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RÉSULTATS DES EXPÉDITIONS SCIENTIFIQUES GENEVOISES AU NÉPAL  
EN 1952 ET 1954 (PARTIE BOTANIQUE)

5. — Pteridophyta<sup>1</sup>

by

A. H. G. ALSTON & C. E. B. BONNER

I. LYCOPODIACEAE

**Lycopodium putcaerrimum** Wall. ex Hook. & Grev. in *Hook. Ic. Filic.* 1: 38. 1827.

DISTR. : Nepal.

NEPAL: Between Thari (27°49', 86°12') and Gongar (27°51', 86°13'), on the banks of the Bhote Kosi, on rocks, exposed S., alt. 1300 m., 14 September 1954, *Zimmermann 1247* (G! BM!).

**Lycopodium clavatum** L. *Spec. Pl.*: 1100. 1753.

DISTR. : Temperate regions and mountains in the tropics.

NEPAL: From Chyaubas (27°37', 85°47') to Risingo (27°37', 85°54'), exposed N., amongst rhododendrons, alt. 2020 m., 1 April 1952, *Zimmermann 130* (G!); left bank of the Kyāngshar Khola, exposed N., alt. 2840 m., 7 May 1952, *Zimmermann 427* (G!, BM!); slope up to the Pass above Dyendrela, alt. 3000 m., 17 June 1952, *Zimmermann 851* (G!, BM!); pass between Chyaubas (27°37', 85°47') and Nānrđing (27°38', 85°51'), alt. 2050 m., 8 Sept. 1954, *Zimmermann 1105* (G!, BM!); from Surkya (between Puiyan and Chaurikharka) to the pass of Puiyan (27°39', 86°43'), alt. 2840 m., 27 Oct. 1954, *Zimmermann 1890* (G!); between Lakhop (27°23', 83°33') and Okhaldunga (27°19', 86°30'), alt. 2910 m., 2 Nov. 1954, *Zimmermann 1983* (G!, BM!).

<sup>1</sup> For maps, see *Itinéraires* by A. ZIMMERMANN, *Candollea* 15: 127. 1956.

## 2. SELAGINELLACEAE

**Selaginella vaginata** Spring in *Mém. Acad. roy. Sci. Belgique* 24 : 87. 1850.

DISTR. : Himalayas, East to Bhutan, Assam, Burma.

NEPAL : Ascending towards Busti (27°37', 86°06'), alt. 1020 m., 3 April 1952, *Zimmermann* 162 (G !, BM !); rocks above Balaute (27°06', 86°22'), alt. 875 m., 23 June 1952, *Zimmermann* 899 (G !, BM !); between the Tamba Kosi and Lamung (27°45', 86°09'), on damp rocks, half shade, exposed W. and SW., alt. 1000 m., 12 Sept. 1954, *Zimmermann* 1198 (G !, BM !).

**Selaginella repanda** (Desv.) Spring ex Gaudich. *Voy. Bonite*, bot. 1 : 329. 1846 = *Lycopodium repandum* Desv. ex Poir. *Encycl.*, suppl. 3 : 558. 1814.

DISTR. : India, China and East to Timor.

NEPAL : Between Belsot (26°54', 86°15') and Sogaret (26°52', 86°14'), undergrowth, exposed S., alt. 175 m., 9 Nov. 1954, *Zimmermann* 2153a (G !, BM !).

**Selaginella pallida** (Hook. & Grev.) Spring in *Bull. Acad. roy. Sci. Belgique* 10 : 234. 1843 = *Lycopodium pallidum* Hook. & Grev. in *Hook. Bot. Misc.* 2 : 389. 1831.

DISTR. : Western Himalayas.

NEPAL : Hill to the NW. of Banepa (27°37', 85°31') among rhododendrons, alt. 1500 m., 30 March 1952, *Zimmermann* 105 (G !, BM !); between Those (27°35', 86°17') and Chyāngma (27°34', 86°22'), alt. 1750 m., 6 April 1952, *Zimmermann* 182 (G !, BM !).

**Selaginella fulcrata** (Ham.) Spring in *Mém. Acad. roy. Sci. Belgique* 24 : 171. 1850 = *Lycopodium fulcratum* Ham. ex Don, *Prodr. Fl. nepal.* : 17. 1825.

DISTR. : Central Himalayas.

NEPAL : After the Camp at Sukhchauri (27°04', 86°21'), alt. 450 m., 24 June 1952, *Zimmermann* 938 (G !, BM !); between Belsot (26°54', 86°15') and Sogaret (26°52', 86°14'), underwood, banks, exposed S., alt. 130 m., 9 Nov. 1954, *Zimmermann* 2153 (G !, BM !).

**Selaginella involvens** (Sw.) Spring emend. Hieron. in *Hedwigia* 50 : 2. 1911 = *Lycopodium involvens* Swartz, *Synops. Filic.* : 182. 1806.

DISTR. : India generally, East to Japan and Malesia.

NEPAL : Near Gongar (27°51', 86°13'), damp rocks, alt. 1280 m., 14 Sept. 1954, *Zimmermann* 1256 (G !, BM !).

**Selaginella bryopteris** (L.) Baker in *Journ. of Bot.* **22** : 376. 1884 = *Lycopodium bryopteris* L. *Spec. Pl.* : 1567. 1753.

DISTR. : Scattered throughout India, generally.

NEPAL : Bhadaure, between Mānebhanjyāng ( $27^{\circ}13'$ ,  $86^{\circ}27'$ ) and Charikot ( $27^{\circ}40'$ ,  $86^{\circ}01'$ ) on the way down to the Sun Kosi, alt. 800 m., 22 June 1952, *Zimmermann 881* (G !, BM !); Siwalik, between Mānebhanjyāng ( $27^{\circ}13'$ ,  $86^{\circ}27'$ ) and Balaute ( $27^{\circ}06'$ ,  $86^{\circ}22'$ ), from the Banāhoura Khola to Balaute ( $27^{\circ}06'$ ,  $86^{\circ}22'$ ), on rocks, alt. 400 m., 6 Nov. 1954, *Zimmermann 2077* (G !, BM !).

**Selaginella pennata** (Don) Spring in *Mém. Acad. roy. Sci. Belgique* **25** : 257. 1849 = *Lycopodium pennatum* Don, *Prodr. Fl. nepal.* : 18. 1825.

DISTR. : Nepal, East to Assam and Burma.

NEPAL : Before reaching the Sukhchauri Pass ( $27^{\circ}04'$ ,  $86^{\circ}21'$ ), woods, exposed E., alt. 1000 m., 7 Nov. 1954, *Zimmermann 2100* (G !, BM !).

**Selaginella bisulcata** Spring in *Mém. Acad. roy. Sci. Belgique* **24** : 259. 1849.

DISTR. : Nepal, East to Burma.

NEPAL : Tāndi, between Risingo ( $27^{\circ}35'$ ,  $86^{\circ}36'$ ) and Charikot ( $27^{\circ}40'$ ,  $86^{\circ}01'$ ), woods near the pass, alt. 1500 m., 9 Sept. 1954, *Zimmermann 1132* (G !, BM !).

**Selaginella chrysocaulos** (Hook. & Grev.) Spring in *Bull. Acad. roy. Sci. Belgique* **10** : 232. 1843; *Monogr. Lycop.* **2** : 250. 1849 = *Lycopodium chrysocaulon* Hook. & Grev. in *Hook. Bot. Misc.* **2** : 401. 1831 = *Selaginella rosenstockii* Hieron. in *Hedwigia* **43** : 22. 1904.

DISTR. : Himalayas from Kashmir to Bhutan.

NEPAL : Salleri ( $27^{\circ}29'$ ,  $86^{\circ}36'$ ), fissures in rocks, half shade, alt. 2350 m., 15 June 1952, *Zimmermann 841* (G !, BM !); descending on Okhaldunga ( $27^{\circ}19'$ ,  $86^{\circ}30'$ ), alt. 2130 m., 17 June 1952, *Zimmermann 860* (G !, BM !); left bank of the Sun Kosi, ascending towards Chyaubas ( $27^{\circ}37'$ ,  $85^{\circ}47'$ ), alt. 1850 m., 7 Sept. 1954, *Zimmermann 1082 A* (G !, BM !); left bank of the Bhote Kosi, near Simigāon ( $27^{\circ}52'$ ,  $86^{\circ}14'$ ), damp rocks, exposed W., alt. 1450 m., 14 Sept. 1954, *Zimmermann 1295* (G !, BM !); from Namche Bazar ( $27^{\circ}49'$ ,  $86^{\circ}43'$ ) in the direction of the Dudh Kosi (Monjo), alt. 2900 m., 17 Oct. 1954, *Zimmermann 1735* (G !, BM !); from Torke ( $27^{\circ}21'$ ,  $86^{\circ}32'$ ) to Okhaldunga ( $27^{\circ}19'$ ,  $86^{\circ}30'$ ), woods, banks, exposed W., alt. 2000 m., 2 Nov. 1954, *Zimmermann 1991* (G !, BM !).

**Selaginella monospora** Spring in *Mém. Acad. roy. Sci. Belgique* 24: 135. 1850.

DISTR. : Northern India, Burma, S. China, Indo-China.

NEPAL : Above Balaute (27°06', 86°22'), alt. 1080 m., 23 June 1952, *Zimmermann* 902 (G !, BM !).

**Selaginella subdiaphana** (Wall.) Spring in *Bull. Acad. roy. Sci. Belgique* 10: 32. 1843 = *Lycopodium subdiaphanum* Wall. ex Hook. & Grev. in *Hook. Bot. Misc.* 2: 401. 1831.

DISTR. : Northern India, from Punjab to Assam.

NEPAL : Katmandu (27°40', 85°19') near the aerodrome, ravines, half shade, alt. 1350 m., 3 Oct. 1954, *Zimmermann* 1005 (G !, BM !); before the Sukhchauri Pass (27°04', 86°21'), alt. 1000 m., 7 Nov. 1954, *Zimmermann* 2100 B (G !).

### 3. EQUISETACEAE

**Equisetum diffusum** Don, *Prod. Fl. nepal.* : 19. 1825.

DISTR. : India (Himalayas, Nepal, Kumaon, Assam).

NEPAL : From Phuleli (27°34', 86°39') to Tāksindhu (27°35', 86°38'), cultivated fields, alt. 1800 m., 21 Oct. 1954, *Zimmermann* 1943 (G !, BM !).

**Equisetum debile** Roxb. ex Vaucher in *Mém. Soc. Phys. Hist. nat. Genève* 1, 2: 387, 1822.

DISTR. : India to Japan and New Caledonia.

NEPAL : Katmandu (27°40', 85°19'), at the foot of banks, alt. 1300 m., 3 Sept. 1954, *Zimmermann* 1018 (G !, BM !).

### 4. OSMUNDACEAE

**Osmunda claytoniana** L. *Spec. Pl.* : 1066. 1753.

DISTR. : Himalayas, China, Northern atlantic America.

NEPAL : Near Namche Bazar (27°49', 86°43'), on the Imja Khola, exposed NE., colonies in full sunlight, alt. 3100 m., 9 June 1952, *Zimmermann* 715 (G !, BM !).

OBS. : The asiatic plant is var. *vestita* (Wall.) Milde.

**Osmunda japonica** Thunb. *Fl. jap.* : 330. 1784.

DISTR. : Oriental Asia.

NEPAL : Near the village of Salleri (27°29', 86°36'), along the path, exposed W., alt. 2320 m., 15 June 1952, *Zimmermann* 844 (G !).

## 5. GLEICHENIACEAE

**Gleichenia linearis** (Burm.) Clarke in *Trans. linn. Soc.*, ser. 2, bot. 1 : 428. 1880 = *Polypodium lineare* Burm. *Fl. indica* : 235. 1768.

DISTR. : Tropical and subtropical areas, New Zealand.

NEPAL : Hill to the NW. of Banepa ( $27^{\circ}37'$ ,  $85^{\circ}31'$ ), alt. 1640 m., 30 March 1952. *Zimmermann 104* (G !, BM !).

## 6. SCHIZAEACEAE

**Lygodium flexuosum** (L.) Schwartz in *Schrad. Journ.* 1800, 2 : 106. 1801 = *Ophioglossum flexuosum* L. *Spec. Pl.* : 1063. 1753.

DISTR. : South China, Philippines, Queensland.

NEPAL : Mount Siwalik, near Sukhchauri ( $27^{\circ}04'$ ,  $86^{\circ}21'$ ), in a passage, against the cliff face, alt. 900 m., 23 June 1952, *Zimmermann 922* (G !); Siwalik, camp between Sukhchauri ( $27^{\circ}04'$ ,  $86^{\circ}21'$ ) and Belsot (Terai) ( $26^{\circ}54'$ ,  $86^{\circ}15'$ ), undergrowth, alt. 500 m., 23 June 1952, *Zimmermann 934* (G !, BM !); Siwalik, between Aridunga ( $26^{\circ}58'$ ,  $86^{\circ}18'$ ) and Belsot ( $26^{\circ}54'$ ,  $86^{\circ}15'$ ), undergrowth, exposed E., plants from 2 to 3 m. in height, alt. 320 m., 8 Nov. 1954, *Zimmermann 2118* (G !, BM !).

**Lygodium japonicum** (Thunb.) Schwartz in *Schrad. Journ.* 1800, 2 : 106. 1801 = *Ophioglossum japonicum* Thunb. *Fl. jap.* : 328. 1784.

DISTR. : Japan, China, Southern tropical Asia.

NEPAL : Siwalik, near the pass of Balaute ( $27^{\circ}06'$ ,  $86^{\circ}22'$ ), undergrowth, exposed N., alt. 1150 m., 23 June 1952, *Zimmermann 907* (G !); idem, alt. 1200 m., 23 June 1952, *Zimmermann 910* (G !, BM !).

## 7. CYATHEACEAE

**Cyathea spinulosa** Wallich ex Hook. *Spec. Filic.* 1 : 25. t. 12 C, 1844.

DISTR. : Nepal.

NEPAL : Near the right bank of the Dudh Kosi, Taksindu area ( $27^{\circ}35'$ ,  $86^{\circ}38'$ ), undergrowth, exposed E., fronds 2 m. long, trunk 2.5 m. high, alt. 1580 m., 10 April 1952, *Zimmermann 239* (G !).

OBS. : The limits of this species are disputed, but it was originally described from Nepal.

## 8. HYMENOPHYLLACEAE

**Hymenophyllum blumeianum** Spreng. *Syst.* 4 : 131. 1827.

DISTR. : Tropical Asia.

NEPAL: Kunde-Khumjung pastures, region of Namche Bazar (27°49', 86°43'), under rocks, exposed N., alt. 3820 m., 7 June 1952, *Zimmermann* 703 (G!, BM!); between Puiyan (27°39', 86°43') and Khārte (between Puiyan (27°39', 86°43') and Kharikhola (27°37', 86°43') rocks, half shade, exposed NW., alt. 2730 m., 28 Oct. 1954, *Zimmermann* 1895 (G!, BM!).

#### 9. PLAGIOGYRIACEAE

**Plagiogyria pycnophylla** (Kunze) Mett. *Über Farngatt.* 2-4: 8. 1858 = *Lomaria pycnophylla* Kunze in *Bot. Zeit.* 1848: 143. 1848.

DISTR.: Yunnan, N. India, Malacca, Java, Borneo, Philippine Isles.

NEPAL: Descending on Puiyan (27°39', 86°43'), rocks and undergrowth, exposed NW., alt. 2860 m., 11 April 1952, *Zimmermann* 257 (G!); left bank of the Chaunrikharka Kola, forms colonies up to 100 m<sup>2</sup> in extent, exposed W., alt. 2700 m., *Zimmermann* 460 (G!).

#### 10. DENNSTAEDTIACEAE

**Pteridium aquilinum** (L.) Kuhn ex Decken, *Reisen in Ost-Afrika* 3, 3: 11. 1879 = *Pteris aquilina* L. *Spec. Pl.*: 1075. 1753.

DISTR.: Temperate and tropical regions of the world.

NEPAL: Near Mānebhanjyāng (27°13', 86°27'), undergrowth, alt. 1890 m., 20 June 1952, *Zimmermann* 871 (G!, BM!); to the SW. of Okhaldunga (27°19', 86°30'), everywhere after deforestation, alt. 1670 m., 3 Nov. 1954, *Zimmermann* 2004 (G!, BM!).

**Stenoloma chinensis** (L.) Bedd. *Handb. Ferns brit. India*: 70. 1883 = *Trichomanes chinensis* L. *Spec. Pl.*: 1099. 1753.

DISTR.: Tropical Asia, Polynesia, Madagascar, and a var. in W. Africa.

NEPAL: Hill to the NW. of Banepa (27°37', 85°31'), on schistaceous rocks, among rhododendrons, alt. 1450 m., 30 March 1952, *Zimmermann* 102 (G!, BM!); climbing to Chyaubas (27°37', 85°47'), alt. 875 m., 31 March 1952, *Zimmermann* 123 (G!); Okhaldunga (27°19', 86°30'), dry banks, exposed E., alt. 1720 m., 3 November 1954, *Zimmermann* 2002 (G!).

OBS.: Prof. MANTON (in HOLLTUM's *Ferns of Malaya*: 625) states that the Malayan plant is hexaploid and the Ceylon plant tetraploid. It is possible, therefore, that this is a composite species.

**Vittaria himalayensis** Ching in *Sinensia* 1 : 190. 1931.

DISTR. : W. Hymalayas.

NEPAL : Between Namche Bazar (27°49', 86°43') and Monjo (27°47', 86°44') left bank of the Dudh Kosi, alt. 2850 m., 17 Oct. 1954, *Zimmermann* 1748 (G !, BM !).

**Anogramma leptophylla** (L.) Link, *Filic. Spec. Hort. berol.* : 137. 1841 = *Polypodium leptophyllum* L. *Spec. Pl.* : 1092. 1753.

DISTR. : Europe, atlantic and mediterranean areas, atlantic Islands, Abyssinia, South Africa, Madagascar, India, Australia, New Zealand, Mexico, Argentina.

NEPAL : Between Namche Bazar (27°49', 86°43') and Monjo (27°47', 86°44'), left bank of the Dudh Kosi, beneath rocks, exposed NW., alt. 2800 m., 17 Oct. 1954, *Zimmermann* 1754 (G !, BM !).

**Cryptogramme brunoniana** Wallich ex Hook. & Grev. in *Hook. Ic. Filic.* 5 : 158. 1829.

DISTR. : Himalayas, S. China, Japan.

TIBET : Gaurisankar (27°58', 86°20'), amongst fallen rocks exposed N., alt. 4400 m., 2 Oct. 1954, *Zimmermann* 1562 (G !, BM !).

**Onychium contiguum** Hope in *Journ. Bombay nat. Hist. Soc.* 13 : 444. 1901.

DISTR. : North India.

NEPAL : Namche Bazar area (27°49', 86°43'), pastures of Satama, exposed S., alt. 3400 m., 14 Oct. 1954, *Zimmermann* 1658 (G !, BM !).

**Onychium siliculosum** (Desv.) Christensen, *Ind. Filic.* : 469. 1905 = *Pteris siliculosum* Desv. in *Ges. naturf. Freunde Berlin Mag.* 5 : 324. 1811.

DISTR. : Tropical Asia.

NEPAL : Siwalik, between the Sukhchauri Pass (27°04', 86°21') and the camp at Arindunga (26°58', 86°18'), on rocks, boulders and sand, exposed E., alt. 850 m., 7 Nov. 1954, *Zimmermann* 2108 (G !, BM !).

**Coniogramme affinis** Hieron. in *Hedwigia* 57 : 297. 1916 = *Grammitis affinis* Wall. *Cat.* : 2. No. 11. 1828 (*nom. nud.*).

DISTR. : India (Kumaon).

NEPAL : Right bank of the Imja Khola, Namche Bazar area (27°49', 86°43'), in the undergrowth, alt. 2885 m., 9 June 1952, *Zimmermann* 725 (G !, BM !).

**Coniogramme caudata** (Wall. ex Ettingsh.) Ching ex Christensen, *Ind. Filic.*, suppl., **3**: 56. 1934 = *Grammitis caudata* Wall. *Cat.*: **1**. 1828 (*nom. nud.*) = *Gymnogramme caudata* Presl, *Tent. Pterid.*: 218. 1836 (*nom. nud.*); Ettingsh. *Farnkr.*: 57, t. 37-f 7, t. 38-f 13. 1865 = *Coniogramme pubescens* Hieron. in *Hedwigia* **57**: 314. 1916.

DISTR.: India, S. China.

NEPAL: Left bank of the Chaunrikharka Khola, near Ghāt (27°43', 86°43'), alt. 2630 m., undergrowth, exposed NW., plants of from 0,6 to 1 m. in height, 9 May 1952, *Zimmermann* 454 (G!, BM!).

OBS.: This species is distinguished by abruptly caudate, pubescent, pinnae which are cuneate at the base.

**Coniogramme intermedia** Hieron. in *Hedwigia* **57**: 301. 1916

DISTR.: India, central China, Manchuria, Corea, Japan.

NEPAL: Between Namche Bazar (27°49', 86°43') and Monjo (27°47', 86°44'), left bank of the Dudh Kosi, at the foot of rocks, exposed N. and NW., half shade, alt. 2850 m., 17 Oct. 1954, *Zimmermann* 1749 (G!, BM!).

**Coniogramme procera** Fée, *Mém. Fougères* **10**: 22. 1865; Hieron. in *Hedwigia* **57**: 317. 1916 = *Grammitis procera* Wall. *Cat.*: **1**. No. 3. 1828 (*nom. nud.*).

DISTR.: India.

NEPAL: Puiyan (27°39', 86°43') to Khārte, between Puiyan (27°39', 86°43') and Kharikhola (27°37', 86°43'), undergrowth, exposed NW., half shade, alt. 2700 m., 28 Oct. 1954, *Zimmermann* 1893 (G!, BM!).

OBS.: This species is distinguished by the small pinnules which are truncate at the base.

**Pityrogramma calomelanos** (L.) Link, *Handb. Gew.* **3**: 20. 1833 = *Acrostichum calomelanos* L. *Spec. Pl.*: 1072. 1753.

DISTR.: Tropical and subtropical America, often adventitious or introduced elsewhere.

NEPAL: From the Sukhchauri Pass (27°04', 86°21') to the camp at Arindunga (26°58', 86°18'), alt. 850 m., 7 Nov. 1954, *Zimmermann* 2108/A (G!).

**Adiantum capillus-veneris** L. *Spec. Pl.*: 1096. 1753.

DISTR.: Europe, Africa, temperate Asia, Polynesia, Central America, etc.

NEPAL : Between the Monastery of Likanchou and Mānga Deorali, between Risingo ( $27^{\circ}37'$ ,  $85^{\circ}54'$ ) and Charikot ( $27^{\circ}40'$ ,  $86^{\circ}01'$ ), damp rocks, exposed E., alt. 1600 m., 2 April 1952, *Zimmermann 142* (G!, BM!); between the pass of Balaute ( $27^{\circ}06'$ ,  $86^{\circ}22'$ ), and Sukhchauri ( $27^{\circ}04'$ ,  $86^{\circ}21'$ ), damp rocks, exposed W., alt. 1150 m., 23 June 1952, *Zimmermann 917* (G!, BM!); Sukhchauri ( $27^{\circ}04'$ ,  $86^{\circ}21'$ ), on the banks of the torrent, exposed NW., alt. 650 m., 6 Nov. 1954, *Zimmermann 2087* (G!, BM!); from the pass of Sukhchauri ( $27^{\circ}04'$ ,  $86^{\circ}21'$ ) to the camp at Arindunga ( $26^{\circ}58'$ ,  $86^{\circ}18'$ ), damp rocks, exposed N., alt. 850 m., 7 Nov. 1954, *Zimmermann 2107* (G!, BM!).

**Adiantum incisum** Forsk. *Fl. aegypt.* : 187. 1775.

DISTR. : Tropical Asia, Africa.

NEPAL : Near Mānebhanjyāng ( $27^{\circ}13'$ ,  $86^{\circ}27'$ ), on walls, exposed W., alt. 1700 m., 20 June 1952, *Zimmermann 877* (G!, BM!); between the Banāhoura Khola and Balaute ( $27^{\circ}06'$ ,  $86^{\circ}22'$ ), on rocks, in the shade or in full sunlight, exposed S. and W., alt. 400 m., 6 Nov. 1954, *Zimmermann 2076* (G!, BM!).

OBS. : This is one of the species which have been placed under *A. caudatum* L.

**Adiantum pedatum** L. *Spec. Pl.* : 1095. 1753.

DISTR. : Himalayas, China, Japan, North America.

NEPAL : Kwāngde region ( $27^{\circ}47'$ ,  $86^{\circ}38'$ ), Namche Bazar ( $27^{\circ}49'$ ,  $86^{\circ}43'$ ), right bank of the Bhote Kosi, beneath rocks, exposed N., alt. 3000 m., 14 Oct. 1954, *Zimmermann 1688* (G!); left bank of the Imja Khola, before reaching Thyāngboche ( $27^{\circ}51'$ ,  $86^{\circ}46'$ ), half shade, exposed W., alt. 3200 m., 20 Oct. 1954, *Zimmermann 1779* (G!, BM!).

**Adiantum philippense** L. *Spec. Pl.* : 1094. 1753.

DISTR. : Africa, Asia, Australia, Tropical Polynesia, Central America.

NEPAL : Near Mānebhanjyāng ( $27^{\circ}13'$ ,  $86^{\circ}27'$ ), undergrowth, banks, exposed S., alt. 1895 m., 20 June 1952, *Zimmermann 874* (G!).

**Pteris aspericaulis** Wall. ex Agardh, *Recens. Spec. Gen. Pteridis* : 22, 1839.

DISTR. : Nepal.

NEPAL : Between Torke ( $27^{\circ}21'$ ,  $86^{\circ}32'$ ) and Okhaldunga ( $27^{\circ}19'$ ,  $86^{\circ}30'$ ), on banks, undergrowth, exposed W., alt. 2000 m., 2 Nov. 1954, *Zimmermann 1992* (G!, BM!).

**Pteris cretica** L. *Mant.* : 130. 1767.

DISTR. : Atlantic Isles, Mediterranean basin, Philippines, N. Zealand, West Indies, Brazil, etc.

NEPAL : Sikrigāon ( $27^{\circ}37'$ ,  $86^{\circ}13'$ ), Those ( $27^{\circ}35'$ ,  $86^{\circ}17'$ ), South side, among rhododendrons, alt. 1900 m., 5 April 1952, *Zimmermann 177* (G !); on the Dudh Kosi at Monjo ( $27^{\circ}47'$ ,  $86^{\circ}44'$ ), on the edge of cliffs, exposed E., alt. 2780 m., 17 Oct. 1954, *Zimmermann 1738* (G !); between Monjo ( $27^{\circ}47'$ ,  $86^{\circ}44'$ ) and Benkar ( $27^{\circ}46'$ ,  $86^{\circ}43'$ ), under rocks, exposed NW., alt. 2700 m., 20 Oct. 1954, *Zimmermann 1847* (G !, BM !).

**Pteris dactylina** Hook. *Spec. Filic.* 2 : 160. 1858.

DISTR. : N. India, China.

NEPAL : Ghāt ( $27^{\circ}43'$ ,  $86^{\circ}43'$ ), Benkar ( $27^{\circ}46'$ ,  $86^{\circ}43'$ ), left bank of the Bhote Kosi, under rocks, exposed W., alt. 2640 m., 13 April 1952, *Zimmermann 267* (G !); left bank of the Imja Khola near the Bhote Kosi, under rocks and in cracks, exposed W. and E., alt. 2900 m., 11 May 1952, *Zimmermann 487* (G !); Namche Bazar ( $27^{\circ}49'$ ,  $86^{\circ}43'$ ), towards the Dudh Kosi at Monjo ( $27^{\circ}47'$ ,  $86^{\circ}44'$ ), alt. 2780 m., 17 Aug. 1954, *Zimmermann 1737* (G !, BM !).

**Pteris nemoralis** Willd. *Enum.* : 1073. 1809.

DISTR. : Islands of Mauritius and Bourbon.

NEPAL : Between Tāksindu ( $27^{\circ}35'$ ,  $86^{\circ}38'$ ) and the left bank of the Dudh Kosi alt. 1550 m., 10 April 1952, *Zimmermann 243* (G !, BM !); beyond Sunkhāni ( $27^{\circ}42'$ ,  $86^{\circ}04'$ ), alt. 1550 m., 11 Sept. 1954, *Zimmermann 1173* (G !, BM !).

**Pteris subquinata** Wall. ex Hope in *Journ. Bombay nat. Hist. Soc.* 13 : 453. 1901.

DISTR. : Nepal, Sikkim.

NEPAL : Between Tesinga ( $27^{\circ}50'$ ,  $86^{\circ}44'$ ) and Namche Bazar ( $27^{\circ}49'$ ,  $86^{\circ}43'$ ), dry places on rocks, exposed E., alt. 3400 m., 23 Oct. 1954, *Zimmermann 1826* (G !).

**Pteris vittata** L. *Spec. Pl.* : 1074. 1753.

DISTR. : Tropical parts of Europe, Africa, Asia, Australia and Polynesia.

NEPAL : Between the Likanchou Monastery and Mānga Deorali (between Risingo ( $27^{\circ}37'$ ,  $85^{\circ}54'$ ) and Charikot ( $27^{\circ}40'$ ,  $86^{\circ}01'$ ), damp places, alt. 1500 m., 2 April 1952, *Zimmermann 148* (G !, BM !); between Balaute ( $27^{\circ}06'$ ,  $86^{\circ}22'$ ) and Sukhchauri ( $27^{\circ}04'$ ,  $86^{\circ}21'$ ),

alt. 600 m., 6 Nov. 1954, *Zimmermann 2083* (G!, BM!); between the Sukhchauri Pass ( $27^{\circ}04'$ ,  $86^{\circ}21'$ ) and the camp at Arindunga ( $26^{\circ}58'$ ,  $86^{\circ}18'$ ), alt. 850 m., 7 Nov. 1954, *Zimmermann 2108 B* (G!).

***Pteris wallichiana*** Agardh, *Recens. Spec. Gen. Pteridis*: 69, 1839.

DISTR.: N. India, Java, Celebes, Philippines, Samoa.

NEPAL: Near Gumila ( $27^{\circ}45'$ ,  $86^{\circ}42'$ ), on walls, exposed S., alt. 2600 m., 26 Oct. 1954, *Zimmermann 1854* (G!, BM!); between Ghāt ( $27^{\circ}43'$ ,  $86^{\circ}43'$ ) and Puiyan ( $27^{\circ}39'$ ,  $86^{\circ}43'$ ), alt. 2600 m., 27 Oct. 1954, *Zimmermann 1873* (G!, BM!).

***Notholaena marantae*** (L.) R. Br. *Prodr. Fl. Nov. Holl.*: 146, 1810 = *Acrostichum marantae* L. *Spec. Pl.*: 1071. 1753.

DISTR.: Mediterranean areas, Macaronesia, Himalayas, Yunnan.

NEPAL: Village of Ghāt ( $27^{\circ}43'$ ,  $86^{\circ}43'$ ), along the path, exposed S., alt. 2600 m., 13 April 1952, *Zimmermann 265* (G!, BM!); Pangboche ( $27^{\circ}52'$ ,  $86^{\circ}48'$ ), beneath *Berberis*, alt. 3900 m., 3 June 1952, *Zimmermann 629* (G!, BM!); between Thāmi ( $27^{\circ}50'$ ,  $86^{\circ}39'$ ) and Namche Bazar ( $27^{\circ}49'$ ,  $86^{\circ}43'$ ), among rhododendrons and other small trees, alt. 3400 m., 12 Oct. 1954, *Zimmermann 1650* (G!, BM!); between Tesinga ( $27^{\circ}50'$ ,  $86^{\circ}44'$ ) and Namche Bazar ( $27^{\circ}49'$ ,  $86^{\circ}43'$ ), S. and SE. slopes, among rhododendrons in full sunlight, alt. 3450 m., 17 Oct. 1954, *Zimmermann 1713* (G!, BM!).

***Cheilanthes albomarginata*** Clarke in *Trans. linn. Soc. London*, ser. 2, bot. 1: 456, Febr. 1880.

DISTR.: NW. Himalayas: Kashmir, Garwal, Simla; Nilgherries.

NEPAL: Rocks above Ghāt ( $27^{\circ}43'$ ,  $86^{\circ}43'$ ), in full sunlight, exposed SW., alt. 2650 m., 11 June 1952, *Zimmermann 761* (G!, BM!); Katmandu ( $27^{\circ}40'$ ,  $85^{\circ}19'$ ) near the aerodrome, ravines to the SW., half shade, alt. 1300 m., 3 Sept. 1954, *Zimmermann 1007* (G!, BM!).

***Cheilanthes anceps*** Blanford in *Simla nat. Hist. Soc.*, leaflet, 25. June 1886.

DISTR.: India.

NEPAL: Between Torke ( $27^{\circ}21'$ ,  $86^{\circ}32'$ ) and Okhaldunga ( $27^{\circ}19'$ ,  $86^{\circ}30'$ ), on rocks in full sunlight, exposed E. and SE., alt. 1950 m., 2 Nov. 1954, *Zimmermann 1989* (G!, BM!).

***Cheilanthes rufa*** Don, *Prodr. Fl. nepal.*: 16. 1825.

DISTR.: N. India.

NEPAL : Under rocks in the wood, near the pass when descending on Tāndi, between Risingo ( $27^{\circ}37'$ ,  $85^{\circ}54'$ ) and Charikot ( $27^{\circ}40'$ ,  $86^{\circ}01'$ ), exposed S., alt. 1440 m., 9 Sept. 1954, *Zimmermann 1129* (G!).

**Cheilanthes subvillosa** Hook. *Spec. Filic.* 2: 87. 1858.

DISTR. : W. Himalayas.

NEPAL : Tesinga ( $27^{\circ}50'$ ,  $86^{\circ}44'$ ), dry walls, exposed S., 3300 m., 23 Oct. 1954, *Zimmermann 1823* (G!, BM!).

**Cheilanthes tamburii** (Hook.) Moore, *Ind. Filic.* : 254. 1861 = *Pellaea tamburii* Hook. *Spec. Filic.* 2: 134. 1858.

DISTR. : Nepal.

NEPAL : Camp of Chyaubas ( $27^{\circ}37'$ ,  $85^{\circ}47'$ ), on rocks, exposed SE., alt. 1950 m., 8 Sept. 1954, *Zimmermann 1086 A* (G!, BM!).

## II. LINDSAYACEAE

**Lindsaya cultrata** (Willd.) Swartz, *Synops. Filic.* : 119. 1806 = *Adiantum cultratum* Willd. *Phytogr.* : 14. 1794.

DISTR. : Tropical Asia, Queensland, Madagascar, Reunion.

NEPAL : Between Chyaubas ( $27^{\circ}37'$ ,  $85^{\circ}47'$ ) and the Likanchou Monastery, on walls, exposed N., alt. 1600 m., 1 April 1952, *Zimmermann 134* (G!, BM!); between Iksa ( $27^{\circ}38'$ ,  $86^{\circ}10'$ ) and Sikrigāon ( $27^{\circ}37'$ ,  $86^{\circ}13'$ ) on banks, exposed NW., alt. 2370 m., 5 April 1952, *Zimmermann 171* (G!).

## 12. POLYPODIACEAE

**Pyrosia mannii** (Gies.) Ching in *Bull. chinese bot. Soc.* 1: 55. 1935 = *Niphobolus mannii* Gies. *Farngett. Niphobolus* : 107. 1901.

DISTR. : Himalayas.

NEPAL : Between Okhaldunga ( $27^{\circ}19'$ ,  $86^{\circ}30'$ ) and Ponkhu ( $27^{\circ}16'$ ,  $86^{\circ}29'$ ), banks, undergrowth, exposed N., alt. 1880 m., 4 Nov. 1954, *Zimmermann 2032* (G!, BM!).

**Drynaria mollis** Bedd. *Ferns brit. Ind.* : 216. 1867.

DISTR. : Himalayas, S. China.

NEPAL : Between Iksa ( $27^{\circ}38'$ ,  $86^{\circ}10'$ ) and Sikrigāon ( $27^{\circ}37'$ ,  $86^{\circ}13'$ ), on the trunks of rhododendrons and oaks, alt. 2370 m., 5 April 1952, *Zimmermann 174* (G!); between Pāre ( $27^{\circ}49'$ ,  $86^{\circ}39'$ ) and Thāmi ( $27^{\circ}50'$ ,  $86^{\circ}39'$ ), on walls and rocks, alt. 3400 m., 12 Oct. 1954, *Zimmermann 1639* (G!, BM!).

OBS. : With the exception of the brown sterile frond, which persists for many years on the rhizome, this fern appears to grow only during the monsoon period. This feature is true also for *D. propinqua*.

A specimen of this plant is now in cultivation in the hot houses of the botanic gardens of Geneva.

**Drynaria propinqua** Wall. ex J. Smith in *Hook. Journ. Bot.* **4** : 61. 1841.

DISTR. : N. India, S. China, Java, Fernando Po.

NEPAL : Between Thari (27°49', 86°12') and Gongar (27°51', 86°13'), on tree trunks, alt. 1350 m., 14 Sept. 1954, *Zimmermann 1242* (G !, BM !).

**Loxogramme involuta** (Don) Presl, *Tent. Pterid.* : 215. 1836 = *Grammitis involuta* Don, *Prod. Fl. nepal.* : 14. 1825.

DISTR. : Tropical Asia.

NEPAL : Thari (27°49', 86°12'), on tree trunks, exposed E., alt. 1550 m., 14 Sept. 1954, *Zimmermann 1240* (G !, BM !).

**Polypodium amoenum** Wall. *Cat. No.* 290, 1828 (*nom. nud.*) ; Mett. *Über Farngatt.* **1** : 80. 1857 ; Ching in *Contrib. Inst. bot. Peiping* **2** : 43. 1933 ; Tagawa in *Mem. Coll. Sci. Univ. Kyoto*, ser. B, **21** : 73. 1954.

DISTR. : N. India, China, Formosa.

NEPAL : Among rocks above Ghāt (27°43', 86°43'), alt. 2640 m., 11 June 1952, *Zimmermann 753* (G !, BM !).

**Polypodium atkinsonii** Christensen, *Ind. Filic.* : 511. 1906 ; Ching in *Contrib. Inst. bot. nat. Acad. Peiping* **2** : 48. 1933 = *Polypodium hendersoni* Atkins. ex Hook. & Bak. *Syn. Filic.* ed. 2 : 511. 1874, non Lowe 1858.

DISTR. : Himalayas.

NEPAL : Beding (27°55', 86°21'), fissures in rocks, exposed S. and N., alt. 3600 m., 22. Sept. 1954, *Zimmermann 1408* (G !, BM !).

**Polypodium lachnopus** Wall. ex Hook. in *Hook. Ic. Pl.* : 952. 1852 ; Ching in *Contrib. Inst. bot. nat. Acad. Peiping* **2** : 48. 1933.

DISTR. : Himalayas, Khasya and Yunnan.

NEPAL : Near Mānebhanjyāng (27°13', 86°27'), alt. 1895 m., 20 June 1952, *Zimmermann 875* (G ! BM !).

**Phymatodes erythrocarpa** (Mett.) Ching in *Contrib. Inst. bot. nat. Acad. Peiping* **2** : 80. 1933 = *Polypodium erythrocarpum* Mett. ex Kuhn in *Linnaea* **36** : 135. 1869.

DISTR. : Sikkim.

NEPAL : Right bank of the Bhote Kosi, in the direction of the Kwāngde ( $27^{\circ}47'$ ,  $86^{\circ}38'$ ) on damp rocks, exposed N., 3000 m., 14 Oct. 1954, *Zimmermann 1689 B* (G !, BM !).

**Phymatodes cuspidata** (Don) J. Smith, *Cat. cult. Ferns* : 10. 1857 = *Polypodium cuspidatum* Don, *Prodr. Fl. nepal.* : 2. 1825 = *P. lucidum* Roxb. in *Calcutta Journ. nat. Hist.* 4 : 486. 1844 = *Phymatodes lucida* (Roxb.) Ching in *Contrib. Inst. bot. nat. Acad. Peiping* 2 : 61. 1933.

DISTR. : N. India, SW. China, Tonkin.

NEPAL : Ascending towards Busti ( $27^{\circ}37'$ ,  $86^{\circ}06'$ ), on rocks, exposed SW., alt. 1095 m., 3 April 1952, *Zimmermann 163* (G !, BM !).

OBS. : CHING takes up ROXBURGH's name on the assumption that *P. cuspidatum* Don is antedated by *P. cuspidatum* Presl, but DON's *Prodromus* was published in Feb. 1825 (see STEARN in *Journ. Arnold Arb.* 26 : 168. 1945) and PRESL's *Reliquiae Haenkeanae* after 14 May 1825 (see STEARN in *Journ. Soc. Bibl. nat. Hist.* 1 : 154. 1938).

**Phymatodes oxyloba** (Wall.) Presl, *Tent. Pterid.* : 196. 1836 = *Polypodium oxylobum* Wall. ex Kunze in *Linnaea* 24 : 255. 1851.

DISTR. : Nilgherries, Himalayas.

NEPAL : Pass between Chyaubas ( $27^{\circ}37'$ ,  $85^{\circ}47'$ ) and Nānrđing ( $27^{\circ}38'$ ,  $85^{\circ}51'$ ), on the trunks and branches of rhododendrons, alt. 2040 m., 8 Sept. 1954, *Zimmermann 1106* (G !).

**Phymatodes crenato-pinnata** (Clarke) Ching in *Contr. Inst. bot. nat. Acad. Peiping* 2 : 80. 1933 = *Polypodium crenato-pinnatum* Clarke in *Journ. linn. Soc.* 25 : 99. 1888.

DISTR. : Yunnan, India.

NEPAL : Right bank of the Bhote Kosi, in the direction of the Kwāngde ( $27^{\circ}47'$ ,  $86^{\circ}38'$ ), alt. 3000 m., 14 Oct. 1954, *Zimmermann 1689 B* (G !).

**Phymatodes stewartii** (Bedd.) Ching in *Contr. Inst. bot. nat. Acad. Peiping* 2 : 81. 1933 = *Polypodium stewartii* (Bedd.) Hook. & Bak. ex Hook. *Syn. Filic.* ed. 2 : 554. 1874, non Clarke (1880) = *Pleopeltis stewartii* Bedd. *Ferns brit. India* : 204. 1866.

DISTR. : India (Sikkim).

NEPAL : Right bank of the Bhote Kosi between Benkar ( $27^{\circ}46'$ ,  $86^{\circ}43'$ ) and Ghāt ( $27^{\circ}43'$ ,  $86^{\circ}43'$ ), alt. 2710 m., 10 June 1952, *Zimmermann 738* (G !).

**Phymatodes malacodon** (Hook.) Ching in *Contr. Inst. bot. nat. Acad. Peiping* 2: 83. 1933 = *Polypodium malacodon* Hook. *Spec. Filic.* 5: 87. 1863.

DISTR. : Himalayas, S. China.

NEPAL : Between Pangboche (27°52', 86°48') and Thyāngboche (27°51', 86°46'), under trees but on rocks, exposed SE., alt. 3840 m., 3 June 1952, *Zimmermann* 637 (G!, BM!); between Tarangan (27°53', 86°38') and Thāmi (27°50', 86°39'), under rocks, exposed E., alt. 3900 m., 11 Oct. 1954, *Zimmermann* 1624 (G!, BM!); Simigāon Pass (27°53', 86°16'), alt. 3300 m., 15 Sept. 1954, *Zimmermann* 1334 (G!, BM!); from Beding (27°55', 86°21') in the direction of Nangaon (27°53', 86°28'), on rocks exposed SE., alt. 3650 m., 19 Sept. 1954, *Zimmermann* 1393 (G!, BM!).

**Phymatodes ebenipes** (Hook.) Ching in *Contr. Inst. bot. nat. Acad. Peiping* 2: 86. 1933 = *Polypodium ebenipes* Hook. *Spec. Filic.* 5: 88. 1863.

DISTR. : N. India, Yunnan, Borneo.

NEPAL : Descending from Namche Bazar (27°49', 86°43') to the Imja Khola, in cracks in rocks, exposed N., alt. 3100 m., 9 June 1952, *Zimmermann* 715B (G!, BM!); right bank of the Bhote Kosi, in the direction of the Kwāngde (27°47', 86°38'), on damp rocks, exposed N., alt. 3000 m., 14 Oct. 1954, *Zimmermann* 1689 (G!).

**Arthromeris wallichiana** (Spreng.) Ching in *Contr. Inst. bot. nat. Acad. Peiping* 2: 92. 1933 = *Polypodium wallichianum* Spreng. *Syst.* 4: 53. 1827.

DISTR. : N. India.

NEPAL : Near the Tamba Kosi, damp places, alt. 1000 m., 12 Sept. 1954, *Zimmermann* 1196 (G!); between Ghāt (27°43', 86°43') and Chaunrikharka (27°42', 86°43'), rocks, exposed W., alt. 2700 m., 27 Oct. 1954, *Zimmermann* 1871 (G!, BM!).

**Arthromeris himalayensis** (Hook.) Ching in *Contr. Inst. bot. nat. Acad. Peiping* 2: 99. 1933 = *Polypodium himalayense* Hook. *Spec. Filic.* 5: 91. 1863.

DISTR. : Himalayas, Yunnan.

NEPAL : Undergrowth, among the rocks when descending on Puiyan (27°39', 86°43'), alt. 2820 m., 11 April 1952, *Zimmermann* 256 (G!, BM!).

**Pleopeltis scolopendrium** (Don) Alston et Bonner comb. nov. = *Polypodium scolopendrium* Don, *Prod. Fl. nepal.* : 1. 1825 = *Lepisorus*

*excavatus* (Bory) Ching var. *scolopendrium* (Don) Ching in *Bull. Fan Mem. Inst. Biol.*, bot. ser., **4**: 69. 1933.

DISTR. : Himalayas, Tibet and Yunnan.

NEPAL : On the Chyaubas Pass ( $27^{\circ}37'$ ,  $85^{\circ}47'$ ), on tree trunks, alt. 2140 m., 8 Sept. 1954, *Zimmermann 1095* (G !, BM !).

**Pleopeltis kashyapii** (Mehra) Alston et Bonner comb. nov. = *Polypodium kashyapii* Mehra in *Punjab Univ. bot. Publ.* **7**: 24. 1939.

DISTR. : Nepal, West of Mussoorie.

NEPAL : Between Namche Bazar ( $27^{\circ}49'$ ,  $86^{\circ}43'$ ) and Monjo ( $27^{\circ}47'$ ,  $86^{\circ}44'$ ), left bank of the Imja Khola, among rocks, alt. 2880 m., 9 June 1952, *Zimmermann 721* (G !, BM !).

**Pleopeltis clathrata** (Clarke) Bedd. *Handb. Ferns brit. India* : 348. 1883 = *Polypodium clathratum* Clarke in *Trans. linn. Soc.*, ser. 2, bot. **1** : 559, 1880 = *Lepisorus clathratus* (Clarke) Ching in *Bull. Fan Mem. Inst. Biol.* **4** : 71. 1933.

DISTR. : Afghanistan to Yunnan and Tran Shan to Japan.

NEPAL : Pangboche ( $27^{\circ}52'$ ,  $86^{\circ}48'$ ), alt. 3900 m., 14 May 1952, *Zimmermann 507* (G !); Pangboche ( $27^{\circ}52'$ ,  $86^{\circ}48'$ ), on walls and rocks, exposed S., alt. 3900 m., 3 June 1952, *Zimmermann 638* (G !, BM !); Beding ( $27^{\circ}55'$ ,  $86^{\circ}21'$ ), on rocks, exposed S. and N., alt. 3600 m., 22 Sept. 1954, *Zimmermann 1410* (G !, BM !).

**Pleopeltis loriformis** (Wall.) Moore, *Ind. Filic.* : 346. 1862 = *Polypodium loriforme* Wall. ex Mett. *Über Farngatt.* **1** : 92, 1857 = *Lepisorus loriformis* (Wall.) Ching in *Bull. Fan Mem. Inst. Biol.*, bot. ser., **4** : 81. 1933.

DISTR. : Himalayas, to Yunnan and Upper Burma.

NEPAL : Descending from Taksindu ( $27^{\circ}35'$ ,  $86^{\circ}38'$ ) to the Dudh Kosi, on rocks, exposed N., alt. 2470 m., 10 April 1952, *Zimmermann 234* (G !, BM !); camp above the Lumding Khola, on rocks, undergrowth, alt. 3000 m., 13 June 1952, *Zimmermann 791 B* (G !, BM !).

**Pleopeltis nuda** Hook. *Exotic Ferns.* **1** : 63. 1823 = *Polypodium nudum* (Hook.) Kunze in *Linnaea* **23** : 281. 1850 = *Lepisorus nudus* (Hook.) Ching in *Bull. Fan Mem. Inst. Biol.*, bot. ser., **4** : 83. 1933.

DISTR. : N. India, Yunnan, Ceylon.

NEPAL : Thari ( $27^{\circ}49'$ ,  $86^{\circ}12'$ ), on tree trunks, exposed E., alt. 1750 m., 14 Sept. 1954, *Zimmermann 1239* (G !, BM !); between Mānebhanjyāng ( $27^{\circ}13'$ ,  $86^{\circ}27'$ ), and the Sun Kosi, banks, exposed W., half shade, alt. 1500 m., 5 Nov. 1954, *Zimmermann 2058* (G !).

**Pleopeltis contorta** (Christ) Alston et Bonner comb. nov. = *Polypodium contortum* (Christ) Christ in *Bot. Gaz.* **51**: 347. 1911 = *Polypodium lineare* Thunb. var. *contortum* Christ in *Nuovo Giorn. Bot. ital.* **4**: 1. 1898 = *Lepisorus contortus* (Christ) Ching in *Bull. Fan Mem. Inst. Biol.*, bot. ser., **4**: 90. 1933.

DISTR. : West and North China, Tibet.

NEPAL : Near the junction of the two rivers above Tesinga ( $27^{\circ}50'$ ,  $86^{\circ}44'$ ), fissures in the rocks, alt. 3370 m., 29 April 1952, *Zimmermann* 377 (G !, BM !); between Namche-Bazar ( $27^{\circ}49'$ ,  $86^{\circ}43'$ ) and Monjo ( $27^{\circ}47'$ ,  $86^{\circ}44'$ ), left bank of the Dudh Kosi, on rocks, exposed N., alt. 2800 m., 2 May 1952, *Zimmermann* 396 (G !, BM !).

**Microsorium normale** (Don) Ching in *Bull. Fan Mem. Inst. Biol.*, bot. ser., **4**: 299. 1933 = *Polypodium normale* Don, *Prod. Fl. nepal.*: 1. 1825.

DISTR. : Himalayas to SW. China, Siam and Tonkin.

NEPAL : Between Namche Bazar ( $27^{\circ}49'$ ,  $86^{\circ}43'$ ) and Monjo ( $27^{\circ}47'$ ,  $86^{\circ}44'$ ), left bank of the Dudh Kosi, on rocks, half shade, exposed NW., alt. 2850 m., 17 Oct. 1954, *Zimmermann* 1750 (G !, BM !).

**Nicrosorium membranaceum** (Don) Ching in *Bull. Fan Mem. Inst. Biol.*, bot. ser., **4**: 309. 1933 = *Polypodium membranaceum* Don, *Prodr. Fl. nepal.*: 2. 1825.

DISTR. : India, Ceylon, to Tenasserim and S. China.

NEPAL : Sirka ( $27^{\circ}42'$ ,  $86^{\circ}07'$ ), on descending to the Gumbu Khola, damp rocks, half shade, exposed W., alt. 1110 m., 12 Sept. 1954, *Zimmermann* 1185 (G !); between Thari ( $27^{\circ}49'$ ,  $86^{\circ}12'$ ) and Gongar ( $27^{\circ}51'$ ,  $86^{\circ}13'$ ), on rocks, alt. 1350 m., 14 Sept. 1954, *Zimmermann* 1245 (G !, BM !); idem, alt. 1300 m., 14 Sept. 1954, *Zimmermann* 1248 (G !, BM !).

**Nephrolepis auriculata** (L.) Trimen in *Journ. linn. Soc.*, bot., **24**: 152. 1887 = *Polypodium auriculatum* L. *Spec. Pl.*: 1088. 1753. *p.p.*, *excl. syn.* Burm.

DISTR. : Japan, New Zealand, tropical Asia.

NEPAL : Hill to the NW. of Banepa ( $27^{\circ}37'$ ,  $85^{\circ}31'$ ), among rhododendrons, alt. 1600 m., 30 March 1952, *Zimmermann* 109 (G !, BM !); on ascending to Busti ( $27^{\circ}37'$ ,  $86^{\circ}06'$ ), exposed W., alt. 956 m., 3 April 1952, *Zimmermann* 161 (G !); near Sirka ( $27^{\circ}42'$ ,  $86^{\circ}07'$ ), on tree trunks, alt. 1500 m., 11 Sept. 1954, *Zimmermann* 1179 (G !, BM !); SW. of Okhaldunga ( $27^{\circ}19'$ ,  $86^{\circ}30'$ ), everywhere, in half shade and in full sunlight, alt. 2500 m., 3 Nov. 1954, *Zimmermann* 2011 (G !, BM !).

OBS. : Wherever it grows, this species forms extensive colonies.

This is one of the species which have been placed under *N. cordifolia* (L.) Presl, which was based on a figure of PETIVER's copied from PLUMIER's t. 71. This appears to represent *N. occidentalis* (Kuhn) Kuntze. The other american segregate therefore becomes *N. pectinata* (Willd.) Schott.

**Oleandra wallichii** (Hooker) Presl, *Tent. Pterid.*: 78. 1836 = *Aspidium wallichii* Hook. *Exotic Ferns*: 1, t. 5. 1823.

DISTR. : Northern India.

NEPAL : Above Ghāt (27°43', 86°43'), rocks in half shade, exposed NW., alt. 2640 m., 11 June 1952, *Zimmermann* 754 (G !, BM !); pass between Chyaubas (27°37', 85°47') and Nānrđing (27°38', 85°51'), on trees, alt. 2050 m., 8 Sept. 1954, *Zimmermann* 1101 (G !, BM !); between Khārte (near Puiyan (27°39', 86°43')) and Kharikhola (27°37', 86°43'), everywhere, on rocks, exposed W., alt. 2350 m., 28 Oct. 1954, *Zimmermann* 1910 (G !, BM !).

**Leucostegia delavayi** (Bedd.) Ching ex Christensen, *Ind. Filic.* suppl. 3: 120. 1934 = *Davallia pulchra* var. *delavayi* Beddome ex Clarke & Baker in *Journ. linn. Soc., bot.*, 24: 410. 8 Dec. 1888.

DISTR. : China (Yunnan).

NEPAL : Between Tarangan (27°53', 86°38') and Thāmi (27°50', 86°39'), alt. 3800 m., 11 Oct. 1954, *Zimmermann* 1625 (G !, BM !).

**Leucostegia immersa** (Wall.) Presl, *Tent. Pterid.*: 95. 1836 = *Davallia immersa* Wall. ex Hook. *Spec. Filic.* 1: 156. 1846.

DISTR. : N. India, Java. Celebes.

NEPAL : Near the Pura Nungon Pass, between Risingo (27°37', 85°54') and Charikot (27°40', 86°01'), Charikot area (27°40', 86°01'), on the trunks of rhododendrons, exposed W., alt. 2000 m., 10 Sept. 1954, *Zimmermann* 1141 (G !, BM !).

**Leucostegia pulchra** (Don) J. Smith in *Journ. of Bot.* 1: 426. 1842 = *Davallia pulchra* Don, *Prod. Fl. nepal.*: 11. 1825.

DISTR. : Himalayas, Ceylon, Yunnan.

NEPAL : Before reaching Tesinga (27°50', 86°44'), under a rock, exposed E., alt. 3340 m., 5 June 1952, *Zimmermann* 674 (G !, BM !); near Mānebhanjyāng (27°13', 86°27'), on rhododendrons, exposed S., alt. 1895 m., 20 June 1952, *Zimmermann* 876 (G !, BM !).

## 13. ASPLENIACEAE

**Asplenium ensiforme** Wall. *Cat.* No. 200. 1828 (*nom. nud.*); Hook. & Grev. ex Hook.  *Ic. Filic.*, t. 71. 1829.

DISTR. : India, Yunnan.

NEPAL : Down from Taksindhu ( $27^{\circ}35'$ ,  $86^{\circ}38'$ ), towards the Dudh Kosi river, on a dead tree in the forest, exposed E., alt. 2470 m., 10 April 1952, *Zimmermann 235* (G !); from Puiyan ( $27^{\circ}39'$ ,  $86^{\circ}43'$ ) to Khārte (between Puiyan and Kharikhola ( $27^{\circ}37'$ ,  $86^{\circ}43'$ )), on rocks, exposed NW., half shade, alt. 2700 m., 28 Oct. 1954, *Zimmermann 1896* (G !, BM !).

**Asplenium crinicaule** Hance in *Annales Sci. nat.*, ser. 5, 5 : 254. 1866.

DISTR. : Southern China, India.

NEPAL : Thari ( $27^{\circ}49'$ ,  $86^{\circ}12'$ ), on tree trunk, exposed E., 1750 m., 14 Sept. 1954, *Zimmermann 1238* (G !, BM !).

## 14. THELYPTERIDACEAE

**Thelypteris levingei** (Clarke) Ching in *Bull. Fan Mem. Inst.*, bot. ser., 6 : 273. 1936 = *Dryopteris levingei* (Clarke) Christensen, *Ind. Filic.* : 275. 1905 = *Gymnogramme aurita* var. *levingei* Clarke in *Trans. linn. Soc.*, ser. 2, 1 : 568. 1880.

DISTR. : Himalayas.

NEPAL : Right bank of the Bhote Kosi, in the direction of the Kwangde, Namche Bazar area ( $27^{\circ}49'$ ,  $86^{\circ}43'$ ), on steep slopes, undergrowth, alt. 3040 m., 14 Oct. 1954, *Zimmermann 1686* (G !, BM !).

**Abacopteris penangiana** (Hook.) Ching in *Bull. Fan Mem. Inst.*, bot. ser., 8 : 255. 1938 = *Dryopteris penangiana* (Hook.) Christensen, *Ind. Filic.* : 283. 1905 = *Polypodium penangianum* Hook. *Spec. Filic.* 5 : 13. 1863.

DISTR. : China, Ceylon, N. India.

NEPAL : Between Mānebhanjyāng ( $27^{\circ}13'$ ,  $86^{\circ}27'$ ) and the Sun Kosi, on banks, exposed W., alt. 1500 m., 5 Nov. 1954, *Zimmermann 2056* (G !, BM !).

OBS. : This species seems not to be known from Penang.

**Ampelopteris prolifera** (Retz) Copel. *Gen. Filic.* : 144. 1947 = *Dryopteris prolifera* (Retz) Christensen, *Ind. Filic.* : 286. 1905 = *Hemionitis prolifera* Retz, *Obs.* 6 : 38. 1791 = *Goniopteris prolifera* (Retz) Presl, *Tent. Pterid.* : 183. 1836 ; Ching in *Bull. Fan Mem. Inst.*, bot. ser., 8 : 260. 1938.

DISTR. : N. India, S. China, N. Malaya, Polynesia, Australia, Tropical Africa, Mascarenes.

NEPAL : Mount Siwalik, near Belsot ( $26^{\circ}54'$ ,  $86^{\circ}15'$ ), in damp sand, among *Typha*, half shade, alt. 170 m., 8 Nov. 1954, *Zimmermann 2134* (G !, BM !).

#### 15. ATHYRIACEAE

**Cystopteris dickiana** R. Sim in *Gardener's and Farmer's Journ.* : 308. 1848 ; Alston in *Amer. Fern Journ.* **41** : 76. 1951.

DISTR. : Europe, N. America, N. Asia, Algeria, Turkey.

NEPAL : Between Chule ( $27^{\circ}57'$ ,  $86^{\circ}36'$ ) and Thāmi ( $27^{\circ}50'$ ,  $86^{\circ}39'$ ), alt. 4000 m., 11 Oct. 1954, *Zimmermann 1618* (G !, BM !).

**Cystopteris fragilis** (L.) Bernh. in *Schrad. Journ.* **1** (2) : 26. 1806 = *Polypodium fragilis* L. *Spec. Pl.* : 1901. 1753.

DISTR. : S. Europe, Atlantic Isles, Mascarenes, Tropical America.

NEPAL : Pangboche ( $27^{\circ}52'$ ,  $86^{\circ}48'$ ), on a wall in the village, exposed S., alt. 3900 m., 3 June 1952, *Zimmermann 639* (G !, BM !).

**Currania oyamensis** (Bak.) Copel. *Gen. Filic.* : 140. 1947 = *Dryopteris oyamensis* (Baker) Christensen, *Ind. Filic.* : 282. 1905 = *Polydium oyamensis* Baker in *Trimen, Journ. of bot.* **15** : 366. 1877 = *Gymnocarpium oyamense* (Bak.) Ching in *Contr. Biol. Lab. Sc. Soc. China* **9** : 40. 1933.

DISTR. : Japan, China.

NEPAL : Right bank of the Imja Khola, under rocks, exposed E., 2885 m., 9 June 1952, *Zimmermann 719* (G !, BM !).

OBS. : CHING (*op. cit.* : 38) concludes that the affinity of this genus is with *Cystopteris* and to a lesser extent with *Athyrium*, whilst COPELAND, when describing the genus *Currania*, stated that the scale characters related the plant to *Athyrium*.

**Woodsia cycloloba** Hand.-Mazz. *Symb. sinic.* **6** : 19. 1929.

DISTR. : NW. Yunnan.

NEPAL : Above the village of Beding ( $27^{\circ}55'$ ,  $86^{\circ}21'$ ) at the Western Pass, alt. 3900 m., 18 Sept. 1954, *Zimmermann 1374 B* (G !, BM !).

OBS. : The genus *Woodsia* seems related to the athyroid ferns rather than the dryopteroid, because the stipe has only a single vascular strand instead of a number of small ones as in the *Dryopteridaceae*. The indusium resembles the allantodioid indusium, which opens at the top and could be derived from it. The hairs are often jointed as in some species of *Athyrium*.

**Woodsia elongata** Hook. *Spec. Filic.* 1: 62. 1844.

DISTR. : Himalayas, Yunnan.

NEPAL : After Tesinga (27°50', 86°44'), under overhanging cliffs and in cracks in the rocks, exposed E., alt. 3540 m., 5 June 1952, *Zimmermann* 680 (G!, BM!); left bank of the Dudh Kosi, between Namche Bazar (27°49', 86°43') and Monjo (27°47', 86°44'), on rocky ground, exposed NW., alt. 2850 m., 17 Oct. 1954, *Zimmermann* 1751 (G!, BM!); left bank of the Imja Khola at Thyāngboche (27°51', 86°46'), on rocks, half shade, exposed W., alt. 3200 m., 20 Oct. 1954, *Zimmermann* 1775 (G!, BM!); near Pangboche (27°52', 86°48'), under rocks, exposed E. and S., alt. 3700 m., 22 Oct. 1954, *Zimmermann* 1809 (G!, BM!).

**Athyrium wallichianum** Ching in *Bull. Fan Mem. Inst. Biol.*, bot. ser., 8: 497. 1938 = *Aspidium brunonianum* Wall. *Cat. No.* 344. 1828 (*nom. nud.*); Mett. *Über Farngatt.* 2-4: 54. 1858; Hook. *Spec. Filic.* 4: 113, t. 251. 1862.

DISTR. : Himalayas, Yunnan.

NEPAL : Simigaon Pass (27°53', 86°16'), near Chhimi Kolchi (27°55', 86°20'), under rhododendrons, exposed N., alt. 3840 m., 16 Sept. 1954, *Zimmermann* 1347 (G!, BM!).

**Athyrium puncticaule** (Bl.) Moore, *Ind. Filic.*: 186. 1860 = *Aspidium puncticaule* Blume, *Enum.*: 159. 1828 = *Asplenium macrocarpum* Blume ex Hope in *Journ. Bombay nat. Hist. Soc.* 14: 118. 1902.

DISTR. : Tropical Asia.

NEPAL : Katmandu (27°40', 85°19'), near the aerodrome, in the bottom of the ravines, half shade, alt. 1300 m., 3 Sept. 1954, *Zimmermann* 1019 (G!, BM!).

**Athyrium mackinnoni** (Hope) Christensen, *Ind. Filic.*: 143. 1905 = *Asplenium mackinnoni* Hope in *Journ. of Bot.* 34: 124. 1896; *Journ. Bombay nat. Hist. Soc.* 14: 122. t. 23. 1902.

DISTR. : NW. India.

NEPAL : Right bank of the Bhote Kosi (direction of Kwāngde) (27°47', 86°38'), Namche Bazar region (27°49', 86°43'), steep slopes, half shade, exposed N., alt. 3000 m., 14 Oct. 1954, *Zimmermann* 1682 (G!, BM!).

**Athyrium rupicola** (Hope) Christensen, *Ind. Filic.*: 145. 1905 = *Asplenium rupicola* Hope in *Journ. Bombay nat. Hist. Soc.* 12: 531. 1899.

DISTR. : N. India.

NEPAL : Pass to the W., above Beding ( $27^{\circ}55'$ ,  $86^{\circ}21'$ ), at the foot of cliffs, exposed E., alt. 3900 m., 18 Sept. 1954, *Zimmermann 1374* (G !, BM !).

**Athyrium falcatum** Bedd. *Ferns S. India* : 151. 1863.

DISTR. : India.

NEPAL : After Ringmo ( $27^{\circ}35'$ ,  $86^{\circ}36'$ ), alt. 2740 m., 14 June 1952, *Zimmermann 826 B* (G !). Probably a juvenile form.

**Athyrium anisopterum** Christ in *Bull. Herb. Boiss.* 6 : 962. 1898.

DISTR. : S. China.

NEPAL : Between Torke ( $27^{\circ}21'$ ,  $86^{\circ}32'$ ) and Okhaldunga ( $27^{\circ}19'$ ,  $86^{\circ}30'$ ), banks, exposed NW., alt. 1950 m., 2 Nov. 1954, *Zimmermann 1988* (G !, BM !).

**Athyrium duthiei** (Bedd.) Bedd. *Handb. Ferns brit. India*, suppl. : 34. 1892 = *Asplenium duthiei* Bedd. in *Journ. of Bot.* 27 : 72. 1889 ; Hope in *Journ. Bombay nat. Hist. Soc.* 14 : 126, t. 25. 1902.

DISTR. : Himalayas.

NEPAL : Forest of Thyāngboche ( $27^{\circ}51'$ ,  $86^{\circ}46'$ ), exposed W., alt. 3690 m., 3 June 1952, *Zimmermann 646* (G !, BM !).

**Athyrium schimperi** Mougeot ex Fée, *Mém. Fougères* 5 : 187. 1850-52 ; Hope in *Journ. Bombay nat. Hist. Soc.* 14 : 252. 1902.

DISTR. : Abyssinia, N. India.

NEPAL : Tesinga ( $27^{\circ}50'$ ,  $86^{\circ}44'$ ), on the banks of a stream, half shade, exposed E. and SE., alt. 3420 m., 5 June 1952, *Zimmermann 678* (G !, BM !) ; between Namche Bazar ( $27^{\circ}47'$ ,  $86^{\circ}43'$ ) and Monjo ( $27^{\circ}47'$ ,  $86^{\circ}44'$ ), left bank of the Dudh Kosi, on moss covered rocks, half shade, alt. 2850 m., 17 Oct. 1954, *Zimmermann 1752* (G !, BM !).

**Athyrium spinulosum** (Maxim.) Milde in *Bot. Zeit.* 1866 : 376. 1866 = *Cystopteris spinulosa* Maxim. in *Mém. Acad. St. Petersbourg* 9 : 340. 1859.

DISTR. : Japan, Corea, China, Himalayas.

NEPAL : Tesinga ( $27^{\circ}50'$ ,  $86^{\circ}44'$ ), bank of a stream, shade, exposed E. and SE., alt. 3420 m., 5 June 1952, *Zimmermann 677* (G !) ; right bank of the Bhote Kosi, in the direction of the Kwāngde ( $27^{\circ}47'$ ,  $86^{\circ}38'$ ), steep slopes, half shade, exposed N., alt. 3040 m., 14 Oct. 1954, *Zimmermann 1685* (G !, BM !) ; Kangtega river in the direction of Thyāngboche ( $27^{\circ}51'$ ,  $86^{\circ}46'$ ), undergrowth, exposed S., SE., W. and N., alt. 3250 m., 21 Oct. 1954, *Zimmermann 1794* (G !, BM !).

**Athyrium pectinatum** (Wall.) Bedd. *Handb. Ferns brit. India*, suppl. : 36. 1892 = *Asplenium pectinatum* Wall. *Cat.* 1828 (*nom. nud.*) ; Mett. *Über FarnGatt.* 5-6 : 197. 1859 ; Hook. *Spec. Filic.* 3 : 225. 1860 ; Hope in *Journ. Bombay nat. Hist. Soc.* 14 : 253. 1902.

DISTR. : India.

NEPAL : Katmandu (27°40', 85°19'), ravine, exposed SW., half shade, alt. 1300 m., 3 Sept. 1954, *Zimmermann 1010* (G !, BM !); between Satama pastures and the Bhote Kosi, Namche Bazar region (27°49', 86°43'), in the undergrowth and on rocks, half shade, alt. 3200 m., 14 Oct. 1954, *Zimmermann 1665* (G !, BM !).

**Athyrium fimbriatum** (Hook.) Bedd. *Handb. Ferns brit. India*, suppl. : 37. 1892 = *Aspidium fimbriatum* Wall. *Cat.* 339. 1828 (*nom. nud.*) = *Asplenium fimbriatum* Hook. *Spec. Filic.* 3 : 234. 1860 ; Hope in *Journ. Bombay nat. Hist. Soc.* 14 : 254. 1902.

DISTR. : Himalayas, Yunnan.

NEPAL : Between Ghât (27°43', 86°43') and Chaunrikharka (27°42', 86°43'), undergrowth, half shade, exposed W, alt. 2670 m., 27 Oct. 1954, *Zimmermann 1870* (G !, BM !).

**Athyrium foliolosum** Moore ex Sim, *A priced Catalogue . . . n° 6* : 22. 1859 ; Bedd. *Handb. Ferns brit. India*, suppl. : 37, 1892 = *Aspidium foliolosum* Wall. *Cat.* 1828 (*nom. nud.*) ; Hope in *Journ. Bombay nat. Hist. Soc.* 14 : 255. 1902.

DISTR. : N. India.

NEPAL : Lakhop (27°23', 86°33'), in ravines, half shade, NW., alt. 2830 m., 1 Nov. 1954, *Zimmermann 1980* (G !, BM !); idem, alt. 2850 m., 1 Nov. 1954, *Zimmermann 1982* (G !, BM !).

**Displazium esculentum** (Retz) Swartz in *Schrad. Journ. Bot.* 1801, 2 : 312. 1803 = *Hemionitis esculenta* Retz, *Obs.* 6 : 38. 1791.

DISTR. : Asia and tropical Polynesia.

NEPAL : Between the Tamba Kosi and Lamung (27°45', 86°09'), exposed S., alt. 1000 m., 12 Sept. 1954, *Zimmermann 1198* (G !).

#### 16. LOMARIOPSIDACEAE

**Elaphoglossum marginatum** (Wall. ex Fée) Moore, *Ind. Filic.* 1 : 8, 361. 1857 = *Acrostichum marginatum* Wall. ex Fée, *Gen. Filic. Polypod.* : 43. 1850-52.

DISTR. : India (Nepal, Khasya, Assam, Java).

NEPAL : Between Torke (27°21', 86°32') and Okhaldunga (27°19', 86°30'), on the trunks of rhododendrons, exposed W., alt. 1950 m., 2 Nov. 1954, *Zimmermann 1997* (G !, BM !).

**Elaphoglossum stelligerum** (Wall.) Moore ex Salomon, *Nomencl. Gefässskrypt.*: 170. 1883 = *Acrostichum stelligerum* Wall. ex Hook. and Bak. *Syn. Filic.*: 521. 1874.

DISTR.: India.

NEPAL: Hill to the NW. of Banepa ( $27^{\circ}37'$ ,  $85^{\circ}31'$ ), on rocks, alt. 1450 m., 30 March 1952, *Zimmermann 100* (G!); between Mānebhanyāng ( $27^{\circ}13'$ ,  $86^{\circ}27'$ ) and the Sun Kosi, alt. 1500 m., 5 Nov. 1954, *Zimmermann 2058 B* (G!, BM!).

#### 17. ASPIDIACEAE

**Dryopteris fibrillosa** (Clarke) Hand.-Mazz. in *Akad. Anz. Akad. Wien*: 49. 1922; Ching in *Bull. Fan Mem. Inst. Biol.*, bot. ser., 8: 424. 1938 = *Nephrodium filix-mas* var. *fibrillosa* Clarke in *Trans. linn. Soc.*, ser. 2, 1: 520, 1880.

DISTR.: Himalayas, China, Korea and Japan.

NEPAL: From Namche Bazar ( $27^{\circ}49'$ ,  $86^{\circ}43'$ ) in the direction of the Kwāngde ( $27^{\circ}47'$ ,  $86^{\circ}38'$ ), right bank of the Bhote Kosi, alt. 3000 m., under rocks, half shade, exposed N., 14 Oct. 1954, *Zimmermann 1681* (G!); left bank of the Imja Khola, below Thyāngboche ( $27^{\circ}51'$ ,  $86^{\circ}46'$ ), alt. 3200 m., in the undergrowth, exposed W., 20 Oct. 1954, *Zimmermann 1776* (G!, BM!).

**Dryopteris wallichiana** (Spreng.) Alston et Bonner comb. nov. = *Aspidium wallichianum* Spreng. *Syst.* 4: 104. 1827 = *Aspidium paleaceum* Don (1825), non Swartz (1806) = *Dryopteris paleacea* Hand.-Mazz. (1908) non Christensen (1911).

DISTR.: India.

NEPAL: Ghāt ( $27^{\circ}43'$ ,  $86^{\circ}43'$ ), left bank of the Chaunrikharka Khola, undergrowth, exp. N., plant of  $1\frac{1}{2}$  to 2 m. in height, alt. 2630 m., 9 May 1952, *Zimmermann 455 B* (G!); left bank of the Dudh Kosi, when descending from Namche Bazar ( $27^{\circ}49'$ ,  $86^{\circ}43'$ ), under rocks, half shade, exposed N., alt. 2850 m., 26 Oct. 1954, *Zimmermann 1832* (G!, BM!).

**Dryopteris barbiger**a (Hooker) O. Kuntze, *Rev. Gen. Pl.* 2: 812, 1891; Ching in *Bull. Fan Mem. Inst. Biol.*, bot. ser., 8: 431. 1938 = *Nephrodium barbigerum* Hook. *Spec. Filic.* 4: 113. 1862.

DISTR.: Afghanistan, N. India, Yunnan.

NEPAL: Between Beding ( $27^{\circ}55'$ ,  $86^{\circ}21'$ ) and the northern pastures, on rocks and the trunks of rhododendrons exposed S., alt. 3900 m., 23 Sept. 1954, *Zimmermann 1432* (G!, BM!).

**Dryopteris serrato-dentata** (Bedd.) Hayata,  *Ic. Pl. formos.* 4: 179. 1914; Ching in  *Bull. Fan Mem. Inst. Biol.*, bot. ser., 8: 433. 1938 =  *Lastrea filix-mas* var.  *serrato-dentata* Bedd.  *Handb. Ferns brit. India*, suppl.: 55. 1892.

DISTR.: NE., India, Himalayas, Szechuan and Formosa.

NEPAL: Along the Menlungtse, in the direction of Gaurisankar (27°58', 86°20'), in cracks in the rocks, exposed W., alt. 4500 m., 1 Oct. 1954,  *Zimmermann 1542* (G!, BM!); cliffs to the W. of the Gaurisankar (27°58', 86°20'), alt. 4450 m., 2 Oct. 1954,  *Zimmermann 1567* (G!, BM!).

**Dryopteris chrysocoma** (Christ) Christensen,  *Ind. Filic.* 257. 1905; Ching in  *Bull. Fan Mem. Inst. Biol.*, bot. ser., 8: 436. 1938 =  *Aspidium filix-mas* var.  *chrysocoma* Christ in  *Bull. Herb. Boiss.* 6: 966. 1898.

DISTR.: S. China.

NEPAL: Between Thāmi (27°50', 86°39') and Namche Bazar (27°49', 86°43'), on rocks and walls, exposed E., alt. 3450 m., 12 Oct. 1954,  *Zimmermann 1642* (G!, BM!); right bank of the Bhote Kosi in the direction of the Kwāngde (27°47', 86°38'), on rocks, exposed NW., alt. 3000 m., 14 Oct. 1954,  *Zimmermann 1684* (G!).

**Dryopteris sublacera** Christ in  *Not. Syst.* 1: 43. 1909; Ching in  *Bull. Fan Mem. Inst. Biol.*, bot. ser., 8: 442. 1938.

DISTR.: S. China.

NEPAL: Between Namche Bazar (27°49', 86°43') and the left bank of the Dudh Kosi, alt. 2825 m., 2 May 1952,  *Zimmermann 385* (G!).

**Dryopteris odontoloma** (Moore) Christensen in  *Acta Hort. gothob.* 1: 59. 1924; Ching in  *Bull. Fan Mem. Inst. Biol.*, bot. ser., 8: 447. 1938 =  *Lastrea odontoloma* Moore ex Bedd.  *Ferns S. India*: 114. 1863.

DISTR.: India, S. China, Tonkin.

NEPAL: Between Torke (27°21', 86°32') and Okhaldunga (27°19', 86°30'), undergrowth, banks exposed W., alt. 2000 m., 2 Nov. 1954,  *Zimmermann 1992 a* (G!).

**Dryopteris marginata** (Wall.) Christ in  *Philippine Journ. Sci.* 2: 212. 1907; Ching in  *Bull. Fan Mem. Inst. Biol.*, bot. ser., 8: 461. 1938 =  *Aspidium marginatum* Wall.  *Cat. no. 391.* 1829 ( *nom nud.*); Christ in  *Bull. Soc. bot. France* 52, mém. 1: 39, 1905, non Schkuhr (1809) =  *Nephrodium filix-mas* var.  *marginata* Wall. ex Clarke in  *Trans. linn. Soc.*, ser. 2, bot. 1: 521, t. 71. 1880.

DISTR. : N. India, S. China.

NEPAL : After the village of Tesinga ( $27^{\circ}50'$ ,  $86^{\circ}44'$ ), alt. 3300 m., 16 April 1952, *Zimmermann* 273 (G !, BM !); between Namche Bazar ( $27^{\circ}49'$ ,  $86^{\circ}43'$ ) and the Dudh Kosi, on the left bank, under rocks, exposed S., alt. 2825 m., 2 May 1952, *Zimmermann* 385 (G !); on a rocky bank near Phākding ( $27^{\circ}44'$ ,  $86^{\circ}43'$ ), exposed W., alt. 2600 m., 10 May 1952, *Zimmermann* 476 (G !, BM !); left bank of the Imja Khola, near the Bhote Kosi, Namche Bazar area ( $27^{\circ}49'$ ,  $86^{\circ}43'$ ), on cliffs, exposed W., alt. 2800 m., 11 May 1952, *Zimmermann* 488 (G !, BM !).

**Polystichum acanthophyllum** (Franch.) Christ in *Bull. Soc. bot. France* 52, mém. 1: 30. 1905 = *Aspidium acanthophyllum* Franchet in *Bull. Soc. bot. France* 32: 23. 1885.

DISTR. : N. India and S. China.

NEPAL : Between Namche Bazar ( $27^{\circ}49'$ ,  $86^{\circ}43'$ ) and Monjo ( $27^{\circ}47'$ ,  $86^{\circ}44'$ ) left bank of the Bhote Kosi, alt. 2825 m., 2 May 1952, *Zimmermann* 384 (G !).

**Polystichum discretum** (Don) Diels in *Engl. & Prantl., Nat. Pflanzenfam.* 1, 4: 199. 1899 = *Aspidium discretum* Don, *Prod. Fl. nepal.* 4. 1825.

DISTR. : India, Malaya, Japan.

NEPAL : Left bank of the Chaunrikharka Khola at Ghāt ( $27^{\circ}43'$ ,  $86^{\circ}43'$ ), undergrowth, alt. 2630 m., 9 May 1952, *Zimmermann* 455 (G !, BM !).

**Polystichum lachenense** (Hook.) Bedd. *Ferns brit. India*: 32. 1865 = *Aspidium lachenense* Hook. *Spec. Filic.* 4: 8. 1862.

DISTR. : Himlayas, China.

NEPAL : Ascent to the Handengi La Pass ( $27^{\circ}55'$ ,  $86^{\circ}25'$ ), fallen rocks and cliffs, exposed S., alt. 4600 m., 25 Sept. 1954, *Zimmermann* 1449 (G !, BM !); between Melung La ( $27^{\circ}58'$ ,  $86^{\circ}30'$ ) and Pangbuk and Chule ( $27^{\circ}57'$ ,  $86^{\circ}36'$ ), alt. 4800 m., 9 Oct. 1954, *Zimmermann* 1595 (G !).

**Polystichum neolobatum** Nakai in *Bot. Mag. Tokyo* 39: 118. 1925.

DISTR. : China.

NEPAL : Above the Mānga Deorali Pass between Risingo ( $27^{\circ}37'$ ,  $85^{\circ}54'$ ) and Charikot ( $27^{\circ}40'$ ,  $86^{\circ}01'$ ), ravines, exposed N., alt. 2195 m., 2 April 1952, *Zimmermann* 155 (G !); Namche Bazar ( $27^{\circ}49'$ ,  $86^{\circ}43'$ ), on the right bank of the Bhote Kosi, under rocks, exposed N., alt. 3000 m., 14 Oct. 1954, *Zimmermann* 1680 (G !, BM !).

**Polystichum nepalense** (Spreng.) Christensen, *Ind. Filic.* : 84. 1905 = *Aspidium nepalense* Spreng. *Syst.* 4 : 97. 1827.

DISTR. : N. India, China.

NEPAL : Ascent of the Junbesi Pass ( $27^{\circ}35'$ ,  $86^{\circ}32'$ ), near a stream, exposed S., alt. 2940 m., 9 April 1952, *Zimmermann* 223 (G !); between Namche Bazar ( $27^{\circ}49'$ ,  $86^{\circ}43'$ ) and Monjo ( $27^{\circ}47'$ ,  $86^{\circ}44'$ ), left bank of the Dudh Kosi, cracks in rocks, exposed N., alt. 2750 m., 17 Oct. 1954, *Zimmermann* 1742 (G !, BM !); Puiyan Pass ( $27^{\circ}39'$ ,  $86^{\circ}43'$ ), cliffs, half shade, exposed SW., alt. 2800 m., 27 Oct. 1954, *Zimmermann* 1891 (G !, BM !).

**Polystichum squarrosom** (Don) Fée, *Gen. Filic.* : 278. 1850-52 = *Aspidium squarrosom* Don, *Prod. Fl. nepal.* : 4. 1825.

DISTR. : Himalayas, Chamba to Assam, China.

NEPAL : Undergrowth near Mānebhanjyāng ( $27^{\circ}13'$ ,  $86^{\circ}27'$ ), exposed SW., alt. 1890 m., 20 June 1952, *Zimmermann* 870 (G ! BM !).

**Polystichum stimulans** Presl, *Tent. Pterid.* : 83, 1836.

DISTR. : N. India, S. China.

NEPAL : Ascending the Puiyan Pass ( $27^{\circ}39'$ ,  $86^{\circ}43'$ ), cliffs, exposed W., alt. 2850 m., 11 April 1952, *Zimmermann* 250 (G !, BM !); Satama pastures ( $27^{\circ}48'$ ,  $86^{\circ}40'$ ), to the Bhote Kosi, undergrowth and rocks, alt. 3200 m., 14 May 1954, *Zimmermann* 1666 (G !, BM !); Dudh Kosi, Monjo ( $27^{\circ}47'$ ,  $86^{\circ}44'$ ), fissures in rocks, alt. 2900 m., 17 Oct. 1954, *Zimmermann* 1737 B (G !).

**Polystichum thomsoni** (Hook. f.) Bedd. *Ferns brit. India* 1 : 126. 1866 = *Aspidium thomsoni* Hook. f. *2nd Cent.* : 25. 1860 (*p.p.*).

DISTR. : Balistan to Sikkim.

NEPAL : Right bank of the Dudh Kosi when climbing to Namche Bazar ( $27^{\circ}49'$ ,  $86^{\circ}43'$ ), beneath everhanging cliffs, exposed SE., alt. 2880 m., 2 May 1952, *Zimmermann* 399 (G !, BM !); between Namche Bazar ( $27^{\circ}49'$ ,  $86^{\circ}43'$ ) and Monjo ( $27^{\circ}47'$ ,  $86^{\circ}44'$ ), right bank of the Imja Khola, alt. 2885 m., 9 June 1952, *Zimmermann* 720 (G !, BM !); from Benkar ( $27^{\circ}46'$ ,  $86^{\circ}43'$ ) to Ghāt ( $27^{\circ}43'$ ,  $86^{\circ}43'$ ), left bank of the Bhote Kosi, cracks in damp rocks, exposed NW., alt. 2620 m., 10 June 1952, *Zimmermann* 747 (G !); near Ringmo ( $27^{\circ}35'$ ,  $86^{\circ}36'$ ), alt. 2740 m., 15 June 1952, *Zimmermann* 826 b (G !, BM !); Namche Bazar ( $27^{\circ}49'$ ,  $86^{\circ}43'$ ), in the direction of the Dudh Kosi (Monjo), cracks in rocks, exposed S. and W., alt. 2900 m., 17 Oct. 1954, *Zimmermann* 1736 (G !, BM !).

**Tectaria macrodonta** (Fée) Christensen, *Ind. Filic.*, Suppl. 3: 181. 1934 = *Sagenia macrodonta* Fée, *Mém. Fougères* 5: 312, t. 24. 1852.

DISTR.: S. China, Malaya, tropical Africa, Madagascar.

NEPAL: Between Thari (27°49', 86°12') and Gongar (27°51', 86°13'), under rocks, exposed W., alt. 1350 m., 14 Sept. 1954, *Zimmermann 1244* (G!); before the Sukhchauri Pass (27°04', 86°21'), alt. 1050 m., 7 Nov. 1954, *Zimmermann 2101* (G!, BM!).

**Tectaria polymorpha** (Wall.) Copel. in *Philippine Journ. Sci.* 2: 413. 1907 = *Aspidium polymorphum* Wall. *Cat.* No. 382. 1828 (*nom. nud.*); Hook. *Spec. Filic.* 4: 54. 1862.

DISTR.: S. China.

NEPAL: Near Gongar (27°51', 86°13'), right bank of the Bhote Kosi, damp rocks, exposed E., alt. 1280 m., 14 Sept. 1954, *Zimmermann 1251* (G!, BM!).