

## PTERIDOPHYTA

### EQUISETACEAE (by Motozi Tagawa)

**Equisetum arvense** L., Sp. Pl. ed. 1, 2: 1061 (1753)—Clarke in Trans. Linn. Soc. II. Bot. 1: 594 (1880).

Bhutan. Rukubi–Neylong, 2800–2400 m (Apr. 14, 1967); Samtengang–Choojom, 2100–1500 m (Apr. 26, 1967); Tinlegang, 1950 m (May 4, 1967); Chamsa–Yabu Thang, 3700–3400 m (May 15, 1967); Yabu Thang–Laya, 3400–3850 m (May 16, 1967).

Distr. North temperate regions.

**Equisetum debile** Roxb. ex Vaucher in Mém. Soc. Phys. Hist. Nat. Genève 1: 387 (1822)—Clarke in Trans. Linn. Soc. II. Bot. 1: 594 (1880).

Nepal. Above Dhunche–Gosainkund, 2065–3000 m (Jun. 4, 1969).

Darjeeling. Rayang, 250 m (Apr. 21, 1960); Happy Valley, 1900 m (Apr. 10, 1960).

Bhutan. Wangdu Phodrang–Samtengang, 1450–2100 m (Apr. 10, 1967); Samtengang–Choojom, 1500 m (Apr. 26, 1967); Bhotokha–Rinchu, 1250–1300 m (May 8, 1967).

Distr. Ceylon, India, Himalaya to S. China, S. E. Asia, and through Malayais to Fiji.

**Equisetum diffusum** D. Don, Prodr. Fl. Nepal. 19 (1825)—Clarke in Trans. Linn. Soc. II. Bot. 1: 594 (1880).

Sikkim. Yoksam, 1700 m (May 17, 1960).

Distr. Himalaya to W. and S.W. China.

### PSILOTACEAE (by Motozi Tagawa)

**Psilotum nudum** (L.) Beauv., Prodr. Fam. Actéog. 112 (1805)—Clarke in Trans. Linn. Soc. II. Bot. 1: 589 (1880).

*Lycopodium nudum* L., Sp. Pl. ed. 1, 2: 1100 (1753).

*Psilotum triquetrum* Sw. in Schrad. Journ. Bot. 1800 (2): 109 (1801).

Bhutan. Bhotokha–Rinchu, 1450–1500 m (May 8, 1967).

Distr. Tropics and subtropics of the world.

### LYCOPODIACEAE (by Motozi Tagawa)

**Lycopodium cernuum** L., Sp. Pl. ed. 1, 2: 1103 (1753)—Clarke in Trans. Linn. Soc. II. Bot. 1: 591 (1880).

Nepal. Mul Pokhari–Dumhan, 700–2500 m (Oct. 30, 1963).

Darjeeling. Tista, 300 m (Jun. 19, 1960); Kurseong, 1600 m (Apr. 12, 1960); Kalimpong, 1300 m (Jun. 20, 1960).

Sikkim. Gangtok, 1600 m (Jun. 15, 1960); Gangtok–Temi, 1800–1620 m (Jun. 28, 1969); Singhik–Gangtok, 1500–1800 m (Jul. 1, 1969).

Bhutan. Phuntsholing, 900 m (Apr. 3, 1967).

Distr. Cosmopolitan in the tropics and subtropics of the world.

As is usually the case with cosmopolitan plants, *L. cernuum* is very polymorphic both ecologically and regionally. K. Müller (Bot. Zeit. 1861: 161–165) divided *L. cernuum* into 7 species and Nessel (Die Bärlappgewächse 1939) recognized 44

varieties in the species. These facts give an account of the polymorphism of *L. cernuum*. It is true that *L. cernuum* is a collective species as usually understood, but we have as yet no satisfactory classification. In our specimens, main stems, branches and most of branchlets are distinctly hairy, leaves hairpointed and usually sparsely ciliate; they may represent var. *sikkimense* (K. Müll. l.c. 164) Clarke, l.c. 592.

***Lycopodium clavatum*** L., Sp. Pl. ed. 1, 2: 1101 (1753)—Clarke in Trans. Linn. Soc. II. Bot. 1: 592 (1880).

*Lycopodium divaricatum* Wall. ex Grev. et Hook. in Hook. Bot. Misc. 2: 377 (1831).

*Lycopodium clavatum* var. *Wallichianum* Spring in Mém. Acad. Sci. Bruxelles 15: 90 (1842), based on *L. divaricatum* Wall. ex Grev. et Hook.

Nepal. Sinduwa, 2100 m (Oct. 23, 1963); Murhay, 2000 m (Oct. 24, 1963); Bilbatay Bhanjang, 2200 m (Oct. 25 & 26, 1963); Walunchung Gola-Zongi, 2800–3500 m (Nov. 11, 1963); Siling Tzokupa, 3800 m (Nov. 21, 1963); Kathmandu-Kakani, 2200 m (Jun. 20, 1967); Thare-Sim Chautara, 2200–970 m (Jun. 6, 1969).

Darjeeling. Darjeeling, 2100 m (Apr. 1, 1960); Kurseong, 1600 m (Apr. 12, 1960); Palmajua-Rimbick, 2300–2200 m (May 5, 1960); Phalut-Chiabanjang, 3300 m (May 11, 1960); Phalut, 3500 m (Jun. 3, 1960); Kalimpong, 1300 m (Jun. 20, 1960); Birch Hill, 2100 m (Jun. 6, 1967); Peshok Road-Ghum, 2250–2300 m (Jul. 7, 1969); Tonglu, 3100 m (Jul. 22, 1969).

Sikkim. Singhik-Gangtok, 1500–1800 m (Jul. 1, 1969).

Bhutan. Thimphu-Wangdu Phodrang, 2450–1450 m (Apr. 9, 1967); Samtengang-Ritang, 2100–2600 m (Apr. 11, 1967); Tashiling-Charikhachor, 2300–2450 m (Apr. 20, 1967).

Distr. Cosmopolitan in many forms, perhaps a collective species.

*L. clavatum* in a usual broad sense is very variable and of world-wide distribution. Our examples are referable to var. *Wallichianum* ranging from the Himalayas to China.

***Lycopodium Herterianum*** Kümmerl. in Magyar Bot. Lap. 26: 99 (1928), a substitute name based on *L. sikkimense* Hert.

*Lycopodium sikkimense* Hert. in Bot. Jahrb. 43: Beibl. nr. 98, 42 (1909); non K. Muell. (1861).

*Urostachys sikkimensis* (Hert.) Hert. ex Nessel, Lycopodiaceae 52, t. 7, f. 1 (1939).

*Urostachys Herterianus* (Kümmerl.) Hert., Ind. Lycopod. 64 (1949).

*Lycopodium lucidulum* sensu Clarke in Trans. Linn. Soc. II. Bot. 1: 589, pl. 84, f. 1 (1880).

Nepal. Bilbatay Bhanjang-Hati Sar, 2200–2700 m (Oct. 27, 1963); Hati Sar-Minchin Dhap, 2700–2900 m (Oct. 28, 1963); Minchin Dhap-Mul Pokhari, 2500–2900 m (Oct. 29, 1963). Bhuspate Danra, 2600 m (Dec. 2, 1963).

Darjeeling. Phalut-Sandakphu, 3500 m (Jun. 6, 1960).

Sikkim. Chiabanjang, 3100 m (May 11 & Jun. 2, 1960).

Bhutan. Thimphu-Wangdu Phodrang, 2450–1450 m (Apr. 9, 1967); Chamsa-Yabu Thang, 3700–3400 m (May 15, 1967).

Distr. Himalaya.

This species exhibits the same pattern of variation as seen in *L. serratum* Thunb. Our examples are all small, stems 5–8 cm in height above decumbent base, 2–4 times forked. In Sikkimese gatherings the leaves are lanceolate and very slightly

narrowed downward, the branches in some plants being fairly divaricate. In specimens from Darjeeling, the leaves are hardly narrowed downward, the branches erect and nearly parallel.

**Lycopodium serratum** Thunb., Fl. Jap. 341. t. 38 (1784)—Hook. et Grev., Icon. Fil. t. 37 (1827)—Clarke in Trans. Linn. Soc. II. Bot. **1**: 591 (1880).

*Lycopodium javanicum* Sw., Syn. Fil. 175, 399 (1806).

*Lycopodium serratum* var. *longipetiolatum* Spring in Mém. Acad. Sci. Bruxelles **24**: 18 (1850), based on *L. javanicum* Sw.

Darjeeling. Butia Basti, 200 m (Apr. 6, 1960); Takdah, 1600 m (Apr. 19, 1960, no. 2119); Palmajua—Rimbick, 2300–2200 m (May 5, 1960).

Bhutan. Mishichen—Khosa, 1600–1800 m (May 10, 1967).

Distr. In a usually accepted broad sense of the species the range is from temperate Asia to Polynesia and Bourbon, and also recorded from Mexico and Cuba.

As is usual in the species of wide distribution, *L. serratum* is extremely polymorphic. Our specimens but No. 2119 agree fairly well with Hooker et Greville's figure referred to above, but their leaves are more shallowly and rather obscurely serrulate. They may be referable to var. *longipetiolatum* occurring at high elevations in the tropical and subtropical lands. No. 2119 represents a form with much narrower leaves which are lanceolate or oblanceolate and 3 mm broad at the most; this form approaches to f. *intermedium* Nakai in Bot. Mag. Tokyo **39**: 196 (1925), abundantly occurring in warm-temperate regions of Japan.

**Lycopodium squarrosus** G. Forst., Prodr. 86 (1786)—Clarke in Trans. Linn. Soc. II. Bot. **1**: 591 (1880).

*Lycopodium ulicifolium* Vent. ex Sw., Syn. Fil. 177 (1806).

*Lycopodium Hookeri* Wall. ex Hook. et Grev., Icon. Fil. **2**: t. 185 (1829).

Nepal. Khebang—Bharomdin, 1000–1700 m (Nov. 24, 1963); Illam—Ranga Pani, 700–1200 m (Dec. 8, 1963); Pokhara, 900 m (Jun. 18, 1967).

Sikkim. Tingling—Yoksam, 1000–1700 m (May 16, 1960); Gangtok—Saramsa Medicinal Garden, 1000 m (Jun. 17, 1960).

Bhutan. Punakha—Bhotokha, 1400–1450 m (May 7, 1967); Bhotokha—Rinchu, 1450–1500 m (May 8, 1967).

Distr. Tropics of the Old World.

**Lycopodium subulifolium** Wall. ex Hook. et Grev., Icon. Fil. **1**: t. 49 (1827).

*Lycopodium setaceum* Ham. ex D. Don var. *subulifolium* Wall. apud Clarke in Trans. Linn. Soc. II. Bot. **1**: 590 (1880).

Nepal. Taplejung, 1700 m (Nov. 2, 1963); Taplejung—Garhi Danra, 2000–2200 m (Nov. 3, 1953); Garhi Danra—Tuwa, 1800–2200 m (Nov. 4, 1963); Taplethok—Helok, 1400–1500 m (Nov. 6, 1963); Helok—Iladanda, 1500–1800 m (Nov. 8, 1963); Ghatte—Khebang, 1700–2400 m (Nov. 19, 1963); Khebang—below Siling Tzokupa, 1700–2100 m (Nov. 20, 1963).

Sikkim. Phalut—Chiabanjang, 3300 m (May 11, 1960); Tingling Bridge—Yoksam, 1000–1700 m (May 16, 1960); Yoksam—Bakkim, 1700–2200 m (May 18, 1960); Gangtok, 1000 m (Jun. 17, 1960).

Bhutan. Tongsa—Tashiling, 2200–2300 m (Apr. 19, 1967); Tinlegang, 1950 m (May 4, 1967); Mishichen—Khosa, 1600–1800 m (May 10, 1967).

Distr. E. Himalaya.

Although merged into *L. pulcherrimum* Wall. ex Hook. et Grev. by most of pteridologists, *L. subulifolium* may be distinguished from that species, as Hooker and Greville stated, by having the decidedly subulate, erect and imbricate leaves and the sporangia with much deeper and narrower sinuses. Except for the size of plants, our specimens exhibit no particular variation in every respect.

**Lycopodium Veitchii** Christ in Bull. Géogr. Bot. Mans. **1906**: 141 (1906)—Tagawa in Journ. Jap. Bot. **30**: 279 (1955).

*Lycopodium annotinum* sensu Clarke in Trans. Linn. Soc. II. Bot. **1**: 592 (1880).

Bhutan. Gasa-Chamsa, 2800–3700 m (May 14, 1967); Chamsa-Yabu Thang, 3700–3400 m (May 15, 1967).

Distr. E. Himalaya (Sikkim, Bhutan) to W. China, and Formosa.

A near ally of N. American *L. sitchense* Rupr. and its Japanese var. *nikoense* (Fr. et Sav.) Takeda.

#### SELAGINELLACEAE (by Motozi Tagawa)

**Selaginella bisulcata** Spring in Mém. Acad. Sci. Bruxelles **24**: 259 (1850)—Alston in Proc. Nat. Inst. Sci. India **11**: 225 (1945).

Darjeeling. Kurseong, 1600 m (Apr. 12, 1960); Siliguri-Kurseong (Apr. 29, 1969).

Distr. Nepal to Assam, Burma, Thailand, and Yunnan.

**Selaginella chrysocaulos** (Hook. et Grev.) Spring in Bull. Acad. Sci. Bruxelles **10**: 232 (1843)—Alston in Proc. Nat. Inst. Sci. India **11**: 225 (1945).

*Lycopodium chrysocaulon* Hook. et Grev. in Hook. Bot. Misc. **2**: 40 (1831).

Sikkim. Gangtok, 1600 m (Jun. 15, 1960).

Distr. Himalaya (Kashmir to Bhutan), and Tonking.

Our collection is sterile and rather small (ca. 15 cm in height), but, as compared with several authentic specimens, they represent no particular distinction in their vegetative parts and this identification of our examples is pretty sure of its correctness.

**Selaginella involvens** (Sw.) Spring in Bull. Acad. Bruxelles **10**: 136 (1843)—Alston in Proc. Nat. Inst. Sci. India **11**: 220 (1945).

*Lycopodium involvens* Sw., Syn. Fil. 182 (1806).

*Lycopodium caulescens* Wall. ex Hook. et Grev. in Hook. Bot. Misc. **2**: 382 (1831).

*Selaginella caulescens* (Wall. ex Hook. et Grev.) Spring, l.c. 137 (1843).

Darjeeling. Kurseong, 1600 m (Apr. 12, 1960); Batassi-Palmajuga, 2300–2600 m (May 3, 1960).

Sikkim. Tingling Bridge-Yoksam, 1000–1700 m (May 16, 1960).

Bhutan. Rukubi-Neylon, 2800–2400 m (Apr. 14, 1967); Tashiling-Charikhachor, 2300–2450 m (Apr. 20, 1967); Ratsoo-Samtengang, 2000–2100 m (Apr. 25, 1967).

Distr. India generally, through China to Korea and Japan, and south to Celebes and Flores.

**Selaginella longipila** Hieron. in Hedwigia **39**: 291 (1900)—Alston in Proc. Nat. Inst. Sci. India **11**: 214 (1945).

Bhutan. Tongsa-Tashiling, 2200–2300 m (Apr. 19, 1967).

Distr. Mountains of India, and S.E. Tibet.

**Selaginella monospora** Spring in Mém. Acad. Sci. Bruxelles **24**: 135 (1850)—Alston in Proc. Nat. Inst. Sci. India **11**: 228 (1945).

Darjeeling. Kurseong, 1550–1600 m (Apr. 12, 1960); Takdah, 1600 m (Apr. 19, 1960); Lopchu, 1500 m (Apr. 28, 1960); Darjeeling, 2000 m (Apr. 2, 1960).

Sikkim. Tingling Bridge–Yoksam, 1000–1700 m (May 16, 1960).

Bhutan. Rukubi–Neylong, 2800–2400 m (Apr. 14, 1967); Tongsa–Tratang, 2200–2700 m (Apr. 18, 1967).

Distr. Northern India, Burma to Indo-China, Hainan, and S.W. China.

**Selaginella vaginata** Spring in Mém. Acad. Sci. Bruxelles **24**: 87 (1850)–Alston in Proc. Nation. Inst. Sci. India **11**: 217 (1945).

Bhutan. Tongsa–Tashiling, 2200–2300 m (Apr. 19, 1967).

Distr. E. Himalaya, Assam, and Burma.

#### OPHIOGLOSSACEAE (by Hiroshi Ito)

**Japonobotrychium lanuginosum** (Wall.) Nishida ex Tagawa in Journ. Jap. Bot. **33**: 199 (1958)–Nishida in Fl. E. Himal. 453 (1966).

Nepal. Godavari–Phulchauki, Kathmandu, 1600–2500 m (Jun. 26, 1967); Shiouपुरi, Kathmandu, 2700 m (Jun. 14, 1969).

Darjeeling, 2150 m (Jul. 25, 1969); Sandakphu–Tonglu, 2800–3970 m (Jul. 21, 1969).

Bhutan. Ritang–Ratsoo, 2000–2600 m (Apr. 23, 1967); Mishichen–Khosa, 1600–1800 m (May 10, 1967); Dotanang–Thimphu, 2450–2700 m (May 28, 1967).

Distr. Himalaya, India, Malaysia, and S. China.

**Ophioglossum petiolatum** Hook.: Fl. E. Himal. 453 (1966).

Nepal. Godavari–Phulchauki, Kathmandu, 2000–2800 m (May 29, 1969).

Bhutan. Ritang–Ratsoo, 2000–2600 m (Apr. 23, 1967).

Distr. Tropical and temperate regions of the world.

**Sceptridium daucifolium** (Wall.) Lyon

var. **daucifolium**: Fl. E. Himal. 454 (1966).

Bhutan. Mishichen–Khosa, 1600–1800m (May 10, 1967).

Distr. Himalaya, India, Malaysia, S. China, and Ryukyu.

**Sceptridium multifidum** (Gmelin) Nishida ex Tagawa

var. **multifidum**: Fl. E. Himal. 454 (1966).

Bhutan. Thimphu, 2450 m (Apr. 6, 1967).

Distr. Widely distributed in the temperate zone of the northern hemisphere.

#### MARATTIACEAE (by Hiroshi Ito)

**Angiopteris salicifolia** (Presl) de Vries: H. Ito in Fl. E. Himal. 454 (1966).

Sikkim. Damthang, 2000 m (Jun. 29, 1969).

Distr. Himalaya, and India.

#### OSMUNDACEAE (by Hiroshi Ito)

**Osmunda cinnamomea** L., Sp. Pl. ed. 1, **2**: 1066 (1753).

var. **fokiensis** Copel. in Philip. Journ. Sci. **4**: 16 (1909).

Bhutan. Samtengang–Choojom, 1500–2100 m (Apr. 26, 1967).

Distr. Himalaya, China, Formosa, Korea, Saghalin, Siberia, and Japan.

**Osmunda Claytoniana** L., Sp. Pl. ed. 1, **2**: 1066 (1753).

var. **vestita** (Wall.) Milde: H. Ito in Fl. E. Himal. 455 (1966).

Bhutan. Neylong–Tashiling, 2300–2400 m (Apr. 15, 1967); Tongsa–Tashiling, 1900–

2300 m (Apr. 19, 1967); Samtengang-Choojom, 1500–2100 m (Apr. 26, 1967); Thimphu, 2450 m (Apr. 30, 1967); Khosa-Tamji, 1800–2200 m (May 11, 1967); Dotanang-Thimphu, 2450–2700 m (May 28, 1967); Thimphu-Dochu La, 2450–3200 m (May 30, 1967).

Distr. Himalaya, China, Formosa, and Siberia.

**Osmunda japonica** Thunb.: Fl. E. Himal. 455 (1966).

Bhutan. Thimphu, 2450 m (Apr. 6, 1967); Tashiling-Tongsa, 1900–2300 m (Apr. 16, 1967); Samtengang-Choojom, 1500–2100 m (Apr. 26, 1967); Khosa-Tamji, 1800–2200 m (May 11, 1967); Dotanang-Thimphu, 2450–2700 m (May 28, 1967).

Distr. Himalaya, China, Formosa, Korea, Japan, and Saghalin.

#### SCHIZAEACEAE (by Hiroshi Ito)

**Lygodium flexuosum** (L.) Sw.: H. Ito in Fl. E. Himal. 455 (1966).

Bhutan. Bhotokha-Rinchu, 1450–1500 m (May 8, 1967).

Distr. Himalaya, India, Ceylon, Indo-China, S. China, Formosa, Ryukyu, Philippines, Malay Isls., N. Australia, Pacific Isls., and tropical Africa.

#### GLEICHENIACEAE (by Hiroshi Ito)

**Dicranopteris linearis** (Burm.) Underw.: H. Ito in Fl. E. Himal. 456 (1966).

Nepal. Nagarkot, Kathmandu, 2000 m (Jun. 24, 1967).

Distr. Widely distributed in the tropics and subtropics of the Old World.

**Dicranopteris Warburgii** (Christ) Nakai: Fl. E. Himal. 456 (1966).

Sikkim. Gangtok-Singhik, 900–1500 m (Jun. 30, 1969).

Bhutan. Mishichen-Khosa, 1600–1800 m (May 10, 1967).

Distr. Himalaya, Thailand, Malay Peninsula, Malay Isls., Philippines, and New Guinea.

**Diplopterygium volubile** (Jungh.) Nakai: Fl. E. Himal. 456 (1966).

Nepal. Kathmandu-Kakani, 1400–2200 m (Jun. 20, 1967).

Bhutan. Samtengang-Ritang, 2000–2800 m (Apr. 11, 1967).

Distr. Himalaya, Indo-China, Formosa, Philippines, Malay Isls., and New Guinea.

#### HYMENOPHYLLACEAE (by Kunio Iwatsuki)

**Crepidomanes late-alatum** (van den Bosch) Copel.: Iwatsuki in Fl. E. Himal. 456 (1966).

Nepal. Gokarna, 1400 m (Jun. 22, 1967); Godavari-Phulchauki, 2600–2800 m (Jun. 10, 1969).

Bhutan. Rukubi-Neylong, 2400–2800 m (Apr. 14, 1967); Tongsa-Tratang, 2200–2700 m (Apr. 18, 1967); Tashiling-Charikhachor, 2300–2450 m (Apr. 20, 1967); Bhotokha-Rinchu, 1450–1500 m (May 8, 1967); Rinchu-Mishichen, 1500–1600 m (May 9, 1967); Mishichen-Khosa, 1600–1800 m (May 10, 1967); Khosa-Tamji, 1800–2200 m (May 11, 1967).

Distr. Himalaya, and India.

**Crepidomanes** sp. aff. *C. Makinoi* (C. Chr.) H. Ito: Fl. E. Himal. 456 (1966).

Bhutan. Bhotokha-Rinchu, 1450–1500 m (May 8, 1967).

**Hymenophyllum Levingii** Clarke in Trans. Linn. Soc. **1**: 439, t. 49, f. 3 (1880)—Copel. in Phil. Journ. Sci. **64**: 93 (1937).

Bhutan. Tashiling—Charikhachor, 2300–2450 m (Apr. 20, 1967).

Distr. E. Himalaya (Sikkim, Bhutan).

**Hymenophyllum Simonsianum** Hook.: Fl. E. Himal. 456 (1966).

Bhutan. Thimphu—Tinlegang, 1950–3200 m (May 3, 1967).

Distr. Himalaya to Formosa.

**Mecodium badium** (Hook. & Grev.) Copel.: Fl. E. Himal. 457 (1966).

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

Distr. Himalaya east to Formosa and west to Ceylon, extending north to Japan.

**Mecodium exsertum** (Wall. ex Hook.) Copel.: Fl. E. Himal. 457 (1966).

Nepal. Shiouपुरi, Kathmandu, 2700 m (Jun. 15, 1969).

Sikkim. Gangtok (Jun. 27, 1969); Damthang—Gangtok, 2150 m (Jun. 29, 1969).

Bhutan. Ritang—Rukubi, 2600–3400 m (Apr. 13, 1967); Tongsa—Tashiling, 1900–2300 m (Apr. 19, 1967); Tashiling—Charikhachor, 2300–2450 m (Apr. 20, 1967); Tamji—Gasa, 2200–2800 m (May 13, 1967); Barshong—Nala, 3300–3700 m (May 25, 1967).

Distr. Himalaya, India, Thailand, and China.

**Mecodium polyanthos** (Sw.) Copel.: Fl. E. Himal. 457 (1966).

Darjeeling. Tonglu, 2800–3100 m (Jul. 12, 1969); Sandakphu, 3800–3970 m (Jul. 15 & 20, 1969).

Bhutan. Samtengang—Ritang, 2000–2800 m (Apr. 11, 1967); Tongsa—Tashiling, 1900–2300 m (Apr. 19, 1967); Tashiling—Charikhachor, 2300–2450 m (Apr. 20, 1967); Longtepang—Ritang, 2600–3400 m (Apr. 22, 1967); Tinlegang—Gon Chungnang, 1800–1950 m (May 5, 1967); Gasa—Chamsa, 2800–3750 m (May 14, 1967); Chamsa—Yabu Thang, 3200–3700 m (May 15, 1967); Shodu—Barshong, 3700–4000 m (May 24, 1967); Barshong—Nala, 3300–3700 m (May 25, 1967); Nala—Tzatogang, 3200–3400 m (May 26, 1967).

Distr. Tropical and subtropical regions throughout the world, often extending to the warm temperate regions.

**Vandenboschia auriculata** (Blume) Copel.: Fl. E. Himal. 458 (1966).

Bhutan. Neylong—Tashiling, 2300–2400 m (Apr. 15, 1967); Mishichen—Khosa, 1600–1800 m (May 10, 1967).

Distr. Himalaya eastwards to Japan, and through Malaysia to Papua.

**Vandenboschia radicans** (Sw.) Copel.: Fl. E. Himal. 458 (1966).

Bhutan. Mishichen—Khosa, 1600–1800 m (May 10, 1967).

Distr. Tropical and subtropical regions throughout the world.

#### PTERIDACEAE (by Hiroshi Ito)

**Adiantum capillus-veneris** L.: H. Ito in Fl. E. Himal. 458 (1966).

Nepal. Chobar, Kathmandu, 1200 m (Jun. 17, 1967).

Bhutan. Thimphu—Wangdu Phodrang, 1450–3200 m (Apr. 9, 1967); Wangdu Phodrang—Samtengang, 1450–2100 m (Apr. 10, 1967); Punakha—Bhotokha, 1400–1450 m (May 7, 1967).

Distr. Widely distributed in the tropical to temperate regions of the world.

**Adiantum caudatum** L.: Fl. E. Himal. 458 (1966).

Bhutan. Wangdu Phodrang–Samtengang, 1450–2100 m (Apr. 10, 1967); Choojom–Mishina, 1450–1500 m (Apr. 27, 1967).

Distr. Africa, Arabia, India, Ceylon, Himalaya, Burma, Indo-China, Malay Peninsula, C. & S. China, Formosa, Philippines, Malay Isls., and New Guinea.

**Adiantum Edgeworthii** Hook.: Fl. E. Himal. 459 (1966).

Bhutan. Tongsa–Tashiling, 1900–2300 m (Apr. 19, 1967); Samtengang–Choojom, 1500–2100 m (Apr. 26, 1967); Tinlegang, 1950 m (May 4, 1967); Tinlegang–Gon Chungnang, 1800–1950 m (May 5, 1967); Mishichen–Khosa, 1600–1800 m (May 10, 1967).

Distr. Himalaya, India, Burma, China, Formosa, Japan, Philippines, and Malay Isls.

**Adiantum philippense** L.: Fl. E. Himal. 459 (1966).

Sikkim. Gangtok–Temi, 500–1620 m (Jun. 28, 1969).

Distr. Widely distributed in the tropics and subtropics of the Old World.

**Adiantum pedatum** L., Sp. Pl. ed. 1, 2: 1095 (1753)–Bedd., Handb. 86 (1883).

Bhutan. Rukubi–Neylong, 2400–2800 m (Apr. 14, 1967); Tamji–Gasa, 2200–2800 m (May 13, 1967).

Distr. Himalaya to E. Asia, and N. America.

**Cheilanthes farinosa** (Forsk.) Kaulf.: Fl. E. Himal. 460 (1966).

Nepal. Godavari–Phulchauki, Kathmandu, 1600–2500 m (Jun. 23, 1967); Godavari–Phulchauki, Kathmandu, 2100–2800 m (May 29, 1969).

Bhutan. Chimakhothi–Thimphu, 2200–2450 m (Apr. 5, 1967); Thimphu, 2450 m (Apr. 7, 1967); Ritang–Rukubi, 2600–3400 m (Apr. 13, 1967); Shodu–Barshong, 3700–4000 m (May 24, 1967); Barshong–Nala, 3300–3700 m (May 25, 1967); Nala–Tzato-gang, 3200–3400 m (May 26, 1967).

Distr. Himalaya, India, Ceylon, Burma, S.W. China, Formosa, Philippines, Malay Peninsula, and other tropical regions of the world.

**Coniogramme caudata** (Wall.) Ching: Fl. E. Himal. 460 (1966).

Bhutan. Phuntsholing–Chimakhothi, 300–2250 m (Apr. 4, 1967); Samtengang–Ritang, 2000–2800 m (Apr. 11, 1967); Mishichen–Khosa, 1600–1800 m (May 10, 1967); Tamji–Gasa, 2200–2800 m (May 13, 1967).

Distr. Himalaya, and W. China (Yunnan).

**Coniogramme intermedia** Hieron.

var. **glabra** Ching: Fl. E. Himal. 461 (1966).

Bhutan. Tongsa–Tashiling, 1900–2300 m (Apr. 19, 1967); Ritang, 2000–2600 m (Apr. 23, 1967); Rinchu–Mishichen, 1500–1600 m (May 9, 1967).

Distr. Himalaya, Indo-China, China, Korea, Formosa, and Japan.

**Cryptogramma Stelleri** (Gmel.) Prantl in Bot. Jahrb. 3: 413 (1882).

*Pteris Stelleri* Gmel. in Nov. Comm. Petr. 12: 519, t. 12, f. 1 (1768).

Bhutan. Barshong–Nala, 3300–3700 m (May 25, 1967).

Distr. Himalaya, N. China, Formosa, Japan, Siberia, and N. America.

**Dennstaedtia appendiculata** (Wall.) J. Sm: Fl. E. Himal. 462 (1966).

Nepal. Godavari–Phulchauki, Kathmandu, 1600–2500 m (Jun. 23, 1967); Nagarkot, Kathmandu, 2000 m (Jun. 24, 1967); Thare–Sim Chautara, 970–2200 m (Jun. 6, 1969).

Bhutan. Longtepang–Ritang, 2600–3400 m (Apr. 22, 1967); Ritang–Ratsoo, 2000–2600 m (Apr. 23, 1967).

Distr. Himalaya, and W. China (Szechuan).



- Gymnopteris vestita** (Wall.) Underw. in Bull. Torrey Bot. Cl. **29**: 627 (1902).  
*Grammitis vestita* Wall., Cat. no. 12 (1828), nom. nud.  
*Syngamme vestita* (Wall.) Bedd., Handb. 386 (1883).  
 Bhutan. Thimphu, 2450 m (Apr. 6, 1967); Rukubi-Neylong, 2400–2800 m (Apr. 14, 1967).  
 Distr. Himalaya, S.W. China, and Formosa.
- Hypolepis punctata** (Thunb.) Mett.: Fl. E. Himal. 462 (1966).  
 Nepal. Balaju, Kathmandu, 1300 m (Jun. 16, 1967).  
 Distr. Himalaya, India, Indo-China, Malay Peninsula, C. & S. China, S. Korea, Formosa, Japan, Philippines, Malay Isls., New Zealand, Australia, Hawaii, and tropical America.
- Lindsaea cultrata** (Willd.) Sw.: Fl. E. Himal. 463 (1966).  
 Bhutan. Samtengang–Ritang, 2000–2800 m (Apr. 11, 1967); Tashiling–Tongsa, 1900–2300 m (Apr. 16, 1967); Samtengang–Choojom, 1500–2100 m (Apr. 26, 1967).  
 Distr. E. African Isls., Himalaya, India, Ceylon, Burma, Indo-China, Malay Peninsula, C. & S. China, Formosa, Japan, Malay Isls., and N. Australia.
- Microlepia marginata** (Panzer) C. Chr., Ind. Fil. 212 (1905).  
*Polypodium marginatum* Panzer, Pflanzensyst. **13**: 199 (1786).  
*Microlepia marginalis* (Thunb.) Bedd., Handb. 64 (1883).  
 Bhutan. Rinchu–Mishichen, 1500–1600 m (May 9, 1967); Mishichen–Khosa, 1600–1800 m (May 10, 1967).  
 Distr. Himalaya, India, China, Formosa, and Japan.
- Microlepia speluncae** (L.) Moore: Fl. E. Himal. 463 (1966).  
 Bhutan. Phuntsholing, 300–900 m (Apr. 3, 1967); Samtengang–Choojom, 1500–2100 m (Apr. 26, 1967).  
 Distr. Himalaya, India, Ceylon, Malay Peninsula, Indo-China, S.W. China, Ryukyu, Formosa, Philippines, Malay Isls., Polynesia, and tropical America.
- Microlepia strigosa** (Thunb.) Presl, Epim. Bot. 95 (1849)–Bedd., Handb. 67 (1883).  
*Trichomanes strigosum* Thunb., Fl. Jap. 339 (1784).  
 Bhutan. Mishichen–Khosa, 1600–1800 m (May 10, 1967).  
 Distr. Himalaya, India, Ceylon, Malay Peninsula, S. China, Formosa, Japan, Philippines, Malay Isls., and Polynesia.
- Microlepia todayensis** Christ: Fl. E. Himal. 463 (1966).  
 Nepal. Gokarna, Kathmandu, 1400 m (Jun. 22, 1967).  
 Distr. Himalaya, India, Philippines, and Malay Isls.
- Microlepia trapeziformis** (Roxb.) Kuhn: Fl. E. Himal. 463 (1966).  
 Bhutan. Tongsa–Tashiling, 1900–2300 m (Apr. 19, 1967); Mishichen–Khosa, 1600–1800 m (May 10, 1967).  
 Distr. Himalaya, India, Burma, Indo-China, Formosa, Philippines, and Malay Isls.
- Monachosorum Henryi** Christ: Fl. E. Himal. 463 (1966).  
 Bhutan. Samtengang–Ritang, 2000–2800 m (Apr. 11, 1967); Tashiling–Charikhachor, 2300–2450 m (Apr. 20, 1967); Thimphu–Dochu La, 2450–3200 m (May 30, 1967).  
 Distr. Himalaya, Vietnam, S. China, and Formosa.
- Notholaena marantae** (L.) R. Br.: Fl. E. Himal. 464 (1966).

Bhutan. Rukubi–Neylong, 2400–2800 m (Apr. 14, 1967); Chamsa–Yabu Thang, 3200–3700 m (May 15, 1967); Shodu–Barshong, 3700–4000 m (May 24, 1967).

Distr. Mediterranean region, Ethiopia, Caucasus, Himalaya, W. India, W. China, and Micronesia.

**Onychium japonicum** (Thunb.) Kunze: Fl. E. Himal. 464 (1966).

Nepal. Balaju, Kathmandu, 1300 m (Jun. 16, 1967); Godavari–Phulchauki, Kathmandu, 1600–2500 m (Jun. 26, 1967).

Bhutan. Wangdu Phodrang–Samtengang, 1450–2100 m (Apr. 10, 1967); Ritang–Rukubi, 2600–3400 m (Apr. 13, 1967); Tongsa–Tashiling, 1900–2300 m (Apr. 19, 1967); Mishichen–Khosa, 1600–1800 m (May 10, 1967).

Distr. Himalaya, Burma, China, Korea, Formosa, Japan, Philippines, and Java.

**Onychium siliculosum** (Desv.) C. Chr.: Fl. E. Himal. 464 (1966).

Nepal. Thare–Sim Chautara, 970–2200 m (Jun. 6, 1969).

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

Distr. Himalaya, Burma, Indo-China, Malay Peninsula, W. China, Formosa, Philippines, Malay Isls., New Guinea, and Polynesia.

**Pellaea nitidula** (Wall.) Bak., Syn. Fil. 149 (1867)–Bedd., Handb. 101 (1883).

*Pteris nitidula* Wall., Cat. no. 89 (1828), nom. nud.

Bhutan. Tongsa–Tashiling, 1900–2300 m (Apr. 19, 1967).

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

**Pityrogramma calomelanos** (L.) Link: Fl. E. Himal. 464 (1966).

Nepal. Sim Chautara–Thare, Gosainkund, 970–2200 m (Jun. 2, 1969).

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

Distr. Naturalized from tropical America.

**Pteridium aquilinum** (L.) Kuhn.

var. **Wightianum** (Wall.) Tryon: Fl. E. Himal. 465 (1966).

Nepal. Sim Chautara–Thare, 970–2200 m (Jun. 2, 1969).

Bhutan. Phuntsholing, 300–900 m (Apr. 3, 1967); Thimphu–Chimakhothi, 2250–2450 m (Jun. 1, 1967).

Distr. Himalaya, India, Ceylon, Indo-China, Malay Peninsula, Malay Isls., Philippines, and Formosa.

**Pteris biaurita** L.: Fl. E. Himal. 465 (1966).

Bhutan. Phuntsholing, 300 m (Apr. 2, 1967).

Distr. Widely distributed in the tropics of the world.

**Pteris cretica** L.: Fl. E. Himal. 465 (1966).

Nepal. Gokarna, Kathmandu, 1400 m (Jun. 22, 1967).

Bhutan. Phuntsholing–Chimakhothi, 300–2250 m (Apr. 4, 1967); Chimakhothi–Thimphu, 2200–2450 m (Apr. 5 & Jun. 1, 1967); Tinlegang–Gon Chungnang, 1800–1950 m (May 5, 1967).

Distr. Widely distributed in tropical and temperate regions of the world.

**Pteris dactylina** Hook.: Fl. E. Himal. 465 (1966).

Nepal. Godavari–Phulchauki, Kathmandu, 1600–2500 m (Jun. 23, 1967).

Bhutan. Rukubi–Neylong, 2400–2800 m (Apr. 14, 1967); Longtepang–Ritang, 2600–3400 m (Apr. 22, 1967).

Distr. Himalaya, W. China (Yunnan, Szechuan), and Formosa.

**Pteris excelsa** Gaud.: Fl. E. Himal. 466 (1966).

Bhutan. Tashiling–Charikhachor, 2300–2450 m (Apr. 20, 1967).

Distr. Himalaya, S. & C. China, S. Korea, Formosa, Japan, Philippines, Malay Isls., and Hawaii.

**Pteris longipes** D. Don: Fl. E. Himal. 467 (1966).

Bhutan. Phuntsholing, 300–900 m (Apr. 3, 1967); Rinchu–Mishichen, 1500–1600 m (May 9, 1967).

Distr. Himalaya, Ceylon, Burma, Philippines, Formosa, Java, and New Guinea.

**Pteris quadriaurita** Retz.: Fl. E. Himal. 466 (1966).

Nepal. Gokarna, Kathmandu, 1400 m (Jun. 22, 1967); Godavari–Phulchauki, 1600–2500 m (Jun. 23, 1967).

Darjeeling. Darjeeling–Kalimpong, 300–2300 m (Jun. 8, 1967).

Bhutan. Phuntsholing, 300 m (Apr. 2, 1967); Tashiling–Tongsa, 1900–2300 m (Apr. 16, 1967); Tongsa–Tashiling, 1900–2300 m (Apr. 19, 1967); Tinlegang, 1950 m (May 4, 1967); Tinlegang–Gon Chungnang, 1800–1950 m (May 5, 1967); Mishichen–Khosa, 1600–1800 m (May 10, 1967).

Distr. Widely distributed in the tropics and subtropics of the world.

**Pteris setuloso-costulata** Hayata: Fl. E. Himal. 467 (1966).

Bhutan. Tongsa–Tashiling, 1900–2300 m (Apr. 19, 1967); Ritang–Ratsoo, 2000–2600 m (Apr. 23, 1967).

Distr. Himalaya, Philippines, Formosa, and Japan (Isl. Yakusima).

**Pteris vittata** L.: Fl. E. Himal. 467 (1966).

Bhutan. Wangdu Phodrang–Samtengang, 1450–2100 m (Apr. 10, 1967); Chima-khothi–Phuntsholing, 2250–300 m (Jun. 2, 1967).

Distr. Widely distributed in the tropics and subtropics of the Old World.

**Pteris Wallichiana** Agardh: Fl. E. Himal. 467 (1966).

Bhutan. Phuntsholing, 300–900 m (Apr. 3, 1967); Chimakhothi–Phuntsholing, 2250–300 m (Jun. 2, 1967).

Distr. Himalaya, S. China, Formosa, Japan, Philippines, Malay Isls., and Samoa Isls.

#### DAVALLIACEAE (by Hirosi Ito)

**Davallia solida** (Forst.) Sw.: H. Ito in Fl. E. Himal. 468 (1966).

Bhutan. Rinchu–Mishichen, 1500–1600 m (May 9, 1967); Mishichen–Khosa, 1600–1800 m (May 10, 1967).

Distr. Himalaya, India, Malay Peninsula, Malay Isls., and Polynesia.

**Davallia trichomanoides** Bl.: Fl. E. Himal. 469 (1966).

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

Distr. Himalaya, India, Ceylon, Malay Peninsula, Malay Isls., and New Guinea.

**Humata assamica** (Bedd.) C. Chr.: Fl. E. Himal. 469 (1966).

Bhutan. Tinlegang–Gon Chungnang, 1800–1950 m (May 5, 1967).

Distr. Himalaya, and W. China (Yunnan).

**Humata Griffithiana** (Hook.) C. Chr. in Contr. U.S. Nat. Herb. 26: 293 (1931).

*Davallia Griffithiana* Hook., Sp. Fil. 1: 168, t. 49-B (1846)–Bedd., Handb. 60 (1883).

Bhutan. Wangdu Phodrang–Samtengang, 1450–2100 m (Apr. 10, 1967); Tinlegang–Gon Chungnang, 1800–1950 m (May 5, 1967); Punakha–Bhotokha, 1400–1450 m (May 7, 1967).

Distr. Himalaya, N. India, China, and Formosa.

**Nephrolepis cordifolia** (L.) Presl: Fl. E. Himal. 469 (1966).

Nepal. Thare-Sim Chautara, 970-2200 m (Jun. 6, 1969).

Bhutan. Wangdu Phodrang-Samtengang, 1450-2100 m (Apr. 10, 1967).

Distr. Tropics and subtropics of the Old World.

**Oleandra neriiformis** Cav., Anal. Hist. Nat. **1**: 115 (1799)-Bedd., Handb. 285 (1883).

Darjeeling. Birch Hill, 2100 m (Jun. 6, 1967).

Distr. N. India, Malay Peninsula, Malay Isls., and Philippines.

#### PLAGIOGYRIACEAE (by Hirosi Ito)

**Plagiogyria pycnophylla** (Kunze) Mett.: H. Ito in Fl. E. Himal. 470 (1966).

Darjeeling. Tonglu-Sandakphu, 2800-3970 m (Jul. 13, 1969).

Bhutan. Samtengang-Ritang, 2000-2800 m (Apr. 11, 1967); Rukubi-Neylong, 2400-2800 m (Apr. 14, 1967).

Distr. Himalaya, Malay Peninsula, Philippines, and Malay Isls.

#### CYATHEACEAE (by Kunio Iwatsuki)

**Cyathea spinulosa** Wall. ex Hook.: Tagawa in Fl. E. Himal. 470 (1966).

Bhutan. Rinchu-Mishichen, 1500-1600 m (May 9, 1967).

Distr. E. Himalaya to N. Thailand, and to S. Japan.

#### ASPIDIACEAE (by Hirosi Ito, Motozi Tagawa, and Kunio Iwatsuki)<sup>1)</sup>

**Arachniodes simulans** (Ching) Ching in Act. Bot. Sin. **10**: 259 (1962).

*Rumohra simulans* Ching in Sinensia **5**: 54, t. 8 (1934).

Bhutan. Tongsa-Tashiling, 1900-2300 m (Apr. 19, 1967).

Distr. Himalaya (a new record), and China (Yunnan, Szechuan, Hupeh).

**Arachniodes speciosa** (D. Don) Ching in Act. Bot. Sin. **10**: 259 (1962).

*Aspidium speciosum* D. Don, Prodr. Fl. Nepal. 5 (1825).

*Rumohra speciosa* Ching in Sinensia **5**: 53, t. 7 (1934).

Bhutan. Mishichen-Khosa, 1600-1800 m (May 10, 1967).

Distr. Himalaya, Tibet, and S. China (Yunnan, Szechuan, Kweichow).

**Arachniodes spectabilis** (Ching) Ching in Act. Bot. Sin. **10**: 259 (1962)-H. Ito in Fl. E. Himal. 471 (1966).

Bhutan. Samtengang-Ritang, 2000-2800 m (Apr. 11, 1967); Neylong-Tashiling, 2300-2400 m (Apr. 15, 1967); Tongsa-Tratang, 2200-2700 m (Apr. 18, 1967); Mishichen-Khosa, 1600-1800 m (May 10, 1967).

Distr. Himalaya, and W. China (Yunnan).

**Athyrium dissitifolium** (Bak.) C. Chr. in Contr. U.S. Nat. Herb. **26**: 296, pl. 18 (1931)-Tagawa & K. Iwats. in S.E. Asian Studies **5**: 101 (1967).

*Polypodium dissitifolium* Bak. in Kew Bull. Misc. **1895**: 54 (1895).

1) *Arachniodes*, *Cyrtomium*, *Diacalpe*, *Dryopteris*, *Elaphoglossum*, *Lithostegia*, *Peranema*, *Tectaria*, and *Woodsia* by H. Ito; *Athyrium*, and *Polystichum* by M. Tagawa; and *Dryoathyrium*, *Hypodematium* and *Thelypteris* by K. Iwatsuki.

Bhutan. Tinlegang–Gon Chungnang, 1950–1800 m (May 5, 1967).

Distr. Bhutan, Burma, N. Thailand, and Yunnan.

**Athyrium Nakanoi** Makino in Bot. Mag. Tokyo **23**: 247 (1909)–Ogata, Icon. Fil. Jap. **5**: pl. 214 (1933).

*Asplenium macrocarpum* var. *unipinnatum* Clarke in Trans. Linn. Soc. II. Bot. **1**: 489 (1880).

*Athyrium macrocarpum* var. *unipinnatum* (Clarke) Bedd., Handb. 165 (1883).

Bhutan. Neylong–Tashiling, 2400–2300 m (Apr. 15, 1967); Tashiling–Charikhachor, 2100–2250 m (Apr. 20, 1967).

Distr. Bhutan, Assam, Formosa, and Japan (Yakushima Isl.).

**Athyrium subtriangulare** (Hook. in Hook. et Bak.) Bedd., Ferns Brit. Ind. t. 242 (1868)–Tagawa in Journ. Jap. Bot. **26**: 19 (1951).

*Asplenium subtriangulare* Hook. in Hook. et Bak. Syn., Fil. 225 (1867).

*Pseudocystopteris subtriangularis* (Hook. in Hook. et Bak.) Ching in Act. Phytotax. Sin. **9**: 78 (1964).

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

Distr. E. Himalaya (Sikkim, Bhutan) to W. China.

**Cyrtomium macrophyllum** (Makino) Tagawa in Act. Phytotax. Geobot. **3**: 62 (1934).

*Aspidium falcatum* (L. fil.) Sw. var. *macrophyllum* Makino in Bot. Mag. Tokyo **16**: 90 (1902).

Bhutan. Ritang–Rukubi, 2600–3400 m (Apr. 13, 1967); Rukubi–Neylong, 2400–2800 m (Apr. 14, 1967); Longtebang–Ritang, 2600–3400 m (Apr. 22, 1967); Ritang–Ratsoo, 2000–2600 m (Apr. 23, 1967).

Distr. Himalaya, China, and Japan.

**Diocalpe aspidioides** Blume: Fl. E. Himal. 473 (1966).

Bhutan. Phuntsholing–Chimakhothi, 300–2250 m (Apr. 4, 1967); Samtengang–Ritang, 2000–2800 m (Apr. 11, 1967); Rukubi–Neylong, 2400–2800 m (Apr. 14, 1967); Tongsa–Uto La Road, 2200–2950 m (Apr. 17, 1967); Mishichen–Khosa, 1600–1800 m (May 10, 1967).

Distr. Himalaya, India, Ceylon, S.W. China, Hainan, Malay Isls., Philippines, and New Guinea.

**Dryoathyrium Boryanum** (Willd.) Ching: Fl. E. Himal. 475 (1966).

Bhutan. Mishichen–Khosa, 1600–1800 m (May 10, 1967).

Distr. East Africa to tropical Asia generally.

**Dryopteris atrata** (Wall.) Ching: Fl. E. Himal. 475 (1966).

Bhutan. Rukubi–Neylong, 2400–2800 m (Apr. 14, 1967); Mishina–Thimphu, 1500–3200 m (Apr. 28, 1967); Mishichen–Khosa, 1600–1800 m (May 10, 1967).

Distr. Himalaya, India, Ceylon, Burma, China, Formosa, and Japan.

**Dryopteris cochleata** (D. Don) C. Chr.: Fl. E. Himal. 476 (1966).

Bhutan. Thimphu–Chimakhothi, 2250–2450 m (Jun. 1, 1967).

Distr. Himalaya, India, Burma, Malay Peninsula, and China.

**Dryopteris costalisora** Tagawa: Fl. E. Himal. 476 (1966).

Bhutan. Rinchu–Mishichen, 1500–1600 m (May 9, 1967); Mishichen–Khosa, 1600–1800 m (May 10, 1967).

Distr. Himalaya, and Formosa.

**Dryopteris Hendersoni** (Bedd.) C. Chr., Ind. Fil. 270 (1905).

*Lastrea Hendersoni* Bedd., Ferns Brit. Ind. Suppl. 17, t. 377 (1876).

Bhutan. Mishichen-Khosa, 1600-1800 m (May 10, 1967).

Distr. Himalaya, China, Formosa, and Japan (Isl. Yakusima).

**Dryopteris hypophlebia** Hayata: Fl. E. Himal. 477 (1966).

Bhutan. Wangdu Phodrang-Samtengang, 1450-2100 m (Apr. 10, 1967); Tzatogang-Dotanang, 2700-3200 m (May 27, 1967).

Distr. Himalaya, and Formosa.

**Dryopteris Kawakamii** Hayata: Fl. E. Himal. 477 (1966).

Bhutan. Ritang-Rukubi, 2600-3400 m (Apr. 13, 1967); Longtepeng-Ritang, 2600-3400 m (Apr. 22, 1967); Gasa-Chamsa, 2800-3750 m (May 14, 1967).

Distr. Himalaya, and Formosa.

**Dryopteris lepidopoda** Hayata: Fl. E. Himal. 477 (1966).

Nepal. Kathmandu-Kakani, 1400-2200 m (Jun. 20, 1967); Godavari-Phulchauki, 1600-2500 m (Jun. 23, 1967; Jun. 10, 1969).

Bhutan. Thimphu, 2450-2800 m (Apr. 7, 1967); Samtengang-Ritang, 2000-2800 m (Apr. 11, 1967); Ritang-Ratsoo, 2000-2600 m (Apr. 23, 1967); Tinlegang-Gon Chungnang, 1800-1950 m (May 5, 1967).

Distr. Himalaya, and Formosa.

**Dryopteris paleacea** (Sw.) C. Chr.: Fl. E. Himal. 477 (1966).

Bhutan. Longtepeng-Ritang, 2600-3400 m (Apr. 22, 1967); Phuntsholing-Chimakhothi, 300-2250 m (Apr. 4, 1967); Thimphu-Wangdu Phodrang, 1450-3200 m (Apr. 9, 1967); Ritang-Rukubi, 2600-3400 m (Apr. 13, 1967); Neylong-Tashiling, 2300-2400 m (Apr. 15, 1967); Tashiling-Tongsa, 1900-2300 m (Apr. 16, 1967); Tongsa-Tratang, 2200-2700 m (Apr. 18, 1967); Longtepeng-Ritang, 2600-3400 m (Apr. 22, 1967); Ritang-Ratsoo, 2000-2600 m (Apr. 23, 1967); Tinlegang-Gon Chungnang, 1800-1950 m (May 5, 1967); Gasa-Chamsa, 2800-3750 m (May 14, 1967); Tzatogang-Dotanang, 2700-3200 m (May 27, 1967); Thimphu-Dochu La, 2450-3200 m (May 30, 1967).

Distr. Himalaya, India, S. China, Formosa, Philippines, Malay Isls., New Guinea, and many other tropical regions of the world.

**Dryopteris Scottii** (Bedd.) Ching in Bull. Dept. Biol. Coll. Sci. Sun Yatsen Univ. 6: 3 (1933); Icon. Fil. Sin. 4: t. 179 (1937).

*Polypodium Scottii* Bedd., Ferns Brit. Ind. t. 345 (1870).

Bhutan. Mishichen-Khosa, 1600-1800 m (May 10, 1967).

Distr. Himalaya, N. India, Tonking, China (Yunnan, Kwangtung, Kwangsi), and Formosa.

**Dryopteris sparsa** (D. Don) O. Kuntze: Fl. E. Himal. 478 (1966).

Bhutan. Ritang-Ratsoo, 2000-2600 m (Apr. 23, 1967); Tinlegang-Gon Chungnang, 1800-1950 m (May 5, 1967).

Distr. Himalaya, India, Ceylon, Burma, Malay Peninsula, Malay Isls., New Guinea, Philippines, Tibet, China, Formosa, and Japan.

**Elaphoglossum conforme** (Sw.) Schott: Fl. E. Himal. 479 (1966).

Sikkim. Orchid Sanctuary, Gangtok, 1700 m (Jun. 27, 1969).

Bhutan. Samtengang-Ritang, 2000-2800 m (Apr. 11, 1967); Rukubi-Neylong, 2400-2800 m (Apr. 14, 1967); Mishina-Thimphu, 1500-3200 m (Apr. 28, 1967).

Distr. Widely distributed in the tropics of the Old World.

**Hypodematium crenatum** (Forsk.) Kuhn, Deck. Reis. Bot. **3**: 37 (1879)—Ching, Icon. Fil. Sin. **3**: pl. 121. (1935); in Sunyatsenia **3**: 9, f. 1 (1935)—K. Iwats. in Act. Phytotax. Geobot. **21**: 51 (1964).

Bhutan. Wangdu Phodrang—Samtengang, 1450–2100 m (Apr. 10, 1967); Tongsa—Tashiling, 1900–2300 m (Apr. 19, 1967); Tinlegang—Gon Chungnang, 1800–1950 m (May 5, 1967).

Distr. South & East Africa to Philippines, north to C. China and Japan.

**Lithostegia foeniculacea** (Hook.) Ching in Sinensia **4**: 5, t. 1 (1933).

*Aspidium foeniculaceum* Hook., Sp. Fil. **4**: 36, t. 237 (1862).

*Lastrea foeniculacea* Bedd., Ferns Brit. Ind. t. 36 (1865); Handb. Suppl. 5 (1892).

Bhutan. Samtengang—Ritang, 2000–2800 m (Apr. 11, 1967); Tashiling—Charikhachor, 2300–2450 m (Apr. 20, 1967); Thimphu—Dochu La, 2450–3200 m (May 30, 1967).

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

**Peranema cyatheoides** D. Don: Fl. E. Himal. 479 (1966).

Darjeeling. Peshok Road—Ghum, 2250–2300 m (Jul. 7, 1969).

Bhutan. Samtengang—Ritang, 2000–2800 m (Apr. 11, 1967); Neylong—Tashiling, 2300–2400 m (Apr. 15, 1967).

Distr. Himalaya, and Formosa.

**Polystichum acanthophyllum** (Franch.) Christ: Tagawa in Fl. E. Himal. 480 (1966).

Bhutan. Thimphu, 2250–2600 m (Apr. 6 & 7, 1967); Tamji—Gasa, 2000–2800 m (May 13, 1967).

Distr. Himalaya to China.

**Polystichum Atkinsoni** Bedd., Ferns Brit. Ind. Suppl. 14. t. 362 (1876); Handb. 203 (1883).

*Aspidium Atkinsoni* (Bedd.) Clarke in Trans. Linn. Soc. II. Bot. **1**: 506 (1880).

Bhutan. Thimphu—Tinlegang, 2450–1950 m (May 3, 1967); Chamsa—Yabu Thang, 3700–3400 m (May 15, 1967); Thimphu—Dochu La, 2450–3200 m (May 30, 1967).

Distr. Sikkim, Bhutan, China (Szechuan, Hupeh, Shensi), and Formosa (?).

**Polystichum biaristatum** (Bl.) Moore, Ind. Fil. 86 (1858)—C. Chr. in Contr. U.S. Nat. Herb. **26**: 287 (1931).

*Aspidium biaristatum* Bl., Enum. Pl. Jav. 164 (1828)—Hook., Sp. Fil. **4**: 29 (1862).

*Aspidium aculeatum* var. *biaristatum* (Bl.) Clarke in Trans. Linn. Soc. II. Bot. **1**: 510 (1880).

*Polystichum aculeatum* var. *biaristatum* (Bl.) Bedd., Handb. 209 (1883).

Bhutan. Bhotokha—Rinchu, 1450–1500 m (May 8, 1967); Rinchu—Mishichen, 1500–1600 m (May 9, 1967).

Distr. Ceylon, E. Himalaya (Bhutan), Khasia, Burma, Thailand, Annam, Java, Sumatra, S. China, and Formosa.

**Polystichum discretum** (D. Don) Diels in Engl. et Prantl, Nat. Pfl.-fam. **1** (4): 199 (1899)—C. Chr. in Contr. U.S. Nat. Herb. **26**: 286 (1931).

*Aspidium discretum* D. Don, Prodr. Fl. Nepal. 4 (1825).

Bhutan. Tongsa—Tratang, 2200–2700 m (Apr. 17, 1967).

Distr. Nepal to Yunnan.

**Polystichum neolobatum** Nakai: Fl. E. Himal. 480 (1966).

Bhutan. Nala-Tzatogang, 3100-3000 m (May 26, 1967); Tzatogang-Dotanang, 3200-2500 m (May 27, 1967).

Distr. Himalaya, China, Formosa, and Japan.

**Polystichum nepalense** (Sprengel) C. Chr.: Fl. E. Himal 480 (1966).

Bhutan. Rukubi-Neylong, 2800-2400 m (Apr. 14, 1967); Neylong-Tashiling, 2400-2300 m (Apr. 15, 1967); Tongsa-Uto La Road, 2200-2950 m (Apr. 17, 1967); Tongsa-Tratang, 2200-2700 m (Apr. 18, 1967).

Distr. Himalaya to China, and Formosa.

var. **subbipinnatum** C. Chr. in Contr. U.S. Nat. Herb. **26**: 284 (1931).

Bhutan. Rukubi-Neylong, 2800-2400 m (Apr. 14, 1967); Neylong-Tashiling, 2400-2300 m (Apr. 15, 1967).

Distr. var. Bhutan to Yunnan.

**Polystichum Prescottianum** (Wall. ex Mett.) Moore: Fl. E. Himal. 480 (1966).

Darjeeling. Sandakphu, 3800-3970 m (Jul. 14 & 15, 1969).

Distr. Himalaya to China, and Formosa.

**Polystichum punctiferum** C. Chr. in Contr. U.S. Nat. Herb. **26**: 288, pl. 17 (1931).

Bhutan. Neylong-Tashiling, 2400-2300 m (Apr. 15, 1967).

Distr. Bhutan, Upper Burma, and W. China (Yunnan).

**Polystichum semifertile** (Clarke) Ching in Lingn. Sci. Journ. **15**: 398 (1936).

*Aspidium aculeatum* var. *semifertile* Clarke in Trans. Linn. Soc. II. Bot. **1**: 509 (1880).

Nepal. Kathmandu-Kakani, 2200 m (Jun. 20, 1967); Godavari-Phulchauki, 1600-2500 m (Jun. 26, 1967).

Bhutan. Phuntsholing-Chimakhothi, 900-2350 m (Apr. 4, 1967); Tashiling-Tongsa, 2300-2200 m (Apr. 16, 1967); Mishichen-Khosa, 1600-1800 m (May 10, 1967).

Distr. E. Himalaya (Sikkim, Bhutan), Tonking, N. Thailand, and China (Yunnan).

**Polystichum squarrosus** (D. Don) Fée: Fl. E. Himal 481 (1966).

Nepal. Balaju, Kathmandu, 1300 m (Jun. 16, 1967); Godavari-Phulchauki, 1600-2500 m (Jun. 23, 1967); Nagarkot, 2000 m, Kathmandu (Jun. 24, 1967).

Bhutan. Chimakhothi-Thimphu, 2350-2450 m (Apr. 5, 1967); Wangdu Phodrang-Samtengang, 1450-2100 m (Apr. 10, 1967); Samtengang-Ritang, 2100-2600 m (Apr. 11, 1967); Tashiling-Tongsa, 2300-2200 m (Apr. 16 & 19, 1967); Ritang-Ratsoo, 2600-2000 m (Apr. 23, 1967); Ratsoo-Samtengang, 2000-2100 m (Apr. 25, 1967); Thimphu-Tinlegang, 2450-1950 m (May 3, 1967); Mishichen-Khosa, 1600-1800 m (May 10, 1967).

Distr. Himalaya to China.

**Polystichum stenophyllum** Christ: Fl. E. Himal 481 (1966).

Bhutan. Ritang-Rukubi, 2600-2800 m (Apr. 13, 1967); Rukubi-Neylong, 2800-2400 m (Apr. 14, 1967); Gasa-Chamsa, 2800-3700 m (May 14, 1967); Nala-Tzatogang, 3300-3200 m (May 26, 1967); Tzatogang-Dotanang, 3200-2700 m (May 27, 1967); Thimphu-Dochu La, 2450-3200 m (May 30, 1967).

Distr. Himalaya to China, and Formosa.

**Polystichum stimulans** (Kunze ex Mett.) Bedd.: Fl. E. Himal. 481 (1966).

Bhutan. Rukubi-Neylong, 2800-2400 m (Apr. 14, 1967).



Distr. Himalaya to W. China (Yunnan).

**Polystichum Thomsonii** (Hook. f.) Bedd.: Fl. E. Himal. 481 (1966).

Nepal. Godavari-Phulchauki, 2500-2800 m (Jun. 23 & 26, 1967; Jun. 10, 1969).

Bhutan. Longteping-Ritang, 3150-2600 m (Apr. 22, 1967); Shodu-Barshong, 4000-3700 m (May 24, 1967); Barshong-Nala, 3700-3300 m (May 25, 1967); Nala-Tzatogang, 3300-3200 m (May 26, 1967).

Distr. Himalaya to China, and Formosa.

**Tectaria coadunata** (Wall.) C. Chr.: Fl. E. Himal. 481 (1966).

Bhutan. Rinchu-Mishichen, 1500-1600 m (May 9, 1967); Mishichen-Khosa, 1600-1800 m (May 10, 1967).

Distr. India, Thailand, S. China, Formosa, Malaysia, and tropical Africa.

**Tectaria polymorpha** (Wall.) Copel.: Fl. E. Himal. 481 (1966).

Bhutan. Phuntsholing, 300-900 m (Apr. 3, 1967); Bhotokha-Rinchi, 1450-1500 m (May 8, 1967); Mishichen-Khosa, 1600-1800 m (May 10, 1967).

Distr. Himalaya, India, Ceylon, Burma, Malay Peninsula, W. China (Yunnan), Philippines, Malay Isls., and Micronesia.

**Thelypteris auriculata** (J. Smith) K. Iwats.: K. Iwats. in Fl. E. Himal. 482 (1966).

Bhutan. Neylong-Tashiling, 2300-2400 m (Apr. 15, 1967).

Distr. Himalaya, and Formosa.

**Thelypteris aurita** (Hook.) Ching: Fl. E. Himal. 482 (1966).

Bhutan. Tinlegang-Gon Chungnang, 1800-1950 m (May 5, 1967).

Distr. Himalaya to Tonking.

**Thelypteris cylindrothrix** (Rosenst.) K. Iwats.: Fl. E. Himal. 482 (1966).

Bhutan. Tinlegang-Gon Chungnang, 1800-1950 m (May 5, 1967).

Distr. Himalaya to N. Thailand.

**Thelypteris erubescens** (Wall. ex Hook.) Ching: Fl. E. Himal. 483 (1966).

Nepal. Thare-Above Dhunche, Gosainkund, 2100-2200 m (Jun. 3, 1969).

Distr. Himalaya, Tonking and Laos, Malaysia, S.W. China, Formosa, extending north to the southern edge of Japan.

**Thelypteris multilineata** (Wall. ex Hook.) Morton: Fl. E. Himal. 485 (1966).

Bhutan. Wangdu Phodrang-Samtengang, 1450-2100 m (Apr. 10, 1967); Ritang-Ratsoo, 2000-2600 m (Apr. 23, 1967).

Distr. Himalaya to Polynesia and throughout Malaysia.

**Thelypteris penangiana** (Hook.) Reed in Phytologia **17**: 303 (1968).

*Polypodium penangianum* Hook. Sp. Fil. **5**: 13 (1863).

Bhutan. Bhotokha-Rinchi, 1450-1500 m (May 8, 1967).

Distr. North India and Southwest China.

**Thelypteris repens** (Hope) Ching in Bull. Fan Mem. Inst. Biol. **6**: 304 (1936).

*Nephrodium repens* Hope in Journ. Bomb. Nat. Hist. Soc. **12**: 535, t. 8 (1899).

Bhutan. Mishichen-Khosa, 1600-1800 m (May 10, 1967).

Distr. North India to Southwest China, and Tonking.

**Thelypteris xylodes** (Kunze) Ching: Fl. E. Himal. **6**: 296 (1966).

Nepal. Kathmandu-Kakani, 1400-2200 m (Jun. 20, 1967).

Bhutan. Rinchi-Mishichen, 1500-1600 m (May 9, 1967); Mishichen-Khosa, 1600-1800 m (May 10, 1967).

Distr. India throughout to Ceylon.

**Woodsia Rosthorniana** Diels in Engl., Bot. Jahrb. **29**: 187 (1900)—Ching in Sinensia **3**: 151 (1932).

Bhutan. Shodu-Barshong, 3700–4000 m (May 24, 1967).

Distr. E. Himalaya (a new record), and China (Yunnan, Szechuan, Shensi, Manchuria).

#### BLECHNACEAE (by Hiroshi Ito)

**Blechnum orientale** L., Sp. Pl. ed. 1, **2**: 1077 (1753)—Bedd., Handb. 132 (1883).

Sikkim. Gangtok-Temi, 500–1620 m (Jun. 28, 1969).

Distr. Widely distributed in the tropics and subtropics of the Old World.

**Woodwardia orientalis** Sw. in Schrad., Journ. Bot. **1800** (2): 76 (1801).

Bhutan. Wangdu Phodrang-Samtengang, 1450–2100 m (Apr. 10, 1967).

Distr. Himalaya, China, Formosa, Japan, and Philippines.

**Woodwardia unigemmata** (Makino) Nakai: H. Ito in Fl. E. Himal. 486 (1966).

Bhutan. Samtengang-Ritang, 2000–2800 m (Apr. 11, 1967); Tinlegang-Gon Chungnang, 1800–1950 m (May 5, 1967); Tamji-Gasa, 2200–2800 m (May 13, 1967).

Distr. Himalaya, Tonking, China, Formosa, Japan, and Philippines.

#### ASPLENIACEAE (by Hiroshi Ito)

**Asplenium capillipes** Makino in Bot. Mag. Tokyo **17**: 77 (1903)—Kodama in Matsumura, Icon. Pl. Koisikav. **3**: t. 210 (1917).

Bhutan. Rukubi-Neylong, 2400–2800 m (Apr. 14, 1967); Charikhachor-Longtepanang, 2450–3150 m (Apr. 21, 1967); Nala-Tzatogang, 3200–3400 m (May 26, 1967).

Distr. Himalaya (a new record), and Japan.

**Asplenium cheilosorum** Kunze: H. Ito in Fl. E. Himal. 486 (1966).

Bhutan. Mishichen-Khosa, 1600–1800 m (May 10, 1967).

Distr. Himalaya, India, Ceylon, Burma, Indo-China, Malay Peninsula, Philippines, Malay Isls., China, Formosa, and Japan (Isl. Yakusima, Isl. Tanegasima).

**Asplenium Dalhausiae** Hook.: Fl. E. Himal. 487 (1966).

Darjeeling. Senchal, 2450 m (Mar. 24, 1967).

Bhutan. Thimphu-Dochu La, 2450–3200 m (May 30, 1967).

Distr. Ethiopia, Afghanistan, and Himalaya.

**Asplenium ensiforme** Wall. ex Hook. et Grev.: Fl. E. Himal. 487 (1966).

Nepal. Godavari-Phulchauki, 1600–2500 m (Jun. 23, 26, 1967; May 29 & Jun. 10, 1969).

Bhutan. Rukubi-Neylong, 2400–2800 m (Apr. 14, 1967); Tashiling-Charikhachor, 2300–2450 m (Apr. 20, 1967); Gasa-Chamsa, 2800–3750 m (May 14, 1967); Tzatogang-Dotanang, 2700–3200 m (May 27, 1967).

Distr. Africa, Himalaya, India, Ceylon, Burma, Indo-China, S.W. China, Formosa, and Japan.

**Asplenium indicum** Sledge: Fl. E. Himal. 487 (1966).

Nepal. Gokarna, Kathmandu, 1400 m (Jun. 22, 1967); Godavari-Phulchauki, Kathmandu, 1600–2500 m (Jun. 26, 1967); Thare-Sim Chautara, 970–2200 m (Jun. 6, 1969).

Bhutan. Thimphu, 2450–2800 m (Apr. 7, 1967); Tongsa–Tratang, 2200–2700 m (Apr. 18, 1967); Longtepang–Ritang, 2600–3400 m (Apr. 22, 1967); Tinlegang, 1950 m (May 4, 1967).

Distr. Madagascar, Himalaya, India, Ceylon, and China.

**Asplenium laciniatum** D. Don: Fl. E. Himal. 488 (1966).

Bhutan. Mishichen–Khosa, 1600–1800 m (May 10, 1967).

Distr. Himalaya, India, Ceylon, and Formosa.

**Asplenium Phyllitidis** D. Don: Fl. E. Himal. 488 (1966).

Bhutan. Bhotokha–Rinchu, 1450–1500 m (May 8, 1967); Mishichen–Khosa, 1600–1800 m (May 10, 1967).

Distr. Himalaya, India, Malay Peninsula, Malay Isls., and Philippines.

**Asplenium pseudolaserpitiifolium** Ching ex Tardieu et Ching: Fl. E. Himal. 488 (1966).

Bhutan. Ritang–Ratsoo, 2000–2600 m (Apr. 23, 1967); Mishichen–Khosa, 1600–1800 m (May 10, 1967).

Distr. Himalaya, Tonking, Annam, and Hainan.

**Asplenium tenuifolium** D. Don: Fl. E. Himal. 488 (1966).

Bhutan. Phuntsholing–Chimakhothi, 300–2250 m (Apr. 4, 1967); Mishichen–Khosa, 1600–1800 m (May 10, 1967).

Distr. Himalaya, India, Ceylon, Burma, Indo-China, Malay Peninsula, China, and Formosa.

**Asplenium unilaterale** Lam.: Fl. E. Himal. 489 (1966).

Bhutan. Neylong–Tashiling, 2300–2400 m (Apr. 15, 1967); Ritang–Ratsoo, 2000–2600 m (Apr. 23, 1967); Tinlegang, 1950 m (May 4, 1967).

Distr. E. Africa, Himalaya, India, Ceylon, Burma, Indo-China, Malay Peninsula, Philippines, Malay Isls., Polynesia, Hawaii, China, Formosa, and Japan.

**Asplenium varians** Wall. ex Hook. et Grev.: Fl. E. Himal. 489 (1966).

Bhutan. Rukubi–Neylong, 2400–2800 m (Apr. 14, 1967); Longtepang–Ritang, 2600–3400 m (Apr. 22, 1967); Tinlegang, 1950 m (May 4, 1967); Bhotokha–Rinchu, 1450–1500 m (May 8, 1967); Gasa–Chamsa, 2800–3750 m (May 14, 1967); Laya, 3850 m (May 17, 1967); Shodu–Barshong, 3700–4000 m (May 24, 1967); Barshong–Nala, 3300–3700 m (May 25, 1967).

Distr. Himalaya, India, Ceylon, Philippines, China, Formosa, Korea, and Japan.

#### POLYPODIACEAE (by Motozi Tagawa)

**Aglaomorpha coronans** (Wall. ex Mett.) Copel.: Tagawa in Fl. E. Himal. 489 (1966).

Nepal. Pokhara, 900 m (Jun. 18, 1967).

Distr. N.E. Himalaya east to Formosa and Ryukyu, and south to Indo-China.

**Arthromeris himalayensis** (Hook.) Ching: Fl. E. Himal. 489 (1966).

Bhutan. Tongsa–Tratang, 2200–2700 m (Apr. 18, 1967); Mishichen–Khosa, 1600–1800 m (May 10, 1967).

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

**Arthromeris Lehmannii** (Mett.) Ching: Fl. E. Himal. 490 (1966).

Bhutan. Tashiling–Charikhachor, 2300–2450 m (Apr. 20, 1967); Mishina–Thimphu, 1500–2450 m (Apr. 28, 1967).

- A form with pinnae slightly pubescent on costa beneath:  
 Bhutan. Tongsa-Uto La Raod, 2200-2950 m (Apr. 17, 1967).  
 Distr. Himalaya to S.W. China, and Formosa, also in Assam, N. Burma, and N. Thailand.
- Arthromeris Wallichiana** (Sprengel) Ching: Fl. E. Himal. 490 (1966).  
 Bhutan. Samtengang-Ritang, 2100-2600 m (Apr. 11, 1967); Tashiling-Tongsa, 2300-2200 m (Apr. 16, 1967); Tongsa-Tratang, 2200-2700 m (Apr. 18, 1967).  
 Distr. N. India, Burma, Tonking, and W. China (Yunnan, Kweichow).
- Arthromeris Wardii** (Clarke) Ching in Contr. Inst. Bot. Nat. Acad. Peiping 2: 94 (1933).  
*Polypodium Wardii* Clarke in Journ. Linn. Soc. 25: 99. t. 43 (1889)-C. Chr. in Contr. U.S. Nat. Herb. 26: 323 (1931).  
 Bhutan. Samtengang-Ritang, 2100-2600 m (Apr. 11, 1967); Ratsoo-Samtengang, 2000-2100 m (Apr. 25, 1967); Tamji-Gasa, 2200-2800 m (May 13, 1967).  
 Distr. Bhutan, Naga Hills, N. Burma, Yunnan, and S.E. Tibet.
- Colysis hemionitidea** Presl: Tagawa in Fl. E. Himal. 490 (1966).  
 Bhutan. Bhotokha-Rinchu, 1450-1500 m (May 8, 1967).  
 Distr. N. India through S.W. and S. China to Formosa, Ryukyu, S.W. Japan (Kyushu), south to Indo-China, and Philippines.
- Colysis latiloba** (Ching) Ching: Fl. E. Himal. 490 (1966).  
 Bhutan. Samtengang-Choojom, 2100-1500 m (Apr. 26, 1967).  
 Distr. Himalaya, and Assam.
- Colysis pentaphylla** (Bak.) Ching in Bull. Fan Mem. Inst. Biol. 4: 332 (1933); Icon. Fil. Sin 4: pl. 199 (1937).  
*Gymnogramma pentaphylla* Bak. in Kew Bull. 1898: 233 (1898).  
 Bhutan. Bhotokha-Rinchu, 1450-1500 m (May 8, 1967).  
 Distr. Bhutan, N. Thailand, and W. China (Yunnan).
- Colysis pothifolia** (D. Don) Presl: Fl. E. Himal. 491 (1966).  
 Bhutan. Rinchu-Mishichen, 1500-1600 m (May 9, 1967).  
 Distr. N. India to S.W. Japan, south to Indo-China, and Philippines.
- Crypsinus Griffithianus** (Hook.) Copel.: Fl. E. Himal. 491 (1966).  
 Sikkim. Damthang-Gangtok, 2150-1800 m (Jun. 29, 1969).  
 Bhutan. Samtengang-Ritang, 2100-2600 m (Apr. 11, 1967); Rukubi-Neylong, 2400-2800 m (Apr. 14, 1967); Tongsa-Uto La Road, 2200-2950 m (Apr. 17, 1967); Tongsa-Tratang, 2200-2700 m (Apr. 18, 1967); Gasa-Chamsa, 2800-3700 m (May 14, 1967).  
 Distr. Himalaya, S.W. China, south to W. Malaysia.
- Crypsinus malacodon** (Hook.) Copel.: Fl. E. Himal. 491 (1966).  
 Darjeeling. Sandakphu, ca. 3900 m (Jul. 14 & 15, 1969).  
 Bhutan. Chamsa-Yabu Thang, 3700-3400 m (May 15, 1967).  
 Distr. Himalaya to W. China (Szechuan, Yunnan).
- Crypsinus rhynchophyllum** (Hook.) Copel., Gen. Fil. 206 (1947).  
*Polypodium rhynchophyllum* Hook., Icon. Pl. 10: t. 954 (1854).  
*Pleopeltis rhynchophylla* (Hook.) Moore, Ind. Fil. 78 (1857)-Bedd., Handb. 353 (1883).  
*Phymatodes rhynchophylla* (Hook.) Ching in Contr. Inst. Bot. Nat. Acad. Peiping 2: 69 (1933).

Bhutan. Mishina-Thimphu, 1500-2450 m (Apr. 28, 1967).

Distr. Bhutan, Assam, Burma, N. Thailand, Laos, Viet Nam, and China (Yunnan, Hupeh, Kwangtung).

**Crypsinus Stewartii** (Bedd.) Copel.: Fl. E. Himal. 492 (1966).

Bhutan. Tamji-Gasa, 2200-2800 m (May 13, 1967); Tzatogang-Dotanang, 3200-2700 m (May 27, 1967).

Distr. Himalaya to W. China (Yunnan).

**Ctenopteris subfalcata** (Bl.) Kunze: Fl. E. Himal. 492 (1966).

Bhutan. Tashiling-Charikhachor, 2300-2450 m (Apr. 20, 1967); Longtepang-Ritang, 3150-2600 m (Apr. 22, 1967); Gasa-Chamsa, 2800-3700 m (May 14, 1967).

Distr. Himalaya through China to Formosa, south to Ceylon and Malaysia.

**Drynaria mollis** Bedd., Ferns Brit. Ind. t. 216 (1867).

Bhutan. Tongsa-Tashiling, 2200-2300 m (Apr. 19, 1967).

Distr. Himalaya (Nepal to Bhutan).

**Drynaria propinqua** (Wall. ex Mett.) J. Smith apud Bedd.: Fl. E. Himal. 493 (1966).

Nepal. Pokhara, 900 m (Jun. 18, 1967); Gokarna, Kathmandu, 1400 m (Jun. 22, 1967).

Bhutan. Punakha-Bhotokha, 1400-1450 m (May 7, 1967); Bhotokha-Rinchu, 1450-1500 m (May 8, 1967).

Distr. N. India and Burma to S. China, also reported from C. China.

**Lemmaphyllum rostratum** (Bedd.) Tagawa in Fl. E. Himal. 493 (1966).

Bhutan. Tashiling-Tongsa, 2300-2200 m (Apr. 16, 1967); Bhotokha-Rinchu, 1450-1500 m (May 8, 1967); Mishichen-Khosa, 1600-1800 m (May 10, 1967).

Distr. N. India to S.W. China, south to Indo-China.

**Lepisorus bicolor** (Takeda) Ching in Bull. Fan Mem. Inst. Biol. 4: 66 (1933); Icon. Fil. Sin. 2: pl. 65 (1934).

*Polypodium excavatum* var. *bicolor* Takeda in Not. Bot. Gard. Edinb. 8: 280 (1915).

*Pleopeltis bicolor* (Takeda) Sledge in Bull. Brit. Mus. (Nat. Hist.) Bot. 2: 138 (1960).

Darjeeling. Senchal-Ghum, 2400-2300 m (Jul. 6, 1969); Tonglu, 2800-3100 m (Jul. 12, 1969).

Distr. Himalaya to Yunnan, and N. Thailand.

**Lepisorus loriformis** (Wall. ex Mett.) Ching: Fl. E. Himal 494 (1966).

Nepal. Godavari-Phulchauki, Kathmandu, 2700-3000 m (Jun. 23, 1967; May 29 & Jun. 10, 1969).

Bhutan. Phuntsholing-Chimakhothi, 900-2350 m (Apr. 4, 1967); Rukubi-Neylong, 2800-2400 m (Apr. 14, 1967); Tashiling-Tongsa, 2200-2300 m (Apr. 16, 1967); Tongsa-Uto La Road, 2200-2950 m (Apr. 17, 1967); Tongsa-Tratang, 2200-2700 m (Apr. 18, 1967); Tashiling-Charikhachor, 2300-2450 m (Apr. 20, 1967); Longtepang-Ritang, 2600-3150 m (Apr. 22, 1967).

Distr. Himalaya, Tibet, N. Burma, and W. China (Yunnan).

**Lepisorus nudus** (Hook.) Ching: Fl. E. Himal. 494 (1966).

Bhutan. Chimakhothi-Thimphu, 2350-2450 m (Apr. 5, 1967); Tongsa-Tashiling, 2200-2300 m (Apr. 19, 1967); Ritang-Ratsoo, 2600-2000 m (Apr. 23, 1967); Mishichen-Khosa, 1600-1800 m (May 10, 1967).

Distr. Himalaya to China.

**Lepisorus Scolopendrium** (Ham. ex D. Don) Tagawa in Fl. E. Himal. 494 (1966).

Darjeeling. Birch Hill, 2100 m (Jun. 6, 1967); Darjeeling-Kalimpong, 2150-1300 m (Jun. 8, 1967).

Distr. Himalaya, Tibet, and W. China (Yunnan).

**Lepisorus sublinearis** (Bak. ex Takeda) Ching: Fl. E. Himal. 494 (1966).

Bhutan. Bhotokha-Rinchu, 1450-1500 m (May 8, 1967).

Distr. Himalaya, Burma, and S.W. China.

**Loxogramme chinensis** Ching in Sinensia 1: 13 (1929)-Hu & Ching, Icon. Fil. Sin. 1: pl. 47 (1930)-Ching in Bull. Dept. Biol. Sun Yatsen Univ. No. 6, 30 (1933)-Tard. & C. Chr. in Lecomte, Fl. Gén. Ind.-Chin. 7 (2): 466 (1941)-Tagawa & K. Iwats. in S.E. Asian Studies 5: 56 (1967).

*Loxogramme salicifolia* Makino sensu Tagawa in Fl. E. Himal. 495 (1966).

Bhutan. Tashiling-Charikhachor, 2300-2450 m (Apr. 20, 1967); Mishichen-Khosa, 1600-1800 m (May 10, 1967); Khosa-Tamji, 1800-2200 m (May 11, 1967).

Distr. E. Himalaya (Darjeeling, Bhutan), N. Burma, N. Thailand, Tonking, and China (Kwangsi).

**Loxogramme Duclouxii** Christ in Bull. Acad. Géogr. Bot. 17: 140 (1907)-Tagawa & K. Iwats. in Act. Phytotax. Geobot. 24: 177 (1970).

*Polypodium succulentum* C. Chr., Ind. Fil. Suppl. 63 (1913).

Darjeeling. Takdah, 1600-1700 m (Apr. 19, 1960); Tista, 350 m (Jun. 19, 1960).

Bhutan. Rukubi-Neylong, 2800-2400 m (Apr. 14, 1967); Ritang-Ratsoo, 2600-2000 m (Apr. 23, 1967); Mishichen-Khosa, 1600-1800 m (May 10, 1967); Tamji-Gasa, 2200-2800 m (May 13, 1967).

Distr. E. Himalayas to Yunnan, N. Thailand, and Japan (?).

**Loxogramme involuta** (D. Don) Presl: Fl. E. Himal. 495 (1966).

Nepal. Godavari-Phulchauki, 1600-2500 m (Jun. 26, 1967).

Bhutan. Phuntsholing, 900 m (Apr. 3, 1967).

Distr. Himalaya, India, Ceylon, east to Burma, Thailand, and Indo-China.

**Microsorium cuspidatum** (D. Don) Tagawa in Fl. E. Himal. 495 (1966).

Bhutan. Wangdu Phodorang-Samtengang, 1450-2100 m (Apr. 10, 1967); Samtengang-Choojom, 2100-1500 m (Apr. 26, 1967); Punakha-Bhotokha, 1400-1450 m (May 7, 1967); Bhotokha-Rinchu, 1450-1500 m (May 8, 1967).

Distr. N. India to S.W. China, also in Tonking and Laos.

**Microsorium Fortuni** (Moore) Ching in Bull. Fan Mem. Inst. Biol. 4: 304 (1933); Icon. Fil. Sin. 2: pl. 83 (1934)-Tagawa in Act. Phytotax. Geobot. 22: 85 (1966).

*Drynaria Fortuni* Moore in Gard. Chron. 1855: 708 (1855).

Bhutan. Mishichen-Khosa, 1600-1800 m (May 10, 1967).

Distr. Bhutan, Burma, Tonking, China, and Formosa.

**Microsorium hymenodes** (Kunze) Ching in Bull. Fan Mem. Inst. Biol. 4: 301 (1933); Icon. Fil. Sin. 2: pl. 84 (1934).

*Polypodium hymenodes* Kunze in Linnaea 23: 279, 319 (1850).

Nepal. Godavari-Phulchauki, 1600-2500 m (Jun. 23, 1967).

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

**Neocheiropteris normalis** (D. Don) Tagawa: in Fl. E. Himal. 476 (1966).

Nepal. Godavari-Phulchauki, 1600-2500 m (Jun. 23, 1967).

Darjeeling. Birch Hill, 2200 m (Jun. 6, 1967).

Bhutan. Phuntsholing-Chimakhothi, 300-2300 m (Apr. 4, 1967).

Distr. N.E. India to S. China, and southward to Sumatra and Malaya.

**Polypodium amoenum** Wall. ex Mett.: Fl. E. Himal. 496 (1966).

Bhutan. Tinlegang-Gon Chungnang, 1950-1800 m (May 5, 1967); Mishichen-Khosa, 1600-1800 m (May 10, 1967).

f. **pilosum** Clarke in Journ. Linn. Soc. **24**: 417 (1888); Ching in Contr. Inst. Bot. Nat. Acad. Peiping **2**: 45 (1933).

Bhutan. Samtengang-Choojom, 2100-1500 m (Apr. 26, 1967); Tinlegang-Gon Chungnang, 1950-1800 m (May 5, 1967).

Distr. Himalaya through China to Formosa, south to Indo-China, and N. Thailand.

**Polypodium argutum** Wall. ex Hook.: Fl. E. Himal. 497 (1966).

Bhutan. Tamji, 2200 m (May 12, 1967).

Distr. Himalaya through China to Formosa, south to Indo-China, and Philippines.

**Polypodium lachnopus** Wall. ex Hook.: Fl. E. Himal. 497 (1966).

Bhutan. Godavari-Phulchauki, 1800-2700 m (Jun. 26, 1967).

Distr. Himalaya, Khasia, and S.W. China.

**Pyrrosia Boothii** (Hook.) Ching in Bull. Chin. Bot. Soc. **1**: 66 (1935).

*Polypodium Boothii* Hook., Sp. Fil. **5**: 53 (1863); Clarke in Trans. Linn. Soc. II. Bot. **1**: 555 (1880).

*Niphobolus Boothii* (Hook.) Bedd., Ferns Brit. Ind. **2**: t. 258 (1868).

Bhutan. Tashiling-Tongsa, 2300-2200 m (Apr. 16, 1967); Tinlegang, 1950 m (May 4, 1967).

Distr. E. Himalaya (Bhutan).

**Pyrrosia costata** (Presl ex Bedd.) Tagawa & K. Iwats. in Act. Phytotax. Geobot. **22**: 100 (1967).

*Niphobolus costatus* Presl ex Bedd., Ferns Brit. Ind. ad t. 120 (1866).

*Pyrrosia beddomeana* (Giesenh.) Ching sensu Tagawa in Fl. E. Himal. 498 (1967).

Nepal. Pokhara, 900 m (Jun. 18, 1967).

Distr. Himalaya to W. China (Yunnan), south to Burma and N. Thailand.

**Pyrrosia flocculosa** (D. Don) Ching: Fl. E. Himal. 498 (1966).

Bhutan. Phuntsholing, 900 m (Apr. 2, 1967).

Distr. Himalaya, Burma, to Tonking, and Annam.

**Pyrrosia heteractis** (Mett. ex Kuhn) Ching: Tagawa in Fl. E. Himal. 498 (1966).

Bhutan. Tongsa-Tashiling, 2200-2300 m (Apr. 19, 1967); Khosa-Tamji, 1800-2200 m (May 11, 1967).

Distr. Himalaya to W. China (Yunnan).

**Pyrrosia** aff. **lanceolata** (L.) Farwell in Amer. Midl. Nat. **12**: 245 (1931)-Ching in Bull. Chin. Bot. Soc. **1**: 70 (1935).

Nepal. Pokhara, 900 m (Jun. 18, 1967).

Distr. Himalayas to Yunnan, Peninsular India, Ceylon, Polynesia.

**Pyrrosia Mannii** (Giesenh.) Ching: Tagawa in Fl. E. Himal. 498 (1966).

Nepal. Pokhara, 900 m (Jun. 18, 1967); Gokarna, Kathmandu, 1400 m (Jun. 22, 1967); Sim Chautara–Thare, 970–2200 m (Jun. 2, 1969).

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

Bhutan. Phuntsholing, 900 m (Apr. 2, 1967); Phuntsholing–Chimakhothi, 900–2300 m (Apr. 4, 1967); Wangdu Phodrang–Samtengang, 1450–2100 m (Apr. 10, 1967); Tashiling–Tongsa, 2300–2200 m (Apr. 16, 1967); Samtengang–Choojom, 2100–1500 m (Apr. 26, 1967); Tinlegang, 1950 m (May 4, 1967); Rinchu–Mishichen, 1500–1600 m (May 9, 1967).

Distr. Himalaya to N. Thailand.

**Pyrrosia mollis** (Kunze) Ching: Tagawa in Fl. E. Himal. 498 (1966).

Bhutan. Ritang–Ratsoo, 2600–2000 m (Apr. 23, 1967); Samtengang–Choojom, 2100–1500 m (Apr. 26, 1967); Bhotokha–Rinchi, 1450–1500 m (May 8, 1967).

Distr. Himalaya, Ceylon, India, and China.

**Xiphopteris sikkimensis** (Hieron.) Copel.: Tagawa in Fl. E. Himal. 499 (1966).

Bhutan. Longteping–Ritang, 3150–2600 m (Apr. 22, 1967); Gasa–Chamsa, 2800–3700 m (May 14, 1967).

Distr. Himalaya to W. China (Yunnan), and Tonking.

#### VITTARIACEAE (by Hiroshi Ito)

**Antrophyum obovatum** Baker: H. Ito in Fl. E. Himal. 499 (1966).

Bhutan. Tinlegang, 1950 m (May 4, 1967); Mishichen–Khosha, 1600–1800 m (May 10, 1967); Khosha–Tamji, 1800–2200 m (May 11, 1967).

Distr. Himalaya, India, Indo-China, China, Formosa, and Japan.

**Antrophyum reticulatum** (Forst.) Kaulf.: Fl. E. Himal. 499 (1966).

Nepal. Gokarna, Kathmandu, 1400 m (Jun. 22, 1967).

Distr. Himalaya, India, Ceylon, Malay Peninsula, Malay Isls., Polynesia, tropical Australia, and Madagascar.

**Vittaria flexuosa** Fée: Fl. E. Himal. 499 (1966).

Nepal. Godavari–Phulchauki, Kathmandu, 1600–2500 m (Jun. 23, 1967); Nagarkot, Kathmandu, 2000 m (Jun. 24, 1967).

Bhutan. Tinlegang, 1950 m (May 4, 1967); Bhotokha–Rinchi, 1450–1500 m (May 8, 1967).

Distr. Himalaya, India, Burma, Indo-China, Malay Peninsula, S. & C. China, Formosa, Korea, Japan, Philippines, Malay Isls., New Guinea, and Africa.

**Vittaria himalayensis** Ching: Fl. E. Himal. 500 (1966).

Nepal. Godavari–Phulchauki, Kathmandu, 1600–2500 m (Jun. 26, 1967); Thare–above Dhunche, Gosainkund, 2065–2200 m (Jun. 3, 1969).

Bhutan. Samtengang–Ritang, 2000–2800 m (Apr. 11, 1967); Rukubi–Neylong, 2400–2800 m (Apr. 14, 1967); Tongsa–Tratang, 2200–2700 m (Apr. 18, 1967); Tongsa–Tashiling, 1900–2300 m (Apr. 19, 1967); Chamsa–Yabu Thang, 3200–3700 m (May 15, 1967); Barshong–Nala, 3300–3700 m (May 25, 1967); Dotanang–Thimphu, 2450–2700 m (May 28, 1967).

Distr. Himalaya (endemic).

**Vittaria mediosora** Hayata: Fl. E. Himal. 500 (1966).

Bhutan. Chamsa–Yabu Thang, 3200–3700 m (May 15, 1967).

Distr. Himalaya, Formosa, and Japan.



MARSILEACEAE (by Hirosi Ito)

**Marsilea crenata** Presl: H. Ito in Fl. E. Himal. 500 (1966).

Bhutan. Bhotokha-Rinchu, 1450-1500 m (May 8, 1967).

Distr. Himalaya, Malay Peninsula, Malay Isls., and Philippines.