Lip, \times ca. 3, c. Basal part of lip expanded, \times ca. 6. d, e. *Habenaria stenopetala* (Ghatte-Khebang, Nov. 19, 1963). d. Flower, with the side lobe of lip lost, \times ca. 2.8, e. Petal, \times ca. 2.8. f. *Herminium Josephii* (Langtang Gorge-Langtang, Jul. 12, 1970). Flower, anterior view, \times ca. 3.5. g. *Herminium monophylla* (Barabise-Thale, Sep. 9, 1970). Flower, anterior oblique view, \times ca. 7.3. h, i. *Herminium pugioniforme* (Thale Patil-Rock Shelter II, Aug. 24, 1969). h. Flower, side view, \times ca. 3.5, i. Lip, anterior pendulous portion, \times ca. 18. j. *Herminium quinquelobum* (Minchin Dhap-Mul Pokhari, Oct. 29, 1963). Lip, \times ca. 18. k-m. *Liparis nervosa* (Shyaprubensi-Khangang, Jul. 10, 1970). k. Flower, upper oblique view, l. Column, side view, k-l \times ca. 3, m. Lip, spread out, \times ca. 5.5. n-q. *Liparis pusilla* (Chauke-Lamo Pokhari, Jun. 8, 1972). n. Flower, \times ca. 10.5, o. Lateral sepal, p. Petal, q. Lip, spread out, o-p \times ca. 12.

Sunipia scariosa Lindley [in Wallich Cat. no. 7373 (1832), nom. nud.] Gen. Sp. Orch. 179 (1833); Fol. Orch. Sunipia 1 (1853)—Hook. f., Fl. Brit. Ind. 5: 772 (1890).

NEPAL. Bhuktani—Sukaura, 1250–450 m (Jan. 8, 1970).

Distr. Subtropical Himalaya (Nepal, Sikkim, Bhutan), Khasia, and Burma (Tennaserim).

This unicate specimen was found on the trunk of *Schima Wallichii*. General appearance matches well with the description of J. D. Hooker, King & Pantling and the other botanists, but the petals are ovate and entire, blunt at the apex, and are not roundish nor erose-denticulate.

Liparis Glossula Reichenbach f. in Linnaea 41: 44 (1877)—Ridley in Journ. Linn. Soc. 22: 268 (1886)—Hook. f., Fl. Brit. Ind. 5: 693 (1890)—King et Pantl., Orch. Sikkim. 26, t. 32 (1898).

NEPAL. Langtang Gorge—Langtang, 3200 m (Jul. 12, 1970).

Distr. Subalpine Himalaya (Kumaon, Garhwar, Nepal, Sikkim).

Only four plants were collected in an open grassland. According to Dr. Kanai's field note, the petals are linear, purple, the lip being dull brownish purple. Under the microscope the margin of the lip is papillose, and the papillae are blunt in the apices, unicellular or sometimes bicellular with the basal cell very short.

Liparis nervosa (Thunberg) Lindley, Gen. Sp. Orch. 26 (1830).

Ophrys nervosa Thunberg, Fl. Jap. 27 (1784).

Malaxis odorata Willdenow, Sp. Pl. 4: 51 (1805).

Empusa paradoxa Lindl. [in Wallich, Cat. no. 1937 (1832), nom. nud., pro parte] in Bot. Reg. sub t. 825 (1824).

Liparis odorata (Willdenow) Lindley, Gen. Sp. Orch. 26 (1830)—Thwaites, Enum. Pl. Ceyl. 426 (1864)—Ohwi, Fl. Jap. 378 (1953); ed. rev. 441 (1965); ed. Engl. 347 (1965)—Kitamura, Murata et Koyama, Colour. Ill. Herb. Pl. Jap. 3 (Monocot.): 50, t. 12, f. 87 (1967)—Maekawa, Wild Orch. Jap. 320, t. 123 (1971).

Liparis paradoxa (Lindley) Reichenbach f. in Walp., Ann. 6: 218 (1861)—Ridl. in Journ. Linn. Soc. 22: 261 (1886)—Hook. f., Fl. Brit. Ind. 5: 697 (1890)—King et Pantl., Orch. Sikkim. 27, t. 34 (1898).

NEPAL. Shyaprubensi—Khangang, 1500–2300 m (Jul. 10, 1970).

Distr. Temperate and subtropical Himalaya (Kumaon, Nepal, Sikkim), Khasia, Naga Hills, Peninsular India, Ceylon, Burma, Thailand, Indo-China, Java, and S. China to Japan.

Only two plants in full blossom were collected. In my observation on the boiled flower, the dorsal sepal is enrolled inside out and obliquely directed backwards. The petals are deflexed and straightly pointing to the back. Lateral sepals are recurved. The lip is dark purple (fide Dr. Kanai), suddenly recurved a little below the middle of the lamina with its apex slightly emarginated and again truncately cuspidate at the apex. Two thickly clavate calli are produced from the base of the lip in a parallel position which adnate each other at their bases and if they are spread out horizontally, an obtuse sinus is formed between them. The calli of the same nature are found in the Japanese specimen. The column is manifestly winged below the apex along the incurved portion.

Liparis perpusilla Hook. f.: Fl. E. Himal. **2**: 190 (1971).

NEPAL. Chauke-Lamo Pokhari, 2600-2900 m (Jun. 8, 1972).

Only the young floral shoots with bulbs were collected in the mat of moss. This may be the easternmost output of the species.

Liparis petiolata (D. Don) Hunt et Summerhayes: Fl. E. Himal. **2**: 190 (1971).

NEPAL. Chitre-Tute, 2400-2300 m (Jun. 6, 1972).

Liparis pusilla Ridley in Journ. Linn. Soc. **22**: 294 (1886)-Hook. f., Icon. Pl. 1856 A (1889); Fl. Brit. Ind. **5**: 701 (1890)-King et Pantl., Orch. Sikkim 32, t. 41 (1898).

Liparis Duthiei Hook. f. sensu Tuyama in Fl. E. Himal. **2**: 190 (1971).

DARJEELING. Batasi-Mani Bhanjyang, 2100-2000 m (Aug. 9, 1972).

SIKKIM. Gangtok, Orchid Sanctuary, 1700 m (Jun. 27, 1969).

Distr. Temperate Himalaya (Kumaon, Nepal, Darjeeling, and Sikkim) and Khasia.

In my 1971 report of Himalayan orchids incorporated in the preceding report of this, I have carelessly misidentified the Gangtok specimen. Similarity of these two species gives no excuse to me. J. D. Hooker says that the bract is one-fourth inch long in Icon. Pl. This is too long a measure for this plant. Hooker later says it is one-tenth inch long in his Flora of British India. This size has the good match with my plant. Ridley in his original description of this species gives a line, "bractea . . . 1/2-2/3 pedicellorum aequales; . . .". His measure is too small for my plant in comparison with the pedicel. J. D. Hooker states in his Flora that the lip is 2-auriculate, but I have failed to find any such structure in my plant. The size of the flower given by J. D. Hooker is a little too large for my plant. As there are some ambiguities, the identification given here should be still tentative.

Listera pinetorum Lindley in Journ. Linn. Soc. **1**: 175 (1857)-Hook. f., Fl. Brit. Ind. **6**: 104 (1890)-King et Pantl., Orch. Sikkim. 256, t. 338 (1898).

NEPAL. Lamo Pokhari, 2900 m (Jun. 9, 1972).

DARJEELING. Phalut-Raman, 3600-2100 m (Aug. 4, 1972).

Distr. Subalpine and temperate Himalaya (Nepal, Darjeeling, Sikkim, Bhutan) and Tibet (Chumbi).

This species was originally collected in a pine wood in Lachen Valley of Sikkim, hence the name came. The size of the tepals in our specimens is somewhat different from those given by J. D. Hooker and King & Pantling, but the measure may fall in the range of specific variation. Dr. Kitamura reported this species from Tolo Gomba Kholo of C. Nepal in Kihara, Fauna and Flora of Nepal Himalaya 104 (1955). He took *Listera Yatabei* Makino of Japan and *L. major* Nakai from N. Korea as synonymous under *L. pinetorum*. Kitamura's specimen was collected by Dr. Nakao, and is reported to have cilia on the margin of the lip. If the cilia actually exist on the specimen, the specimen can not be *Listera pinetorum*. In our specimens I could not find any such cilia even under the microscope. Refer to plate 9. In the all above mentioned literature, there are descriptions and figures suggesting the existence of cilia on the margin of the lip.

Listera tenuis Lindley in Journ. Linn. Soc. **1**: 176 (1857)-Hook. f., Fl. Brit. Ind. **6**: 104 (1890); Icon. Pl. t. 2169 (1893)-King et Pantl., Orch. Sikkim. 255, t.

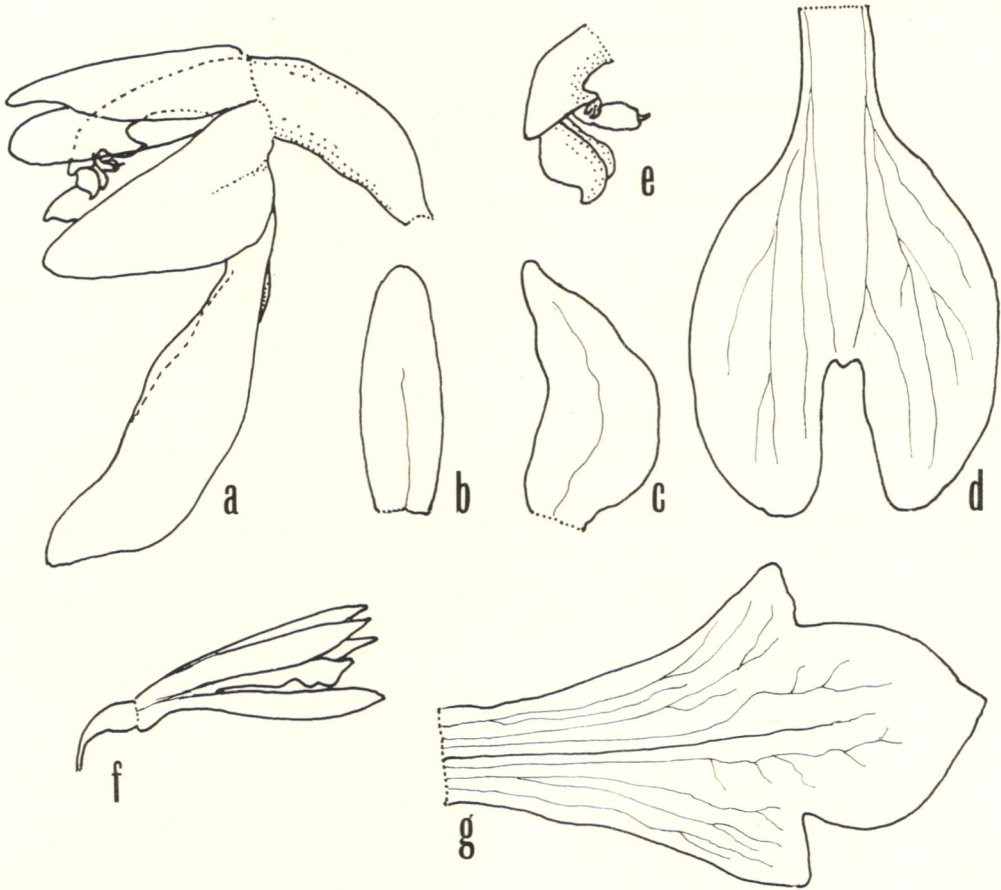


Fig. 22. Himalayan Orchid Flowers (6). a-e. *Listera pinetorum*. a. Flower, side view, b. Lateral sepal, c. Petal, d. Lip, spread out, a-d \times ca. 8, e. Column, apical portion, \times ca. 12. f-g. *Nervilia Aragoana* (S. of Dharan, Jun. 1, 1972). f. Flower, side view, \times ca. 2, g. Lip, spread out, \times ca. 4.2.

337 (1898).

NEPAL. Topke Gola-Shewaden, 3600-2600 m (Jun. 28, 1972).

Distr. Subalpine Himalaya (Nepal, Sikkim) and Tibet (Chumbi Valley).

In our specimen, the size of the tepals is somewhat different from those given in the literature mentioned above, but the important characters match well with ours. Our specimen was collected scatteredly at the dark place in a *Rhododendron arboreum* var. *Campbelliae* forest. According to Dr. Kanai's field note, the lip is white and semitransparent with dark green midrib. The other perianth lobes are also semitransparently whitish with greenish midrib. The axis of the spike is pale green and puberulous in white.

Malaxis acuminata D. Don: Fl. E. Himal. 443 (1966); 2: 191 (1971).

NEPAL. Mane Gaon-Thale, 1240-2000 m (Jun. 24, 1970); Dingla-Nessum, 800-1300 m (Jul. 2, 1972); Nessum-Bhuje, 1300-2700 m (Jul. 3, 1972); Dor-Chitre, 2600-2300 m (Jul. 7, 1972); Dhara Pani-Dharan, 1300-400 m (Jul. 10, 1972); Phulchoki,

2200–2700 m (Jul. 15, 1972).

One of the commonly occurring species of the genus in the area we have botanized.

Malaxis muscifera (Lindley) O. Kuntze: Fl. E. Himal. 444 (1966); **2**: 191 (1971).

NEPAL. Phulchoki, 2200–2770 m (Aug. 6, 1969); Ingyur–Tsedang Pokhari, 2100–3000 m (Aug. 22, 1969); Kyangjing, 3800 m (Jun. 14, 1970); Oo Kharka–Mul Kharka, 3400–3800 m (Jul. 1, 1970); Dor–Chauke, 2600–2700 m (Jun. 7, 1972); Thudam–Lama Chungbu, 3700 m (Jul. 23, 1972); Lama Chungbu–Thudam, 3400 m (Jun. 24, 1972); Thudam, 3400 m (Jun. 25, 1972); Chauke–Dor, 2900–2600 m (Jul. 6, 1972); Tinjure, 2900 m (Jul. 6, 1972).

DARJEELING. Mani Bhanjyang–Tonglu, 2000–3000 m (Jul. 30, 1972); Tonglu–Sandakphu, 2800–3600 m (Jul. 31, 1972); Sandakphu–Phalut, 3200–3600 m (Aug. 2, 1972); Phalut, 3200 m (Aug. 3, 1972).

Presumably most commonly distributing and abundant alpine species in the genus.

Nervilia Aragoana Gaudichaud, Freyc. Voy. Bot. 422, t. 35 (1829)–J. J. Sm. in Bull. Btzg. ser. 3, **3**: 236 (1921)–Holtum, Orch. Malay. ed. 3, 106 (1964).

Pogonia flabelliformis Lindley, Gen. Sp. Orch. 415 (1840)–Duthie in Ann. Bot. Gard. Calc. **9**: 158, t. 125 (1906)–J. J. Sm., Orch. Java. **6**: 57, t. 36 (1906 et 1912).

P. Gammieana Hooker f. in Bot. Mag. t. 6671 (1883); Fl. Brit. Ind. **6**: 120 (1890)–King et Pantl., Orch. Sikkim. 269, t. 359 (1898)–Duthie in Ann. Bot. Gard. Calc. **9**: 158 (1906).

NEPAL. S. of Dharan, in the Terai forest, 200 m (Jun. 1, 1972).

Distr. Tropical Himalaya (Garhwar to Sikkim), Peninsular India through Malaysia to Polynesia (Samoa).

Only one plant was collected by Mr. Ohba, to whose photograph I owe the posture and the colour of the plant. Scape is brown, becoming more reddish up to the spike. Flowers are subnutant, with the tepals half opened coloured with pale green, measuring to about 17 mm long. The ovary with the pedicel is dirty red. Total length of plant is 19 cm, excluding the globose tuber; about 2.0 cm in diameter. There are two amply amplexicaul sheaths near the base of the stem, and a linearly lanceolate bract at the midway of the flowering spike.

Oberonia falcata King et Pantling: Fl. E. Himal. 445 (1966); **2**: 191 (1971).

NEPAL. Chitlang–Thankot, 2250–1500 m (Sep. 4, 1970).

Orchis Chusua D. Don: Fl. E. Himal. **2**: 191 (1971).

NEPAL. Rock Shelter I to II, 3270–3220 m (Aug. 24, 1969); Gotiora–Gadje, 3280–3220 m (Aug. 25, 1969); Langtang–Kyangjing, 3500 m (Jul. 16, 1970); Lama Chungbu–Thudam, 4400–3400 m (Jun. 24, 1972, white or paler coloured flower); Kipuphu–Topke Gola, 4800–3600 m (Jun. 27, 1972); Thale–Mangen, 3400–3100 m (Aug. 27, 1972).

DARJEELING. Phalut, 3600 m (Aug. 3, 1972); Phalut–Singalila, 3600–3700 m (Aug. 3, 1972).

A common alpine species in the genus *Orchis*.

Orchis spathulata Reichenbach f. ex Benth in Journ. Linn. Soc. **18**: 355 (1880)–Hooker f., Fl. Brit. Ind. **6**: 127 (1890); in Icon. Pl. t. 2197 B (1894)–King

et Pantl, Orch. Sikkim. 301, t. 400 (1898).

NEPAL. Topke Gola, 3800 m (Jun. 19, 1972); Lama Chungbu-Thudam, 4400–3400 m (Jun. 24, 1972).

Distr. Alpine Himalaya (C. Nepal).

According to J. D. Hooker, this is distinguished from *O. Chusua* mainly by the leaves much broader, rounded at the apex, distinctly long-petiolated, and the lip being not trilobate but rounded at the apex.

Orchis Stracheyi Hooker f., Fl. Brit. Ind. **6**: 128 (1890); in Icon. Pl. t. 2197 A (1894).

NEPAL. Lama Chungbu, 4400 m (Jun. 23, 1972).

Distr. Alpine Himalaya (C. & E. Nepal).

J. D. Hooker (l.c. 128) suggests that this species may be a hybrid between *O. Chusua* and *O. spathulata*. My view is almost in the same line as Hooker's. In this respect, further confirmation is needed.

Oreorchis micrantha Lindley: Fl. E. Himal. 446 (1966); **2**: 192 (1971).

NEPAL. Dor-Chauke, 2600–2900 m (Jun. 7, 1972); Lamo Pokhari, 2900 m (Jun. 10, 1972); Topke Gola-Shewaden, 3600–2600 m (Jun. 28, 1972).

The epichile is strongly wavy at the margins. According to Dr. Kanai's field note, the flower is white with many minute purple dots on the lip, and occasionally the same kind of dots but less in number on the petals. The column is coloured with yellow in the shape of a lancet on the anterior basal surface. The bulb is white inside, viscid but tasteless (fide Dr. Kanai).

Otochilus alba Lindley: Fl. E. Himal. **2**: 192 (1971).

NEPAL. Bhorlang-Sundarijar, 2400–1400 m (Aug. 31, 1972, fr.).

Otochilus fusca Lindley: Fl. E. Himal. 447 (1966); **2**: 192 (1971).

NEPAL. Bhuktani-Sukaura, 1350–450 m (Jan. 8, 1970).

Pholidota articulata Lindley [in Wall. Cat. no. 1992 (1829), nom. nud.] Gen. Sp. Orch. 38 (1830); in Bot. Reg. 44 (1839)—Hooker f., Fl. Brit. Ind. **5**: 844 (1890).

SIKKIM. Orchid Sanctuary or its vicinity, 1700 m (Jun. 27, 1969).

Distr. Subtropical Himalaya (Kumaon eastwards to Sikkim) and Khasia.

Pholidota Griffithii Hooker f., Icon. Pl. t. 1881 (1889); Fl. Brit. Ind. **5**: 845 (1890); Fl. E. Himal. **2**: 193 (1966).

NEPAL. Garhi Danra-Tuwa, 1600–1800 m (Nov. 4, 1963); Ghatte-Khebang, 2400–1700 m (Nov. 19, 1963).

SIKKIM. Gangtok, Orchid Sanctuary or its vicinity, 1700 m (Jun. 27, 1969).

Distr. Subtropical Himalaya (E. Nepal and Sikkim).

This species is separable from *P. articulata* Lindl. in the bract being larger, 13–14 mm long and with the apex sharply acute, while in the latter it is 5–8 mm long and with the apex truncately obtuse. The flower of the former species is also decidedly larger than that of the latter, that is, for example, the sepals are 8 mm long against 5 mm long.

Pholidota imbricata (Roxburgh) Lindley: Fl. E. Himal. 447 (1966); **2**: 193 (1971).

NEPAL. Dunche-Shyaprubensi, 2000–1500 m (Jun. 26, 1970); Okhre Danra-Kuli Khani, 1950–1450 m (Sep. 2, 1970).

DARJEELING. Darjeeling-Tista, 2200-400 m (Aug. 10, 1972).

Pleione Hookeriana (Lindley) O. Kuntze: Fl. E. Himal. 448 (1966); **2**: 193 (1971).

NEPAL. Phulchoki, 2200-2700 m (May 28, 1972); Dor-Chauke, 2600-2900 m (Jun. 7, 1972); Suke-Hile Chok, 2900-3600 m (Jun. 11, 1972); Thudam, 3400 m (Jun. 22, 1972); Lama Chungbu-Thudam, 4500-3400 m (Jun. 24, 1972); Topke Gola-Shewaden, 3600-2600 m (Jun. 28, 1972).

Pleione humilis (Smith) D. Don: Fl. E. Himal. 448 (1966).

NEPAL. Sim Bhanjyang, 2500 m (Mar. 1, 1970).

Pleione praecox (Smith) D. Don: Fl. E. Himal. 449 (1966); **2**: 194 (1971).

NEPAL. Thale-Thale Bisauna, 2500 m (Sep. 10, 1970); Chitre-Tute, 2400-2300 m (Jun. 6, 1972); Khodang Danda-Latsu, 2500-2100 m (Aug. 29, 1972); Bhorlang-Sundarijar, 1700 m (Aug. 31, 1972).

Satyrium nepalense D. Don: Fl. E. Himal. 450 (1966); **2**: 194 (1971).

NEPAL. Gram-Dunche, 1900-2000 m (Aug. 2, 1972); Mangan-Khodang Danda, 3100-2500 m (Aug. 28, 1972); Latsu-Bhorlang, 2400-1700 m (Aug. 30, 1972).

Spathoglottis ixiioides (D. Don) Lindley, Gen. Sp. Orch. 120 (1831); in Journ. Linn. Soc. **3**: 22 (1859)-Bot. Mag. t. 7060 (1889)-Hooker f., Fl. Brit. Ind. **5**: 814 (1890)-King et Pantl., Orch. Sikkim. 100, t. 139 (1898).

Cymbidium ixiioides D. Don, Prodr. Fl. Nepal. 36 (1825).

NEPAL. Dunche, 2000 m (Aug. 21, 1972).

This lovely orchid was collected in the crevices of rocky cliff in sunny places. The scape is 1- or rarely 2-flowered. The flowers are as a whole bright yellow, minutely spotted with red on the hypochile of the lip inside (photographs of all the members). The epichile is truncately obtuse, acutely unidentate on both sides: the lower margins, 3-carinate from the middle to the upper portion of the hypochile, where the middle one is obscure, and the laterals are dilated to form semiorbicular lamellae, these two lamellae being converged to unite with the middle one, forming a rather thick midrib running down to the very base of the hypochile. The outer surface of these lamellae and the thick midrib are densely hairy, but becoming gradually sparsely so, finally glabrate at the middle portion of hypochile. The hypochile extends to the large orbicular side-lobes, and is ventriocose saccate at the base.

Spiranthes sinensis (Persoon) Ames

var. **amoena** (M.-Bieberstein) Hara: Fl. E. Himal. **2**: 194 (1971).

NEPAL. Gram-Dunche, 1900-2000 m (Aug. 21, 1972); Bhorlang-Sundarijar, 2400-1400 m (Aug. 31, 1972).

DARJEELING. Phalut-Raman, 3600-2100 m (Aug. 4, 1972); Raman-Rimbick, 2400-1900 m (Aug. 5, 1972); Darjeeling-Lopchu, 2300-800 m (Aug. 12, 1972).

Thunia alba (Lindley) Reichenbach f.: Fl. E. Himal. 451 (1966).

NEPAL. Shyaprubensi-Dunche, 1500-2000 m (Jul. 19, 1970); Okhre Danra-Deorali, 1950-1900 m (Sep. 2, 1970).

ADDITION

PANDANACEAE

Our Himalayan collections of the genus *Pandanus* were identified by Prof. H. St. John. The following is based on his paper: St. John, H. 1972. The Indian species of *Pandanus* (Section *Rykia*). Bot. Mag. Tokyo **85**: 241-262.

Pandanus nepalensis St. John in Bot. Mag. Tokyo **85**: 254, figs. 7-8 (1972).

NEPAL. Siwanta, 1000 m (Kanai & Bista, Apr. 23, 1969, no. 21857, fr.).

Distr. Himalaya (Nepal).

Pandanus sikkimensis St. John in Bot. Mag. Tokyo **85**: 258, fig. 9 (1972).

DARJEELING. Tista, 400 m (Kanai, Murata & Togashi, Jun. 20, 1960, no. 3275); cult, in Tokyo (Togashi, Mar. 8, 1972).

Distr. Himalaya (Sikkim).