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A-18

ICONES FILICUM SINICARUM

BY

REN-CHANG CHING. B. S.

FASCICLE 3



中國蕨類植物圖譜 第三卷

W 省生物調查所
江 省農業院

in
林植物園主任秦仁昌 纂

靜 生 生 所 調查 所 印 行

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ICONES FILICUM SINICARUM

BY

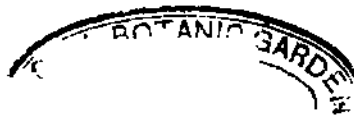
REN-CHANG CHING, B. S.

KEEPER

THE LU-SHAN ARBORETUM AND BOTANICAL GARDEN
OF
THE FAN MEMORIAL INSTITUTE OF BIOLOGY AND
KIANGSI PROVINCIAL AGRICULTURAL INSTITUTE

FASCICLE 3, PLATES 101-150

第 三 卷



PUBLISHED BY
THE FAN MEMORIAL INSTITUTE OF BIOLOGY
PEIPING, CHINA
May, 1935

靜 生 生 物 調 查 所 印 行

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TO

PROFESSOR SUNG-SHU CHIEN

HEAD OF THE BOTANICAL DIVISION, BIOLOGICAL LABORATORY OF
THE SCIENCE SOCIETY OF CHINA
AS ONE OF THE FOREMOST MODERN CHINESE BOTANISTS

IN RECOGNITION OF

HIS EXEMPLARY WORK AS A TEACHER

UNDER WHOSE DELIGHTFUL GUIDANCE

THE AUTHOR FIRST BEGAN OVER TWENTY YEARS AGO

TO LEARN BOTANY IN ITS VARIOUS PHASES

i

THIS THIRD FASCICLE OF ICONES FILICUM SINICARUM
IS RESPECTFULLY DEDICATED



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PLATE 101

WOODSIA MACROCHL-ffINA Mettenius

POLYPODIACE^E

WOODSIA MACROCHUENA Mettenius ex Kuhn, Journ. Bot. (1868) 270; Linnsea 36: 126 (1869); C. Chr. Ind. Fil. 657 (1905); Suppl. III. 195 (1934); Fomin, Fl. Sib. et Orient. Extr. 5: 10 c. fig. (1930); Ching, Sinensia 3: 143. 1932.

Woodsia insularis Hk. et Bak. (non Hance, 1861) Syn. Fil. 47 (1867).

Woodsia Brandtii Franch. et Sav. Enum. Pl. Jap. 2: 205, 616 (1879).

Woodsia japonic a Makino, Bot. Mag. Tokio 18: 134 (1904); Ogata, Ic. Fil. Jap. 3: t. 149 (1930).

Woodsia sinuata Makino, Bot. Mag. Tokio 11: 64 (1897, non 1904); Christ, Bull. Acad. Géogr. Bot. 20: 157 (1909, non 1902).

Woodsia jrondosa Christ in Fedde. Repert.Sp. Nov. 5: 12 (1908).

Rhizome short, erect, densely radicose, apex densely clothed in bright brown, lanceolate, acuminate, sparsely fimbriate *scales*-, *fronds* fasciculated, stipe 2-10 cm long, stramineous or brownish, scaly at base, hirsute upwards, lamina 5-12 cm long, 2-4 cm broad, pinnate under pinnatifid acutish apex, *pinnse* 5-12-jugate, the lower ones free, subsessile, the upper ones adnate, the basal pair springs from the prominent articulation of stipe, always somewhat smaller than those above, deflexed, ovate-deltoid, with more or less auriculated anterior base, the middle pinnaB 1.2-2 cm long, oblong-ovate, adnate with wingless rachis between contiguous pairs, lobato-sinuate or pinnatifid into oblong sinuate segments, rachis and both sides moderately clothed in ferruginous needle-like, articulated appressed hairs, no trace of scales; *texture* herbaceous, soft; *veins* in segments pinnate; *sori* large, terminal on veinlets, 1-2 to each lobe, or 4-6 to each segment, *indusium* cup-shaped, large, membranaceous, setose hairy, irregularly 4-6 erosed at top; *sporangia* shortly stipitate.

Shantung: Chefoo, *Schottmuller* (type), August, 1861; *B. Drug* 285, Sept. 17, 1907; *A. C. Mainrjay* 13, August-Sept. 1862; *Cowdry* 6U (1920); *Forbes* 2233 (1881); Wei-hai-wei, *C. G. Matthew*, Sept. 1906. Shansi: *E. Licent* (without locality). Manchuria: *Swinhce* 6516 in herb. Hance. Port Arthur: *Miss Mbller*, Oct. 28, 1928.

Corea: Ouen San, *U. Faurie* 101 (type of *W. frondosa*). Quelpaert: *U. Faurie* 5610, 2172 (f. typica).

Japan: Prov. Chochiou, *Kramer* 1569 (type of *W. Brandtii*); *C. G. Matthew*, July 23, 1906.

For further comment and discussion about this distinct but hitherto much neglected fern, readers are referred to my paper on the genus *Woodsia* in *Sinensia* 3: pp. 143.

Plate IOI. Fig. i. Habit sketch, f. typica (natural size). 2. Upper middle pinna, showing venation and son (x 6^). 3. Sorus with indusium (x 20). 4. the same, cut vertically (x 20). 5. Scales and hair from the base of stipe (x 16). 6-7. Hairs from rachis and leaf surfaces (x 30). 8. Basal pinnae attached to the articulation of stipe (x 20). 9. Sporangium (greatly enlarged). 10. Spores (greatly enlarged).

百 零 一 圖

* *m & m* (水龍骨科)

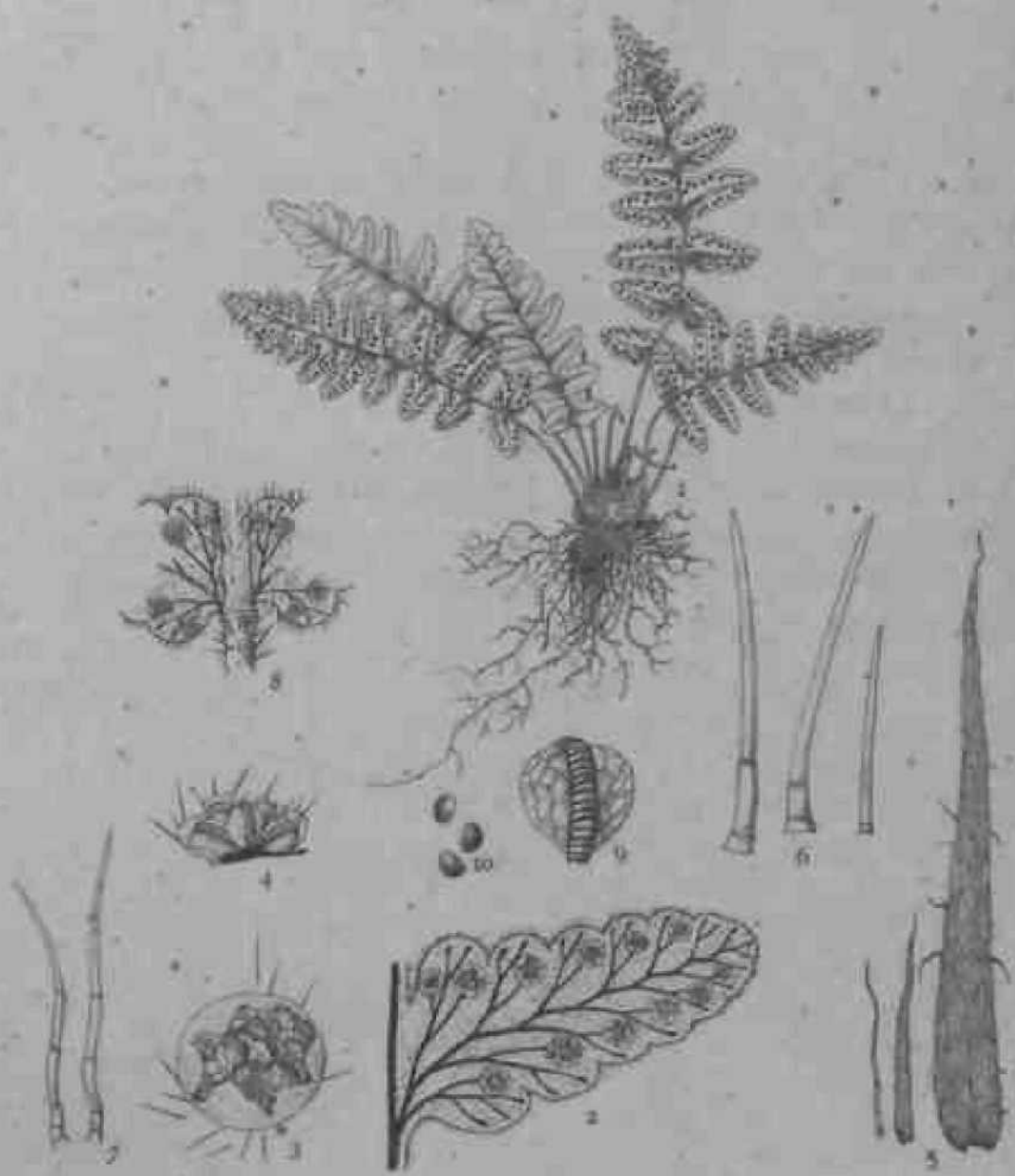
WOODSIA MACROCHLAENA Mettonius

地下莖短而直立，頂部具橙黃色之披針形密鱗片；葉簇生，柄長二至十粉，淡黃褐色，基部具鱗片，上部遍被剛毛，葉體長五至十二粉，寬約二至四粉，一回羽狀分裂，下部小葉幾無柄，基部一對着生於葉柄頂部之節上，較小，下向，上部小葉與中肋合生，長約一·二至二粉，橢圓卵形，波狀分裂，或深裂，中肋及兩面被短剛毛，不具鱗片，紙質；葉脈羽狀分裂；子囊羣形圓，着生於側脈之頂，蓋為圓杯形，膜質，被剛毛，頂部開裂，口具四至六數無齒。

分布： 山東北部，河北，陝西，東三省；朝鮮及日本亦產之。

本種為亞洲東北部特有之種，最初在山東煙台發現，現為華北常見之品。

圖註： 1. 本種全形(自然大)， 2. 中部小葉，表明其葉脈及子囊羣着生狀(放大六倍)， 3. 子囊羣與蓋(放大二十倍)， 4. $Ri \gg \text{afittWCA}^{\wedge}iUMS) \gg$ 5. 葉柄基部之鱗片及剛毛(放大十六倍)， 6-7. $MBJiSIII-^*(** H + \ll) \gg$ 8. $3ES5-$ 對小葉着生於葉柄之節上(放大二十倍)， 9. 子囊(高倍放大) \gg 10. $MiF (JS^{\wedge}jfik^*) \circ$



WOQDBfA MACROCHtAENA Martensii

* d' lt « «

WOODSIA MANCHURIENSIS Hooker

POLYPODIACEAE

WOODSIA MANCHURIENSIS Hooker, 2nd. Cent. Ferns t. 98 (1861); Syn. Fil. 48 (1867); Milde, Fil. Europ. et Atlant. 168 (1867); Christ, Farnkr. d. Erde 283 (1897); Diels in Engl. u. Prantl: Nat. Pflanzenfam. 1: 4. 161 (1899); C. Chr. Ind. Fil. 657 (1905); Fomin, Fl. Sib. et Orient. Extr. 5: 9 (1930); Ogata, Ic. Fil. Jap. 5: t. 249 (1933).

Diacalpe manchuriensis Trev. Nuov. Giorn. Bot. Soc. Ital. 7: 160 (1875).

Physematium manchuriensis Nakai, Bot. Mag. Tokio 39: 176 (1925).

Woodsia insularis Hance. Ann. Sci. Nat. IV. 15: 228 (1861); Diels in Engl. u. Prantl: Nat. pflanzenfam. 1: 4. 161 (1899).

Rhizome short, erect; *scales* light brown, thin, ovate-lanceolate, acuminate, clothing the apex; *fronds* cespitose, stipe short, terete, 2-5 cm long, glossy, stramineous, sparsely scaly, lamina lanceolate, 10-30 cm long, 2-4 cm broad, or even broader, membranaceous, clear light green, glabrous on both sides, deeply bipinnatifid under pinnatifid acuminate apex, rachis glabrous, deeply sulcate above; *pinnae* 15-40-jugate, oblique, sessile, the lower ones much abbreviated and opposite, the upper ones alternate, 1-3 cm long, oblong-obtuse, base truncate, deeply pinnatifid; *segments* 5-8-jugate, oblique, oblong-ovate, obtuse, entire or slightly sinuate; *veins* pinnate, 2-3-jugate, veinlets fine, oblique, fall short of the margin with enlarged apex; *sori* large, on the anterior basal veinlets of each segment, below the sinus, *indusium* large, globose, gray, thin membranaceous, opening with a toothed edge of the contracted mouth at the top.

Shantung: Chefoo, *Hancock 11*; *W. R. Carles*, Sept. 1889; *E. Faber 1060*, Oct. 1898; Tai-Shan, *Jacob 39*, July 11, 1923; *K. S. Hao 1730*, July 10, 1931 (partly). Manchuria: *C. Wilford 1094* (type), July-August, 1859; *H. E. M. James*, May-August, 1886; *Komarov 2* Chien-shan, *l. Ross 594* (1877); Kirin, *F. H. Chen 201* (1931). Hopei: Tsang-ho, *M. S. Clemens 6038A*, August 9, 1913; Changli, *M. S. Clemens*, Oct. 13, 1913.

Also Corea and Japan.

One of the most distinct species of the subgenus *Physematium*, characterized by light green, membranaceous glabrous leaves and large, membranaceous sac-like indusium opening by the contracted mouth at the top. Its occurrence in North China is said to be by no means common. *W. insularis* Hance, based upon Clarke's plant from Sagalien, only represents a small form of this species, evidently growing in a dry situation.

Plate 102. Fig. 1. Habit sketch (natural size). 2. Pinna, showing venation and position of sori (x 5). 3. Sorus with one side of the indusium removed (x 50). 4. Spores (greatly enlarged). 5. Scale from rhizome (x 30).

IB — W * 二 圖
m m & m OK si # 科)

WOODSIA MANCHURIENSIS Hooker

地下莖短而直立，端具橙黃色卵披針形之鱗片；葉簇生，柄長二至五粉，呈稻桿色，有光澤，近基部略具鱗片，葉體披針形，長十至三十粉，寬二至四粉，或較寬，薄紙質，淡綠色，兩面光滑，二回羽狀深裂，小葉十五至四十對，斜出，無柄，下部數對較小，對生，上部小葉長一至三粉，互生，橢圓形，羽狀深裂，裂片五至八對，斜出，卵橢圓形，鈍頭，全緣，或呈波形；葉脈羽狀分叉，基部開一小口。

分布： 山東，河北，東三省；朝鮮及日本亦產之。

本種之特點為其光綠色薄紙質之葉體及其球形膜質之子囊羣蓋。

圖註： 1. 本種全形(自然大)， 2. 葉體之鱗片(放大三十倍)。 3. 葉體之裂片(放大三十倍)。 4. 孢子(高倍放大)， 5. 地下莖上之鱗片(放大三十倍)。



WOODSIA MANCHURIENSIS Hooker
滿洲岩蕨

PLATE 103

DAVALLIA MARIESII Moore

POLYPODIACEAE

DAVALLIA MARIESII Moore ex Baker, Ann. Bot. 5: 201 (1891); C. Chr. Ind. Fil. 212 (1905); Nakai, Bot. Mag. Tokio 39: 120 (1925).

Davallia btdlata Franch. et Sav. Enum. PL Jap. 2: 208 (1877); Christ in Warburg, Monsunia 1: 86 (1900).

Rhizome thick, 7 mm across, long-creeping, densely scaly; *scales* large, imbricate, lanceolate from broadly ovate base, fimbriate, ferruginous on the growing **tip**, but whitish on the old part; *frond* far apart, articulated at base, stipe **6-10** cm long, stramineous, naked, terete underneath, grooved on the upper side, lamina deltoid-pentagonous, 8-14 cm long and broad, shortly acuminate, tripinnate; *pinnae* 6-7-jugate, rather shortly petiolate, the basal ones much the largest, deltoid, 5-7 cm long and broad; *pinnules**6-7-jugate, shortly petiolulate on narrowly winged rachilet, the lower basal ones the largest, oblong-ovate, 2.5-4 cm long, 1-1.5 cm broad/ovate-oblong, base cuneate-decurrent, deeply pinnatifid into 5 linear, blunt or bifid uni-nerved segments[^], *texture* coriaceous, glabrous on both sides; *indusium* brown, tubular, coriaceous, twice as long as broad, overtopped by two horns of generally unequal length.

Shantung: Chefoo mountains, *Fober* 58; *Carles* (1888); *R. Zimmermann* 545, May 5, 1902; *Maingay* 5 (1862); *Hancock* 5; Tsingtau, Lao Shan, *F. H. Sha* 528 in herb. Shantung Univ., July 18, 1932; Yuchiaho, Mooping, *T. N. Liou* 905, May 27, 1930. Kiangsu: Haichow, Hai-shan, *Jacob* 7, 86, 890.

Japan: Ex Hort. Veitch (type); Nagasaki, *Maximowicz* 116 (1863).

Corea: *Taquet* 2330; *Söul*, *Warburg*.

Formosa: *Hancock* 115, 119.

This fern is a native of the northeastern Asia and a close relative of *D. bullata* Wall, of Eastern India, which differs, however, in larger and less divided frond, shorter, rufo-brown and very shaggy scales with scarious margin and in more shortly petiolate basal pinnae. The difference in the scale between this and the Indian species was first noted by Moore himself, as shown by an enlarged sketch on the type sheet in the herbarium at Kew.

Plate 103. Fig. 1. Habit sketch (natural size). **2.** Ultimate pinnule, showing venation and shape of indusium (x 10). **3.** Scale from rhizome (x 10).

第一百零三圖
DAVALLIA MARIESII (科)

DAVALLIA MARIESII Moore

地下莖肥大，具披針形之密鱗片，長達一粉餘，灰白色或白銹黃色；葉散生，葉柄長六至十粉，稻桿色，光滑，葉體呈五角形，長寬各八至十四粉，尖頭，三回分裂，一回小葉六至七對，具短柄，基部一對最大，長寬各五至七粉，二回小葉六至七對，具短柄，中肋具狹翅，基部一對較大，卵圓形，長二·五至四粉，寬一至一·五粉，自基部漸狹，深裂，裂片約五數，線形，鈍頭，或二裂，具一葉脈；革質，兩面光滑；子囊羣近於葉緣，蓋為管狀，革質，黃色，長二倍於寬，端部具小角狀葉質。

分布：山東及江蘇北部沿海；日本，朝鮮及台灣亦產之。

此為亞洲東北部特有之種，與印度北部產之 *Davallia bullata* Wall. 然葉體形小而分裂較甚，莖上鱗片亦較長，且呈瓦覆狀，故得區別。

圖註： 1. 本種全形(自然大) * 2. *MWhm* * 表示其葉脈及子囊羣蓋形狀(放大十倍) * 3. *F*
莖上之鱗片(放大十倍)。



DAVALLIA MARIESII Moench

海州骨碎補

DAVALLIA ORIENTALIS C. Christensen

POLYPODIACEAE

DAVALLIA ORIENTALIS C. Christensen ex Wu, Bull. Dept. Biol. Sun Yatsen Univ. No. 3: 104 t. 43 (1932); No. 6: 4 (1933); Ind. Fil. Suppl. III. 68 (1934).

Davallia elegans Hk. (non Sw, 1801) Floral. Hongk. in Journ. Bot. (1857) 333; Syn. Fil. 95 (1867); Benth. Fl. Hongk. 461 (1861).

DavaUia divaricata Christ (non Bl. 1828). Bull. Soc. Fr. et Belg. 28: 260 (1898); Dunn & Tutch. Fl. Kwangt. & Hongk. 337 (1912); Merr. Enum. Hainan Pl. in Lingnan Sci. Journ. 5: 11 (1927).

Davallia denticulata Merr. l.e. (non Mett. 1867).

Rhizome thick as a small finger, fleshy, wide-creeping, densely clothed in bright brown lanceolate *scales* to 1 cm long or longer; *frond* far apart, *stipe* glabrous, brown, terete below, deeply bisulcate above, 30-60 cm long, 4 mm thick at the base, lamina ample, 60-90 cm each way, deltoid, 4-pinnate or 5-pinnatifid; *pinnse* about 10-jugate, alternate, long-petiolate, the basal ones much the largest, deltoid 20-30 cm long, 12-18 cm broad, acuminate, the upper ones gradually smaller, the middle ones broadly lanceolate, 15 cm long, 6 cm broad, with about 10 pairs of *pinnules*, which are petiolulate, the anterior basal one much the largest, deltoid acuminate, the others smaller with unequal base; *pinnules* of 2nd. order sessile 1-1.5 cm long, pinnatifid into elongate denticulate *segments*; *texture* rigidulously coriaceous, glossy; *veinlets* in the segments oblique, one to each tooth; *sori* submarginal, one to each tooth, *indusium* tubular, twice as long as broad, apex truncate, with projecting teeth above.

Hainan- Yih Tsoh Mao, *F. A. McClure* 9717 (type) J Nodda, Lin Fa Ling, *W Y Chun* 1799; *McClure* 7919; **Five Finger Mt., McClure** 8463, 8678; **Hung Mo Shan** W T Tsana 17771. Kwangtung: Man Sei Ho, *Tutcher* 10505; Lohfau Shan, *r Ford* U883V N'' *K. Chun* J, 1276; **Swatow, Dalziel, Sept, 1899. Hongkong: Cham- pion** 552; *Matthew* 72 (1905); May 18, 1904; April 12, 1907; *C. Wright* (1853-56): Lantao Island, *C. I. Tso* (1929); *Borther* (1856); *Alexander* Kwangsi: Yao Shan, *S. S. Sin* 3698, Sept. 26. 1928, Lin-yen Hsien, outside of the south city gate, *R. C. Ching* 6665, 6761; Seh Fang Dar Shan, on the border of Tonkin, *R. C. Ching* 1860. Yunnan: Szemeo, *Henry* 13141.

Tonkin- Mt. Bana, *Clemens* 3855; environs de Chobo, *Pételot*, April 14, 1926; **Chapa. Petelot** 3306; **Cao-Bang, PStelot** 2740; *Billet* 4182; *Bon* 3257.

The present species has hitherto been generally considered as identical with the Malesia-Polynesian *D. divaricata* Bl. from which it differs in thinner leaves, greenish color, even when dried, much longer and more ascending soriferous veinlets and in longer, narrower indusium with exerted sterile margin as high as the sorus itself.

Swartz cited Canton as the type locality for his *D. etegans* (Syn. Fil. pp. 132, 347), but this is certainly wrong, for his species, actually based upon Thunberg's plant from Java, agrees exactly with *D. denticulate*, of Malesia-Polynesia, not known from China. The same mistake was since repeated by Hooker, Bentham and other authors on the flora of South China.

Plate 104. Fig. 1. Habit sketch (natural size). 2. pinnule of 2nd. order (x 8). 3. Sorus, with part of indusium removed (x 25). 4. Scale from rhizome (x 12).

第一百零三圖
華南骨碎補(水龍骨科)

DAVALLIA ORIENTALIS C. Christensen

地下莖大如小指，肉質，蔓生，橫行，具光亮銹黃色之披針形密鱗片，長逾一粉；葉散生，柄長三十至六十粉，自基部以上光滑，黃褐色，葉體大，長寬約各六十至九十粉，呈三角形，漸尖頭，四回羽狀分裂，一回小葉約十對，互生，具長柄，基部一對最大，長三角形，長二十至三十粉，寬十二至十八粉，漸尖頭，上部各對漸小，中部一對為寬披針形，長十五粉，寬六粉，具二回小葉約十對，HB+I長約一·五粉，無柄，羽狀，分雌，每
一數至一鋸齒；子囊羣近於葉緣，每鋸齒一個，蓋管狀，長二倍於寬，端呈截形，其上具小角形之葉質。

分布：廣東，*mm*，香港，瓊洲島及雲南南部；交趾安南亦產之。

本種為亞洲南部大陸特有之種，形體極類馬萊羣島所產之 *Davallia divaricata* Bl. 所不同者，為其較薄之葉質，子囊羣蓋較狹長，子囊羣着生之葉脈亦較長而變為向上。

圖註： 1. 本種 * ^ (a 然大)， 2. 二回小葉(放大八倍)， 3. 子囊羣及一部分之蓋(放大二十五倍)， 4. 地下莖上之鱗片(放大十二倍)。



OAVALUA OKIENTALIS C. Chittendenii

m * * r n

PLATE 105

HUMATA ASSAMICA (Bedd.) C. Christensen

POLYPODIACEAE

HUMATA ASSAMICA (Bedd.) C. Christensen, *Contr. U. S. Nat. Herb.* 26: 293 (1931); *Ind. Fil. Suppl.* III. 112 (1934).

Acrophorus assamicus Bedd. *Ferns Brit. Ind.* t. 94 (1866).

Leucostegia assamica J. Sm. *Hist. Fil.* 84 (1875); Bedd. *Handb. Ferns, Brit. Ind. etc.* 51 (1883); *Suppl.* 13 (1892).

Davauia assamica Baker in *Hk. Syn. Fil. ed.* 1. 452 (1868); ed. 2. 467 (1873); Clarke, *Trans. Linn. Soc. II. Bot.* 1: 445 (1880).

Davallia micans Mett. ex Baker in *Hk. Syn. Fil. ed.* 1. 95 (1867).

Humata micans Diels in *Engl. u. Prantl; Nat. Pflanzenfam.* 1: 4. 209 (1899).

Rhizome thick, wide-creeping, densely scaly; *scales* large, lanceolate, acuminate, hair-pointed, spread, silvery-brown, denticulate; *frond* far apart, stipe slender, firm, naked, rufo-straminous, 5-10 cm long, lamina lanceolate, 15-28 cm long 5-7 cm broad, acuminate, base hardly narrowed, tripinnatifid; *pinnæ* 20-30-jugate, alternate, lanceolate-falcate, shortly petiolate, unequal at base, the basal ones deltoid-lanceolate, with subequal and cordate base, to 4 cm long, 2.5 cm broad at the base, acuminate, rachis narrowly winged from the middle upward; *pinnules* 7-10-jugate, sessile, ovate-oblong, 1.2 cm long, 5-8 mm broad, the lower ones deeply pinnatifid with 5-7 segments, of which the lowest are pinnatifid, the upper ones 3-2-dentate, rachilets with a few large, brown, broadly ovate appressed scales underneath, surfaces naked, glossy in living state; *texture* coriaceous; *veinlets* hardly distinct, pinnate or bifurcate in segment; *sorti* submarginal in ultimate lobes, mostly with a horn above, *indusium* suborbicular, broader than deep, glossy, rounded and free all around, except the broad base which is attached to the leaf tissue.

Yunnan: Shweli-Salween divide, *G. Forrest* 24500; South of Tengyueh, *G. Forrest* 26681, June, 1925; between Tengyueh and the Burmese border, *J. F. Rock* 7312; between Kambaiti and Tengyueh, *J. F. Rock* 7580; Salwin, *H. Handel-Mazzetti* 9564-.

Bothan: Mishee, *Griffith', Jordon* (type).

Munipore: *Clarke* and also Upper Burma: *Forrest* 26604.

This distinct species which was previously known only from Bothan and Munipore of North-western India, is very near *H. Griffithiana* of the same region, differing mainly in its lanceolate and shortly petiolate fronds and in the presence of a few large broadly ovate scales on the lower part of rachilets underneath. Our plate based upon *Forrest* No. 26681.

The genus *Humata* is closely related to both *Davallia* and *Leucostegia*, from the former it differs chiefly in thick leathery, shining, pale-colored reniform or suborbicular indusium attached only by its broad base, generally less divided frond of more rigid texture and the pale-colored scales on the rhizome, from the latter, in somewhat dimorphous and less divided frond of more thick texture and glossy leathery indusium. In fact, its affinity to *Leucostegia* seems to be too close to warrant a generic separation, particularly when the present species is taken into consideration.

Plate 105. Fig. i. Habit sketch (natural size). 2. Pinnule from the middle pinna (x 8). 3. Scale from rhizome (x 14). 4. Scale from the lower part of rachilet underneath (x 14).

m — H m 3L m
m U m ^ m c si # 科)*

HUMATA ASSAMICA (fiedd.) C. Christensen

地下莖肥厚，肉質，具銀灰色披針形之大鱗片；葉散生，柄細長，長五至十粉，光滑，葉體披針
m > MKiMn-ivvi » zitti-km > m'dsm* 基部與上部幾等寬，三回羽狀深裂，一回小葉二十至三
 十對，互生，鏟狀披針形，具短柄，基部不等形，長達四粉，基部寬二·五厘，漸尖頭，中肋上部具狹
 翅，二回小葉七至十對，無柄，卵橢圓形，長一·二粉，寬五至八厘，其位於下部者羽狀深裂，裂片五
 至七數，具鋸齒 *nsHti;* ; %M?tfinjia» *mJUta-x* ; ^ft» # # j* » 中肋下部下面具卵圓形之褐色大
 鱗片，餘均光滑；子囊羣近於葉緣，蓋為半圓形，光亮，僅基部着生。

分佈： 雲南及印度北部。

本種原產於印度北部，最近在雲南西部發現，其異於 *Humata Griffithiana* Hk. 者，為其長披針形
 之葉體及其一回小葉中肋下部下面所具之卵圓形褐色大鱗片是也。

圖註： 1. *a^5g(e«S^:) » 2. ni8*Jg(tt;fcA18) » 3. JUT* bUJf-Ctt^c+Bift) • 4.
 一回小葉中肋下部下面所具之鱗片(放大十四倍)。



HUMATA ASS AMIGA IBnltLi fc Christzienn

A H K fi «

ARTHROPTERIS OBLITERATA (R. Br.) J. Smith

POLYPODIACEAE

ARTHROPTERIS OBLITERATA (R. Br.) J. Smith, Cat. Cult. Ferns 62 (1827); C. Chr. Ind. Fil. 63 (1905); v.A.v.R. Handb. Mai. Ferns 155 (1908); Bonap. Notes Pterid. Pt. 14: 103 (1923); Merr. Enum. Hainan Pl. in Lingnan Sci. Journ. 5: 11 (1927).

Nephrodium oblitteratum R. Br. Prod. Fl. Novae-Holl. 148 (1810).

Aspidium oblitteratum Spr. Syst. Veg. 4: 99 (1827).

Nephrolepis oblitterata J. Sm. Journ. Bot. 4: 197 (1841); Hk. Sp. Fil. 4: 154 (1862); Bedd. Ferns S. Ind. t. 251 (1864).

Nephrolepis ramosa Moore, Ind. Fil. 105 (1858); Hk. et Bak. Syn. Fil. 101 (1877); R. Br. Handb. Ferns, Brit. Ind. etc. 285 (1883).

Arthropteris ramosa Mett. Novora Exp. Bot. 1: 214 (1876); Diels in Engl. u. Pratl. Nat. Pflanzenfam. 1: 4. 208 (1899).

Rhizome slender, wide-creeping on the trunk of trees, to several m tall sparsely scaly; *frond* far apart, alternate, stipe 1-2 cm long, articulated to a prominent pseudopodium, lamina lanceolate, 20-40 cm long, 4-6 cm broad, simple pinnate under the distinct smaller end-pinna; *pinnae* numerous, alternate, 3-4 cm long, 1 cm broad, the lower ones smaller, deflexed, lanceolate-oblong, with deltoid auricle at the anterior base, obliquely cut away at the posterior base, apex bluntish or roundish, margin undulate-crenate towards apex, sessile and articulated to the rachis, which is densely pustulately hirsute above with thick rod-like unicellular clear hairs, the same type of hairs also sparsely present on the midrib above; *texture* herbaceous; *veins* distinct, forked, ended some distance below the margin; *sori* round, terminating the anterior basal veinlet of each group, *indusium reniform*, reddish-brown, persistent.

Hainan: Nodda, Sha Po Shan, F. A. McClure 8157 (1921). Kwanesi, Bako Shan, south of Pei-seh, JR. C. Ching 7530 (1928).

Tonkin: Cao-Bang, Bourret 132.

Also Malesia-Polynesia, Ceylon, the Philippines, Australia and tropical Africa.

A very variable fern in respect to the shape and size of pinna* • very rare on the mainland, R. C. Ching No. 7530 and Bourret No. 132 are the only specimens seen by me.

The genus *Arthropteris* now comprising about 10 species chiefly in the tropical Asia, has been generally considered as closely related to *NLJ*,* / Schott; and this is true only in so far as the articulated pinna type *XZ* and soral conditions are concerned, but in point of anatomical features and details, toe type of stelar structure in rhizome, it shows a marked difference that genus, nor is it comparable with *Oleandra* Cav. in this respect, to which H also held as a close relative by workers* to-day. Meanwhile, I conit it one of the fern genera *incertae sedis*. wuwoor it one of

Plate 106. Fig. 1. Habit sketch (natural size). 2. Pinna, showing venation and sori (x 2). 3. Sorus with indusium (x 16). 4. Scale from scandent rhizome (x 40).

第一百零六圖
籐蕨(水龍骨科)

ARTHROPTERIS OBLITERATA (R. Br.) J. Smith

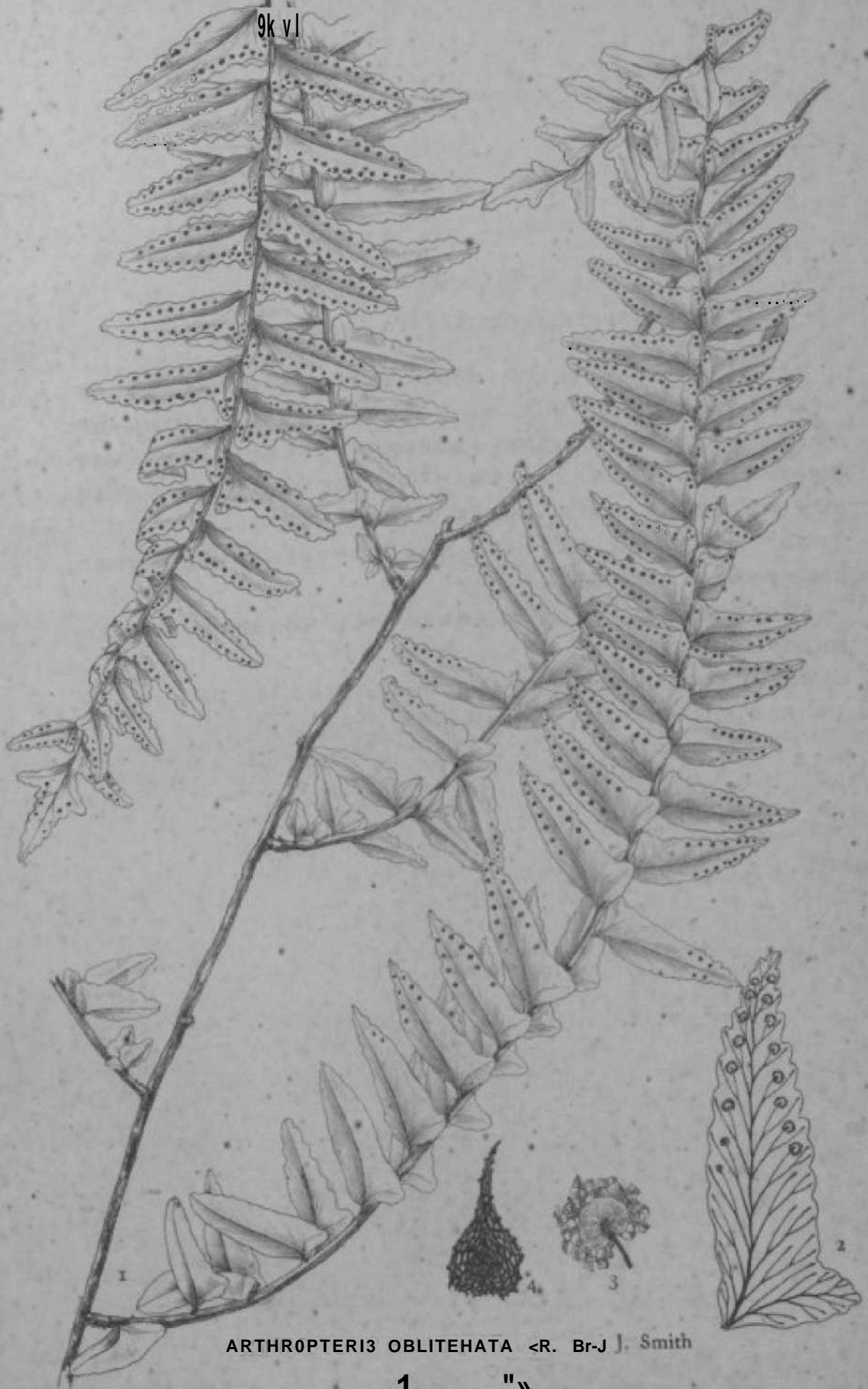
地上莖蔓生，緣樹幹上升，高可達十數呎；鱗片疏生；葉散生，葉柄長一至二粉，節形着生於莖莖上，葉體披針形，長二十至四十粉，寬四至六粉，一回奇數羽狀分裂，小葉數十對，長三至四粉，寬約一粉，頂部一葉與下部數對較小，精圓披針形，上基部耳形突出，下基部呈斜形，鈍頭或圓頭，葉緣呈波狀，幾無柄，節狀着生於具密腺毛之中肋，兩面光滑，惟主脈上面略具腺毛；葉脈明顯，分叉，不達於緣葉，紙質；子囊橢圓形，着生於每一上基部葉脈之端，莖腎形，紅褐色。

分布：廣布於安南，交趾，馬來及南洋羣島，菲律賓，澳大利亞及非洲熱帶；最近發現於我國之瓊洲島及廣西西南部之八角山，然不多見也。

本種為本屬在亞洲熱帶大陸僅見之種，其特異點為其籐形之地上莖緣樹幹或懸崖上升，葉與小葉均節狀着生，易於脫落是也。

圖註： 1. 本種全形(自然大)， 2. 小葉，表明其葉脈及子囊羣之位置(放大二倍)， 3. 子囊羣(放大十六倍)， 4. 3tt3KJh;2:*tJV C 放大四十倍)。

9k v1



ARTHROPTERIS OBLITEHATA <R. Br-J J. Smith

1 "»

PLATE 107

CAMPTOSORUS S^TM^T»Trjus Ruprecht

POLYPODIACEAE

CAMPTOSORUS SIBIRICUS Ruprecht, *Distr. Crypt. Vase. Ross.* 45 (1845); *Ledeb. Fl. Ross.* 522 (1853); *Milde, Fil. Europ. et Atlant.* 95 (1867); *French, Pl. David.* 2: 230 (1887); *Komarov, Fl. Mansh.* 1: 177 (1901); *C. Chr. Ind. Fil.* 166 (1905); *Kimmerle, Ann. Mus. Hungar.* 24: 90 (1926); *Ogata, Ic. Fil. Jap.* 2: t. 59 (1929); *Fomin, Fl. Sib. et Orient. Extr.* 5: 139 (1930).

Scolopendrium sibiricum Hk. *2nd. Cent. Ferns* t. 35 (1861); *Sp. Fil.* 4: 4 (1862); *Syn. Fil.* 248 (1867); *Christ, Farnkr. d. Erde* 218 (1897); in *Warburg, Monunia* 1: 73 (1900); *Diels in Engl. u. Prantl: Nat. Pflanzenfam.* 1: 4. 231 (1899).

Antigramma sibirica J. Sm. *Hist. Fil.* 331 (1875).

Phyllitis sibirica O. Ktze, *Rev. Gen. Pl.* 2: 818 (1891).

Asplenium rhizophyllum L. *Sp. Pl.* 2: 1078 (1753), pro parte.

Camptosorus rhizophyllus var. *sibiricus* Christ ex Léveillé, *Bull. Acad. Geogr. Bot.* (1910) 4.

Rhizome short, erect, densely radice; *scales* at the apex dense, lanceolate, hair-pointed, fusco-brown, iridescent; *fronds* fasciculated, dimorphous, *sterile ones* ovate, rounded or acute, 1-4 cm long on stipes 1-5 cm long, herbaceous, green, *fertile ones* lanceolate, longer-stipitate, apex generally elongate and rooting, base not auricled but narrowed gradually or shortly cuneate; *venation* sub-biseriately reticulated along the prominent midrib, free towards margin, green and alabrouš except the underside being sparcely glandular; *sori* elongate, 1- or irreoūlarly 2' seriate along midrib, *indusium* membranaceous, gray, some opening towards and some against, the midrib, and still others, towards each other as in *Phyllitis*; *spores* bilateral, echinose.

Hopei (formerly Chihli): Peiping, *Bushell*, Oct. 1882; *Forbes* (1882); *Carles*, July 16, 1882; I-yuan-kou, *Clemens* 37036 (1913); Pin-chow, Wang-mu Kou, *Chanet* 451; Peitaiho, *Cowdry* 447; Siawutai Shan, *C. L. Li*; *ibid.*, *C. W. Wang* 60589 (1933) Johoh: *David*. Shantung: *Chef00, Fdber* (1890); *Swinhce* (1873); *Hancock* 17 (1875); *Warburg*; Wei-hai-wei, *C. G. Matthew* 410 (1904); Tai-shan, *C. Y. CMao* 21*86 (1929); *Jacob* 7; *H. S. Hao* 1810, July 13, 1931; Tsingtau, *C. L. Tso* (1933). Mongolia: Peitche-ly, *E. Licent* (1927). Manchuria: *Maximowicz* 410 (1860); *James*, *Mav-Au^ust* 1886; *Ross*, Oct. 1887; *Webster*, May, 1885; *Komarov* 36; Kirin, in the vicinity of Chingpohu, // *W. Kung* 2104, August 14, 1931; Fengtien. *H. W. Kunq* 876, August 1, 1930.

Corea: *Taquet* 2479.

Port Arthur: *Miss Höller* (1926).

Also Japan, Siberia and Kamschatka.

The chief interest of this peculiar-looking little fern lies in its remarkable walking ability, that is, its frond generally prolongates into an elongate whip-like viviparous tip, by means of which it spreads itself all about. The second species of the genus is *C. rhizophyUus* (L.) Link, of North America, which differs from our fern in larger size, deeply auriculato-cordate base of frond and 2-3 rows of sori on each side of midrib.

第一百零九圖
過山蕨(水龍骨科)

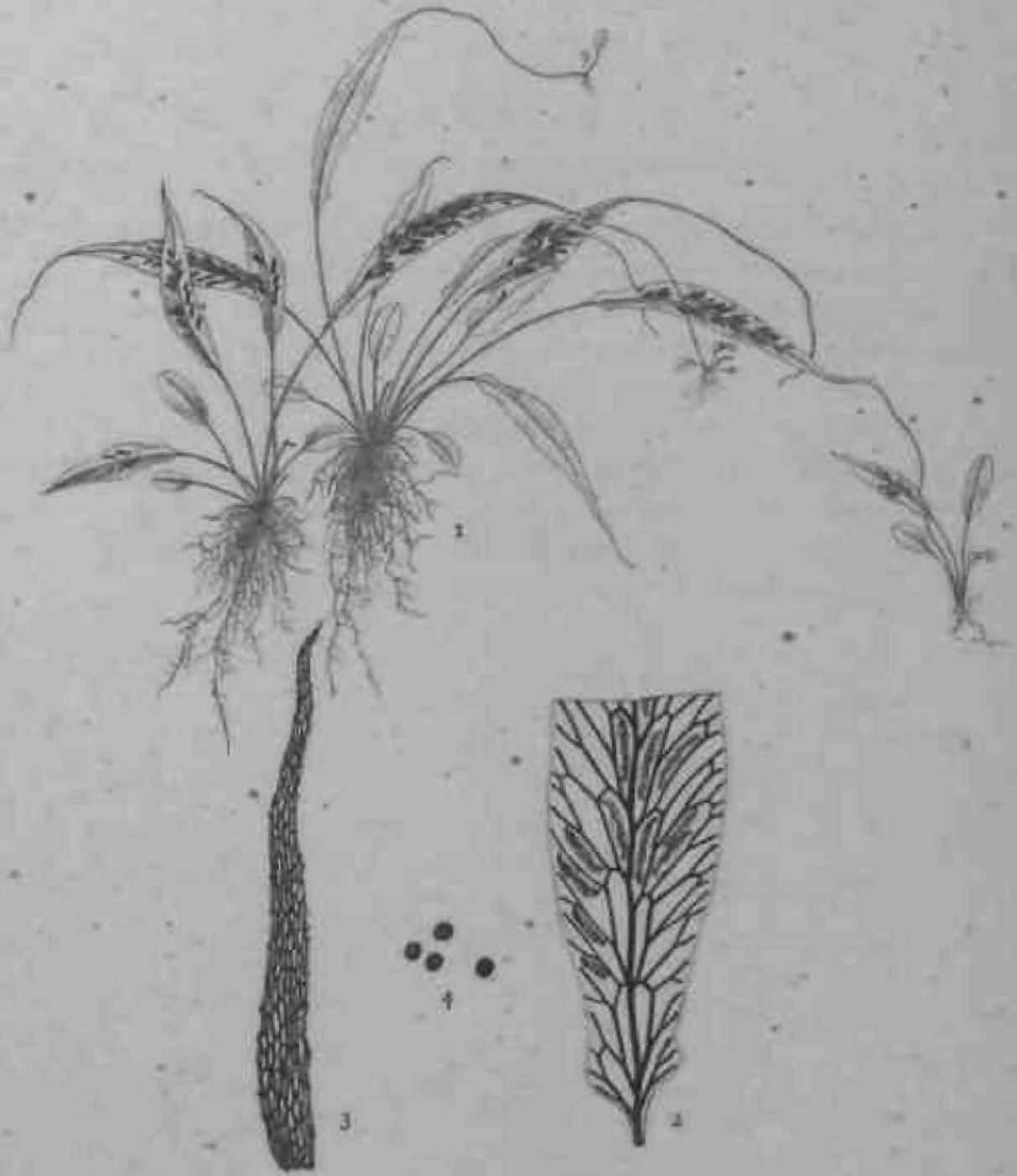
CAMPTOSOBUS SIBIBICUS Buprecht

地下莖短而直立，端具黝褐色之細長披針形鱗片，富於折光性；葉簇生，二形，非子囊羣葉體為卵形，鈍頭，長一至四粉，柄長一至五粉，紙質，綠色，全緣；葉脈網狀，網眼二列，斜出，不具小脈；子囊羣葉體為披針形，具較長之柄，葉端通常呈線狀伸長而入土著根，基部不為心臟耳形，但為短楔形；葉脈亦為網狀，兩面光滑；子囊羣形長，於中肋兩側成極不規則之一至二列，蓋膜質，有向上方開者，有向下方開者，更有彼此相向開者。

分布：河北，山東，東三省，蒙古；日本，朝鮮，西伯利亞東部均產之。

本種為亞洲東北部之特產，其異於美洲東北部特產之 *Campt. rhizophyllus* (Linn.) ^，為其葉形較小，基部不為心臟耳形是也；本種特其細長著根之葉端，能由一地繁盛至他地，故特名之曰過山蕨。

圖註： i. *^^^ (tutfcfc) » 2. 著生子囊羣葉體之一部，表明其葉脈及子囊羣之位置（放大六倍）， 3. *TiKJBi»^CJtt*H+tt)» 4. 孢子(放大百倍)。



CAMPTOSORUS SIBIRICUS Ruprecht

易山蕨

PLATE 108

ATHYRIUM SHEARERI (Baker) Ching

POLYPODIACEAE

ATHYRIUM SHEARERI (Baker) Ching in C. Chr. Ind. Fil. Suppl. III. 44 (1934).

Nephrodium Sheareri Baker, Journ. Bot. (1875) 200.

Dryopteris Sheareri C. Chr. Ind. Fil. 292 (1905).

Nephrodium isolalum Baker, Card. Chron. n. s. 14: 494 (1880).

Aspidium polypodiiforme Makino, Bot. Mag. Tokio 6: 46 (1892, nom. nud.)

Nephrodium polypodiiforme Makino, Bot. Mag. Tokio 13: 58 (1899); Matsum. Ind. Pl. Jap. 1: 323 (1904).

Dryopteris polypodiiformis C. Chr. Ind. Fil. 285 (1905); Makino et Nemoto, Fl. Jap. 1621 (1925).

Athyrium polypodiiforme Tagawa, Acta Phytotax. et Geobot. 1: 158 (1932).

Aspidium otarioides Christ, Bull. Acad. Geogr. Bot. (1902) 247.

Dryopteris otarioides C. Chr. Ind. Fil. 282 (1905).

Dryopteris subsagenioides Christ, Bull. Acad. Geogr. Bot. (1910) 8; C. Chr. Ind. Fil. Suppl. I 40 (1912); Nakai, Fl. Kor. 2: 396.

Rhizome wiry, wide-creeping, black, apex and base of stipe sparsely clothed in brown, thin, lanceolate *scales*; *frond* far apart, stipe 10-20 cm long, stramineous, naked, lamina oblong or deltoid-ovate, 15-20 cm long, 10-15 cm broad, pinnate under pinnatifid, deltoid-lanceolate, acuminate apex; *texture* thin, herbaceous, green, glabrous except rachis and costa which are sparsely setaceous underneath; *pinnae* 4-8-jugate, subfalcate, acuminate, sharply serrate, the lower ones sessile, the upper ones adnate, truncate or cuneate at base, 6-10 cm long, 1.5-2 cm broad, lobate-incised; *lobes* oblong or rounded with aristate teeth; *veins* distinct, pinnate in lobes 3-4-jugate, veinlets simple, curving up into the teeth; *sort* small, rounded, dorsal on the lower 2 pairs of veinlets, *indusium* reniform, setaceous, very fugaceous.

Kiangsi: 'Kiukiang, Lu-shan, *Dr. Shearer* (type) (1873); *Maires* (type of *Nephrodium isolatum*); *N. K. Up 1832* | *Paradise Pools, Charles E. DeVol 25, July 27 1933*, edge of stream. Chekiang: Hangchow, Fan-chiao, *R. C. Ching 3715*. Hupeh: Shin Shan Hsien, *S. S. Chien Sill* in herb. Univ. Nanking, July 29, 1922. Kweichow *Tenyen, Y. Tsiang 5802*; *Tin-fan, Cavale He 2050*; *Pin-fa, Cavalerie 46, 1839*; *Tsingay, Bodinier 2050* (type of *Aspidium otarioides*). Szechwan: Nanchuan, *W.P. Fang 5794*.

Corea: *Quelpasrt, Taquet 2382* (type of *Dryopteris subsagenioides*).

Also Japan, common.

This peculiarly distinct fern, known under many a name as cited above has been subjected to much nomenclature changes. Its position in *Athyrium* can however, hardly be doubted, if the generic status of *Anisoeampium* Presl is not recognized. Our species is closely related to *Athyrium** *Cumingianum* (Presl) Ching (*Dryopteris otarioides* O. Ktze.), differs chiefly in the shortly setose rachis, costa and costules underneath, aristate serrature and free venation".

Plate 108. Fig. 1. Habit sketch (natural size) 2 Portion of basal pinna, showing venation and position of sori 3. Portion of basal pinna, showing venation and position of sori 4. Scale from rhizome (x 20).

m — H *m* A 圖
m m m m m OK *m* # 科)
 ATHYRIUM SHEARERI (Baker) Ching

地下莖橫行，黑色，先端及葉柄基部略具褐色之薄質披針形鱗片；葉散生，柄長十至二十粉，稍桿
 ft，光滑，葉體橢圓形或卵三角形，長十五至二十粉，寬十至十五粉，一回羽狀分裂，頂部漸尖頭，深
 裂，紙質，ttft，光滑，惟中肋及主脈下面稍具短剛毛；小葉三至八對，鑷形，下部數對無柄，上部數
 對合生，漸尖頭，基部呈截形或短楔形，長六至十粉，寬一·五至二粉，葉緣具不規則之銳鋸齒；葉脈
mm *羽狀分叉，伸入鋸齒；子囊羣小，橢圓形，着生於每一對葉脈上，蓋腎形，具短剛毛，不久即脫
 落。

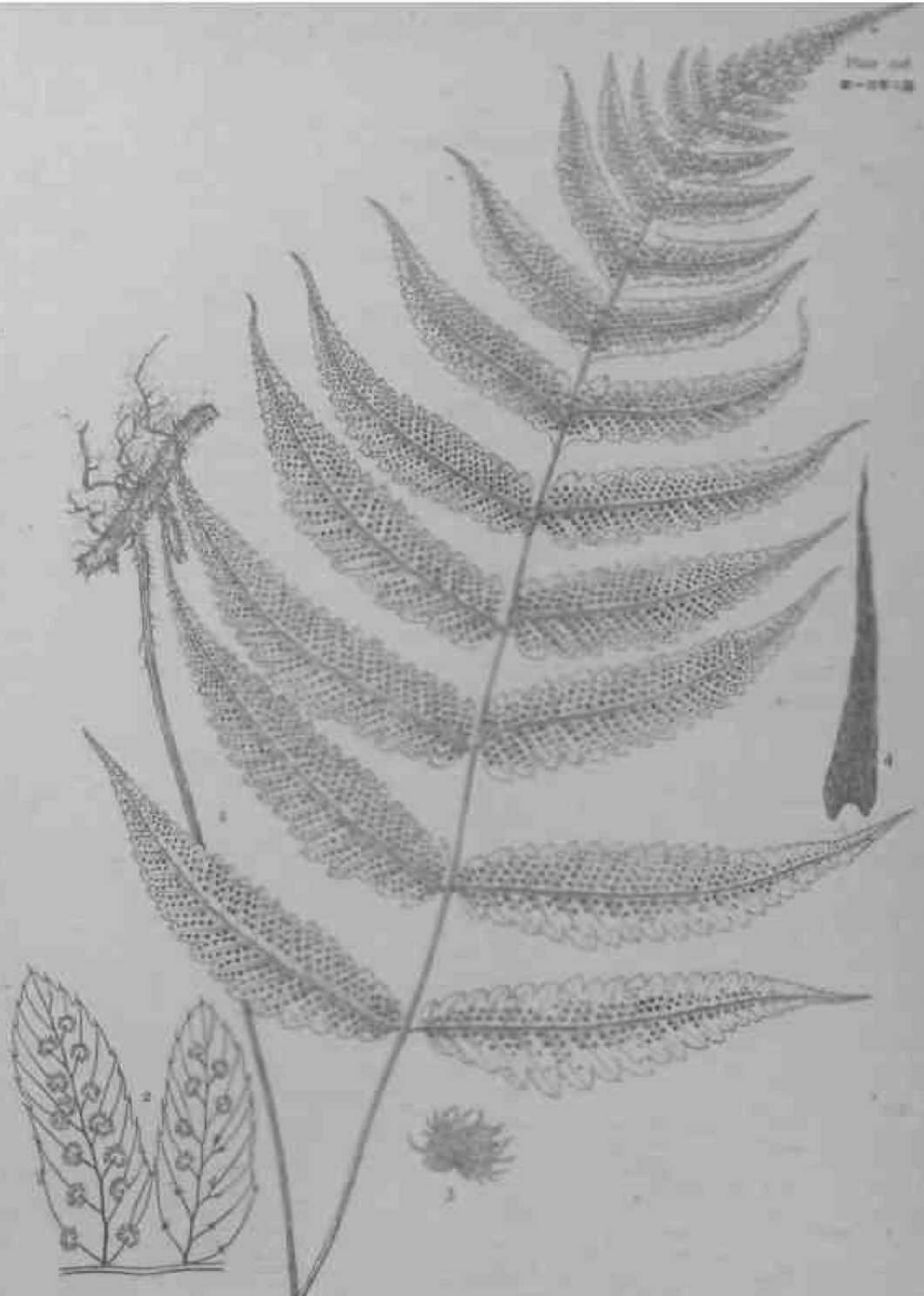
分布：*a s • ma > nm > m* |||；日本及朝鮮亦產之；最初發現於廬山。

本種通常散生於森林中

故採集時往往不能於一處得多數標本也。

- 圖註： 1. 本種全形 (e«S*)» 2. 基部小葉之一部，表示其葉脈及子囊羣之位置 (放大五倍)，
 3. ^jHI^CKfft/;)» 4. «rft«L;fclWUtt*-ɔ*ff)«»

Plate 101
No. 1011



ATHYRIUM SHEARCKII pQajurr| CWttfc

嵐山蹄蓋蕨

ATHYRIUM OTOPHORUM (Miq.) Koidzumi

POLYPODIACEAE

ATHYRIUM OTOPHORUM (Miq.) Koidzumi, Fl. Symb. Orient. Asiat. 40 (1930); C. Chr. Ind. Fil. Suppl. III. 43 (1934).

Asplenium otophorum Miq. Ann. Lugd. Bat. 3: 175 (1867); Franch. et Sav. Enum. Pl. Jap 2: 229 (1877)-

Diplazium otophorum C. Chr. Ind. Fil. 236 (1905).

Athyrium violascens Diels in Engl. Jahrb. 29: 196 (1900); C. Chr. Acta Hort. Gothob. 1: 76 (1924).

Athyrium Wardii Christ (non Makino, 1857), Bull. Soc. Bot. France 52: Mém. 1. 49 (1905).

Athyrium nigripes Christ (non Moore, 1857), Bull. Acad. Geogr. Bot. (1909) 174; C. Chr. Acta Hort. Gothob. 1: 76 (1924)-

Rhizome oblique, densely scaly; *saqles* blackish or dark brown, linear-lanceolate, extending upwards some distance above the base of stipe; *fronds* cespitose, stipe 25-30 cm long, 3 mm thick above the base, stramineo-rufescent, naked, lamina 30-35 cm long, 20-25 cm broad, bipinnate; *lateral pinnae* 10-jugate below the caudato-acuminate pinnatifid apical part, very shortly petiolate with truncate base, elongate-lanceolate, long-acuminate, the basal ones only slightly shorter than those next above and decidedly narrowed towards the base, *i.e.* the basal pair of pinnules reduced, 10-12 cm long, 2.5-4 cm broad at the middle, rachilet stramineous, glossy, shaded purplish, particularly towards the base, which is subglabrous with short, sparse glandular hairs and provided with appressed spines on the upper side; *pinnules* 14-17-jugate under the long-acuminate pinnatifid apex, 1.3-2.5 cm long, deltoid, acute or shortly acuminate, base strongly unequal, *i.e.* deltoidly auriculated above, obliquely cuneate below, with straight anterior side, sessile, rather regularly serrate with short, cuspidate teeth; *veins* distinct, forked, or pinnate in the auricle; *texture* rigidulously herbaceous, glabrous, except the rachis which is shortly glandular hairy above; *sori* elongate, oblique to costule, *indusium* membranaceous, brownish-gray.

Kweichow: Pin-fa, *Cavalerie* 2600, 544; Kwei-yang, *Bodinier* 2008; Ganchow, *Cavalerie* 3769; Sanhoa, *Y. Tsiang* 6414, 6448; Chengfeng, *Y. Tsiang* 4568; Tuyun, *Y. Tsiang* 5810. Hupeh: *Henry* 5163. Szechwan: Mt. Omei, *W. P. Fang* 2762, 3119; Nanchuan, *Rosthorn* 1752 (type of *A. violascens*); *W. P. Fang* 5709; Kuan Hsien, *W. P. Fang* 2161; *Harry Smith* 4888; Tchen-kou-tin, *Farges* 245. Anhwei: Hwang Shan, *S. S. Chien* 1235. Kwangtung: North River, *C. L. Tso* 20681.

Japan: *C. G. Matthew* 241 (1903), *forma typica*.

Type from Japan, now found to be a common fern throughout the Yangtze valley. Authors on Chinese ferns have generally considered this identical with *Athyrium nigripes* (Bl.) Moore of Malesia-Polynesia, with which our fern has, in fact, nothing to do at all. The present species constitutes the type for the group of about ten closely related members in West China and North-western India, and holds an intermediate position between *A. Mackinnoni* (Hope) and *A. mengtzeense* Hieron. of the same region. The Japanese *A. rigescens* Makino appears hardly distinct from our fern (Cf. Ogata, Ic. Fil. Jap. 5: t. 216).

Plate 109. Fig. 1. Habit sketch (natural size). 2. Pinnule (x 7). 3. Scale from the base of stipe (x 20).

第一百零 *xm*
光蹄蓋蕨 (水龍骨科)

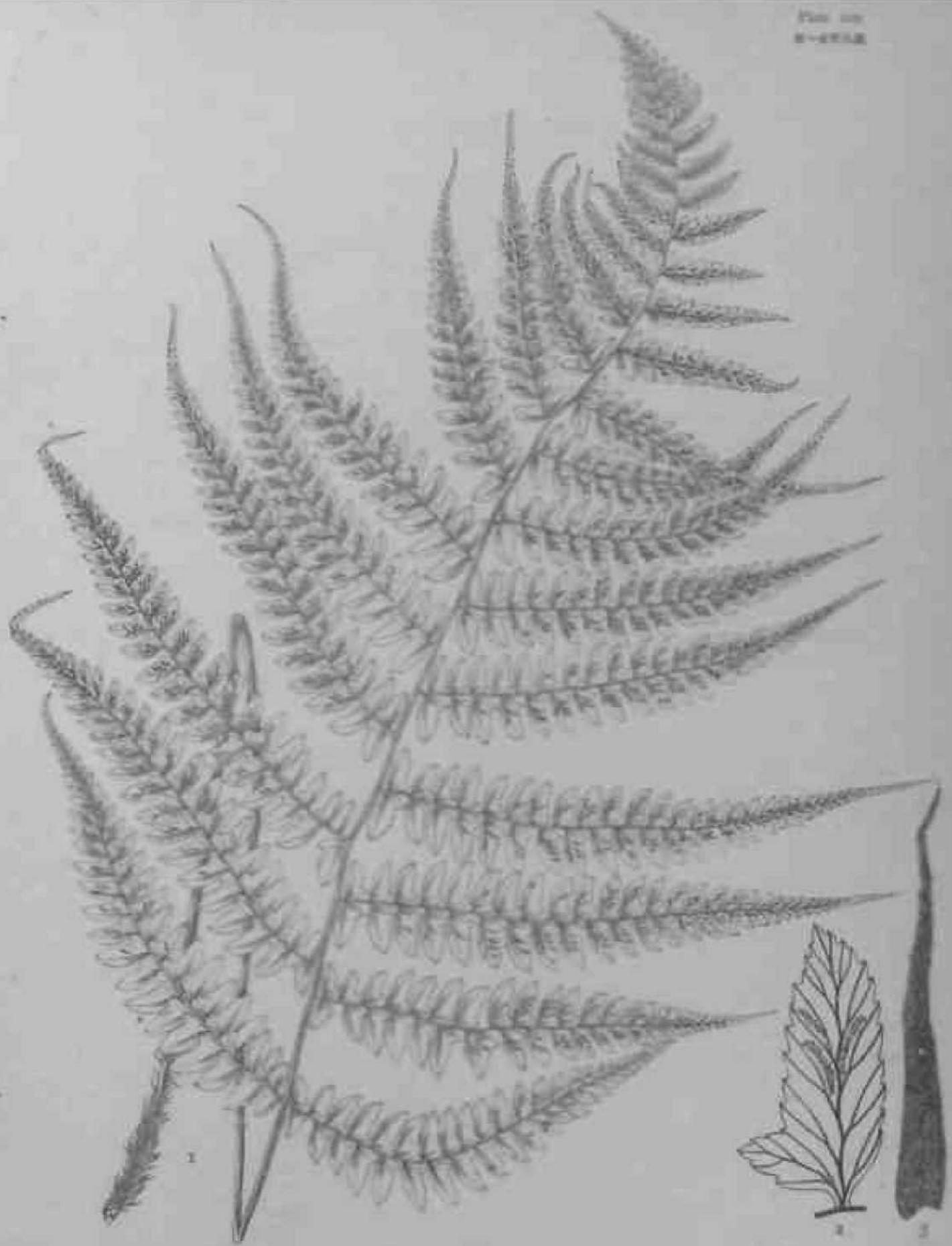
ATHYRIUM OTOPHORUM (Miq.) Koidzumi

地下莖斜生，具黯暗色或深褐色之披針形鱗片；葉簇生，柄長二十五至三十粉，寬十二至二十五粉，呈淡紫色，基部具鱗片，葉體長三十至三十五粉，二回羽狀分裂，頂部尾狀漸尖頭，深裂，一回小葉約十對，具極短之柄，漸尖頭，基部截形，披針形，長約十餘粉，寬約二·五至四粉，中肋基部下面呈淡紫色且略具腺毛，上面具肉刺；二回小葉爲三角形，長一·三至二·五粉，短尖頭，基部上方具耳形，下方斜形，葉緣具短鋸齒；*MMWM* 'H出或在上基部羽形分叉；厚紙質，兩面光滑；子囊羣長形，斜出，蓋膜質，棧灰色。

分布： 貴州，四川，*in**，廣東；日本亦產之。

本種爲一美麗之品 » t?AIL¹^^ *Athyrium nigripes* (Bl.). 實則此種不產於中國及日本，乃係馬萊羣島種也。

圖註： 1. * « ^ ^ (& & *:) ' 2. =H^IBCifcfc-ttt) » 3.KHRJ6S5WW- (jft^r+ffiF) 。



ATHYRIUM OTOPHORUM (Miq.) Koidzumi

光脚五葉

PLATE 110

ATHYRIUM OÖBINOIANUM (Kunze) Moore

POLYPOBIACEA:

ATHYRIUM GÖRINGIANUM (Kunze) Moore, Ind. Fil. 185 (1860); C. Chr. Tnd. Fil. 143 (1905); Ogata, Ic. Fil. Jap. 2: t. 5S (1929).

Aspidium Göringianum Kunze, Bot. Zeit. (1848) 557.

Lastrea Göringianum Moore, Ind. Fil. 93 (1858).

Dryopteris Göringiana Koidz. Bot. Mag. Tokio 43: 382 (1929); Acta Phytotax. et Geobot. 1: 233 f. 9-10 (1932).

Athyrium filix-foemina Christ (non Roth, 1799) in Warburg, Monunia 1: 75 (1900).

Athyrium iseanum Ros. in Fedde, Repert. Sp. Nov. 13: 124 (1913) C. Chr. Ind. Fil. Suppl. II. 7 (1916).

Rhizome oblique; *scales* brown, thin, lanceolate; *fronds* craspidose, stipe 16-30 cm long, pale stramineous, glossy above the blackish scaly base, terete underneath, broadly flattened above, lamina oblong-ovate, 20-28 cm long, 12-16 cm broad, acuminate, tripinnatifid; *pinnae* 10-14-jugate, alternate, petiolate, obliquely patent, the basal ones somewhat shorter than those next above, 7-10 cm long, 3-4 cm broad, base cordate, apex acuminate; *pinnules* 8-11-jugate, shortly petiolulate, alternate, 1.5-2 cm long, oblong, acute or bluntish, base subunequal, pinnatifid nearly down to costulo into 4-6 oblong serrato-incised blunt segments, with one simple veinlet to each tooth; texture soft herbaceous, light green, rachis and rachilets are provided with characteristic spines on the upper side; *sori* elongate or horse-shoe-shaped, *indusium* thin, grayish-brown, large; *spores* reniform, smooth.

Chekiang: Ningpo, Tien-tai Shan, *Hancock* 12. (1877); *C. Y. Chiao* 14437; *K. K. Tsoong* 3713- Szechwan: Mt. Omei, *W. P. Fang* 2672, 3800 in herb. West China Acad. Sci. Yunnan: *H. T. Tsai* 52696. Fukien: Lin Fa Shan, *S. T. Dunn* 3844, June 6, 1904. Kiangsi: Kiukiang, Lu-shan, Incense Mill, *DeVol*, Aug. 5, 1933; Kiangsu: Wusih, Wei-shan, *R. C. Ching* 3427. Kwangtung: Lohfau Shan, *C. O. Levine & McClure* 6833, 6929; *Levine* 1518; *Merrill* 10344 (1916); *Gerlach* (without locality).

Japan: *Göring* 115 (type) (1844); Ise, *Sakura* 47 (type of *A. iseanum*).

A native of Japan and Eastern China and was generally considered in the past as identical with *A. nigripes* (BL), from which it differs in ampler frond as long as the stipe, incised or, at least, dentate-incised ultimate pinnules and not strictly costular sori. A still closer ally is *A. strigillosum* Moore from North-western India and West China, which differs only in less divided frond and subcostular sori with uniform asplenoid indusium.

Plate no. Fig. 1. Habit sketch (natural size). 2. Pinnule, showing venation and types of indusia (x 8). 3. Scale from the base of stipe (x 16).

第 一 百 一 十 圖

.« # J» *m m OK si* # 科)

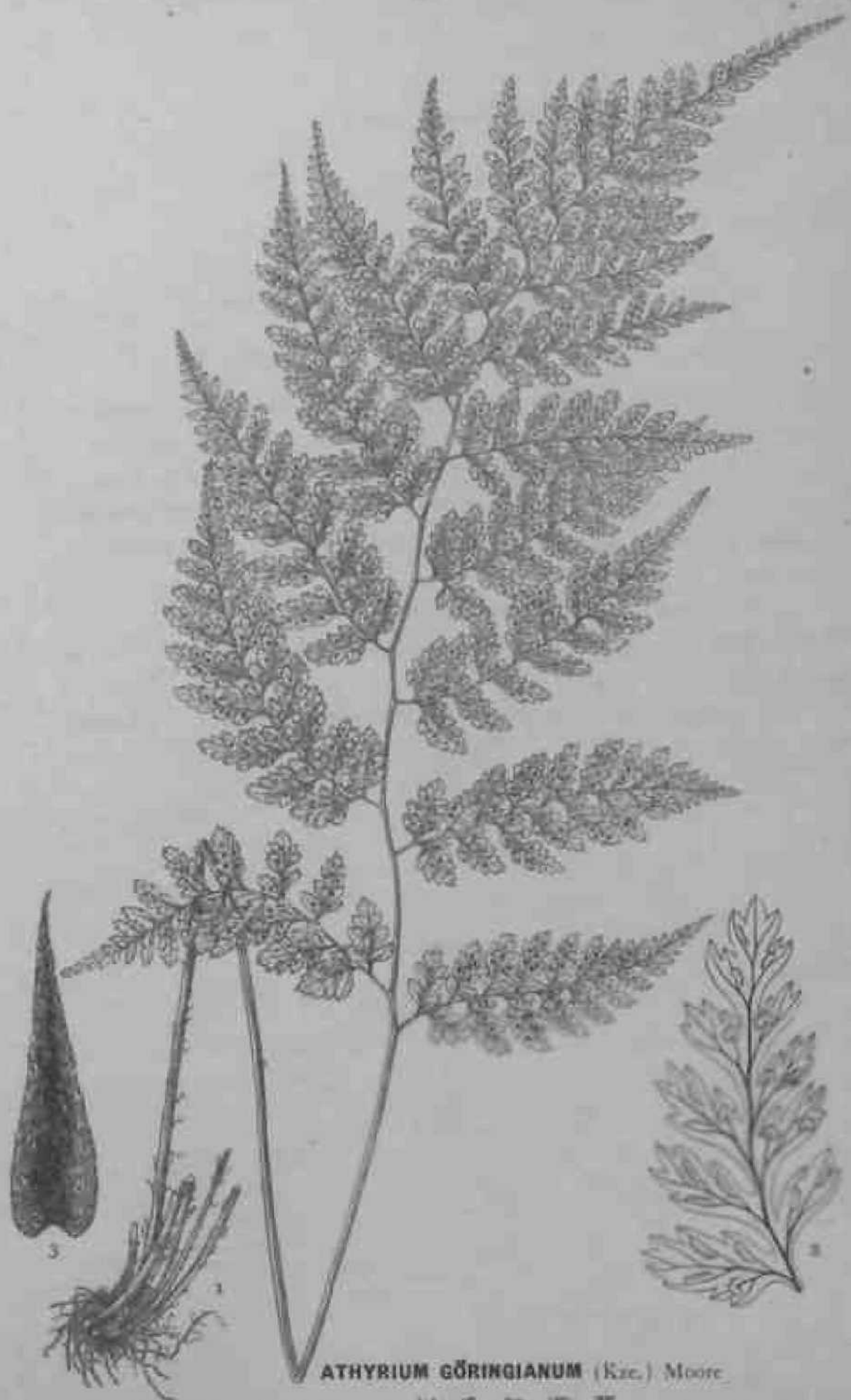
ATHYRIUM GÖBINGIANUM (Kze.) Moore

地下莖斜出，鱗片為橙黃色，披針形；葉簇生，柄長十六至三十粉，淡稻草色，光亮，葉體橢圓卵形，長二十至三十粉，寬十二至十六粉，漸尖頭，三回羽狀深裂；一回小葉十至十四對，互生，具柄，斜出，基部一對稍短，長七至十粉，寬三至四粉，基部心臟形，漸尖頭，二回小葉八至十一對，具短柄，長一·五至二粉，橢圓形，短尖頭或略為鈍頭，基部亞等邊，羽狀深裂達中肋，裂片四至六數，鈍頭，具鋸齒，每一葉脈伸入一鋸齒；薄質，淡綠色，一二各回中肋上面具肉刺；子囊羣長形或馬蹄形，形大。

分布：WS.，江蘇，雲南，四川，廣東，福建；日本亦產之。

本種為本屬複羽狀分裂之-a » » H t H * 1 B # * * 1 t i l B » -g F A f t t t S l Athyrium nigripes (Bl.) t
實則大謬不然也。

圖註： 1. 本種全形(自然大)， 2. 二回小葉，表示其葉脈及子囊羣(放大八倍)， 3. 葉柄基部鱗片(放大十六倍)。



ATHYRIUM GÖRINGIANUM (Kze.) Moore

柯氏蹄蓋蕨

ICONES FILICUM SINICARUM

PLATE HI

ASPLENIUM SARELI¹ Hooker

POLYPODIACE.E

ASPLENIUM SARELI¹ Hooker in Blakiston, Five Months on the Yangtze 363 (1862); C. Chr. Ind. Fil. 130 (1905).

Asplenium Saulii Baker in Hk. Syn. Fil. ed. 2. 216 (1874); Christ, Farnkr. d. Erde 203 (1897); Diels in Engl. u. Prantl: Nat. Pflanzenfam. 1: 4. 240 (1899); Ogata, Ic. Fil. Jap. 1: t. 8 (1928).

Asplenium Blakistoni Baker in Hk. Syn. Fil. 216 (1867); Hk. Ic. Pl. t. 1015. 1016 (1867).

Asplenium pekinense Makino (non Hance, 1867), Bot. Mag. Tokio 9: 245 (1895).

Rhizome short, erect, densely scaly at the apex; *scales* lanceolate-subulate, black; *fronds* caespitose, stipe 5-10 cm long, slender, naked or sparsely scaly, green, lamina deltoidly ovate-oblong, 5-13 cm long, 2.5-5 cm broad or broader at base, acuminate, tripinnate, the basal *pinnae* much the largest, ovate, with unequal base, 1.5-3 cm long, 1-2 cm broad, ultimate pinnules linear, 2-3-fid, with a fine tooth, with 1-2 elongate *Sori*, *indulum* thin, gray, entire; *texture* herbaceous, glabrous on both sides, color green even upon drying.

Szechwan: *Blakiston* (type), without exact locality; Mt. Omei, *E. Faber* 1007\ *ibid.*, *E. H. Wilson* 5358, 5262 (ad f. *typica*). Hupeh: Patung, *A. Henry* 3789; I-chang, Nanto, *Henry* 219; Ou-pan Shan, *Silvestri* 3249, 3248 (1905); Nang Hsien, *Silvestri* 4029, 4030, 4032, 4033. Kiangsu: Nanking, She Er Tung, *R. C. Ching* 3499 (1927); *DeVol* 63, August 13, 1933; *L. F. Zee* 11 in herb. Univ. Nanking; I-shing *Y. L. Keng* 2690. Kiangsi: Fengcheng, *Y. Tsiang* 10285. Kweichow: San-hoa, *Y. Tsiang* 6243\ Pachai, *Y. Tsiang* 6158; Tsunyi, *Y. Tsiang* 5298.

Also Japan.

This distinct fern, common throughout the Yangtze valley, is closely related to *A. varinm* Wall, from Northern India and West China, which differs in much narrower and bipinnate frond of a different outline with broadly oblong ultimate pinnules without so sharp teeth as in our fern. In the general shape of frond, it appears very much like a small form of *A. tenui folium* Don, differs in much thicker texture of frond and entirely different shape of ultimate pinnules. *A. pekinense* Hance, common in North and Central China, seems to be specially distinct from our fern by its much reduced lower pinnae.

Plate in. Fig. 1. Habit sketch (natural size). 2. The same, forma *typica*. 3. Pinnule of first order (x 6). 4. Scales from rhizome (x 27).

第 一 百 十 一 圖
* * *m & mot m* # 科)

ASPLENIIUM SARELII Hooker

地下莖短而直立，端具黯褐色狹披針形之密鱗片；葉簇生，柄長五至十粉，光滑或略具鱗片，葉體為三角卵橢圓形，長五至十三粉，寬二·五至五粉，或較寬，三回分裂，一回小葉約十對，基部一對最大，卵形，長一·五至三粉，寬一至二粉，基部不等，末回小葉為披針形，二至三裂，端具尖鋸齒；子囊羣一五二，細長，蓋膜質，全緣；葉為紙質，兩面光滑，淡綠色。

分布 湖北，江蘇，江西，貴州；0本亦產之。

此為揚子江流域習見之種，形體變異甚大，與此種最相似者為 *Asplenium pekineise* Hance. 然本種基部一回小葉較位於上部者較大，故得區別。

圖註： 1. 本種全形(自然大)， 2. 同上，模式， 3. 一回小葉(放大六倍)， 4. 基部鱗片(放大二十七倍)。



ASPENIUM SARELI Hooker
華中鐵角蕨

ICONES FILICUM SINICARUM

PLATE 112

ASPENIUM SAMPSONI Hance

POLYPODIACEAE

ASPENIUM SAMPSONI Hance, Ann. Sci. Nat. V. 5: 257 (1866); C. Chr. Ind. Fil. 130 (1905).

Asplenium Belangeri Dunn & Tutch. (non Kze. 1848) Fl. Kwangt. & Hongk. 344 (1912).

Rhizome thick, short, erect, densely scaly; *scales* blackish, lanceolate, dense at apex; *fronds* caespitose, stipe fleshy, 3-6 cm long, sparsely clothed in blackish, irregularly armed scales, lamina lanceolate, 13-25 cm long, 2-4 cm broad, acuminate, gradually narrowed towards base; *pinnse* 17-28-jugate, patent, subsessile, the lower ones gradually reduced into a broadly deltoid outline below 1 cm long, the middle ones 1.5-2.5 cm long, 1 cm broad, oblong, obtuse, base unequal, being auricled at anterior side, deeply pinnatifid; *segments* 5-8-jugate, linear, pectinate, uni-nerved, the anterior basal one generally 2-3-forked; *texture* herbaceous, green; *sori* linear, one to each segment, *indusium* membranaceous, entire, open upward.

Kwangtung: Kai Kun Shek, *T. Sampson 11165* (type), in herb. Hance, June, 1867; *K. K. Wang 436* (1928). Kwangsi: Lungchow, *Morse 14*. Kweichow: *Esquirol 3731* (without exact locality).

This distinct endemic species is closely related to *A. Belangeri* (Bory) Kze. of tropical Asia, to which it was reduced by Baker (Cf. Syn. Fil. 223), from which it differs, however, in much smaller size with narrowly lanceolate frond, gradually narrowed towards the short fleshy scaly stipe, which is, as rachis, sparsely clothed in black, irregularly armed and distinctly reticulated scales. From *A. prolongatum* Hk., our fern differs in non-prolongated, and rooting apex of frond of a lanceolate outline, on much shorter stipe, and in very patent or subhorizontally spread, more copiously and regularly pinnatifid pinnse, of which the lower ones are gradually shortened.

Plate 112. Fig. 1. Habit sketch (natural size). 2. The same, a larger form. 3. A middle pinna, showing venation and sorus (x 16). 4. Scale from rhizome (x 50). 5. The same from stipe (x 76). 6. Scales from rachis (x 60).

第一百十二圖
嶺南鐵角蕨(水龍骨科)

ASPLENIUM SAMFSONI Hance

地下莖肥短而直立，端具黑色披針形之鱗片；葉簇生，柄肉質，長三至六粉，略具黑色分叉鱗片，葉體爲倒披針形，長十三至二十五粉，寬二至四粉，漸尖頭，向基部漸狹，二回羽狀分裂，一回小葉十七至二十八對，開張，幾無柄，位於下部者爲三角形，較上部者爲小，中部小葉長一·五至二·五粉，寬約一粉，橢圓形，鈍頭，基部不等，羽狀深裂，裂片五至八對，*mm*，具單脈，位於基部上方者通常二至三裂；紙質，綠色；子囊羣狹長，每裂片一數，蓋膜質，全緣，向上方開。

分布： 廣東，廣西，貴州。

此爲我國南部特有之種，其形體極類亞泥熱亞產之 *Asplenium Belangeri* (Bory)，而葉體較小，且呈倒披針形，向下部漸狹，故易區別。

圖註： 1.本種全形(自然大)， 2.同上，大形， 3.中部一回小葉，表示其葉脈及子囊羣(放大十六倍)， 4.地下莖上之鱗片(放大五十倍) » 5.葉柄上之鱗片(放大七十六) » 6.中肋上之鱗片(放大六十倍。)



ASPENIUM SAMPSONI Hance

嶺南鐵角蕨

PLATE 113

ASPENIUM PROLONGATUM Hooker

POLYPODIACEAE

ASPENIUM PROLONGATUM Hooker, 2nd. Cent. Ferns t. 42 (1860); Sp. Fil. 3: 209 (1860); Christ, Bull. Soc. Bot. France 52: Mém. 1. 54 (1905); C. Chr. Ind. Fil. Suppl. III. 36 (1934); Blot, Bull. Soc. Hist. Nat. Toulouse (1932) 50.

Asplenium rutafolium Hk. et Bak. Syn. Fil. 222 (1867); Christ, Farnkr. d. Erde 208 (1897); Diels in Engl. u. Prantl; Nat. Pflanzenfam. 1: 4. 242 (1899), pro parte.

Asplenium ruteefolium Franch. et Sav. (non Kze. 1836) Enum. Pl. Jap. 2: 222 (1876); Christ in Warburg, Monsunia 1: 72 (1900); Makino, Phan. et Pterid. Jap. Ic. Illust. 1: t. 55 (1899-1901).

Asplenium achilleifolium C. Chr. Ind. Fil. 99 (1905), pro parte

Asplenium bipinnatum var. *prolongatum* Bonap. Notes Pterid. Pt. 14: 74 (1923).

Asplenium elonjatum Christ, Bull. Acad. Géogr. Bot. (1910) 13.

Rhizome short, erect, scarcely scaly; *fronds* caespitose, stipe 8-15 cm long, glabrous, pale green, lamina 10-20 cm long or longer, to 3 cm broad, linear, suddenly terminated by a caudate, naked prolongation of rachis 2-5 cm long, and rooting at the apex, herbaceous, green, bipinnate, the lower pinnae only slightly shortened; *pinnae* sessile, numerous, oblong with unequal base; *pinnules* narrow-linear, slightly curved, obtuse, uni-nerved, the anterior basal pinnule often bi- or tripartite; *sort* one to each pinnule, linear, *indusium* firm-membranaceous, pale green, opening upward.

Hongkong: *Forbes* 574', *Ford* (1872); *Matthew* 67 (1904), 368; *Gibbs* 1 (1928). Kwangtung: Lohfau Shan, *C. O. Levine* 515; *N. K. Chun* 41433; Swatow, Thai-yong, *Dalziel*, July, 1901; Luntau Shan, Iu Village, *To & Tsang* 12253; Lokchong, *A. K. Chun* 43684, 42484; Sunyi, *S. P. Ko* 51350; *Y. K. Wang* 31146; Yingtak, *H. Y. Liang* 61364; Yao Shan, Lokchong, *S. P. Ko* 51949; *N. K. Chun* 43015; *Gerlach* (without exact locality). Kwangsi: Lin-yin Hsien, *R. C. Ching* 7084; San Fang, Lu-chen, *R. C. Ching* 5751, 5817. Fukien: Kuliang, Foo-chow, *H. H. Chung* 4281, 4368; *Hancock* 6 (Kew No.). Chekiang: Pin-yang, *H. H. Hu* 162; Wen-chow, *R. C. Ching* 1855. Hupeh: Ichang, *A. Henry* 3291; *Wilson* 2655. Szechwan: Mt. Omei, *W. P. Fang* 2553; Tchen-kou-tin, *Farges* 1262. Kweichow: Tsin-gay, *Bodinier* 2118 \ Gan-chow, *Michel* 1026; Pe-tsen, *Cavalerie* 1568, 7002; Cheng-feng, *Tsiang* 4394, 4610, Tsunyi, *Y. Tsiang* 5300; Tuyun, *Y. Tsiang* 5970; Shih-t sien, *Y. Tsiang* 4116; Van-ching Shan, *Y. Tsiang* 7783B. Yunnan: Mengtze, *Hancock* 37; *Henry* 9228, 9228B, 9228A; south of Red River, *Henry* 13659; Shweli-Salwin, *Forrest* 24492.

Tsus-Sima: *Wilford* 838.

Also Northern India, Tonkin, Japan and Corea.

Type from Khasya (leg. *Hooker* / & *Thomson*), or Mishmee (leg. *Griffith*). *Wilford* No. 838 from Tsus-Sima was also cited by Hooker. A well-marked species endemic in the temperate part of the mainland of Asia. It was unfortunate that Hooker himself later combined it in Syn. Fil. with *A. ruttefolium*, a synonym to *A. achilleifolium* Lam. from Africa, from which our fern differs in the characters as first emphasized by himself in Species Filicum 3: 209.

Plate 113. Fig. 1. Habit sketch (natural size). 2. Pinna (x 10). 3. Scale from rhizome (x 27).

第 一 百 十 三 圖

g £ m ft m c m # 科)*

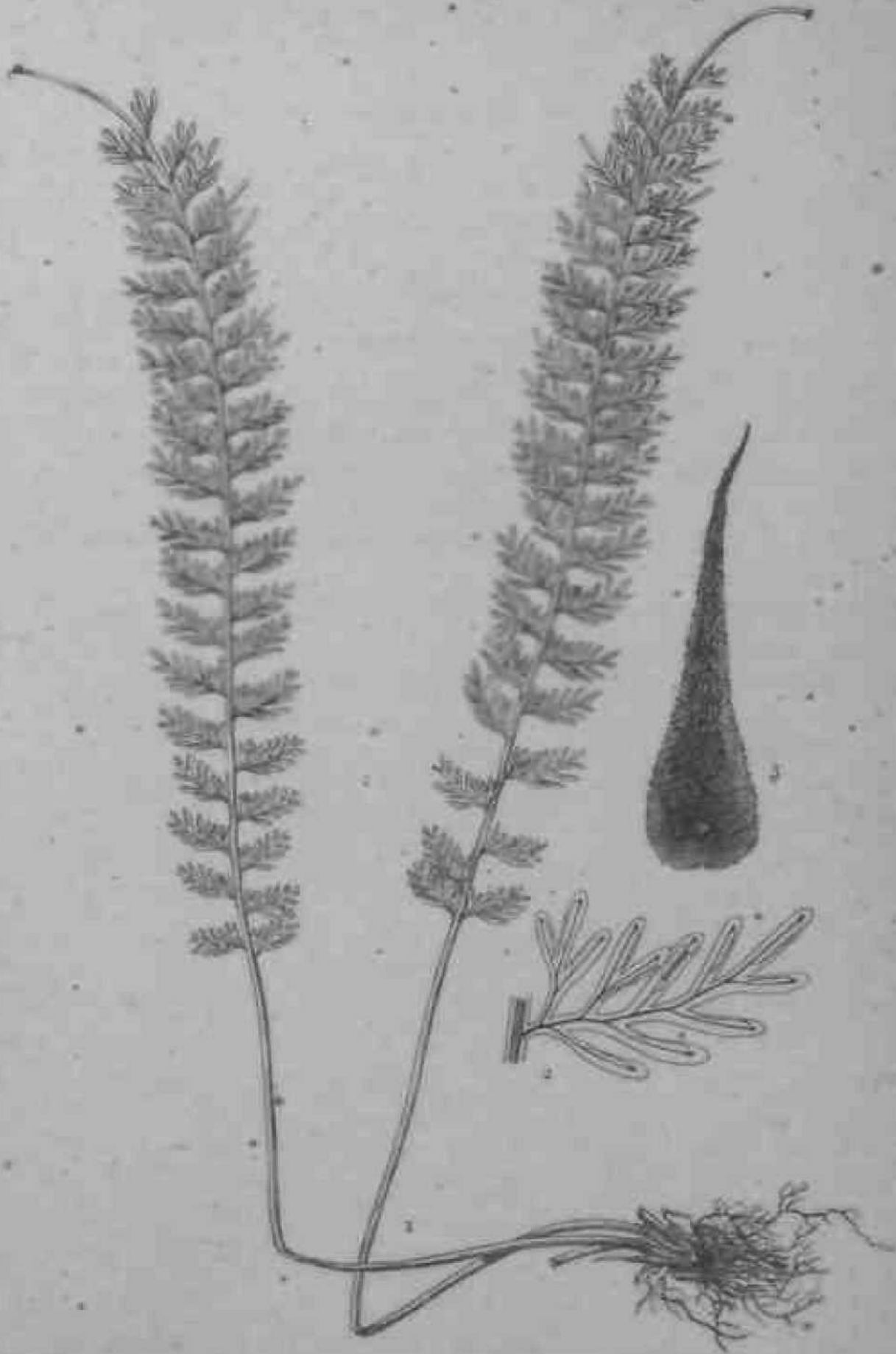
ASPLENIUM PROLONGATUM Hooker

地上莖短而直立，端具黝褐黑色之狹披針形鱗片；葉簇生，柄長八至十五粉，淡綠，光滑，葉體長十至十五粉或較長，寬達三粉，線披針形，JBMUJI*，中肋延長至數粉而生根，薄肉質，綠色，二回分裂，小葉多至十數，無柄，位於下部者略短，橢圓形，基部不等，裂片狹線形，略向上灣曲，鈍頭，具一數葉脈，其位於基部上方者，通常二至三裂；子囊羣狹長，每裂片一個，蓋膠質，向上開。

分布： 香港，JUlc » J*ffi » ĩgife » « ff » ttB4b » fiW » EJil » S-« / FPA* « »?KS&h ' Sifi • B
本及朝鮮南部均產之。

本種為亞洲大陸溫熱帶產，常生於濕潤森林中之樹幹上或岩壁上，昔人誤認為與非洲產之 *Asplenium achilleifolium* Lam. 相同，實則二者大相逕庭。

圖註： 1. 本種全形(自然大)， 2. 一回小葉(放大十倍)， 3. 地上莖上之鱗片(放大二十七倍)。



JWLEHILJM PROLOHOATUM Hooker

செவ்வெள்ளை நெல்லை

PLATE 114

ASPENIUM CRINICALE Hance

POLYPODIACEAE

ASPENIUM CRINICALE Hance, Ann. Sci. Nat. V. 5: 254 (1866); Hk. et Bak. Syn. Fil. 208 (1867); Clarke, Tran. Linn. Soc. II. Bot, 1: 479 (1880); Bedd. Handb. Ferns, Brit. Ind. 150 (1883); Christ, Bull. Herb. Boiss. 6: 959 (1898); Diels in Engl. u. Prantl: Nat. Pflanzenfam. 1: 4. 239 (1899); C. Chr. Ind. Fil. 106 (1905); Wu, Bull. Dept. Biol. Sun Yatsen Univ. No. a: 190 t. 87 (1932).

Asplenium Hancei Baker in Hk. Syn. Fil. ed. i. 208 (1867); Kuhn, Bot. Zeit. (1869) 130.

Asplenium Beddomei Mett. ex Kuhn, Linnaea 36: 93 (1866).

Asplenium falcatum Bedd. (non Lam., nee Thbg.) Ferns S. Ind. t. 141 (1864).

Asplenium polytrichum Christ, Bull. Acad. Géogr. Bot. (1909), Mém. XX. 172.

Asplenium adiantoides Wu, Bull. Dept. Biol. Sun Yatsen Univ. No. 4 3: t. 88-90 (1932).

Rhizome short, erect, densely scaly; *fronds* cespitose, stipe 7-10 cm long, dark-, brown, densely scaly throughout the rachis; *scales* dark rufo-brown, iridescent, clathrate, subulate from broad and often branched base, caduous, lamina lanceolate, caudate-acuminate, 10-30 cm long, 4-7 cm broad, simple pinnate; *pinnae* lanceolate, acuminate, 2-4 cm long, the lower ones gradually abbreviated, ovate-rhomboid with obtuse apex, base unequal, obliquely truncate above, cuneate below, margin irregularly *erose-dentate*; *texture* herbaceous, color opaque; *veins* flabellately forked, channelled; *sori* linear, oblique to costa, *indusium* firm, entire, lower ones often open towards each other.

Kwangtung: Ting-wu Shan, *Sampson 11203* (type) in herb. Hance, June 15, 1866; Whampoa, *Hance*; *Ford 228* in herb. Hongkong; Lokchong, *C. L. Tso 21332*; Swatow, Thai-yong, *Dalziel*, July, 1899. Hongkong: *Dr. Harland 91*; *Hanc* 741H* (1357); Tai-mo Shan, *Matthew*, Oct. 15, 1907. Fukien: Yengping, *H. II. Chung 2992*; Amoy, *De Grijis 1198* in herb. Hance; *T. S. Dunn 777*, May 15, 1905. Kwangsi: Yao Shan, *S. S. Sin 331* (1928); Seh-feng Dar Shan, *R. C. Ching 8436*; Lu-chcn, *R. C. Ching 5551*. Yunnan: *Mengtze, Hancock 182*; *Szemeo, Henry 11939, 11939B, 11939C*. Kweichow: *Pin-fa, Cavalerie 2844* (type of *A. polytrichum*); *Tsin-gay, l. Laborde, Jan. 14, 1898*; *Tu-shan, Y. Tsiang 6954*.

Also Northern India and Neilgheries.

A very variable fern as to the size and shape of pinnae, as has been well illustrated by Wu by half dozen plates under different names. In type, the pinnae are 4-5 cm long. *A. Hancei* Baker from Kwangtung represents a small form, 15 cm long with lamina 2-3 cm broad, pinnae ovate-oblong with crenate margin. Habit exactly similar to *A. planicaule* Wall., which differs in glabrous stipe and rachis. I have strongly suspected (Cf. Blot, *Asplen*, d. Tonkin p. 36) that the present species from mainland may after all prove to be a geographic form of *A. pellucidum* Lam. of Malesia-Polynesia and also frequent in Annam, which differs from our fern only in elongate lanceolate, acuminate pinnae, of which the lower ones are even more strongly reduced into an ovate outline.

Plate 114. Fig. 1. Habit sketch (natural size). 2. Pinna, showing venation and position of sori (x 2). 3. Scale from rhizome (x 16). 4. Scales from stipe and rachis (x 10). 5. A small form with short obtuse pinna: (natural size).

第 - I t 0 圖
毛鐵角蕨(水龍骨科)

ASPENIUM CRINICAULE Hance

地下莖短而直立，端具黑色披針形密鱗；葉簇生，柄長七至十粉，具深褐色細長鱗片，富於折光性，葉體闊披針形，長十至三十粉，寬四至七粉，一回羽狀分裂，小葉十至二十對，位於下部者漸短，中部者長二至四粉，卵斜方形，鈍頭或極尖頭，基部不等，葉緣具不整齊之鈍鋸齒，厚紙質，乾則呈黝褐色，中肋鱗片疏生，久則脫落，葉脈扇形分叉，上下面呈溝脊形；子囊狹長，斜出，蓋為厚膜質，全緣，向上開，其位於下部者，常相對開。

分布：*am > #?t»mm • mm»* 貴州；印度亦產之。

本種最初於廣東發現，現則南部各省均產之，極似馬來羣島產之 *Asplenium pellucidum* Lam. 或即為該種地理分佈之一變形耳。

圖註： 1. 本種全形(自然大)， 2. 小葉，表明其葉脈及子囊羣之位置(放大二倍)， 3. 地下莖上之鱗片(放大十六倍)， 4. 葉柄上之鱗片(放大十倍)， 5. 本種小形全形(自然大)。



ASPENIUM CRINICAULE Hance

毛鐵角蕨

PLATE 115

ASPENIUM SAXICOLA Rosenstock

POLYPODIACEAE

ASPENIUM SAXICOLA Rosenstock in Fedde, Repert. Sp. Nov. 13: 122 (1913); C. Chr. Ind. Fil. Suppl. II. 7 (1916).

Asplenium comptum Hance, Ann. Sci. Nat. V. 5: 255 (1866); Kuhn, Bot. Zeit. (1869) 131; C. Chr. Ind. Fil. 105 (1905); Blot. Bull. Soc. Hist. Nat. Toulouse (1932) 39 (non Kze. 1852).

Asplenium dimidiatum var. *comptum* Baker in Hk. Syn. Fil. ed. 2. 486 (1874).

Asplenium affine var. *sinense* Christ, Bull. Acad. Geogr. Bot. (1905) 243.

Asplenium dimidiatum Christ, (non Sw. 1788) Bull. Herb. Boiss. 7: 9 (1899); Bull. Acad. Geogr. Bot. (1910) 13; Bonap. Notes, Pterid. Pt. 14: 117 (1923).

Rhizome short, erect or oblique, densely scaly; *scales* dark rufo-brown, linear-lanceolate, subulate towards apex; *fronds* subscespitose, stipe 10-20 cm long, dark stramineous, sparsely scaly throughout rachis, lamina 12-28 cm long, 7-11 cm broad, simple pinnate with distinct end-pinna; *pinnae* 5-12-jugate, long-petiolate, the lower ones much the largest, gradually diminished towards apex, rhomboid with attenuate base and gradually acuminate towards apex, the lower ones often 1-2-lobed, margin erose-dentate; *texture* coriaceous, glabrous on both sides; *venation* distinctly canaliculated on both sides; *sori* linear, oblique, *indusium* of the same shape, brown, thick, entire, the lower ones open towards each other.

Kwangtung: Kai Kun Sheh, West River, *Sampson 1190* in herb. Hance (type of *A. comptum*); North River, *C. Ford* (1879); 226 (1888); Lien-chow, *Matthew*, Nov. 30, 1907; Yun Fou Hsien, West River, *K. K. Wang 434*; *K. K. Tsoong 4298*. Kwang-si: Wang-chin, Lu-chen, *R. C. Ching 5473*; Lan-lon, *R. C. Ching 6398*; Lung-chow, *Morse 40*; Lin Shan Hsien, *Sin & Wang 51* (1927). Kweichow: Tcehn-feng Hsien, *Cavalerie 3852* (type); Tien-sen Kou, *Cavalerie 1853* (type of *A. affine* var. *sinense*); Tseh-heng, *Y. Tsiang 9247*; Kouy-houa, *Cavalerie 1215*; Kwei-yang, *Esquirol 901*; Gan-chow, *Michel 992, 1000*; Tchen-lin, *Michel 1051*. Yunnan: Mengtze, *Henry 11542*.

Tonkin: Dong Dang, *Balansa 99*; Lang-nac, *Colani 3346*, frequent.

This is another of the distinct but little known Chinese species by Hance, but, unfortunately, his name, *A. comptum*, has to become invalidated by Kunze. Our fern is closely related to *A. dimidiatum* Sw. of tropical America, to which it was referred as a variety by Baker, as identical by Christ and others, but differs in long-petiolate pinnae with erose-dentate (not lacerate) margin. The type from Kweichow has lateral pinnae tend to lobato-pinnate; the same form is also seen from Kwangtung.

Plate 115. Fig. 1. Habit sketch (natural size). 2. Pinna, showing venation and sori (x 2). 3. Scale from rhizome (x 10).

^ — 'ff + -S 圖
 • *m ft m* (Tj c si # 科)

ASPLENIUM SAXICOLA Rosenstock

地下莖短而直立或斜生，端具紅褐色狹披針形之鱗片；葉亞簇生，柄長十至二十粉，深稻稈色，*m*片疏生，達於中肋，葉體長十二至二十八粉，寬七至十一粉，一回羽狀分裂，小葉五至十二對，頂上小葉形同側葉，基部小葉較大，間具二三裂片，向上漸小，斜方形，漸尖頭，基部延長；革質，兩面光滑；葉脈扇形分叉，兩面呈溝脊形；子囊羣狹長，斜出，蓋線形，淡褐色，質略厚，全緣，向上開，其位於下部者彼此相向開。

分布：廣東，貴州，雲南；交趾亦產之。

本種為本區內特產，最初於廣東發現，Hance *ft*[^]^B *Asplenium comptum* » *tgjH*;[^]^J[^] Kunze氏所用，不能存在耳；此種極類美洲熱帶產之 *Asplenium dimidiatum*，惟其小葉具較長之柄，葉緣深裂，故易分別。

Kii: 1. [^]Ht1[^]ce jR*)» 2- **»[^][^]UIIRS¹?SI[^]CAic△fg). 3. 地下莖上之鱗片 (放大十倍)。



ASPLENIUM BAXIGLA II. *complanata*

砂 鼠 角 蕨

WOODWARDIA ORIENTALIS Swartz

POLYPODIACE.E

WOODWARDIA ORIENTALIS Swartz in Schrad. Journ. Bot. 1800². 76 (1801); Syn. Fil. 117, 315 (1806); Willd. Sp. Pl. 5: 418 (1810); Kze, Pterid. Jap. in Bot. Zeit. (1868) 323; Hk. Sp. Fil. 3: 68 (1860); Syn. Fil. 188 (1867); Ching, Bull. Fan Mem. Inst. Biol. 2: 3 t. 1 (1931); C. Chr. Ind. Fil. Suppl. III. 196 (1934).

Blechnum radicans var. Houtt. Nat. Hist. 2: t. 97 f. I 11783).

Woodwardia radicans var. *auriculata* Kuhn, Journ. Bot. (1868) 268.

Woodwardia radicans var. *orientalis* C. Chr. Ind. Fil. 658 (1905).

Woodwardia angustiloba Hance, Journ. Bot. (1868) 176.

Woodwardia japonica Hk. Journ. Bot. (1857) 341, pro parte.

Woodwardia radicans Christ (non Sm. 1793) iⁿ Warburg, Monsumia 1: 66 (1900).

Woodwardia prolifera Hk. et Am. in Bot. Beech. Voy. 275 t. 56 (1836-40); Nakai, Bot. Mag Tokio 39: 105 (1925).

Woodwardia exaltata Nakai, Bot. Mag. Tokio 35: 149(1925).

Rhizome thick, woody, erect, densely clothed at apex in very large, bright brown, lanceolate acuminate, membranaceous *scales* 2-4 cm long; *stipe* cespitose, thick, 30 cm long or longer, rufo-straminous, sparsely scaly throughout, *lamina* oblong-ovate, 30-50 cm long, 20 cm broad, bipinnatifid; *pinnae* 6-8-jugate under the deeply pinnatifid acuminate end-pinna with shortly decurrent base, subopposite, 10-13 cm long, 4-5 cm broad, broadly lanceolate, acuminate, base subequal or of ten strongly unequal, i.e. the lower basal 1-2 segments suppressed, leaving a wingless costa, the anterior basal segment more or less decurrent; *segments* oblong-lanceolate, shortly acuminate, sharply serrated; *venation* obscure, areolas imperfectly 2-rowed along costa; *texture* rigidly coriaceous; *sori* oblong-linear, immersed, uniseriate and close to costule, *indusitum* brown, thick, vaulted.

Fukien: Foo-chow, Gregory (1857) in herb. Hance (type of *W. angustiloba*); Warburg-, Santu Island, Matthew, Oct. 3, 1907: Dionglou Hsien, H. H. Chung 1244 \ Nan-ching, Schindler 407 \ Yengping, H. H. Chung 2936 \ Chuan-chow, H. H. Chung 3082; Inghok, H. H. Chung 2639. Hongkong: Victoria Peak, Tutcher 670. Chekiang: Ningpo, Hancocks (1877). Kwangtung: Swatow, Thai-yong, Dalziel, July, 1899; Nam-yung, S. P. Ko 50759; Lokchong, X. K. Chun 42727, 42462.

Also Japan, Formosa, Liu-kiu and the Philippines.

Type from Japan (leg. Thunberg) and was first identified by Houttuyn under *Blechnum radicans* var. In the herbarium Thunberg, there are to be found four sheets of *Woodwardia*, of which only one marked ^ is the true *W. japonica*, while the other three are representing the present species. The type in herb. Swartz matches Houttuyn's figure exactly. Our fern has generally been considered as identical with *W. radicans* (L.) Sm. of Europe and America, but the differences between the two closely related species have already been contrasted by me (Cf. Bull. Fan Mem. Inst. Biol. 2: 6-7, pis. III).

Var. **prolifera** Ching, Bull. Fan Mem. Inst. Biol. 2: 6 (1931); C. Chr. Ind. Fil. Suppl. 111:196(1934).

Woodwardia prolifera Hk. et Am. in Bot. Beech. Voy. 275 t. 56.

Woodwardia exaltata Nakai, Bot. Mag. Tokio 35: 149 (1921).

• Differs from the typical form only in the frond being copiously gemmiferous above.

Fukien: Foo-chow, Fortune (1853); C«rlt* (lbsð); Min-cho\\ // . // . Chung 1905, 2086; Amoy. H. H. Chung 105. Kwangtung: Jao-ping, Lokchong, A\ K. Chun 42784. Liu-kiu: Beechey (type); C. Wright^ Formosa: Tamsui, Oldham 20, 245.

PlaU no. Fig. 1. Habit sketch (natural size). 2. Portion of segment, showing venation and sori (x 10). 3. Scale from base of stipe (x 16). 4. Pinna of var. *prolifera* (natural size). 5. Young plant developed from a gemma (x 16).

第一百十六圖

M. j. m. # OK SI # 科)

WOODWABDIA ORIENTALIS Swartz

地下莖木質肥大，直立，大形黃褐色之披針形鱗片密覆，長達三四粉；葉簇生，葉柄粗厚，長三十粉或過之，下部鱗片密生，上部疏生，葉體長橢圓形，長三十至五十粉，寬約二十粉，二回羽狀深裂，頂部漸尖，深裂，小葉六至八對，亞對生，具短柄，長十至十三粉，寬四至五粉，闊披針形，漸尖頭，基部極不等，羽狀深裂，裂片闊披針形，具銳強鋸齒；葉脈不明顯，網狀，網眼二列，不具小脈；葉硬革質，兩面光滑；子囊羣長腎形，貼近裂片中肋，凹入葉質內，蓋同形，厚膜質，隆起，宿存。

分布： 福建，廣東，香港；日本，台灣，琉球及非列濱羣島均產之。

本種為東方特產，昔人誤認為與歐美產之 *Woodwardia radicans* Smith 相同，余曾於昔年訂正之，讀者可參閱靜生生物調查所彙報第二卷六至七頁，即知兩種之異同矣。

圖註： 1. 本種全形(自然大)， 2. 裂片之一部，表示其葉脈及子囊羣(放大十倍)， 3. 葉柄基部鱗片(放大六十倍)， 4. $g. = ?mm(nm-h) >$ 5. 自芽胞發生之幼植物(放大十六倍)。



WOODWARDIA ORIENTALIS Swartz

東方狗脊



DICTYOCLINE GRIFFITHII Moore

POLYPODIACEAE

DICTYOCLINE GRIFFITHII Moore, Gard. Chron. (1855) 854; Jnd. Fil. LIX (1857); J. Sm. Hist. Fil. 149 (1875); Bedd. Ferns Brit. Ind. t. 155 (1866); Cop. Univ. Calif. Publ. Bot. 16: 61 (1929); C. Chr. Ind. Fil. Suppl. III.71 (1934).

Hemionitis Griffithii Hk. f. et Thorns.; Hk. Sp. Fil. 5: 193 (1864); Syn. Fil. 399 (1867); Bedd. Handb. Ferns Brit Ind. etc. 415 (1883); Christ, Farnkr. d. Erde 62 (1897); Bull. Acad. Geogr. Bot. (1909) 177; Bull. Herb. Boiss. (1896) 674; in Warburg, Monsunia 1: 58 (1900).

Dictyogramma Griffithii Trev. Atti Ist. Veneto. V. 3: 591 (1877).

Gymnogramme Griffithii Hance, Journ. Bot. 11886) 14.

Aspidium Griffithii Diels (non Bedd. 1876) in Engl. u. Prantl: Nat. Pflanzenfam. 1: 4. 186 (1899); C. Chr. Ind. Fil. 76 (1905); Ogata, Ic. Fil. Jap. 1: t. b (1928); Wu, Bull. Dept. Biol.

Sun Yatsen Univ. No. 3: 64 t. 23 (iQ-3²)-

Hemionitis Wilfordii Hk. Fil. Exot. t. 93 (1859).

Dictyocline Wilfordii J. Sm. Hist. Fil. 149 (1875)-

Hemionitis Griffithii var. *Wilfordii* Hk. Syn. Fil. 399 (1867); Makino, Bot. Mag. Tokio 10: 286.

Hemionitis Griffithii var. *pinnata*, Makino, Bot. Mag. Iokio 10: 286.

Dictyocline Griffithii var. *tenuisissima* Ching, Bull. *an Mem. Inst. Biol. 1: 146 f. 1 (1930).

Rhizome short, oblique, densely scaly and setose hairy; *scales* lanceolate, rufobrown, rigid, opaque, provided with gray, needle-like setose hairs on the margin; *fronds* caespitose, stipe 12-30 cm long, angular, stramineous, sparsely scaly at base, setose hairy throughout the rachis, lamina deltoid to oblong-ovate, 15-30 cm long, 12-18 cm broad, deeply pinnatifid to pinnate under the deltoid acuminate pinnatifid apex, base cordate; *pinnae* free, 1-6-jugate, sessile lanceolate, 8-10 cm long, 2.5-4 cm broad, entire or slightly wavy, acuminate, base rounded, densely setose hairy underneath, sparsely and shortly so above; *texture* harsh-herbaceous, opaque upon drying; *lateral main veins* distinct to the edge, intervening veinlets anastomosing in 3 rows of hexagonal or quadri-angular and exappendiculate areolae; *sori* indefinite, reticulated, following the course of veinlets; *sporangia* globular, shortly stalked, provided with a few setose hairs near the top.

Kwangtung: Tai-mo Shan (opposite Hongkong), Slatthew, Nov. 7, 1907; Lungtau Shan, Iu Village, C. C. C. 12098, 12225\ Swatow, Dalziel, July, 1901; Sam Koh Shan, Tsungfa-lungmon Hsiens, W. T. Tsang 20AS/, May 16, 1932; Yamfa Hsien, S. P. Ko 50689; Lohfau Shan, C. L. Tso 20923\ Lokchong, C. L. Tso 20923; A. K. Chun 42161; Intak, H. Y. Liang 61&40; Gerlach. Fukien: Yengping, // H. Chung 2948. August 9, 1924; Yung-chang, Rankin, Dunn 3759 in herb. Hongkong. Kwangsi: Yao Mar Shan, Lin-yin Hsien, R. C. Ching 7186 (1928); Yao Shan, S. S. Sin IIu May 25, 1928. Yunnan: Mengtze, Henry 10422; Hancock 214\ H. T. Tsai 52534 (without exact locality). Kweichow: Pin-fa, Cavalerie 2855\ Pana, Olieng-feng, Y. Tsiang 4283, 4 Wσ. Chekiang: Pin-yang, Yang-tang Shan, K. K. Tsoong 3750, Oct. 19, 1920 (type of var. *fenuisis* Sina).

Formosa: Keelung, Wilford 60S (type of *Hemionitis Wilfordii*).

Khasya: Griffith (type).

Upper Burma: Htawgaw, Forrest 25414-

Also Japan and Liu-kiu.

A peculiarly distinct genus of one single species with pinnatifid or pinnate fronds. *Hemionitis Wilfordii* represents a pinnatifid form of the fully pinnate Himalayan type; both forms are often seen from the same locality. The affinity of the genus to *Bolbitis* Schott and *Stegnogramma* Bl. seems to be most probable.

Plate 117. Fig. 1. Habit sketch (natural size). 2. The same, f. *Wilfordii* (Hk.). 3. Portion of pinna, showing venation and sori (x 3). 4. Scale from the base of stipe (x 20). 5. Sporangium (x 140). 6. Spores (x 140). 7. Hairs from stipe (x 140). 8. Hairs from rachis (x 140).

f& — "ff + fa H

DICTYOCLINE GRIFFITHII Moore

地下莖短，斜生，具鱗片與長剛毛；鱗片披針形，紅褐色，質硬，不透明，邊緣具長剛毛；葉簇生，柄長十二至三十粉，稻桿色，基部具鱗片，遍體披長剛毛，葉體三角形或橢圓卵形，長十五至三十粉，寬十二至十八粉，羽狀深裂或分裂，頂部漸尖頭，深裂，基部心臟形；小葉一至六對或較多，無柄，闊披針形，長八至十粉，寬二·五至四粉，全緣或稍呈波形，漸尖頭，基部圓形，下面密被長剛毛，上本短剛毛疏生，粗紙質，乾則呈黝褐色；*mmmm* * $\wedge mm^\wedge$. > *mm^rn* * $\wedge ftiv\&mnK \rightarrow \dot{f}$ 囊沿網脈散生，不具蓋，圓球形，近頂部具二三剛毛。

分布：廣東，廣西，福建，貴州，浙江；台灣，日本，琉球，緬甸及印度北部均產之。

本屬僅有一

， 實則其地位近於

Bolbitis |U Stegnogrami-na >^ flg (fe o

圖註： 1. 本種全形(自然大)， 2. ra.h>*mm&\$i* > 3. $\wedge \ll$ -部，表明其葉脈及子囊分佈狀況(放大三倍)， 4. 葉柄下部鱗片(放大一

ISO > 7. * $\ll Ui^*III \in (4k^* - WH + \ll)$ > 8. 中肋上之剛毛(放大一百四十倍)。



DICTYOCliHE CRiFFITHii Moore

葉 脈

PLATE 118

QUEROPIILIX ZEYLANICA (Houtt.) Copeland

POLYPODIACEAE

QUERCIFILIX ZEYLANICA (Houtt.) Copeland, Phil. Journ. Sci. 37: 408 (1958); Univ. Calif. Publ. Bot. 16: 67 (1929); C. Chr. Ind. Fil. Suppl. III. 169 (1934).

Ophioglossum zeylanicum Houtt. Nat. Hist. 14: 43 (1783); Pfl. Syst. 13: 47 t. 94 f. 1 (1786).

Leptochilus zeylanicus C. Chr. Ind. Fil. 388 (1905); Merr. Enum. Pl. Hainan in Lingnan Sci. Journ. 5: 11 (1927); Ogata, Ic. Fil. Jap. 1: t. 32 (1928).

Acrostichum quercifolium Retz. Obs. Bot. 6: 39 (1791); Hk. Sp. Fil. 5: 279 (1864); Ic. PL J. 905; Fil. Exot. t. 80 (1858); Syn. Fil. 418 (1867); Dunn & Tutch. FL Kwangt. & Hongk. 255 (1912).

Gymnopteris quercifolia Bernh. in Schard. Journ. Bot. 1806¹. 20 (1807); Presl, Tent. Pterid. 244 (1836); Bedd. Ferns S. Ind. t. 47 (1833); Handb. Ferns, Brit. Ind. etc. 403 (1883); J. Sm. Hist. Fil. 138 (1875); Christ, Farnkr.d. Erde 49 (1897); Diels in Engl. u. Prantl: Nat. Pflanzenfam. 1: 4. 200 (1899).

Leptochilus quercifolius Fée, Acrost. 88 (1845).

Dendroglossum quercifolium F6e, Gen. Fil. 80 t. 7B. f. 1 (1850-52).

Rhizome creeping, slender, densely clothed in lanceolate, rufo-brown, rather thick *scales*; *frond* uniseriate, 1 cm apart, strongly dimorphous, *sterile ones* on stipe 3-5 cm long, angular, ferruginous-hairy, hairs soft, multi-cellular, spread, lamina ligulate with hastate base, 6-9 cm long, 2-3 cm broad, apex rounded, base cordate, generally with one free, deltoid blunt pinna on each side, the central part much the largest, inciso-crenate, lateral main veins distinct, intervening veinlets irregularly anastomosing with included forked veinlets, costa and veins underneath copiously provided with rufo-brown, spread long hairs, margin ciliate, subglabrous above; *fertile frond* on stipe 10-18 cm long, slender, subnaked, lamina trifoliolate, strongly contracted into linear segments, the lateral segment generally with one additional lobe below, the central segment much the longest, pinnatifid into a few shallow, roundish, remote lateral lobes; *texture* thin herbaceous; *veins* also reticulated but much simpler than in the sterile fronds; *sort* linear, continuous, uniseriate between costa and margin, confluent at last.

Hongkong: *Matthew*, Nov. 1907. Kwangtung: Lohfau Shan, *Pakwan* 92 in herb. Hance (1871). Kwangsi: Lungchow, *Morse* 5; Dar Wan, Tan-Ian, *R. C. Ching* 6553 (1928). Yunnan: Szemeo, *Henry* 13388. Hainan: Nodoo. F. A. *McClure* 7860.

Also Formosa, Tonkin, Southern India, Ceylon and Malesia-Polynesia.

The genus *Quercifilix*, of comparatively a recent date, contains only one terrestrial little fern, fairly common in South China, on shaded moist banks of river. Its affinity to *Tectaria* is obvious according to Copeland.

Plate 118. Fig. 1-3. Habit sketch (natural size). 4. Portion of sterile lamina, showing venation (x 5). 5- Fertile frond, showing soil at young state (x 3). 6. Scale from rhizome (x 24). 7. Cross section of rhizome (x 15). 8. Cross section of the basal part of stipe (x 14). 9. Spores (x 200). 10. Hairs from stipe (x 80).

— W + A 圖
m # m OK m # 科)

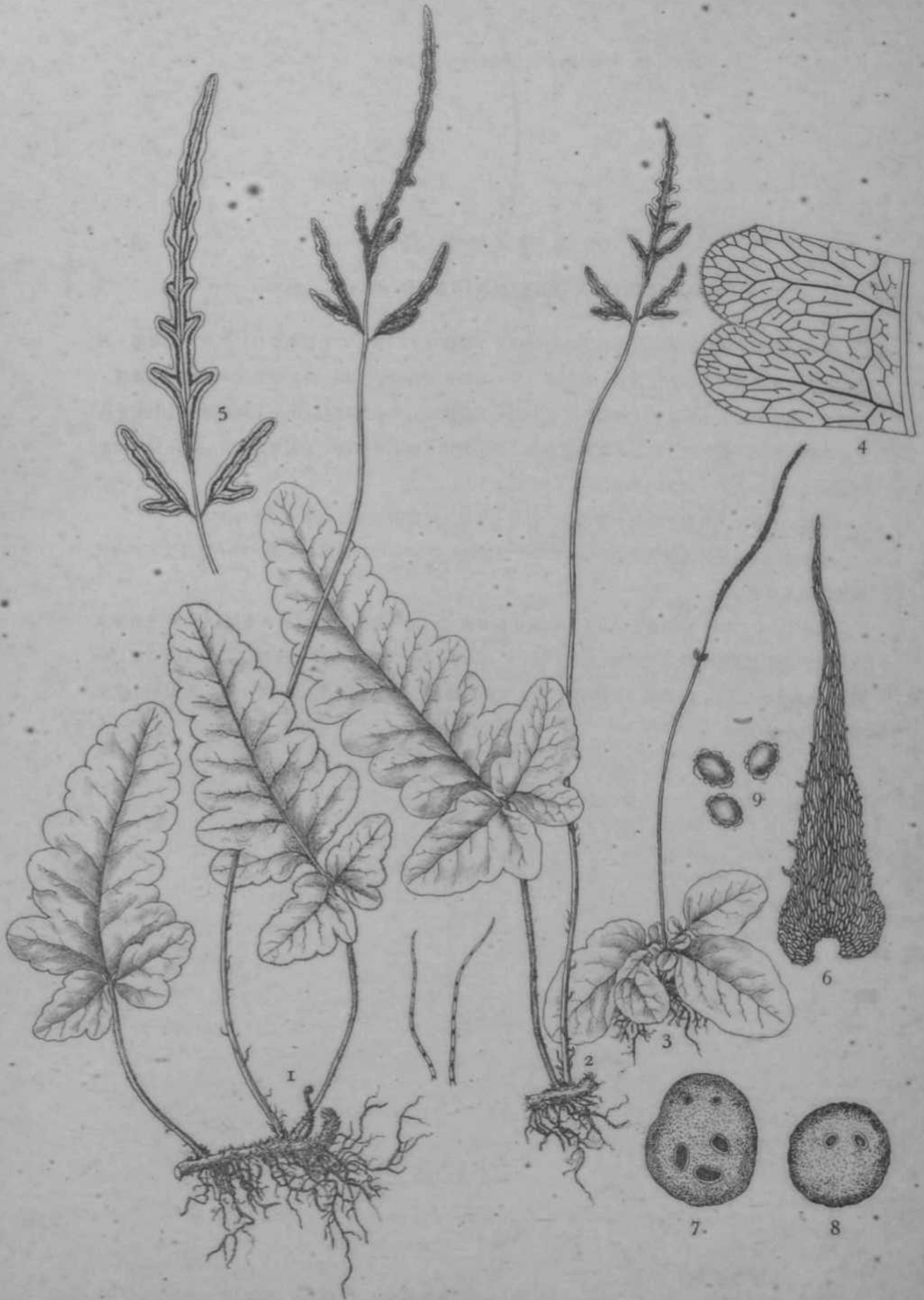
QUEECIFILIX ZEYLANICA (Houtt.) Copeland

地下莖細長，橫行，密覆紅棕色之披針形鱗片；葉散生，二形，非子囊羣葉具長三至五粉之柄，遍體披軟毛，葉體舌形，長六至九粉，寬二至三粉，基部截狀心臟形，具一對卵形裂片，葉緣呈深波狀，具捷毛；側脈明顯 » ^RiHUR f « l f t » * * « » T I I S f t f » 上面短毛疏生；子囊羣葉具長十至十八之細長柄，葉體三裂，葉片狹長，深波形或具二三小裂片，脈亦為網狀；子囊羣線形，一列，位於中肋與葉緣之間，不具蓋，嗣向四面擴散。

分布： 香港，廣東，廣西，瓊洲島；台灣，交趾，印度南部及馬萊羣島等地均產之。

本屬僅此一種，昔人以之隸於 *Leptochilus* IS ' S 2 f Copeland 氏另闢一新屬，殊不為過當，其與父族屬之關係最密。

圖註： 1-3.本種全形(自然大)， 子囊羣葉
之一部，表明其子囊幼時# 生情形(放大) . 6 . 地下莖上之鱗片(放大二十四倍)， 7.地下莖之橫
切面(放大十五倍)， 8. *mm&tomviwv&.izii-vmm* * 9. 孢子(放大二百倍)， 10. 葉柄上之毛
(放大八十倍)。



QUERCIFILIX ZEYLANICA (Houtt.) Copeiand

地 5 蕨

PLATE 119

BOLBITIS HETEROCLITA (Presl) Ching

POLYPODIACEAE

BOLBITIS HETEROCLITA (Presl) Ching in C. Chr. Ind. Fil. Suppl. III. 48 (1934).

Acrostichum heteroclitum Presl, Rel. Haenk. 1: 15 t. 2. f. 2 (1825).

Poecilopteris heteroclita Presl, Tent. Pterid. 242 (1836).

Heteroneuron heteroclitum Fe*e, Acrost. 92 (1845).

Chrysodium heteroclitum Kuhn, Ann. Lugd. Bat. 4: 294 (1869).

Leptochilus heteroclitus C. Chr. Ind. Fil. 385 (1905).

Campium heteroclitum Cop. Phil. Journ. Sci. 37: 396 (1928).

Acrostichum flagelliferum Wall, ex Hk. et Grev. Ic. Fil. t. 23 (1827); Hk. Sp. Fil. 5: 258 (1864);
Hk. et Bak. Syn. Fil. 418 (1867); Clarke, Trans. Linn. Soc. II. Bot. 1: 579 (1880).

Bolbitis flagellifera Schott, Gen. Fil. ad t. 14 (1834).

Gymnopteris flagellifera Bedd. Ferns Brit. Ind. Suppl. 27 (1876); Christ, Farnkr. d. Erde 49 (1897);
Diels in Engl. u. Prantl: Nat. Pflanzenfam. 1: 4. 201 (1899).

Poecilopteris flagellifera Bedd. Ferns Brit. Ind. t. 112 (1865); Handb. Ferns, Brit. Ind. etc. 433
(1883); J. Sm. Hist. Fil. 137 (1875).

Rhizome thick, creeping, densely scaly; *scales* fusco-brown, ovate-lanceolate, peltately attached, subentire; *frond* 1 cm apart, dimorphous-, stipe stramineous, bisulcate above, sparsely scaly, 15 cm long or longer, *sterile lamina* varies from simple lanceolate to pinnate with 1-5 pairs of pinnae under the much elongated lanceolate, free end-pinna, terminated in a prolonged rooting tip; *lateral pinnae* 10-15 cm long, 3-4 cm broad, sessile, broadly lanceolate, acuminate, base rotundo-cuneate, margin undulate with a few remote, setiform teeth; *texture* thin herbaceous, blackish upon drying, glabrous on both sides; *lateral main veins* distinct, intervening veinlets angularly anastomosing in quadri-angular or hexagonal exappendiculate areolae, 3-rowed between main veins, veinlets free towards margin; *fertile frond* conform, on much longer stipe; *pinnae* greatly contracted; *sort* following the course of veinlets, confluent all over the under surface at last.

Yunnan: Mengtze, *Henry 10825*; Red River, *Hancock 176*; Szemeo, *Henry 12907*. Kwangtung: North River, *Ford*, Sept. 1879. Szechwan: Mt. Omei, *E. Faber 1042*. Hainan: Hoichow, *Hancock 10*. Kweichow: Houang-tsoo-pa, *Cavalerie 7018, 7059*; Lo-fau, *Cavalerie 7645*. Kwangsi: Tsin Lung Shan, Lin-yin Hsien, *R. C. Ching 6869 (1928)*.

Tonkin: Mt. Bana, *Balansa 1887 (1886)*.

Also India generally, Malesia-Polynesia and the Philippines.

A very distinct but extremely variable fern with frond varying from simple to fully pinnate with terminal pinna always prolonged and rooting at apex. Leaves invariably turn blackish, when dried.

A form with leaf margin deeply crenate, var. **crenata** Ching, var. nov., is noted from Moulmein (leg. Parish, herb. Kew), Tenasserim (leg. Geo. Gallatly 64, herb. Kew) and Christmas Island (leg. C. W. Andrews 126, herb. Mus. Brit.).

Plate 119. Fig. 1. Habit sketch (natural size). 2. Portion of sterile pinna, showing venation (x 4). 3. Portion of fertile pinna (x 4). 4. Scale from rhizome (x 20). 5. Spores (x 300).

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& *m K m OK m #* 科)

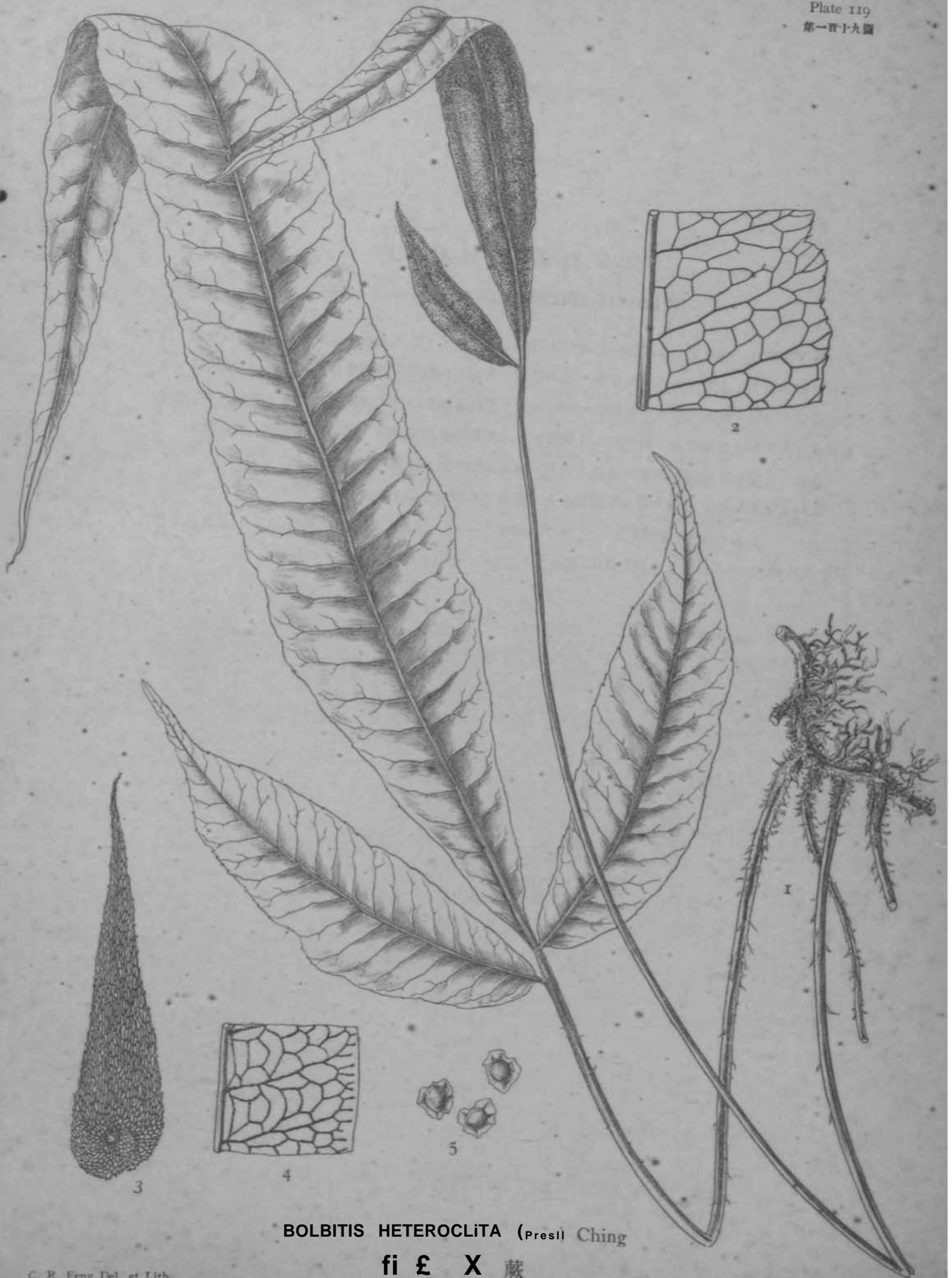
BOLBITIS HETEROCLITA (Presl) Ching

地下莖肥厚，橫行，具深褐色卵披針形之鱗片；葉亞散生，二形，非子囊羣葉三裂或羽狀分裂，或為披針形之單葉，小葉一至五對，頂端小葉與側方小葉同形而較長，其頂常伸長成鞭形，入土若根，全緣或稍呈淺波狀，側脈明顯，小脈網狀，網眼三列，惟向葉緣則分散，薄紙質，乾則呈淺黑色；子囊羣葉與非子囊羣葉同形而較小，柄較長，小葉較狹，子囊羣初隨網脈分佈，繼向四面擴散，不具蓋。

分布：雲南 » US • IIJft > 9 » dftfH > Hill > 瓊洲島及亞洲熱帶各地。

本種為本屬特殊之一種，由單葉至羽狀分裂，乾則常呈黑色。

圖註：1. 本種全形(自然大) * 2. $\wedge T \text{ } \text{ } m m \pm - \& * m \wedge M m m u \& k m f e$ » 3. 子囊羣葉之一部(放大四倍) » 4. $\ll ! T m - t \wedge ! \ll i T - \{ J S f c \wedge n + < g \}$ » 5. 孢子(放大三百倍)。



BOLBITIS HETEROCLITA (Presl) Ching

fi £ X 蕨

PLATE 120

BOLBITIS SUBOORDATA (Cop.) Ching

POLYFODIACEAE

BOLBITIS SUBCORDATA (Cop.) Ching in C. Chr. Ind. Fil. Suppl. III. 50 (1934).

Campium subcordatum Cop. Phil. Journ. Sci. 37: 369 f. 23, t. 16 (1928).

Leptochilus subcordatum Wu, Bull. Dept. Biol. Sun Yatsen Univ. No. 3: 92 t. 37 (1932).

Acrostichum repandum Benth. (non Bl. 1828) Fl. Hongk. 443 (1961).

Heteroneuron proligerum Hk. Florul. Hongk. in Journ. Bot. (1857) 339.

Leptochilus cuspidatus var. *crenata* Ros. Hedwigia 56: 348 (1915).

Leptochilus sp. Merr. Enum. Pl. Hainan in Lingnan Sci. Journ. 5: 10 (1927).

Rhizome thick, creeping, densely scaly; *scales* fusco-brown, ovate-lanceolate, acuminate, peltately attached, clathrate, nearly entire; *frond* dimorphous, cespitose, stipe 30-60 cm long, terete underneath, bisulcate above, sparsely scaly, *sterile lamina* 20-50 cm long, 15-28 cm broad, oblong, impari-pinnate; *pinnae* 4-10-jugate under the free trifurcate terminal one, which often prolonged and rooting at apex, 9-20 cm long, 2.5-5 cm broad, broadly lanceolate, opposite, the upper ones smaller and alternate, acuminate, base roundish or rotundo-truncate, shortly petiolate, margin crenate throughout, the rounded lobes bluntly serrate with a prominent seta at the sinus, rachis roundish underneath, broadly bisulcate above, glabrous on both sides; *lateral main veins* distinct, patent, 7 mm apart, intervening veinlets angularly anastomosing in 3 rows of areolae between main veins and 2 rows from costa outwards, areolae shortly appendiculate or not, veinlets free towards margin; *fertile frond* similar to the sterile one but much contracted, 7-10 cm broad; *pinnae* 6-8 cm long, about 1 cm broad; *sori* indefinite, following the course of veinlets, confluent all over the under surface at last; *spores* bilateral, ovoid, broadly winged all around.

Hainan: Five Finger Mt., F. A. McClure 8725, 9346, 9270, 9436 (type), Spring-May, 1922, shaded moist ravines; Tun Foo, Eryl Smith 1641, stream side, Jan. 14, 1923; Ling-shui Hsien, H. Fung 20146, May 3-20, 1932. Hongkong: Hance 23; Dr. Naumann 763 (1869); Schottmuller; Lamont 989; Dr. Harland; Bowring 22; Matthew 577; Robinson 8 (1925); Katsumatta 6692, June, 1909. Chekiang: Pin-yang, H. H. Hu 156. Kwangtung: Swatow, Thai-yong, Dalziel, April, 1901; Lohfau Shan, N. K. Chun 40626; Yao Shan, Ku Koong, Y. K. Wang 31559; Shek Mang Tai Shan, C. L. Tso 23591, August 7, 1933; Hu Lang Hong, W. Y. Chun 7117, August 23, 1931. Fukien: Foo-chow, Ku-shan, Metcalf 7380, Dec. 5, 1927, Alexander. Kwangsi: Yao Shan, S. S. Sin 714.

Formosa: Faurie 281 (*L. cuspidatus* var. *crenata*); Tatflsui, Hancock 15; Kee-lung, C. W. W. it ford 478.

Tonkin: Pételot, Jan. 1922, a sterile frond.

Our fern, which is found to be abundant in shaded ravines in the Island Hongkong, is closely related to *B. Quoyana* (Gaud.) Ching from Malaya, differs chiefly in its not coadunate but free apical pinna and rotundo-cuneate base of the lateral pinna*.

Plate 120. Fig. 1-2. Habit sketch (natural size). 3. Sterile frond of a larger form (natural size). 4. Portion of sterile pinna, showing venation (x 5). 5. Portion of fertile pinna (x 5). 6. Spores (x 200). 7. Scale from rhizome (x 16).

第一百二十圖。
海南實蕨(水龍骨科)

BOLBITIS SUBCORDATA (Cop.) Ching

地下莖肥厚，橫行，具深褐色之卵披針形鱗片；葉簇生，二形，柄長三十至六十粉，略具鱗片，非子囊羣葉長二十至五十粉，寬十五至二十八粉，橢圓形，一回羽狀分裂，小葉四至十對，披針形，長九至二十粉，寬二·五至五粉，頂端小葉較大，且常伸長其端，入土著根，基部為圓截形，具短柄，漸尖頭，葉緣呈深波形，具鈍鋸齒，而於缺口處具一強大之短肉刺，厚紙質，淡綠色，兩面頗光滑；側脈明顯，小脈網狀，網眼三列，內具小短脈一或否，向葉緣分開；子囊羣葉與非子囊羣葉同形，惟葉柄長，小葉較狹，長六至八粉，寬約一粉，子囊羣初隨網脈分佈，繼則滿佈全面；孢子卵圓形，具闊翅。

分布：瓊州島，廣東， $mm \gg nm * mm$ ；台灣及交趾亦產之。

本種在香港及瓊州島極為普通，生於林中深溪邊，其葉端常延長回向土中著根。

圖註： 1-2. $a * r^{(a \ll S > A)}$ » 3. $Jz M2. ft \cdot f \cdot m' M^{\wedge}$ —SB (&&*) ' 4. 同上，表明其葉脈(放大五倍)， 5. $^{\wedge} Fil^{\wedge} SI^{\wedge} \cdot SRCJM: A5S: m)$ ' 6. $m' Hl \& Jz \sim m\%$ 7. 地下莖上之鱗片(放大十六倍)。



BOLBITIS SUBCORDATA (Cop.) Ching

海南實蕨

PLATE 121

HYPODEMATIUM CRENATUM (Forsk.) Kuhn

POLYPODIACEAE

HYPODEMATIUM CRENATUM (Forsk.) Kuhn, v. Deck. Reis. Bot. 3³: 37 (1879).

Polypodium crenatum Forsk. Fl. Aeg.-Arab. 185 (1775).

Aspidium crenatum Kuhn, Fl. Afr. 129 (1868); Christ, Farnkr. d. Erde 262 (1897); Bull. Herb. Boiss. 6: 195 (1898); in Warburg, Monsumia 1: 81 (1900); Bull. Soc. Bot. France 52: Mém. 1. 35 (1905).

Nephrodium crenatum Baker, Fl. Maur. 497 (1877); Clarke, Trans. Linn. Soc. II. Bot. 1: 524 (1880); Diels in Engl. u. Prantl: Nat. Pflanzenfam. 1: 4. 175 (1899); Dunn & Tutch. Fl. Kwangt. & Hongk. 348 (1912); Hand-Mzt. Symb. Sin. 6: 25 (1929).

Lastrea crenata Bedd. Ferns Brit. Ind. Suppl. 18 (1876); Handb. Ferns, Brit. Ind. etc. 258 (1883). *Dryopteris crenata* O. Ktze, Rev. Gen. Pl. 2: 811 (1891); C. Chr. Ind. Fil. 258 (1905); Christ. Bot. Gaz. 51: 348 (1911); Sim, Ferns of S. Afr. in t. 22 (1915); Ogata, Ic. Fil. Jap. 3: t. 13 (1930) | C. Chr. Acta Hort. Gothob. 1: 63 (1924); Pterid. of Madag. 56 (1933).

Hypodematium onustum Kze, Flora 1833=: 690.

Aspidium eriocarpum Wall, List n. 342 (1828, nomen nudum); Mett. Farngett. Pheg. u. Aspi. 60 (1857).

Nephrodium eriocarpum Dene. Arch. Mus. 2: 185 (1841); Hk. Sp. Fil. 4: 141 (1862).

Lastrea eriocarpa Presl, Tent. Pterid. 77 (1836); Bedd. Ferns S. Ind. t. 95 (1862).

Nephrodium odoratum Baker in Hk. Syn. Fil. 280 (1867).

Dryopteris Fauriei Kodama in Matsum. Ic. Pl. Koish. 2: 11 t. 90 (1914). For further synonymy see C. Chr. Ind. Fil. p. 258.

Rhizome 4-6 mm thick, wide-creeping, densely clothed in bright brown linear-lanceolate *scales* to 3 cm long; *frond* approximate, stipe 10-25 cm long, stramineous, densely clothed at the swollen base in a cushion of golden brown scales similar to those on rhizome, glabrous upwards, deeply grooved and hirsute above, lamina deltoid-pentagonous, 10-25 cm long and broad, 4-pinnatifid; *pinnae* 5-10-jugate, the basal ones much the largest, petiolate; *pinnules* of 2nd. order oblong, bluntish, base rotundo-cuneate. equal, decurrent above the middle, deeply pinnatifid into oblong, rounded lobato-serrate *segments* with roundish apex; *texture* herbaceous, both sides densely setose hairy; *veins* distinct, free, pinnate in segment; *sori* large, rounded, dorsal on veinlets, *indusium* large, rotundo-reniform, attached by a deep sinus, densely setose hairy.

Widely distributed in Malesia-Polynesia, Japan, the Philippines, French Indo-China, India, Arabia Abyssinia to South and East Africa, Cap Verde Islands and Maritius. In China, numerous specimens have been seen from Yunnan, Szechwan, Kweichow, Hupeh, Kwangtung, Kwangsi, Fukien, Kiangsu, Chekiang and Anhwei.

Type from Arabia and now found non-existent in the herb. Forskal in the Botanical Museum, Copenhagen. Though variable in size, degree of pinnation and density of pubescence, etc., the different geographic forms agree well with each other in all essential characters.

Plate ____: .^ i. Habit blutch (natural size). 2. Ultimate pinnule, showing venation and sori (x 6). 3. Indusium (x 20). 4-5. Scales from the base of stipe (x 10). 6. Hairs from underside of lamina (x 30). 7. Spores (greatly enlarged).

第 一 百 二 十 一 圖
m & m (水龍骨科)

HYPODEMATIUM CRENATUM (Forsk.) Kuhn

地下莖橫行於岩隙中，密覆鮮明紅褐色膜質披針形之鱗片，長逾二三粉；葉近生，柄長十至二十五粉，稻桿色，其基部為瘤狀膨大，為密鱗片所覆，不之見也，葉體五角形，十至二十五粉或*jai: • mo.*羽狀深裂，紙質，兩面被剛毛，一回小葉五至十對，具柄，基部一對最大，橢圓三角形，急尖頭，末回*mmmmm > mu*，具大鋸齒；葉脈明顯，開離，羽狀分叉；子囊羣圓形，着於葉脈上，蓋大，圓腎形，以下方缺口着生，具剛毛。

分布：本種廣佈於亞洲溫熱帶各地，達於非洲之東南部及南洋羣島；在我國之雲南，*mm»-ft*州，湖北 *»Sim»* 廣西，福建 *»triK » ffit»* 安徽均產之。

本種之特徵為其好生於乾燥之石岩隙中，其葉柄之瘤狀基部為鮮紅褐色之大鱗片所覆被，昔人以之 *&*)£ Dryopteris* 屬，最近經余之研究，應另屬以待之也。

圖註：1. 本種全形(自然大)，2. 末回小葉，表示其葉脈及子囊羣(放大六倍)，3. 子囊羣蓋(放大二十倍)，4-5. ^柄基部鱗片(放大十倍)，6. 葉下面之剛毛(放大三十倍)，7. 孢子(高倍放大)。



HYPODEMATIUM CRENATUM (Forsk.) Kuhn.

羅足蕨

HYPODEMATIUM FORDII (Baker) Ching

POLYPODIACEAE

HYPODEMATIUM FORDII (Baker) Ching, comb. nov.

Nephrodium Fordii Baker, Journ. Bot (1889) 177; Dunn & Tutch. Fl. Kwangt. & Hongk. 348 (1912).

Dryopteris crenata C. Chr. Ind. Fil. 258 (1905), pro parte.

Dryopteris Fordii Ching, Sinensia 3: 330 (1933).

Dryopteris crenata var. *Fordii* C. Chr. Ind. Fil. Suppl. III. 86 (1934).

Rhizome slender, creeping, densely scaly; *scales* linear-lanceolate, golden brown, to 2 cm long; *frond* approximate, stipe 20-30 cm long, stramineous, glossy, floxuose, the swollen base densely scaly, lamina deltoid-pentagonous, 4-pinnatifid; *jjinnae* 6-9-jugate, petiolate, the basal ones much the largest, deltoid, short-acuminate; *pinnules* 6-jugate, petiolulate, deltoid-oblong, acute, base cordate; *pinnules* of 2nd. order oblong-ovate, the lower ones shortly petiolulate, the upper decurrent, deeply pinnatifid, with 3-6 pairs of oblong, rounded serrate or lobato-incised segments; *texture* thin herbaceous, both sides shortly glandular hairy; *veins* distinct, free, pinnate; *sort* rounded, dorsal on veinlets, *indusium* thin, membranaceous, gray, glandular hairy, rotundo-reniform, attached by a deep sinus, margin glandularly ciliate.

Kwangtung: North River, *C. Ford 104* (type), Dec. 1888; Shiuhing, Ting-wu Shan, *S. P. Ko 50597*, June 12, 1930.

This is a decidedly distinct fern, known so far only from Kwangtung, differing from the preceding species in its gracil habit, thinner leaves, slender stipe almost twice as long as lamina, very membranaceous grayish, smaller indusium with glandular margin, and in its decidedly different type of hairs, which are not needle-like, but only shortly glandular with rounded or clavate, lemon-yellow enlarged apices. Dunn an Tutcher (*loc. cit.*) have distinguished this fern from the preceding by its "acute ultimate segments", neglecting altogether the characters as noted above

Plate 122. Fig. 1. Habit sketch (natural size). 2. The swollen basal part of stipe (natural size). 3. Ultimate pinnule, showing venation and soni (x 7). 4. Indusium (x 30). 5. Scale from the swollen base of stipe (x 10). 6/7. 8. Cross sections of rhizome (x 8). 9. Cross section of the swollen base of stipe (enlarged). 10. Cross section of the upper part of stipe (enlarged). 11. Glandular hairs from the underside of lamina (enlarged). 12. Spores (enlarged).

第 一 百 二 十 二 圖

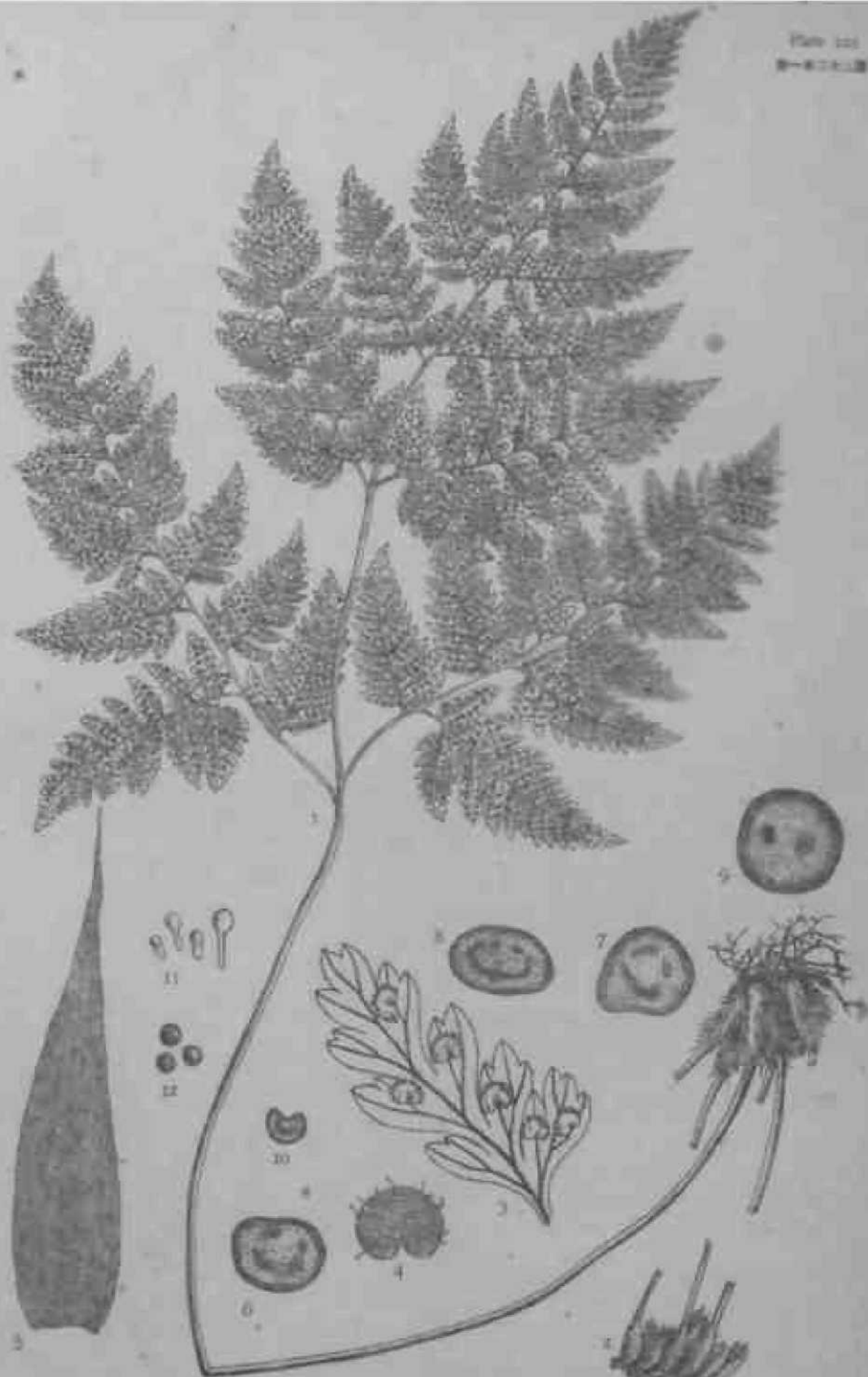
S & m JE, m (水龍骨科)

HYPODEMATIUM FORDII (Baker) Ching

本種形體酷似前種而極小，葉質較薄，柄長約二倍葉體，遍體不被長剛毛，僅球桿形之腺毛疏生，子囊羣蓋為膜質，形小，背及邊緣亦具同樣之腺毛，其末回小葉具較尖之鋸齒。

分布：廣東北部，他處則尚未之見也。

圖註：1. 本種全形(自然大)，2. 葉柄之瘤狀膨大基部(自然大)，3. 末回小葉，表示其葉脈及子囊羣(放大七倍)，4. 子囊羣蓋(放大三+fg) » 5. $ff^J \gg lli \ll * \ll 4t \gg 4:l \gg li - (4k - /c + \ll)$ • 6. 7. 8. $ltTJSr + fff \ll 9li (Jtt * A \ll)$ » 9. $aMffittJKS * fc \& \text{ti}HSOfi$ (* * + \ll) • 10. $HI \ll U \text{ 切面 (放大)$ • 11. $\ll TB2KJK \ll (W \ll tt *)$ » 12. 孢子(高倍放大)。



HYPODEMATIUM FORDII (Baker) Ching

福氏蹄足蕨

HYPODEMATIUM CYSTOPTEBOIDES Ching

POLYPODIACEAE

HYPODEMATIUM CYSTOPTEROIDES Ching, Sp. nov.

Aspidium crenatum Christ, Nuov. Giorn. Bot. Soc. Ital. n.s. (1897) 94; Bull. Bot. Soc. Ital. (1901) 297.

Status et configuratione cum // *Fordii* (Baker) e China australis valde congruens, differt; indusiis tenuissimis non rotundo-reniformibus sed valde variantibus, aut lanceolato-triangularibus, aut ovatis, aut ovato-triangularibus, basi vix cordatis, pinnulis anguste lanceolatis vel oblongo-lanceolatis, elongatis, sese multo separatis, longe acuminatis, basi magis cuneatis.

Rhizome slender, wide-creeping, densely scaly; *scales* rufo-brown, to 7 mm long, ovate-lanceolate, acuminate, entire, densely clothing the swollen base of stipe; *frond* approximate, long-stipitate, stipe 10-22 cm long, gracil, flexuose, pale-colored, naked through, lamina ovate-deltoid, 7-11 cm long and as broad, long-acuminate, tripinnate; *lateral yinnae* about 8-jugate under the pinnatifid acuminate apex, the basal ones much the largest, deltoid, opposite, to 10 cm long, 6 cm broad, basicopically produced, long-petiolate, the upper pinnse gradually abbreviated, oblong-lanceolate or lanceolate, all shortly petiolate with equal, subcuneate base, rather wide apart from each other, the second pair of pinnae from the base to 6 cm long, 2 cm broad near the base, pinnate; *pinnules* 7-jugate, rather far apart, oblong-lanceolate, to 1.2 cm long with subequal, cuneate, decurrent base and bluntly dentate apex, pinnatifid to the costule into 6-7 pairs of oblong or sparsely dentate segments. *veins* forked, ending in blunt teeth; both sides sparsely glandular hairy; *texture* thin herbaceous, color green; *sort* 5-7 pairs to each segment, medium-sized, rounded, *indusium* whitish, membranaceous, cystopteroid, triangular-lanceolate or ovate-deltoid with broad and hardly cordate base, cucullately attached to the receptacle.

Shantung: Tsinan, A. P. Jacob 21 \ ibid. Chien Fo Shan, specimens ex herb. Dept. Biol. Cheeloo Univ. (without collector's name); Tai-shan, A. P. Jacob 1; Chefoo, E. Faber 1054 (herb. Kew, sub *Dryopteris crenata*). Shensi: Mt. Uan-san-pin propo "Pagoda", Giraldis, July 16, 1894; See-kin-tzuen, Giraldis, Dec. 28, 1895; Thse-paB-shan, Giraldis, August, 1896.

Our fern is more closely related to *H. Fordii* (Baker) than to *H. crenata* (Forsk.) in gracil habit and type of hairs, but differs in its long-acuminate apices of frond and of lateral pinnae, which are elongate oblong-lanceolate with cuneate base in the middle pinnse, and in its cystopteroid indusium, a character which alone marks this species very unique in the genus.

Plate 123. Fig. 1. Habit sketch (natural size). 2. Ultimate pinnule, showing venation and sort. 3. Scale from the swollen base of stipe (x 10). 4. Indusium (x 20). 5. Spores (enlarged).

第一百二十三圖
山東腫足蕨(水龍骨科)

HYPODEMATIUM CYSTOPTEROIDES Ching

本種形體酷類前種，惟其小葉及子囊羣蓋之形體大異，其小葉為狹披針形，或橢圓披針形，彼此不如前種之密接，頂為長漸尖頭 其子囊羣蓋不為圓腎形，但為三角狀之披針形，或為卵形，或為卵狀三角形，絕類 *Cystopteris* «[^] 0

分布：山東之濟南，烟台，泰山，青島一帶及陝西中部，他處尚未之見也；此種為本屬分佈極北之一種，昔人誤認為腫足蕨，實則大異；其模式標本藏於濟南齊魯大學生物系。

圖註 寄生於葉柄
瘤狀基部之鱗片(放大十倍)， 4. 子囊羣蓋(放大二-H&) » 5. fl^a C 高倍放大)。



HYPODEMATIUM CYSTOPTEROIDES Ching

山東細足蕨

PLATE 124

TECTARIA SUBTRIPHYLLA (Hk. et Am.) Copeland

POLYPODIACEAE

TECTARIA SUBTRIPHYLLA (Hk. et Am.) Copeland, Phil. Journ. Sci. Bot. 2: 410 (1907); Ching, Sinensia 2: 33 (1931); C. Chr. Ind. Fil. Suppl. III. 185 (1934).

Polypodium subtriphyllum Hk. et Arn. in Bot. Beech. Voy. 256 t. 50 (1836-40); Christ in Warburg, Monsunia 1: 75 (1900).

Aspidium subtriphyllum Hk. Sp. Fil. 4: 52 (1862); Bedd. Ferns Brit. Ind. Suppl. 14 (1876).

Nephrodium subtriphyllum Baker in Hk. Syn. Fil. 296 (1874).

Sagenia subtriphylla Bedd. Ferns S. Ind. t. 242 (1863).

Rhizome thick, creeping, clothed at the growing tip in blackish, rigid entire, lanceolate *scales*] *frond* approximate, stipe 20-30 cm long, dark stramineous, scaly near the base, sparsely setose hairy throughout, lamina deltoid-pentagonous; *Zatera*Z *pinnse* 1-2-jugate under the distinct, petiolate, pinnatifid large terminal pinna with cuneate base, the basal ones much the largest, petiolate, trifoliolate or trilobed with central lobe much the largest to 16 cm long, 12 cm broad, more or less lobed under the acuminate entire apex, base subrounded or cordate, the second pinna (if there any) oblong-lanceolate, acuminate, lobato-sinuate, base oblique and slightly adnate; *texture* herbaceous, underside rather copiously setose hairy, upperside glabrous except costa and rachis clothed in short reddish hairs; *venation* distinct, anastomosing with or without included veinlets in areohfi; *sori* large, rounded, compital, scattered or uniseriate in the lobes, leaving a broad sterile space along costa, *indusium* rotundo-reniform, thick, fallen off at last.

Besides those cited in my previous paper, additional specimens have since been noted as follows:

Hainan: Hung Mo Mt., W. T. Tsang 18082\ Tai Hang, Lin Hwa Shan, W. T. Tsang 15850; Top of Dome, Five Finger Mt., W. Y. Chun 6367 in herb. Univ. Nanking. Kwangtung: Lokchong, N. K. Chun 42789; C. L. Tso 21339; Lohfau Shan, N. K. Chun 41506; C. O. Levine 1405; Honam Island, C. O. Levine 1808; Nam-hoi, S. P. Ko 50051; Ting-wu Shan, H. T. Ho 60081. Hongkong: Y. Tsiang 701. Fukien: Foo-chow, Warburg.

Formosa: Drs. F. & C. Baker, Dec. 20, 1914.

Tonkin: Lang-Son, Balansa 49 (1885); Colani 2745; Thai-Nguyen, Colani 3401; Bac-Giang, Colani 3406, 2747.

This is a very common fern in South China and particularly, the Island Hongkong, and closely related to *T. variolosa* (Wall.) from which it differs by the characters as already noted in my previous paper.

Plate 124. Fig. 1. Habit sketch (natural size). 2. Portion of lamina, showing venation and position of son (x 5). 3. Hairs from lamina (x 120). 4. Scale from the base of stipe (x 20). 5. Sorus with indusium (x 50).

K - I r + ra'i
H % m c* m # ft)

TECTARIA SUBTRIPHYLLA (Hk. et Am.) Copeland

地下莖肥厚，橫行，端具黯褐色之硬質披針形鱗針；葉近生，柄長二十至三十粉，深稻桿色，基部鱗片疏生，葉體具剛毛，葉體三角形或五角形，長寬各逾二十五粉，一回小葉一至二對，頂部小葉形亦相同，惟基部呈楔形，基部一對最大，具柄，三裂，中裂片最大，漸尖頭，幾為全緣，上部小葉或有或無。WHtttHg IK^« 基部呈斜形，邊緣呈深波狀。上面惟各回中肋及主脈被深褐色之毛；葉脈網狀，網眼或具小脈或否；子囊橢圓形 US* 着生於數小脈之交錯點，一列，略近葉緣，蓋圓腎形，質厚。

分布：廣東，*mm*，香港，瓊洲島，福建；台灣印度及交趾亦產之。

本種為南方習見之品，而尤以香港為最多。

圖註：i.**f*&)g(@&:fc) 2. 葉體之一部，表示葉脈及子囊羣之位置(放大五倍) 3. 葉下面之剛毛(放大一百二十倍)， 4. *柄基部之鱗片(放大二十倍)， 5. 子囊羣及蓋 C(放大五十倍)。

Plate 111
1-2-1922



TECTARIA SUBTRIPHYLLA (Bl. et Arn.) Copeland

三 叉 蕨

PLATE 125

TJSCTARIA MACRODONTA (Fée) C. Christensen

TOLYPODIACEAE

TECTARIA MACRODONTA (Fée) C. Christensen, Ind. Fil. Suppl. III. 181 (1934).

Sagenia macrodonta Fée, Gen. Fil. 313 (nomen) t. 24A f. 1 (1852).

Aspidium coadunatum Wall, fnon Kaulf. 1824) Cat. 337 (1828, nom. nud.); Hk. et Grew Ic. Pi. t. 202 (1831); Melt. Fil. Lips. 94 t. 22 f. 3-4 (1856); Christ, Bull. Acad. Géogr. Bot. (1910) 13.

Sagenia coadunata Bedd. Ferns S. Ind. t. 81 (1873); Christ, Bull. Soc. Bot. France 52: Mém. 1. 34 (1905)-

Tectaria coadunata C. Chr. Contr. U. S. Nat. Herb. 26: 331 (1931); Ching, Sinensia 2: 18 pis. I-II (1931)-

Aspidium cicutatium var. *coadunatum* C. Chr. Ind. Fil. 65 (1905).

Nephrodium cicutarium Hk. Sp. Fil. 4: 48 (1862); Baker in Hk. Syn. Fil. 299 (1867), pro parte.

Nephrodium cicutarium var. *coadunatum* Clarke, Trans. Linn. Soc. II. Bot. 1: 540 (1880).

Aspidium cicutarium var. *tenerifrons* Christ, Bull. Acad. Géogr. Bot. (1902) 257.

Sagenia apiifolia Christ (non J. Sm. 1841), Bull. Acad. Géogr. Bot. (1906) 120.

Aspidium pin-faense Christ, Bull. Acad. Géogr. Bot. (1909) 169.

Aspidium kwanonense Hayata, Ic. Pl. Form. 8: 137 f. 61 (1918).

Rhizome thick, creeping, densely scaly; **scales** rufo-brown, ovate-acuminate; **frond** approximate, stipe 25-35 cm long, glossy, dark castaneous, lamina deltoid, bipinnatifid under the coadunate pinnatifid terminal pinna; **lateral pinnae** 2-4-jugate, the basal ones much the largest, shortly petiolate, cordate, deltoid-lanceolate, 10-20 cm long, to 12 cm broad, pinnatifid to a narrow wing along costa, the upper pinnae more or less adnate, also deeply pinnatifid with entire, falcate segments, of which the lower ones broadly lanceolate, 5-7 cm long, about 2 cm broad, acuminate, lobato-incised; **lobes** falcate, rounded, entire; **texture** thin herbaceous, upper-side densely pubescent with short, clear, reddish hairs, underside sparsely so, margin ciliate, rachis and costa shining castaneous underneath; **veins** anastomosing, areole elongate, mostly without including veinlets; **sori** rounded, far apart, regularly uniseriate on each side of costule of segment, mostly apical on the including veinlets, **indusium** rotundo-reniform, large, brown, fallen off at last.

As previously cited, the species is known from Yunnan, Szechwan and Kweichow in China, besides Northern India, Siam and Peninsular India. Additional material recently examined are *K. K. Tsoong 2530* from Tali, Yunnan, and *Esquirol 1031* from Houang-tsao-pa, Kweichow.

Plate 125. Fig. 1. Habit sketch (natural size). 2. Segment, showing venation and position of sori (x 10). 3. Sorus with indusium (x 20). 4. Hairs from lamina (x 80). 5. Scale from rhizome (x 24)-

第一百二十五圖
高山三叉蕨(水龍骨科)

TECTARIA MACRODONTA (Fée) C. Christensen

地下莖肥厚，橫行，具紅褐色之卵披針形鱗片；葉近生，柄長二十五至三十五粉，呈光亮深栗色，葉體三角形，二回羽狀深裂，頂部羽狀深裂；一回小葉二至四對，基部一對最大，具短柄，基部心臟形，長約二至三粉，羽狀深裂，上部小葉概為合生，間為羽狀深裂，裂片線形，全緣，位於基部者為闊披針形，長達六七粉，寬約二粉，波狀深裂；薄紙質，上面被深褐色之短毛，下面有同樣之毛疏生，葉緣具捷毛，各位中肋呈光亮之深栗色；葉脈網狀，網眼具小脈或否；子囊橢圓形，一列，位於裂片之中肋兩側，着生於網眼內之小脈端，蓋圓形，褐色。

分布：雲南，四川，貴州；印度北部，交趾暹羅，錫蘭均產之。

本種形態稍似前種，惟其葉柄及各位中肋呈光亮之深栗色，葉體二回分裂，葉質較薄，上面及葉緣具深褐色之短毛。

圖註：1.

子囊草與蓋

(放大二十倍)。

y



TECT4IMA MAi It 000 PT A | (19) C. Christensen

高 11 三 叉 . K

CYRTOMIUM FORTUNEI J. Smith

POLYPODIACEAE

CYRTOMIUM FORTUNEI J. Smith, Ferns Brit. & Fore. 286 (1866); Hist. Fil. 205 (1875); L. H. Hailey, Manu. Cult. Pl. 71 (1924); C. Chr. Amer. Fern Journ. 20: 49 (1930); Ind. Fil. Suppl. III. 66 (1934); Tagawa, Acta Phytotax et Geobot. 3: 61 f. 5-9 (1934).

Polystichum Fortunei Nakai, Bot. Mag. Tokio 39: 116 (1925).

Volystichum falcaium var. *Fortunei* Nichols; Matsum. Ind. Pl. Jap. 1: 342 (1904); C. Chr. Ind. Fil. 581 (1905).

Cyrtomium falcaium (non Presl) C. Chr. Ind. Fil. Suppl. I. 101 (1912); L. H. Bailey, Gentes Herb. (1920) 9.

Aspidium jalcatum Hk. (non Sv.) in Blakiston, Five Months on the Yangtze 364 (1862); Baker in Hk. Syn. Fil. 257 (1867); Franch. et Sav. Enum. Pl. Jap. 2: 234 (1879), P^{ro} parte.

Polystichum jalcatum var. *polypterum* Diels in Engl. Jahrb. 29: 195 (1900), pro parte.

Cyrtomium jalcatum var. *polypterum* Christ, Bull. Soc. Bot. France 52: Mém. 1. 33 (1905); Bull. Acad. Géogr. Bot. (1906) 250.

Aspidium jalcatum var. *caryotideum* Christ, Nuov. Giorn. Bot. Soc. Ital. n.s. (1897) 93.

Cyrtomium lonchitoides Christ, Bull. Soc. Bot. France 52: Mém. 1. 33 (1905), pro parte.

Polystichum lonchitoides Nakai (non Diels, 1900), Bot. Mag. Tokio 23: 77 (1914).

Cyrtomium vittatum Christ ex Léveillé, Bull. Acad. Géogr. Bot. 'igio, non 1905).

Rhizome short, oblique or erect, densely scaly; *scales* large, 1 cm or longer, rufo-brown or atro-castaneous, glossy, ovate, acuminate; *fronds* cespitose, stipe 15-30 cm long, strong, densely clothed in the similar scales, which are mixed with others of linear outline, lamina oblong, 15-45 cm long, 10-17 cm broad, pinnate under the free hastate end-pinna; *pinnae* 10-20-jugate, alternate, lower ones hardly shortened, in typical form, up to 10 cm long, 2 cm broad, falcate, long-acuminate, shortly petiolate, base broadened, rounded or auricled above, margin finely serrate throughout; *texture* chartaceous, light green, not glossy in living state, rachis fibrillose-scaly throughout; *veins* distinct, copiously reticulated, areolae hexagonal, oblique, each with 1-2 excurrent included soriferous veinlets; *sori* rounded, scattered over the underside, terminal or infra-apical on the veinlets, *indusium* large, coriaceous, grayish, rounded, peltately attached, depressed at centre, with wavy margin.

This is one of the most common ferns throughout the Yangtze valley and extends as far north as the southern part of Shensi and southwardly to the north of Canton (Lokchong, IF. *T. Tsuny M706*). Also Japan and southern Korea; recently known from Tonkin.

A very distinct but very variable fern, generally regarded hitherto as a variety of *C. falcatum*, from which it can be easily told apart by its much thinner leaves of a light green color, not glossy, in living state, its generally more numerous, lanceolate-falcate or sometimes oblong-ovate (as in var. *polypterum*) pinnae always with minutely and regularly serrate margin from the base upwards. Generally grown as pot plant.

Plate 126. Fⁱ - T Habit sketch (natural size). 2. Forma *I* at *ipinna* (natural size). 3. Forma *polypterum* (Diels).

第一百二十六圖
n * OX m # 科)

CYRTOMIUM PORTUNEI J. Smith

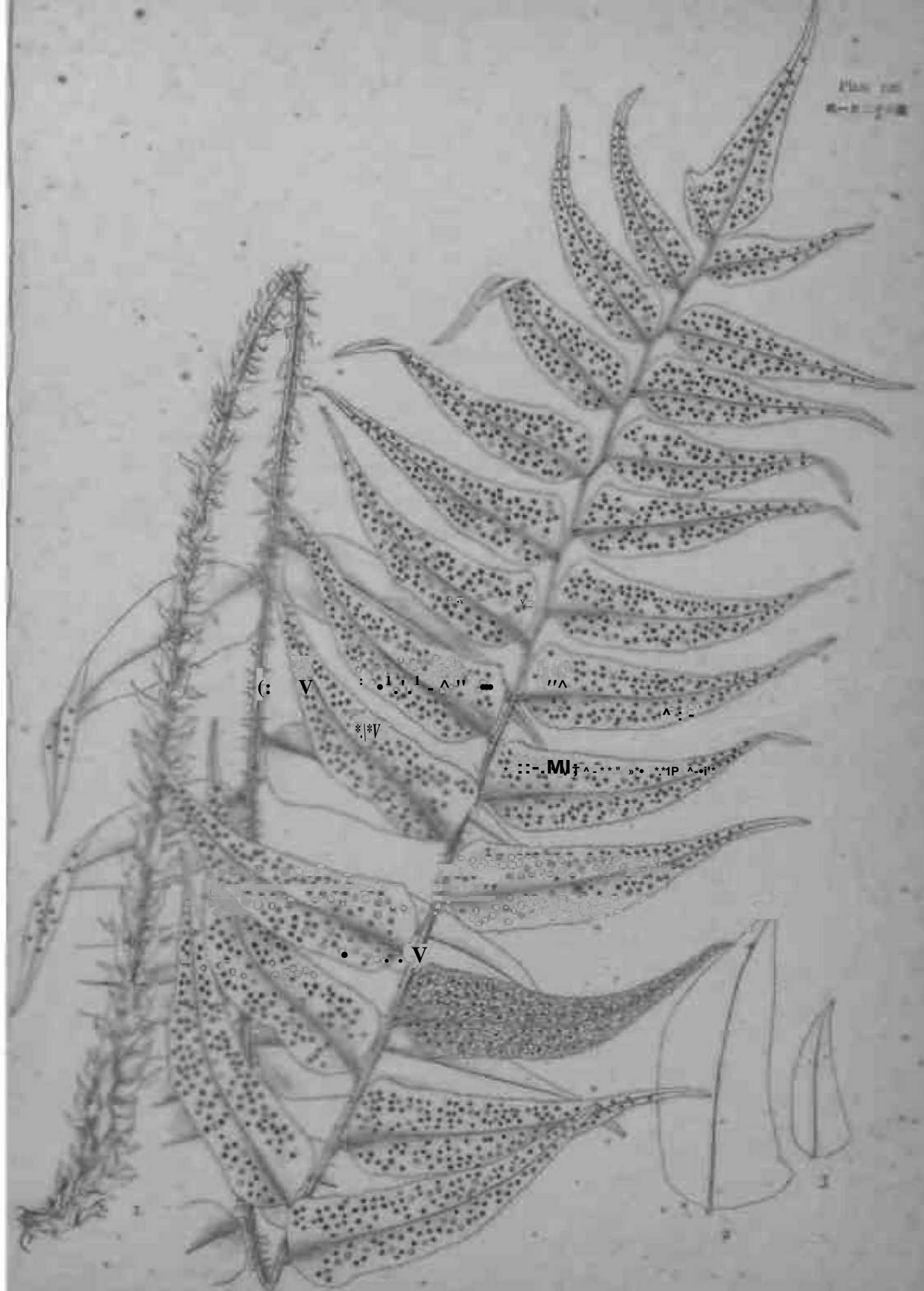
It'K.tffitt > ttitli&iftzft: > JMb4&toA&-Z.9fi&\$mrf 9 U 逾一粉；葉簇生，柄長十五至三十粉，具密鱗片，並有披針形之狹鱗片混生，葉體橢圓形，長十五至四十五粉，寬十至十七粉，一回奇數羽狀分裂，小葉十至二十對，互生，具短柄，位於基部者與其上部者等長或略短，長可達十粉，寬二粉，鐮形，長漸尖頭，基部較寬，圓形或上方呈耳形，葉緣具細密鋸齒，達於極頂，厚紙質，淡綠色，上面無光澤，中肋及葉柄具纖維狀之鱗片；葉脈網狀，網眼斜出，內具一至二數通直斜出之小脈；子囊拳圓形，不規則排列，着生於網眼內之小脈上，蓋圓形，質厚，灰色，柄狀着生。

分布：揚子江流域各省均產之，北達陝西之南部，南及廣東北部之樂昌縣；日本及朝鮮南部亦甚普通，最近在交趾發現；歐美各國咸盆栽以供玩賞。

本種為我溫暖各省習見之品，且常孳生一處，其形態變異甚大，小者高不及尺，小葉呈卵形，長僅二三粉耳。

圖註： 1. 本種全形(自然大)， 2. *Hmmmiato-M*' 3. 小葉變種(自然大)。

Plat. bot.
卷一第...頁



CYRTOMIUM FORTUNEI J. Smith

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PLATE 127

CYRTOMIUM FALCATUM (L. fil.) Presl

POLYPODIACEE

CYRTOMIUM FALCATUM (L. fil.) Presl, Tent. Pterid. 86 (1836); Link, Sp. Fil. Hort. Berol. 164 (1841); Fée, Gen. Fil. 286 (1850-52); Moore, Ind. Fil. 277 (1861); Hk. Florul. Hongk. in Journ. Bot. (1857) 340; J. Sm. Ferns Brit. & Fore. 142 (1866); Hist. Fil. 204 (1875); C. Chr. Ind. Fil. Suppl. I. 101 (1912); Amer. Fern Journ. 20: 48 (1930); Christ in Warburg, Monsunia 1: 76 (1900); Bull. Acad. Géogr. Bot. (1910) 5; Tagawa, Acta Phytotax. et Geobot. 3: 59 (1934).

Polypodium falcatum L. fil. Sp. Pl. Suppl. 446 (1781); Thunb. Fl. Jap. 336 (1784); Poir. Encyc. Bot. 5: 527 (1804).

Aspidium falcatum Sw. in Schrad. Journ. Bot. (1800): 31 (1801); Syn. Fil. 43 (1806); Hk. et Am. in Bot. Beech. Voy. 274 (1836); Hk. Lond. Journ. Bot. 1: 494 (1842); Fil. Exot. t. 92 (1857); Sp. Fil. 4: 40 (1862); Syn. Fil. 257 (1867); Benth. Fl. Hongk. 454 (1861); Lowe. Ferns 6: t. 9 (1857); Franch. et Sav. Enum. Pl. Jap. 2: 336 (1879); Christ, Frankr. d. Erde 232 (1897).

Dryopteris falcata O. Ktze, Rev. Gen. Pl. 2: 812 (1891).

Polystichum falcatum Diels in Engl. u. Prantl: Nat. Pflanzenfam. 1: 4. 194 (1899); C. Chr. Ind. Fil. 581 (1905); Matsum. et Hayata, Enum. Pl. Form. 583 (1906); Yabe, Bot. Mag. Tokio 17: 65 (1903); Nakai, Journ. Sci. Coll. Univ. Tokio 31: 399 (1911); Brause ex Loess. Prod. Fl. Tsingtau. in Bot. Centralbl. 37: 80 (1920).

Aspidium falcatum var. *genuinum* Makino, Bot. Mag. Tokio 10: 212 (1896).

Polystichum falcatum var. *genuinum* Matsum. Ind. Pl. Jap. 1: 342 (1904).

Polypodium japonicum Houtt. Nat. Hist. 14: 167 t. 98 f. 3 (1783); Pfl. Syst. 13: 187 t. 98 f. 3 (1786).

Rhizome short, erect, densely clothed in large, broadly ovate, suddenly acuminate, atro-brown, membranaceous *scales* with fimbriate margin; *fronds* cespitose, stipe 20-30 cm long, stramineous, angular, densely scaly on the lower part, scales similar to those on rhizome and mixed with smaller, linear-lanceolate ones, lamina oblong-lanceolate, 15-40 cm long, 6-13 cm broad, impari-pinnate; *pinnae* 1-10-jugate, alternate, the lower ones much the largest, 5-8 cm long, 3-4 cm broad, broadly ovate-falcate, long-attenuated towards apex, base petiolate and rounded, the upper ones gradually diminished, the uppermost ones lanceolate-falcate, 5 cm long, 1.5 cm broad, subsessile, with the anterior base rounded or bluntly auricled, margin thickened, entire, or repando-undulate, never serrate (in f. *typica*) even at the apex; *texture* coriaceous, glossy green in living state, brownish when dried, rachis and particularly the base of petiole copiously fibrillose-scaly; *venation* rather distinct, copiously reticulated in the same manner as in *C. Fortunei*; *sori* rounded, scattered, *indusium* coriaceous, rounded, entire, depressed at centre.

Kiangsu: Shanghai, on the way to Woosung, *Alexander*, Tseng Ming Hsien, *L.C.Tso* 1542, August 18, 1926; Haichow, Littoral Ledges, *Jacob* 36: Nanking, 10515 (pro part), cultivated. Fukien; Foo-chow, *Dr. Grip* 56 in herb. Hance; Diongloh[^] *Chen Ping-en* 24.08, July 24, 1925. Shantung: Tsingtau, Lau-shan, *Kuntzel* 45; Chefoo, *Hancock* 6. Chckiang: Shihpu, *C. Y. Chiao* 14113, July 11, 1927; *Mary Matthew** 10218 in "herb. Edinb. Univ. Kwangtung: Swatow, *Gerlach*; *Dalziel*, Sept. 1899; "Yingtak. Tai-shan, C. C. C. 15074.

Also Japan, Corea, Formosa and Liu-kiu.

Type from Nagasaki, Japan, collected by Thunborg. In China, this fern is come across only occasionally. Its report as occuring in Africa, Madagascar and Southern India is a mistake for *C. micropterum* (Kunze) Ching, sp. nov. (*Aspidium anomophyllum* var. *micropteris* Kunze, Linnaea 24: 278. 1851).

Var. *devexiscapulse* (Koidz. pro sp.) Tagawa, Acta Phytotax. et Geobot. 3: 60 (1934).

Kwangtung: Lien-hsien, S. P. *Ko* 51004; ibid. Yang Shan, S. P. *Ko* 51041; ibid. Chen Hong, S. P. *Ko* 50984. Kwangsi: Wang-chin, Lu-chen, R. C. *Ching* 5468. Kweichow: Yao Ren Shan, Sanhoa, Y. *Tsiang* 6308.

Also Japan.

Differs from the type in much longer and imbricate pinnae of a lanceolate outline.

The second variety, *acutidens* (Christ, pro sp.) C. Chr. Amer. Fern. Journ. 20: 1. with laciniately serrate or lobed pinnae, is known only from Japan and Corea.

Plate 127. Fig. 1. Habit sketch (natural size). 2. Lower pinna, showing venation and sori (natural size). 3. Indusium (x 24). 4. Large scale from the base of stipe (x 10). 5. Small scale from rachis (x 10).

IB — 'B' H -I- -t 圖
全緣貫衆 (水龍骨科)

CYRTOMIUM PALCATUM (L. fil.) Presl

地下莖短肥，直立，具大卵形之紅褐色密鱗片；葉簇生，柄長二十至三十粉，稍桿色如前種，具二形密鱗片；葉隨橢圓形或橢圓披針形，長十五至四十粉，寬六至十三粉，奇數羽狀分裂，小葉一至十對，互生，卵狀鐮形，長漸尖頭或尾狀，基部圓形或上方呈圓耳形，具短柄，全緣，雖極頂無鋸齒，基部小葉長五至八粉，寬三至四粉，上部者漸小，革質，上面呈光綠色，中肋及葉柄具纖維狀之鱗片；葉脈網狀，網眼及子囊羣之着生一如前種，蓋革質，圓形，梯狀着生。

分布： 江蘇 * *mxt* * *urn* » » » » SDK » m » » » H ^/ti:»rc>Fiii<r»3:»»-?; a * * *ism*，朝鮮及琉球亦多習見；歐美各國均盆栽以供觀賞。

此外有變種二種：一為長葉變種 Var. *devexiwapulae* Tagawa, j£j^B ^:Jft|tHlfi<#< t 3t.小葉呈長披針形；一為裂片變種：Var. *acutideiis* (Christ) C. Chr., |S|^B*iiJ|li» » *Jg#M«n£ll» 惟邊緣具大鋸齒或披針形之裂片

圖註： 1.本種全形(自然大)， 2.下部小葉，表示葉脈及子囊羣(自然大)， 3.^ Ji * ^ (*tick* 二十四倍)， 4.葉柄基部鱗片(放大十倍)， 5.中肋上之鱗片(放大十倍)。

PLANTAE
— 127 —



CYRTOMIUM FftIOAttJM ; r. i.l. Presl

• ft *

CYCLOPELTIS CRENATA (Fée) C. Christensen

POLYPODIACEAE

CYCLOPELTIS CRENATA (Fée) C. Christensen, Ind. Fil. Suppl. III. 64 (1934).

Hemicardion crenatum Fée, Gen. Fil. 283 t. 22A f. 1 (1850-52).

Hemicardion cochinchinense Fée, l. c. (nom. nud.)

Cyclopeltis Presliana C. Chr. Ind. Fil. 197 (1905), pro parte; Bonap. Notes Pterid. Pt. 7: 99, 153 (1918); Merr. Enum. Hainan Pl. in Lingnan Sci. Journ. 5: 9 (1927), non Berkeley, 1857.

Rhizome, short, thick, oblique, scaly; *scales* darkish brown, linear-subulate, 1.5-2 cm long, 1 mm broad, soft, with scarious margin; *fronds* caespitose, stipe 30-40 cm long, 5 mm thick above base, angular, stramineous or brownish, fibrillose-scaly throughout the rachis, impari-pinnate; *lateral pinnae* 10-15-jugate, alternate, oblique, shortly petiolate, articulated to rachis, lower ones hardly shortened, about 5 cm apart from each other, the upper ones closer, 8-13 cm long, to 3 cm broad, lanceolate, acuminate, base unequal, i.e. the upper side oblique, the lower side cordate, with a rounded hamato-recurvate auricle against the rachis, margin sinuate, entire towards apex; *texture* chartaceous, green, costa fibrillose-scaly underneath; *veins* 4-forked, flexuose; *sori* large, rounded, dorsal on veinlets, 3-seriate on each side of costa, *indusium* large, coriaceous, dark brown, peltate, persistent; *spores* bilateral, broadly winged all around.

Hainan: Nodua, Sha Po Ling, *F. A. McClure* 8164, 8168, 8196, moist shaded ravines of water edge; *Katsumatta*, in herb. Hongkong; Ling Shui Hsien, *F. A. McClure* 20068, May 4-20, 1932; Yai-chow, *F. C. How* 71124; *C. Wang* 33487, 34195; *Eryl Smith* 1620, 1633.

Cochin-China: Annam, Tourane, *Gaudichaud* (type); *ibid.*, *J. & S. M. Clemens* 4168.

This decidedly distinct species, endemic in Cochin-China and the Island Hainan, has hitherto been considered as identical with *C. Presliana* (J. Sm.) Berkeley, now should be known as ***C. Cumingiana*** (Fée) Ching, comb. nov., as the species was actually first properly described by Fée under his genus *Hemicardion* in Gen. Fil. 283 t. 22A. f. 2, from the Philippine Islands and Malesia, which differs in more numerous lateral, narrower falcate and close pinnae, of which the lower ones are gradually shortened towards the very short stipe, with deeply cordate-auricled base at *both* sides and in much thicker leaves, turning blackish when dried.

Plate 128. Fig. i. Habit sketch (natural size). 2. Portion of pinna, showing venation and position of sori (x 3). 3. Scale from the base of stipe (x 10). 4. Basal part of pinnae, showing articulation to rachis (x 10). 5. Spores (enlarged).

% — If H + A
* it n c* si * 科)

CYCLOPELTIS CRENATA (Fée) C. Christensen

地下莖肥厚 * ① | u * AfUfa & ^ m n k ^ m) Y * & m - ① 莖一鞭，質軟，邊具小鋸齒；葉簇生，柄長三十至四十粉，稍桿色或黃褐色，具黃色纖維狀之鱗片，mmmmmm，奇數羽狀分裂，小葉十至十五對，互生，具短柄，節狀着生於中肋，長八至十三粉，寬達三粉，披針形，漸尖頭，基部一對幾與上部者等長，基部不等，上方呈圓耳形，下方斜形，葉緣向上部呈淺波狀，紙質，綠色，中肋及主脈下面具纖維狀密鱗片；葉脈分離 * HSIB & * turn; * m & izmi & » « ^ ^ / W K . I I » s ? « j * 蓋大，圓形，革質，黃褐色，柄狀着生，宿存或久則脫落；孢子卵形，具闊翅。

分布： 瓊洲島及安南特產。

本種形體頗似 C. Cumingiana (Fée) Ching，然後者之葉體具短柄，小葉密接，位於下部者之葉體具短柄，小葉密接 其基部呈等形之圓耳形，故易與本種區別。

圖註： 1. 本種全形(自然大)， 2. 葉體(自然大)， 3. 葉體(放大十倍)， 4. 葉體(放大十倍)， 5. 孢子(高倍放大)。



CYCLOI»ELTIS CREHATA (Fie) C. Christensen

擬 蕨 家

ICONES FILICUM SINICARUM

PLATE 129

POLYSTICHUM FIMBRIATUM Christ

POLYPODIACEAE

POLYSTICHUM FIMBRIATUM Christ, Bull. Acad. Géogr. Bot. (1906) 237; C. Chr. Ind. Fil. I. 64 (1912).

Rhizome thick, erect, clothed in a dense tuft of shining brown linear-subulate *scales* over 2 cm long; *fronds* caespitose, stipe 15-18 cm long, thick, densely clothed in large, ovate-acuminate, spread or deflexed, rufo-brown scales, lamina lanceolate, to 30 cm long, 5-6 cm broad, base truncate, apex short-acuminate, pinnate- *pinnae* 25-36-jugate, alternate, imbricate, very shortly petiolate, basal ones as long as those above, 2.5-3 cm long, 1.3 cm broad, oblong-falcate, blunt, base deltoidly auricled above (auricle sometimes free in the lower pinna), cuneate below, with truncate upper inner edge parallel to, or imbricating on, the rachis, margin subentire with aristate teeth all around, rachis and underside of lamina copiously fibrilloso scaly; *texture* thick coriaceous; *veins* prominent underneath, pinnate in auricles and triforked upwards; *sort* rounded, uniseriate, nearer to the margin than to the costa, terminating the anterior basal veinlet of each group, *indusium* thick, brown, entire, rounded, peltately attached.

Kweichow: South of Tin-fan, *Cavalerie and Fortunat 1842* (type), Oct. 1904; Ping-chow, *Y. Tsiang 7134*, Sept. 14. 1930.

This species represented so far only by two collections from the southern part of Kweichow, proves to be so remarkably distinct that there is no known Chinese species to which it can be closely compared. It belongs to the group of *P. nepalense* (Spreng) from which it differs altogether in densely scaly stipe and rachis in entire and aristately serrate pinnae with blunt apices and without cartilaginous teeth and the characteristically ovate-cuspidate appressed scales on the underside of pinnae and in supramedial sori with coriaceous and much smaller indusia. In the gross habit, our fern appears related to *Cyrtomium nephrolepioides* Christ from the same region, but differs in its free venation, oblong-falcate pinnae with unequal auricled base and different scale characters.

Plate 129. Fig. 1. Habit sketch (natural size). 2. Pinna (x 2). 3a-b. Scales from stipe (x 10). 4. Scale from rachis (x 12).

m — *W r. -v x* 圖

3L & *M m* (* *n* # 科)

FOLYSTICHUM FIMBRIATUM Christ

地下莖肥厚，直立，具光亮黃褐色之線形密鱗片，長逾二粉；葉簇生，葉長十五至十八粉，具大卵形之開張密鱗片；葉體為披針形，長達三十粉，寬五至六粉，基部截形，一回羽狀分裂，頂部為短漸尖頭，羽狀深裂；小葉二十五對至三十六對，互生，密接或互覆，長二·五至三粉，寬一·三粉，橢圓形，鈍頭，基部具短柄，不等，上方呈尖耳形（有時分離），下方斜形，葉緣具長刺狀之密鋸齒，中肋及主脈下面具纖維狀之密鱗片，革質，葉脈三叉或羽狀分叉；子囊羣圓形，一列，近於葉緣，着生於每葉基部上方之一小脈之端，蓋革質 »111^» 黃褐色，桶狀着生。

分布：貴州南部特產，他處尚未之見。

本種為本屬特殊之一種，罕有與此相似之種，僅採得二次，蓋為珍品也。

圖註：1. 本種全形(自然大)，2. 小葉，表示其葉脈及子囊羣着生情形(放大二倍)，3. 葉柄上之鱗片(放大十倍)，4. **W2M*)- C 放大十二倍)。



POLYSTICHUM FIMBRIATUM Christ

£ it 4 蕨

POLYSTIOHUM OTOPHORUM (Franch.) Beddome

POLYPODIACEAE

POLYSTICHUM OTOPHORUM (Franch.) Beddome, Handb. Ferns, Brit. Ind. etc. Suppl. 42 (1892); Diels in Engl. u. Prantl: Nat. Pflanzenfam. 1: 4. 190 (1899); C. Chr. Ind. Fil. 585 (1905); Acta Hort. Gothob. 1: 68 (1924); Christ, Bot. Gaz. 51: 345 (1911).

Aspidium otophorum Franch. Nouv. Arch. Mus. II. 10: 116 (1887).

Rhizome thick, short, erect, densely scaly; *scales* large, dark brown, ovate-acuminate, fimbriate; *fronds* caespitose, stipe 5-10 cm long, clothed in dense spread, lanceolate blackish and fibrillose scales, lamina lanceolate, 15-22 cm long, 4-5 cm broad, pinnate under the short, pinnatifid, acuminate apex; *pinnae* 20-30-jugate, patent, shortly petiolate, the basal ones deflexed and as long as those above, 2-2.5 cm long, 7 mm broad above the base, which is provided above with a prominent auricle, either adnate or free, obliquely cuneate below, margin regularly serrate with long aristate teeth; *texture* rigidly coriaceous, rachis and underside of pinnae more or less fibrillose-scaly; *veins* pinnate in auricle. 3-forked upwards; *sort* small, nearer to the margin than to the costa, terminating the anterior basal veinlet of each group above the auricle, *indusium* coriaceous, rounded.

Szechwan: Moupin, *David* (type) (1890); Mt. Omei, *E. H. Wilson* 2624, 2596, 2598, 5363A; *Brown* 26, 136; *Kuan Hsien*, F. 7; *Wang* 20422 (f. *typica*); *Tang Ho*, *Legendre* 161S; *Yu-chi-kou*, *Harry Smith* 2354; *T. T. Jii* 4611. *74» (f. ad *P. xiphophyllum*).

A very pretty and distinct endemic species of the group of *P. lobatum* (L.) of Northern Europe. The nearest Chinese relative to this fern is *P. xiphophyllum* (Baker) from Mt. Omei, which differs chiefly in bipinnatifid frond of much larger size.

Plate 130. Fig. 1. Habit sketch (natural size). 2. A pinna from a larger form (natural size). 3. Pinna from the typical form (x 3). 4-5. Scales from stipe (x 14).

第 一 百 三 十 圖
*M m # m c * m # 科*)

POLYSTICHUM OTOPHORUM (Franch.) Beddome

地下莖肥短，直立，具大卵形深褐色瓦覆狀之密鱗片；葉簇生，柄長五至十粉，具二形密鱗片，葉體披針形，長十五至二十二粉，寬四至五粉，一回羽狀分裂，頂部漸尖頭，一回深裂，小葉二十至三十對，密接，具短柄，開展，位於基部者下向，與上部者等長，長二至二·五粉，寬約七釐，披針形，漸尖頭，基部不等，上方具尖耳形之深裂，合生成分離，下方斜形，葉緣具刺狀剛毛，硬革質，中肋及主脈下面具纖維形之鱗片；葉脈三叉，在耳形小葉者羽狀分叉；子囊羣小圓形，近於葉緣，一列，着生於每葉基部上方之一小脈之端，蓋圓形，革質，灰色。

分布： 四川西部高山特產，他處尚未之見。

本種亦為我國西部特種蕨類，略似歐洲北部產之 *Polyst. lobatum* (Linn)，然各部則大異。

圖註： 1. 本種全形(自然大)， 2. 大形小葉(自然大) 3. $t^{\wedge}ei^{\wedge}:^{\wedge}Mi(>6fc^{\wedge}Hfg)$ 4-5. 葉柄上之鱗片(放大十四倍)。



POLYSTICHUM OTOPHORUM Franchet & Beddome

高山耳蕨

PLATE 131

POLYSTICHUM OMEIENSE C. Christensen

POLYPODIACEAE

POLYSTICHUM OMEIENSE C. Christensen (non Christ, 1909). Ind. Fil. 67 (1905), 585 (1906); Acta Hort. Gothob 1: 72 (1924).

Aspidium carvifolium Baker, Journ. Bot. (1888) 228; Christ, Bull. Bot. Soc. Ital. (1901) 295; Bull. Acad. Géogr. Bot. (1906) 114 (non Kunze, 1851).

Polystichum carvifolium Christ, Bull. Herb. Boiss. 6: 969 (1898); Diels in Engl. Jahrb. 29: 194 (1900).

Polystichum Faberi Christ in Lecomte, Not. syst. 1: 37 (1909).

Rhizome short, oblique, densely scaly at apex; *scales* small, brown, ovate-acuminate, subentire; *fronds* cespitose, 10-18 together, stipe to 13 cm long, stramineous, terete, firm, sparsely clothed in small, ovate-acuminate, uniform scales, lamina slightly oblanceolate, 15-25 cm long, 4-7 cm broad, acuminate, finely tripinnate; *pinnæ* numerous, close, alternate, sessile, patent, lanceolate, 2-3 cm long, lower ones somewhat shortened and deflexed; *pinnules* 6-12-jugate, oblong-ovate, base long-attenuate and decurrent along deeply grooved and narrowly winged costa; *ultimate pinnules* 2-3-jugate, generally deeply bifid into linear-subulate uni-nerved *segments*, hardly over 1 mm broad, with sharp point; *texture* herbaceous, green, underside sparsely scaly; *sori* small, one to each segment, terminating the veinlet some distance below the apex of segment; *indusium** large, rounded, membranaceous, as broad as segment, soon falls off.

Szechwan: Mt. Omei, *E. Faber 1027* (type); *E. Faber 14* in herb. Hance; **ibid Scallan; Wilson 5267; W. P. Fang 494, 3155; Nanchuan, W. P. Fang 5836, 6118, 7446** (without exact locality). Yunnan: Mengtze, *Henry 9050; Hancock 20* (1893). Kweichow: Pin-fa, *Cavalerie 2426, 7094* (1907); Tou-shan, *Cavalerie 2536*.

This is one of the most distinct species of the group of *Polystichum* from West China and Himalaya, which is characterized by finely dissected fronds with linear-subulate uni-nerved entire and sharply pointed ultimate segments. *P. alpicorne* (Baker) from the same locality is a very close relative, which differs, however, in more coarsely dissected frond of a much stouter habit and in the presence on the stipe and rachis underneath of the large ovate, membranaceous brown persistent scales.

Plate 131. Fig. 1. Habit sketch (natural size). 2. Pinnule (x 14). 3. Indusium (x 45). 4. Scale from rhizome (x 40).

^ - H H -I- - 圖
K& m # m OK m # 科)

POLYSTICHUM OMEIENSE C. Chrislenseii

地下莖短而直立或斜出，端具褐色卵形小鱗片；葉多數簇生，柄長達十三粉，稻桿色，堅實，葉體倒披針形，長十五至二十五粉，寬四至七粉，漸尖頭，細密三回羽狀分裂，一回小葉多數，密互生，*mmm*，開展，披針形，長二至三粉，基部者稍短且下向；二回小葉六至十二對，卵橢圓形，基部漸狹，循中肋延長，

一小脈，不達於頂，紙質，綠色，下面略具小鱗片；子囊羣小圓形，每裂片一個，着生於葉脈之端，蓋圓形，厚膜質，與裂等寬或較寬，不久脫落。

分布： 四川峨嵋山，雲南之蒙自及貴州南部。

本種為我國西部高山特產，其葉體細密分裂成線形尖頭之小裂片，寬不及一粉，具一小脈，頂端著一個子囊羣。

圖註： 1. 本種全形(自然大)， 2. 二回小葉(放大十四倍)， 3. 子囊蓋(放大四十五倍)， 4. 地下莖上之鱗片(放大四十倍)。



POLYSTICHUM OMEIENSE C. Christensen

峨眉耳蕨

ICONES FIUCUM SINICARUM

PLATE 132

PELLAEA. SMITHII C. Christensen

¹ POLYPODIACEAE

PELLAEA SMITHII C. Christensen, Acta Hort. Gothob. 1: 84 t. 18 (1924); Ind. Fil. Suppl. III 135 (1934).

Rhizome short, erect, densely scaly at the apex and the base of stipe; *scales* small, linear, rigid, brown, shining, the outer ones are often shining black; *fronds* numerous, caespitose, stipe 6-10 cm long, firm, rounded, sparsely scaly throughout, brownish-stramineous, lamina ovate-oblong or deltoid, 4-6 cm long, 4 cm broad, coriaceous, bipinnate, rachis glandular, grooved above; *lateral-pinnae* 3-4-jugate under the pinnatifid deltoid apical part similar to the lateral ones, sessile, opposite or subopposite, deltoid, to 2 cm long and broad, the basal pair hardly larger than those above, pinnatifid to the costa into 3-5 pairs of linear entire, acute *segments* 1-1.5 cm long, 1-1.2 mm broad, the lower ones adnate, the upper ones decurrent, costa and costules deeply sulcate above, prominently raised underneath; *veins* in segments hidden, biforked, veinlets oblique; *sori* intra-marginal, distinct, terminating each veinlet, *indusium* linear, continuous till very apex, covering the entire under surface, gray at first, brown at last, persistent, with glandular-ciliate margin; *spores* small, minutely verrucose.

Szechwan bor-occid.: Hsu-ting, *Harry Smith 4799* (type), on sunny rocks; *E. H. Wilson 2664* (1908). Yunnan: east of Yung-ming, *Forrest 21238, 10463*.

This peculiarly distinct little fern is closely related to *P. nitidula* (Wall.) Baker from Northern India and South-western China, differs in still simpler pinnation, much lighter-colored stipe and rachis, which are only sparsely glandular, and in much broader indusium. As first observed by its author, all the specimens cited above are found to be fertile in every segment.

Plate 132. Fig. 1. Habit sketch (natural size). 2. Portion of segment, showing venation, indusium and position of sori (x 6). 3. Scale from rhizome (x 20).

第 一 百 三 十 二 圖

01 R # m e * t g # 科)

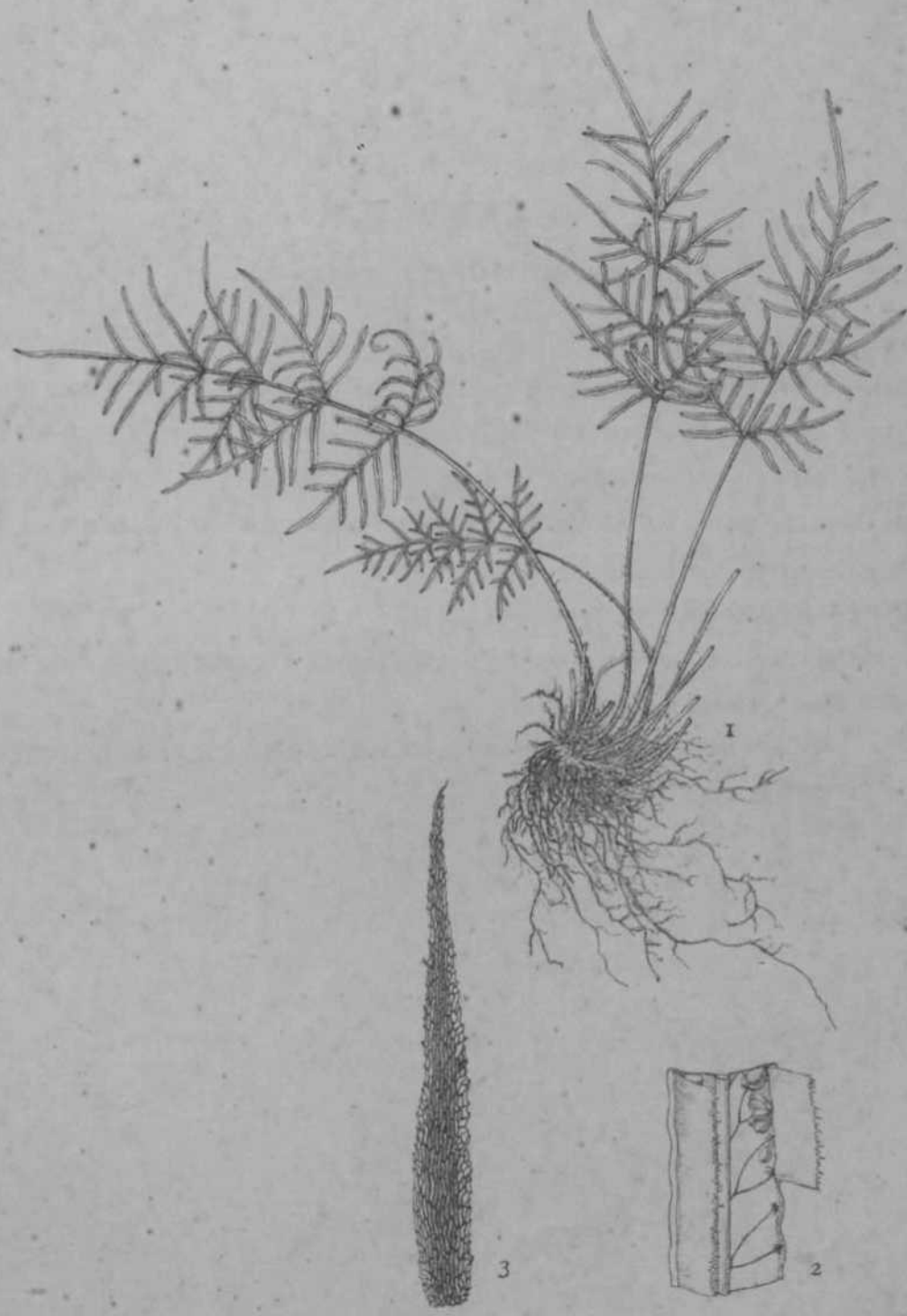
FELLAEA SMITHII C. Christensen

地下莖短而直立，端具線形硬質橙色光亮小鱗片；葉多數簇生，柄長六至十粉，堅實，*«mansu*形，略具鱗片，黃稻桿色，葉體卵橢圓形或三角形，長四至六粉，寬四粉，革質，二回羽狀分裂，中肋上面具疏腺毛及一溝槽，一回小葉三至四對，對生或上部者亞對生，無柄，三角形，長寬達二粉，頂端小葉同形，羽狀深裂，裂片三至五對，線形，急尖頭，長一至一·五粉，寬一至一·二粉，全緣，基部沿中肋延長，主脈上面呈溝槽，下面突出，側脈斜出，二叉；子囊羣貼近葉緣，着生於小脈頂端，蓋深褐色，膜質，線形，
達於主脈，與其對面之蓋相接。

分布： 四川西 部之高山，生於露出岩石上。

本種形體頗類 *Pellaea nitidula* Baker，*ff*後者之葉柄為深栗色或烏木色，葉體分裂較密，中肋上面具較長較密之短剛毛，故易與本種區別。

圖註： 1. 本種全形(自然大)， 2. a^'SI—部，表示其葉脈及子囊羣之位置及其蓋(放大六倍)， 3. «Tjsj^:i»^—cjtt*=十倍)。



PELLAEA SMITHII C. Christensen

史氏旱蕨

PLATE 133

CHEILANTHES DUCLOUXII (Christ) Ching

POLYPODIACEAE

CHEILANTHES DUCLOUXII (Christ) Ching in C. Chr. Ind. Fil. Suppl. III. 54 (1934).

Doryopteris Duclouxii Christ, Bull. Acad. Géogr. Bot. (1902) 231; Bull. Soc. Bot. France 52: Mém. 1. 58 (1905); C. Chr. Ind. Fil. 244 (1906); Acta Hort. Gothob. 1: 86 (1924).

Doryopteris muralis Christ, Bull. Acad. Géogr. Bot. (1904) in; C. Chr. Ind. Fil. 244 (1905).

Doryopteris Mairei Brause, Hedwigia 54: 206 t. 4. f. J. (1914).

Rhizome short, erect; *scales* at the apex blackish, lanceolate, rigid and opaque; *fronds* cespitose, stipe 14-25 cm long, glabrous, glossy, dark castaneous, terete throughout, lamina deltoid, semi-bipinnate, 9-17 cm each way, falcate, coriaceous, glabrous on both sides, rachis, costa and costules underneath shining castaneous; *lateral pinnae* 4-5-jugate under the lanceolate, entire or pinnatifid apical part, all connected by a narrow wing along rachis, or in full-grown plants the basal pair separated from those above by wingless rachis, basal pinnae much the largest, sub- or semi-deltoid, 5-7 cm long, 4-5 cm broad, semi-pinnatifid, *i.e.* only the lower side of costa with 3-5 lanceolate *segments*, of which the basal ones much the longest, 4-5 cm long, 5 mm broad above base, entire throughout, or sometimes with a few additional short segments on the lower side, while the upperside of costa is entire or irregularly pinnatifid with short segments; the upper lateral pinnae generally simple, entire, falcate, or sometimes the second pair also semi-pinnatifid; *veins* in segments free, dichotomously forked, hidden; *sort* terminating the veinlets, *indusium* gray, membranaceous, entire, continuous to the very apex of segment; *spores* spherical, echinose.

Yunnan: *Ducloux* (type), Dec. 23, 1896; Mengtze, *Hancock 31*; *Tanant* (1897); *Maire 2746, 2737*; *Forrest 298*; *Ducloux 1351* (1909); *K. K. I'soong*; *-Makong*; *E. E. Maire*, pro parte. Szechwan: Ornei region, *H. D. Brown 80* (1928). Kweichow: **Pin-fa, Cavalerie 4228, 1212** (type of *Dory, muralis*).

A distinct species but closely related to *Ch. argentea* var. *obscura* Christ, differs in larger size and less divided frond with lanceolate, subhorizontally patent pinnae of falcate color, of which the lower ones are semi-pinnatifid.

Var. **sulphurea** Ching, var. nov.

Doryopteris Duclouxii f. *argentea* Christ, Bull. Soc. Bot. France 52: Mém. 1. 58 (1905).

Doryopteris Mairei Brause, Hedwigia 54: 206 t. 4. f. J (1914).

Differs from the type in frond being coated underneath with sulphur-yellow waxy powder.

Szechwan: **Nin-yuan Hsien, Harry Smith 1830; Wilson 5297; Handel-Mazzetti 2790.** Yunnan: **Tali, Forrest 13499; Ngaykio, Ducloux 6343** (1909); **Tchang Shan, Ducloux 3363; Nieou Ko Shan, Ducloux 6965; Pin-tchouan, Ducloux 6930; Mt. Mao Kou Tchang, near Ta-pin-tze, Tali, Delavay 9** (1883).

This variety must not be confused with *Ch. Veitchii* (Christ) Ching from Szechwan, with which it is very closely related in habit, from which it differs above all in stipe being not glossy black and fronds not so finely dissected.

Plate 133. Fig. 1. Habit sketch (natural size). 2. The same, a simpler form (natural size). 3. The same, a young plant (natural size). 4. Portion of segment, showing venation (x 6). 5. Scale from the base of stipe (x 15).

第 一 百 三 十 三 圖
tt & m n m c* n # 科)

CHEILA.NTHES DUCLOUXII (Christ) Ching

地下莖短而直立，端具淡黑色而硬質不透明之披針形鱗片；葉簇生，柄長十四至二十五粉，光亮無鱗毛，深栗色，橫切面圓形，葉體卵三角形，半二回羽狀分裂，長寬各九至十二粉，淡黃色，革質，兩面光滑，下面無白粉，中肋及主脈下面呈光亮之栗色，一回小葉四至五對，開展，頂部為線披針形全緣或羽狀深裂，各小葉基部合生，惟基部一對分離，較大，下邊羽狀深裂，上邊全緣，二回小葉線披針形，三至五數，位於基部者最長，長約四至五粉，寬五釐，其上者漸短，有時下部小葉再羽狀深裂，上部一回小葉為披針形，全緣或有時第二對亦為半羽狀深裂，不具鋸齒。••mmm，數回對稱分叉，不顯明；子囊羣貼近葉緣，着生於小脈之端，蓋膜質，線形，達於裂片之極端。

分布： 雲南，四川峨嵋山及貴州南部。

本種為我國西部特產，其形態酷似普通習見之粉背蕨 (Ch. argentea Kze.)，所不同者為其形態較大，葉 通常概為半羽狀分裂是也，此外另有一變種： Var. sulphurea
Ching, 葉背面具硫黃色粉。

圖註： 1. 本種全形(自然大)， 2. 同上，形態較單簡(自然大)， 3. 同上，幼植物(自然大)，
4. 末回裂片之一部，表示其葉脈(放大六倍)， 5. 葉柄基部之鱗片(放大十五倍)。



MITHIANTHUS OUCIOUXII (Christ) I (hint)

杜氏粉背蕨

CHEILANTHES HANCOCKII Baker

POLYPODIACEAE

CHEILANTHES HANCOCKII Baker, Kew Bull. (1895) 54; Christ, Hull. Soc. Bot. France 52: Mém. 1. 58 (1905); C. Chr. Ind. Fil. 175 (1905); Suppl. III. 54 (1934).

Cheilanthes taliensis Christ, Bull. Soc. Bot. France 52: Mém. i. 58 (1905); C. Chr. Ind. Fil. 180 (1906); Acta Hort. Gothob. 1: 89 (1924); Contr. U. S. Nat. Herb. 26: 308 (1931).

Cheilanthes Henryi Christ, Bull. Acad. Géogr. Bot. 16: 133 (1906); C. Chr. Ind. Fil. Suppl. 1. 18 (1912).

Cheilanthes Wilsoni Christ, l.e. 132; C. Chr. Ind. Fil. Suppl. I. 18 (1912).

Cheilanthes Bonatiana Brause, Hedwigia 54: 203 t. 4 f. E (1914); C. Chr. Ind. Fil. Suppl. II. 8 (1916).

Rhizome short, erect, densely radice; *scales* at the apex dark brown, lanceolate-subulate, rigid, extending upward to some distance above the base of stipe; *fronds* cespitose, stipe castaneous, terete throughout, 7-20 cm long, lamina pentagonous or subdeltoicl, 7-14 cm long and broad, tripinnate or tripinnatifid; *pinnae* 5-7-jugate, the lower ones petiolate, far apart, opposite, the basal ones much the largest, deltoid, 5-12 cm long; *pinnules* 5-7-jugate, the lower basal one much the largest and basicopically produced, 3-6 cm long, shortly petiolulate, the upper ones on the same side of costa sessile and adnate, gradually shortened, those on the upperside of costa are of about equal length, sessile, adnate, and much shorter than those below, alternate; *ultimate pinnules* oblong, blunt, lobato-incised with rounded *lobes*, or only crenate in small plants; rachis and rachilets deeply grooved above; *texture* herbaceous, *veins* distinct, 2-3-forked or simple towards apex in lobes; *sori* terminating the veinlets, distinct at first, finally subconfluent, *indusium* membranaceous, oblong-ovate, distinct or subcontinuous; *spores* bilateral, light brown.

Yunnan: Mengtze, *Hancock 63* (type) (1893); Szemeo, *Henry 12532* (type of *Ch. Henryi*); *Shit Ping, Henry 13223*; *Ducloux 1342* | *Siao-su-long, E. E. Maire (November)*; 2749* 1342; *Ducloux 1343* (pro parte): environs de Yunnan-sen, *Ducloux & BoJinier 669* (1898); Tchang-shan, *Ducloux 2361* (1906); *Cavaleric 4710* (1900-20); environs de Hay Tien, *Ducloux 2427* (1904); Lao-kong Shan, *Ducloux 5062*; Tcheou *Kia-tze-tang, Maire 1393* (type of *Ch. Bonatiana*); *Tali, Delavay 1187* (type of *Ch. taliensis*); *Likiang Snow Range, I. F. Rock 6000. 6047*. Szechwan occid: *Wilson 5290* (type of *Uh. Wilsoni*); Nui-yuan Hsien, at Lu-shan, *Harry Smith 1831*.

This distinct and endemic species belongs to the group of *Ch. tenuifolia* Sw. from which it differs altogether in the rigid, dark-brown lanceolate scales on rhizome, less divided lamina of a pentagonous outline, with ultimate segments of entirely different shape. All specimens cited above are very uniformly constant in all respects except size, in which the type represents a large form with pentagonous lamina and acuminate apex, on stipe twice as long; while *Ch. Wilsoni* and *Ch. taliensis* represent small, stunted form with less divided fronds.

Plate 134. Fig. 1. Habit sketch, smalkr form (natural size). 2. segment, showing venation and sori (x 10). 3. Habit sketch from co-type (natural size). 4. Scale from rhizomu (x 16).

第 一 百 三 十 四 圖
*m & m n m c** («i # 科)

CHEILANTHES HANCOCKII Baker

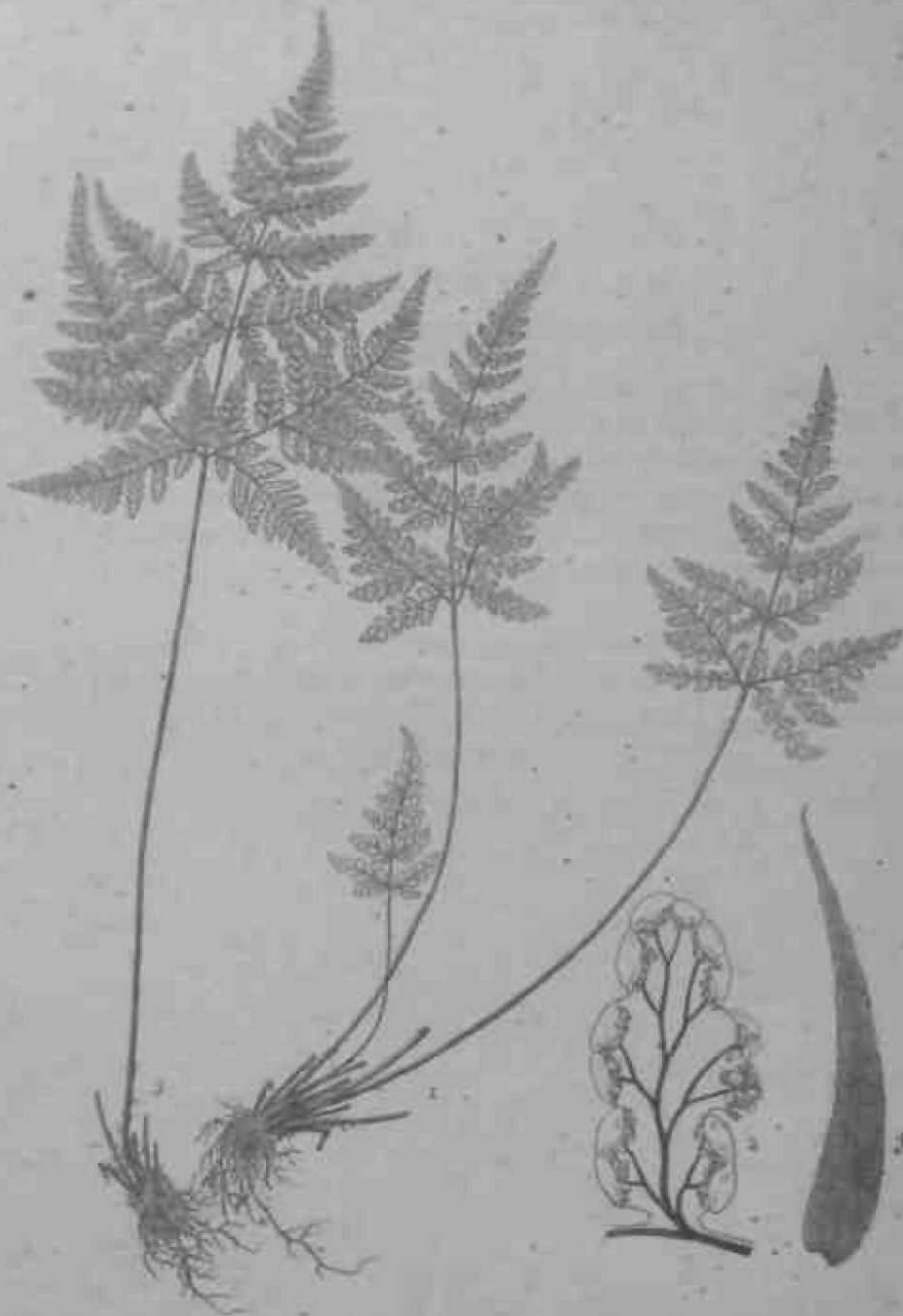
地下莖短而直立，端具深褐色硬質狹披針形之鱗片；葉簇生，柄淡栗色，橫切片面呈圓形，長七至二十粉，基部略具鱗片，葉體五角形或三角形，長寬各七至十四粉，三回羽狀分裂或深裂，頂部漸尖頭，羽狀深裂，一回小葉五至七對，位於下部者具柄，基部一對最大，三角形，長五至十二粉，二回小葉五至七對，基部下方向一對最大，長三至六粉，具短柄，餘皆無柄，位於中肋上邊者均等大，合生；末回小葉橢圓形，鈍頭，邊為深波狀或深裂，裂片圓形，各位中肋上面具深溝槽，紙質；葉脈明顯，二至三叉，或單一；子囊羣貼近葉緣，着生於小脈之端，蓋膜質，橢圓形，呈波狀。

分布：雲南 » rajl°

本種為我國川滇*#m**尤以在滇省為普通，其形體大小不一，故其名甚多。

圖註： 1. 本種小形全形(自然大)， 2. 二回小葉，表明其葉脈及子囊羣(放大十倍)， 3. 本種模
式標本全形(自然大)， 4. 地下莖上之鱗片(放大十六倍)。

Pl. 112
1-112-1



CHILANTHES HANCOCKII *li*k*t*

韓氏粉背蕨

PLATE 135

CHEILANTHES CHUSANA Hooker

POLYPODIACEAE

CHEILANTHES CHUSANA Hooker, Sp. Fil. 2: 95 t. 106B (1852); Ching, Bull. Dept. Biol. Sun Yatsen Univ. No. 6: 26 (1933); C. Chr. Ind. Fil. Suppl. III. 54 (1934).

Cheilanthes mysuriensis var. *chusana* Christ, Bull. Bot. Soc. Ital. (1901) 293; Bull. Acad. Géogr. Bot. (1907) 149; C. Chr. Acta Hort. Gothob. 1: 91 (1924).

Cheilanthes mysuriensis Hk. et Bale. Syn. Fil. 135 (1867); C. Chr. Ind. Fil. 175 (1905), pro parte: Christ, Bull. Acad. Géogr. Bot. (1906) 251; *ibid.* (1910) 13; Ogata, Ic. Fil. Jap. 2: t. 60 (1929); Wu, Bull. Dept. Biol. Sun Yatsen Univ. No. 3: t. 98 (1932), non Wall. 1828.

Cheilanthes Fordii Baker, Journ. Bot. (1879) 304; Dunn & Tutch. Fl. Kwangt. & Hongk. 339 (1912).

Adiantopsis Fordii C. Chr. Ind. Fil. 22 (1905).

Cheilanthes Bockii Diels in Engl. Jahrb. 29: 199 (1900); C. Chr. Ind. Fil. 172 (1905); Acta Hort. Gothob. 1: 91 (1924).

Cheilanthes mysuriensis var. *Giraldii* Christ in Lecomte, Not. Syst. 1: 51 (1909).

Cheilanthes tenuifolia Hk. (non Sw.) in Blakiston, Five Months on the Yangtze 362 (1862).

Cheilanthes Boltoni Cop. in Perkins, Fragm. Fl. Phil. 186 (1905); C. Chr. Ind. Fil. 663 (1906).

Rhizome short, erect, densely scaly; *scales* rufo-brown, lanceolate-subulate; *fronds* tufted, stipe 2-5 cm long, dark castaneous, shining, terete with a channel above, densely scaly throughout, lamina lanceolate, 8-20 cm long or longer, 1.5-6 cm broad, shortly acuminate, sub-bipinnatifid; *pinnae* 10-15-jugate, subsessile, the lower ones more or less shortened, the middle ones 1.4 cm long, or longer, 0.5-2 cm broad, oblong-deltoid, acute or obtusish, pinnatifid nearly down to costa into 4-6 oblong, crenate or eroded *segments*, with 2-4 oblique and simple veinlets to each tooth, rachis more or less scaly, castaneous, costa of the same color underneath, both sides glabrous; *texture* herbaceous, greenish; *sort* globose, distinct on each crena with the reflexed margin of an oblong shape as *indusium*.

Numerous specimens have been seen from Chekiang (including type, leg. Alexander in Chusan Island), Kwangtung (including type of *Ch. Fordii*), Fukien, Kwangsi, Kiangsi, Hupeh. Ivweichow, Szechwan (including type of *Ch. Bockii*, leg. Rosthorn 1766 in Nanchuan), and Kiangsu. A complete enumeration of the specimens from the above localities will be given later in my "Studies of Chinese Ferns."

Specimens from Japan (Nagasaki, leg. Maximowicz 25), Tonkin (Balansa 129), Formosa and Luzon are also examined.

The present fern, now found to be very common in Eastern, Southern and Central China and Japan, has generally been considered as identical with *Ch. mysuriensis* Wall, of East India from which it differs in characters as already noted in my previous paper (Cf. Bull. Dept. Biol. Sun Yatsen Univ. No. 6: p. 26).

Plate 135. Fig. 1. Habit sketch (natural size). 2. The same, a larger form (natural size). 3. Pinna (x 3). 4. Segment, showing venation and position of son (x 8). 5. Scales from the base of stipe (x 10). 6. Scales from rachis (x 13). 7. Spores (enlarged).

第 一 百 三 十 五 圖
ft IU m n m c m # 科)*

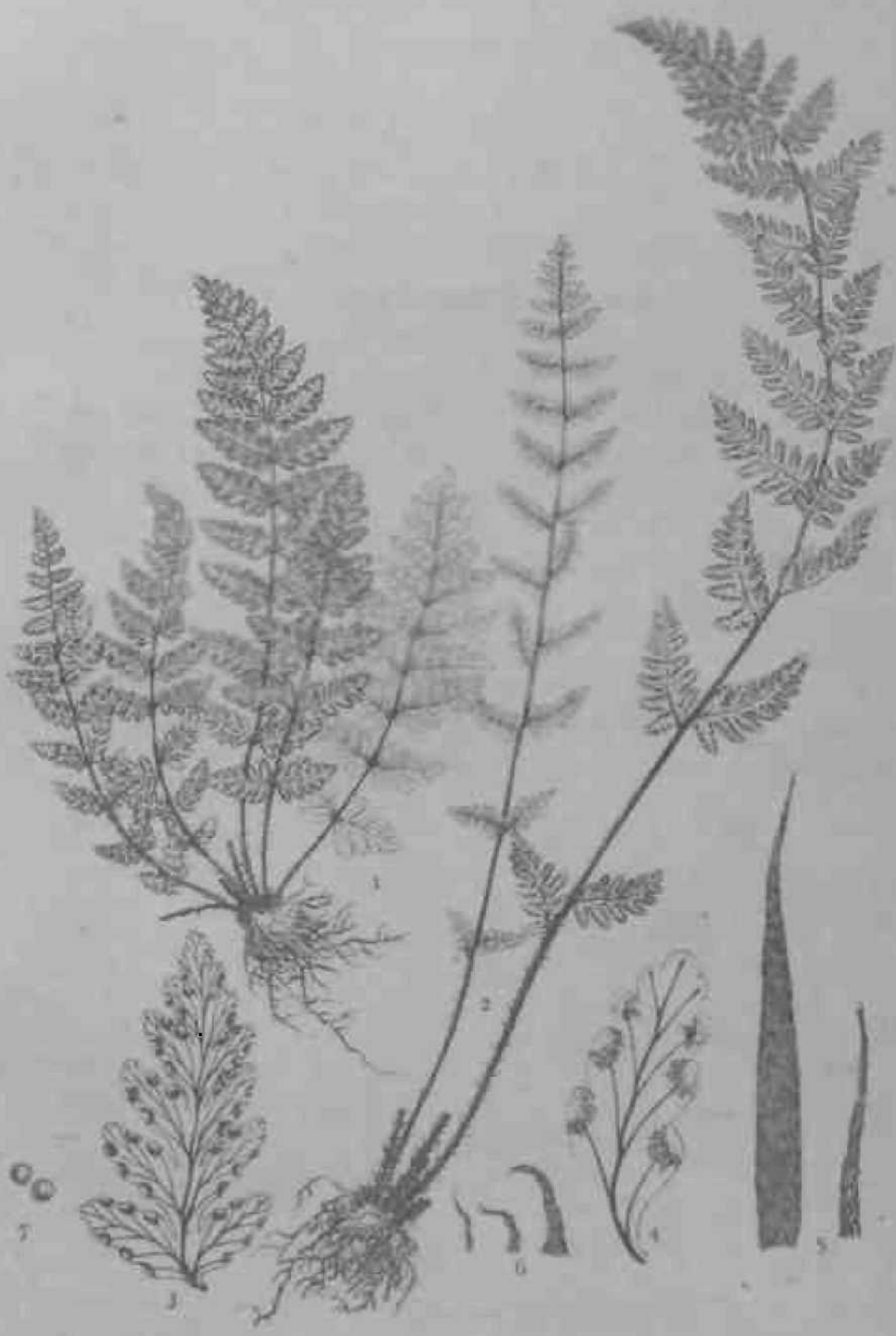
CHEILANTHES CHUSANA Hooker

地下莖短而直立，端具紅褐色狹披針形之厚質鱗片；葉簇生，柄長二至五粉，深栗色，光亮，上面具淺溝槽，遍體具小鱗片，葉體披針形，長八至二十粉或過之，寬一·五至六粉，短漸尖頭，二回羽狀深裂，一回小葉十至十五對，幾無柄，橢圓三角形鈍頭，長一至二粉，位於下部者漸短，邊緣波形，紙質，兩面光滑，無白粉，中肋及主脈下面均為栗色，葉脈二至三叉，子囊單圓球形，彼此不連接，位於

分布： 浙江，廣東，福建，廣西，江西，湖北，貴州，ISJM - n:蘇；日本，朝鮮，菲律賓及交趾亦產之。

本種為本區域內習見之種，形體大小不一，昔人誤認為與印度產之^{ch}-mysurieisis Wallich 相同，實則大相逕庭

mm • i.«*«jce^>c)» 2.no_h»^«ca^^» 3.+mwrk=īā) > 4- ^aī *m**
葉脈及子囊單之位置(放大八倍)， 5.葉柄基部之鱗片(放大十六倍)， 6.莖上鱗片(放大十三倍)，
7.孢子(高倍放大)。



CHEILANTHEFI CHU&AHA ||.«sker
 ^ H » ft ft

CHEILANTHES TRICHOPHYLLA Baker

POLYPODIACEAE

CHEILANTHES TRICHOPHYLLA Baker, Ann. Bot. 5: 211 (1891); Diels in Engl. u. Trantl: Nat. Pflanzenfam. 1: 4. 276 (1899); C. Chr. Ind. Fil. 180 (1905); Acta Hort. Gothob. 1: 91 (1924); Christ, Bull. Soc. Bot. France 52: Mém. 1. 59 (1905); Bull. Acad. Géogr. Bot. (1906) 133; Hand-Mzt. Symb. Sin. 6: 40 (1929).

Cheilanthes undulata Hope et C. H. Wright, Gard. Chron. III. 34: 397 (1903)

Rhizome short, oblique, densely radicate; *scales* at the apex dense, narrowly lanceolate, black, rigid; *fronds* subcaespitose, stipe 20-30 cm long, ebeneous or dark castaneous, terete, except a narrow groove above, densely clothed from the base upward and throughout the flexuose rachis in fine, reddish-brown, appressed articulated hairs, which also cover the both sides of leaves, lamina elongate-deltoid, 20-35 cm long, 7-15 cm broad at base, tripinnatifid; *pinnae* 6-10-jugate under the deltoid, pinnatifid apex, alternate, horizontally patent, or the lower ones more or less deflexed, all petiolate, the basal ones much the largest, 8-10 cm long, 5 cm broad, elongate-deltoid, on petiole 1 cm long; *pinnules* 4-5-jugate, alternate, broadly deltoid, shortly petiolulate, 2.5 cm long, 2 cm broad, base truncate, horizontally patent, pinnatifid to a short distance from costule into 2-4 pairs of oblong-lanceolate, blunt *segments*, of which the basal ones 1 cm long, 2-2.5 mm broad; *texture* herbaceous, brownish underneath, greenish above; *veins* flabellulately forked, very oblique to the flexuose costule of segment; *indusium* narrow, brown, continuous, crenate, ciliate.

Yunnan: Lan Kong, *Delavay* (type); Ta-pin-tze, near Tali, *Delavay* 31, 1200, 1301 \ Yan-in-shan, *Delavay* 1165, 1174; Chonang-che-teon, *Delavay* 1165 (1883); Salwin, *G. Forrest* 18331 (1917-19); 1034; *Handel-Mazzetti* 6303 (1914-18); Pinchow, *Ducloux* 6986, 7042; environs de Yunnan-sen, *Dudoux* 6338; A. Henry 13220 (type of *Ch. undulata*). Szechwan: *E. H. Wilson* 5289 (1910). Tibet border: *Capt. Kingdon Ward* 225.

One of the most distinct endemic species of the genus, with which *Ch. Delarayi* Baker from the same locality is the only close relative, which differs in rachis and rachilets being not flexuose, glabrous surfaces of leaves and decidedly cordate pinnules. It appears to be a common fern in the north-western part of Yunnan, but not known elsewhere, besides Wilson's plant from western Szechwan.

Plate 136. Fig. 1. Habit sketch (natural size). 2. Segment, showing venation and position of sori (x 10). 3. Scale from rhizome (x 27). 4. Hairs from leaf surface (x 40).

第 一 百 三 十 六 圖
毛 粉 背 蕨 (水 龍 骨 科)

CHEILANTHES TRICHOPHYLLA Baker

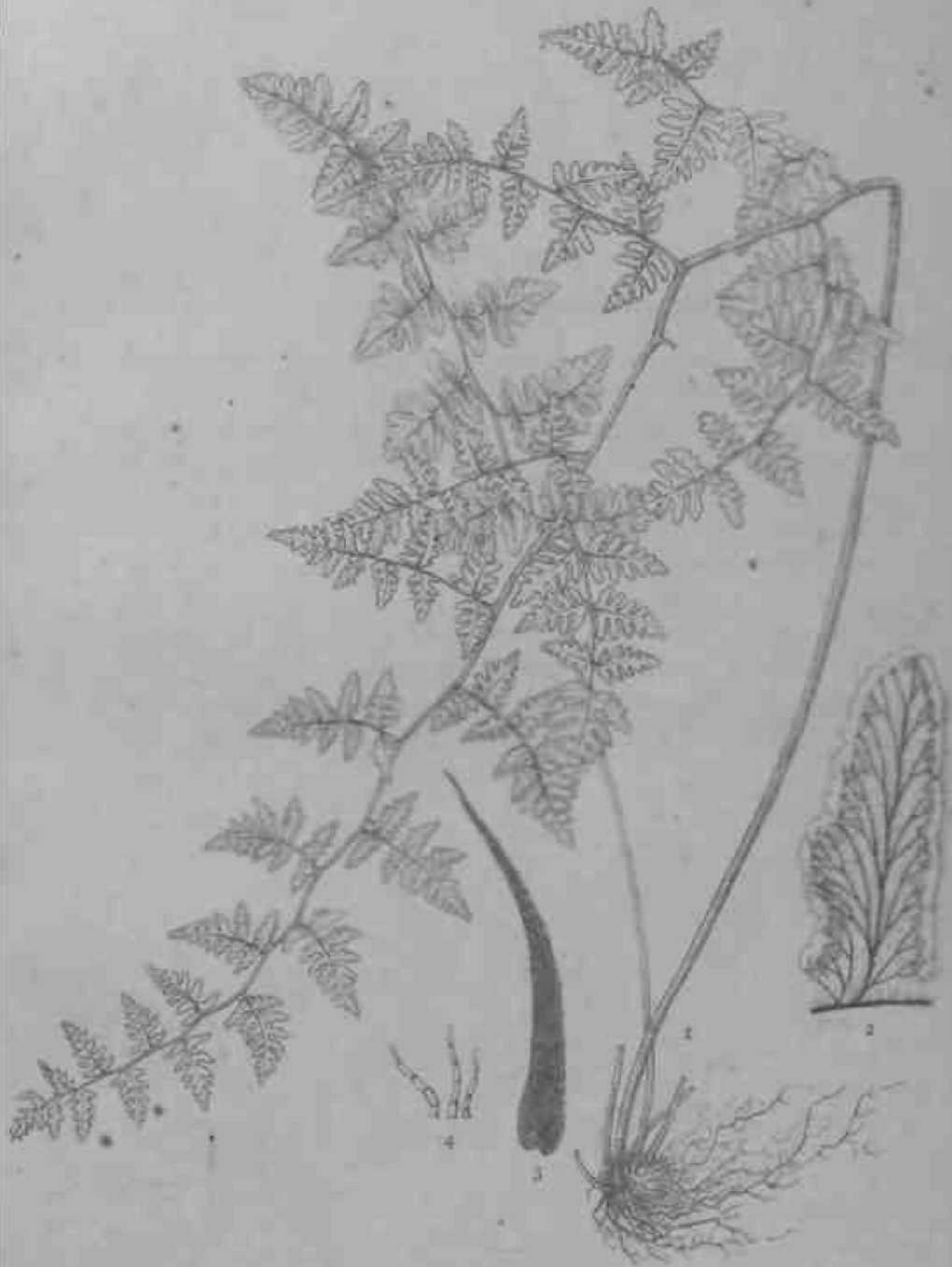
亞 簇 *長二十至三十粉，烏木色或深栗

a 上面具一淺溝槽，遍體被紅褐色之短毛，葉體為長三角形，長二十至三十五粉，寬七至十五粉，三回羽狀深裂，兩面被同樣之密毛，紙質，下面呈淡褐色，各位中肋呈強度曲折，一回小葉六至十對，互生，具柄，水平開展，或多少下向，頂部三角形，羽狀深裂，基部一對最大，長八至十粉，寬五粉，長三角形，柄長達一粉，二回小葉四至二對，互生，長三角形，長達三粉，寬約二粉，基部截形，水平開展，羽狀深裂，裂片二至四對，橢圓披針形，鈍頂，位於基部者長達一粉，寬約三粉；葉脈扇狀三叉，斜向上出；子囊羣着生於葉邊小脈之端，蓋膜質，線形，通直，邊呈波狀，具捷毛。

分布：雲南，四川，及西藏東部。

本種為我國西部高山特產，極為奇特，與此相類者惟 *Ch. Delavayi* Baker，然其各位中肋不呈強度曲折，葉兩面頗光滑，末回小葉之基部呈心臟形，故易與本種區別。

圖註： 1. 本種全形(自然大)， 2. 裂片，表示其葉脈及子囊羣之位置(放大十倍)， 3. 地下莖上之鱗片(放大二十七倍)， 4. 葉面之紅褐色毛(放大四十倍)。



CHEILAMTHES TRICHOPHYUA liikcr
< * n i

ADIANTUM REPRACITUM Christ

POLYPODIACEAE

ADIANTUM REPRACITUM Christ, Bull. Acad. Géogr. Bot. (1902) 224; *ibid.* (1906) 136; C. Chw Ind. Fil. 32 (1905); Acta Hort. Gothob. 1: 93 (1924).

Adiantum capillus-veneris Diels (non. L.) in Engl. Jahrb. 29: 202 (1900).

Adiantum capillus-veneris var. *sinuatum* Christ, Bull. Soc. Bot. France 52: Mém. 1. 62 (1905); C. Chr. Acta Hort. Gothob. 1: 93 (1924).


Rhizome short, oblique, densely clothed at apex in rufo-brown, ovate-acuminate, entire *scales*; *fronds* caespitose, stipe 10-25 cm long, glossy, ebeneous, naked, lamina deltoid-ovate, 20-30 cm long, nearly as broad, tripinnate; *pinnae* 5-8-jugate, alternate, with zigzag rachis, all long-petiolate, basal ones much the largest, oblong-ovate, 10-15 cm long, 4-6 cm broad; *pinnules* 6-7-jugate, petiolate, alternate, the lower ones pinnate, upper ones 2-3-foliolate, the uppermost ones simple, rachilets also strongly flexuose; *pinnules* of ultimate order 1-1.5 cm each way, flabellate with sinuate or 2-3-incised outer margin, petiolulate; *lobes* entire with deeply incurvate outer edge; *texture* membranaceous, green; *veins* fine, flabellately forked; *sori* one to each lobe, to 8 mm long, *indusium* more or less curved, brown, persistent.

Szechwan occid: *Wilson* 5259 (type); Nanchuan, *Rosthorn* 954 *ibid.* *W. P. Fang* 5708; between Haiting and Ping-yi-pu, *Harry Smith* 1753, 1972; Tchen-kou-tin, *Farges* 730) **Kuan Hsien**, *W. P. Fang* 2357. **Kweichow: Gan-pin, Cavalerie** 3725; *Bodinier* 1840. Yunnan: environs de Yunnan-sen, *Bucloux*.

This distinct Maiden-hair fern native of West China is closely related to *A. capillus-veneris* L. from which it differs in tufted leaves, zigzag rachis and rachilets, much less divided ultimate pinnules and much longer sori and indusium.

Plate 137. Fig. 1. Habit sketch (natural size). 2. Pinnule (x 4). 3-4. Scales from rhizome (x 14).

m - *w* *H* + *-b* 圖

«  * * OK *ffl* * 科)

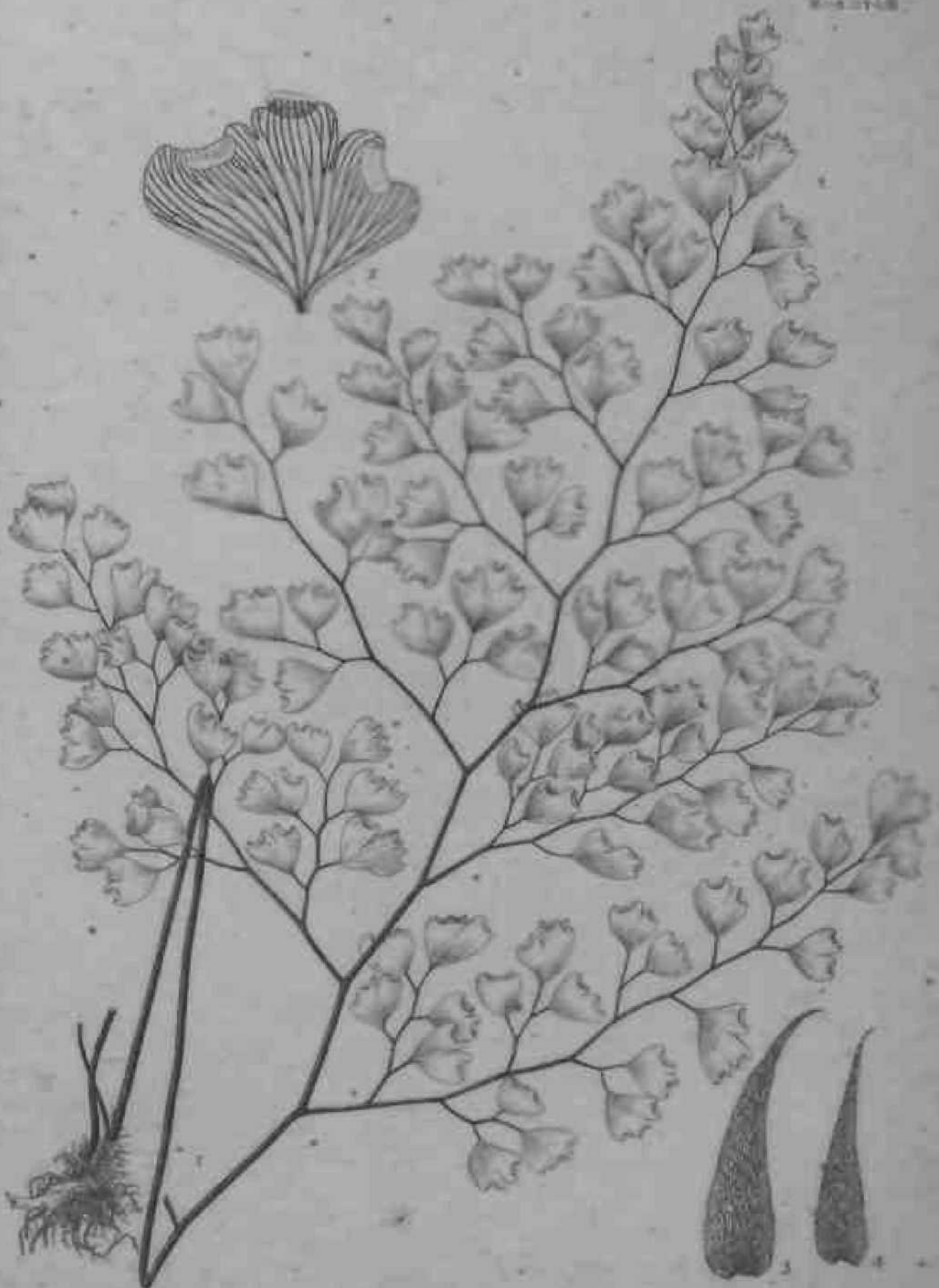
ADIANTUM REFRACTUM Christ

地下莖短而斜出，端具紅褐色之卵形漸尖頭鱗片；葉簇生，柄長十至二十五粉，光亮，烏木色，光滑，葉體卵狀 Hft^{\wedge} . $ftrtSS+ \#$ » 寬幾如之 » H 回羽狀分裂，一回小葉五至八對，互生，具柄，各位中肋呈強度曲折，基部一對最大，橢圓卵形，長十至十五粉，寬四至六粉，二回小葉六至七對，具柄，互生，位於下部者，羽狀分裂，上部者二至三裂，最上者不分裂；末回小葉長寬約各一至一·五粉，略呈扇形，頂端呈波形或二至三淺裂，具短柄，裂片無鋸齒，向下凹，葉為薄紙質或厚膜質，光綠色，葉脈扇狀分叉；子囊羣長達八種，每裂片一個，蓋同形，向上灣曲，褐色，宿存。

分布： 四川，貴州及雲南。

本種為我國西部特產，極為美觀，其異於普通習見之繖線蕨(*Ad. capillus-veneris* Linn.)*，為其簇生之葉，強度曲折之各位中肋，末回小葉僅具二至三個淺裂片與其較長之子羣蓋是也。

圖註： 1. 本種全形(自然大) * 2. 末回小葉(放大四倍)， 3-4. 地下莖端之鱗片(放大十四倍)。



ADANTUM REFRACTUM Clb. ¹⁸¹⁵

30 I K I

PLATE 138

ADIANTUM DAVIDI Franchet

POLYPODIACEAE

ADIANTUM DAVIDI Franchet, *Nouv. Arch. Mus.* II. 10: 112 (1887); Diels in Engl. u. Prantl: *Nat. Pflanzenfam.* 1: 4. 284 (1899); Christ, *Bull. Soc. Bot. France* 52: *Mém.* 1. 62 (1905); *Bull. Acad. Géogr. Bot.* (1906) 136; *C. Chr. Ind. Fil.* 25 (1905); *Acta Hort. Gothob.* 1: 94 (1924); *Contr. U. S. Nat. Herb.* 26: 310 (1931).

Adiantum aristatum Christ, *Bot. Gaz.* 51: 345 (1911); *C. Chr. Ind. Fil. Suppl.* I. 4 (1912); *Bot. Gaz.* 56: 331 (1913).

Adiantum Davidi var. *aristatum* C. Chr. *Acta Hort. Gothob.* 1: 94 (1924).

Adiantum monochlamys var. *latedelloideum* Christ, *Nuov. Giorn. Bot. Soc. Ital. n.s.* 4: 88 (1897).

Adiantum latedelloideum C. Chr. *Acta Hort. Gothob.* 1: 94 (1924).

Adiantum venustum Christ, (non Don) *Bull. Soc. Bot. France* 52: *Mém.* 1. 62 (1905).

Adiantum monochlamys C. Chr. *Bot. Gaz.* 56: 331 (1913).

Rhizome wiry, wide-creeping, densely scaly at growing tip; *scales* nilide, atro-brown, ovate-lanceolate, entire; *frond* far apart, stipe slender, firm, terete, glossy, castaneous, 10-20 cm long, glabrous above the scaly base, lamina deltoid-ovate, much shorter than stipe, tripinnate; *pinnæ* 3-5-jugate under elongate pinnatifid apex, all petiolate, basal ones much the largest, deltoid-lanceolate, to 7 cm long, 3-4 cm broad; *pinnules* oblong, petiolulate, obtuse, with 1-4 pairs of ultimate close pinnules which are of flabellate shape with rounded, aristately serrate outer margin, distinctly petiolulate, 4-7 mm each way, rachis, rachilets, costa and petiolules shining castaneous; *texture* crass herbaceous, surfaces glabrous, green above, more or less glaucous underneath; *veins* fine, flabellately forked, more or less projecting out from the sharp teeth; *sori* medium-sized, generally solitary to each ultimate pinnule, *indusium* brown, thick, rotundo-reniform, 2-3 mm long, with the sterile margin on both sides aristately serrate.

Szechwan: Moupin, *David* (type) (1870); Tchen-kou-tin, *Farges* 689; Yenguen, *Handel-Mazzetti* 2789; *Wilson* 5254 (type of *A. aristatum*); Mo Tien Ling, *F. T. Wang* 22453; Teng-hsiang-ying, *Harry Smith* 1918; Drogochi, *Harry Smith* 4548. Yunnan: The Red River, Mo-soyu, *Delavay* 1698; Hokin, *Delavay* 1198; Lonkong, Yen-tze-hay, *Delavay* 1878', 1687; Teng Kou valley, *Forrest* 12483; Yun-*x*-peh Mt., *Forrest* 17049; *Duclouoc* 3368. Shensi: Lun-san luo, *Giraldi*, Oct. 1893; Miao-nan Shan, *Giraldi*, Jan. 1899; Thai-pei Shan, *Giraldi* August, 1893; August 10-20, 1894 & 1895; *Purdom* 79 78; *ibid.*, Hopingsze, *K. S. Hao* 4272, Sept. 12, 1932. Tibet Border: *Capt. Kingdon Ward* 479 (1913).

Burma: Simila, *Burhe* 23 (1807).

This distinct endemic species belongs to the group of *A. venustum* Don of Northern India. The underside of leaves sometimes appears conspicuously glaucous, or sometimes only bluish as in *A. aristatum*. *A. latedelloideum* C. Chr. from the southern part of Shensi is only a somewhat ampler form; and most specimens from the same region have ultimate pinnules rolled up, due evidently to the dry habitat.

Plate 138. Fig. 1. Habit sketch (natural size). 2. Pinnule (x 8). 3-4. Scales from rhizome (x 25).

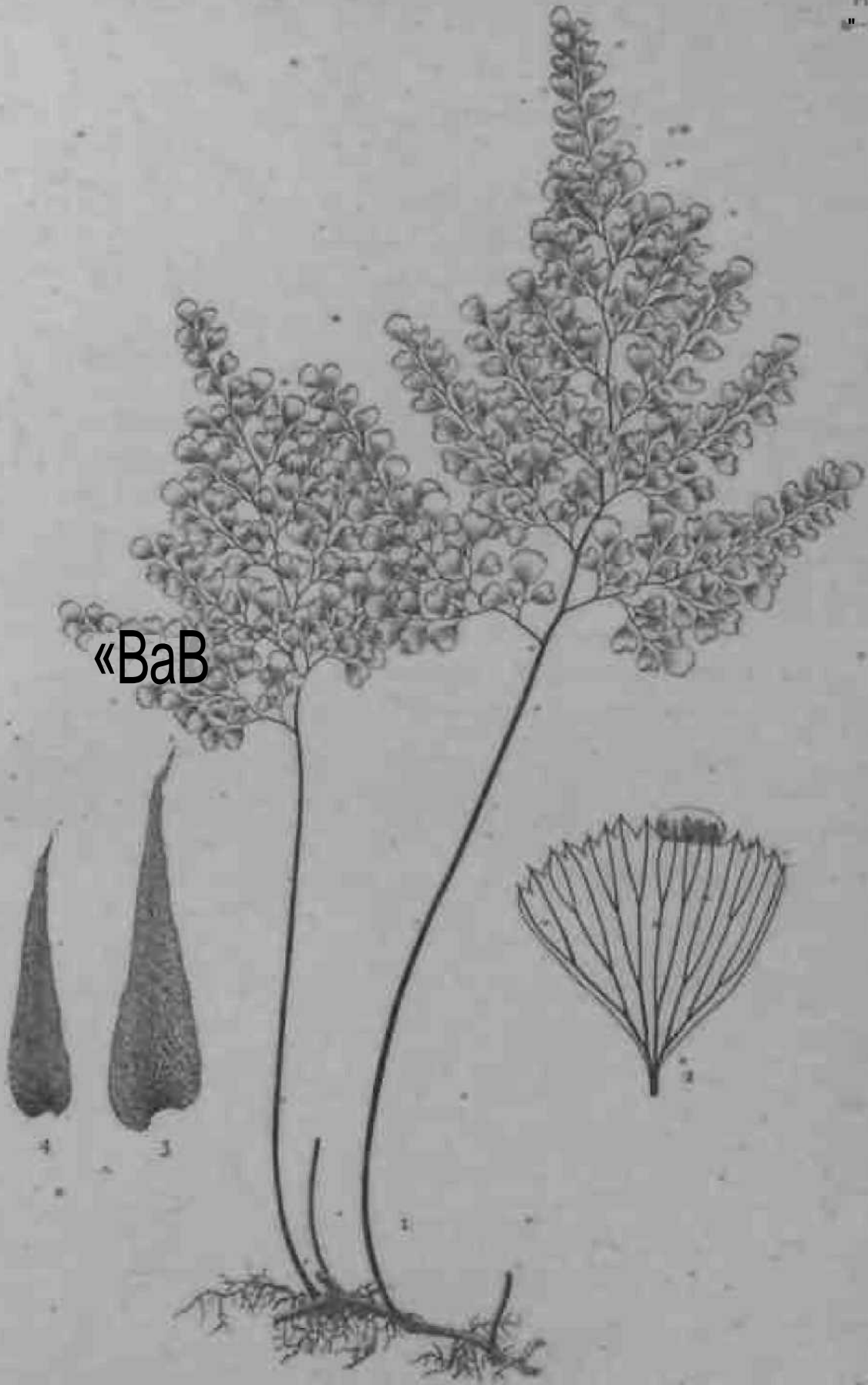
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e n m si JR OK n n- 科)
ADIANTUM DAVIDI Franchet

地下莖細長蔓生，H_Wr，具深褐色光亮之卵披針形鱗片；葉散生，柄細長而堅實，橫切面圓形，具光澤，呈栗色，長十至二十粉，惟基部略具鱗片，餘皆光滑，葉體卵三角形，長漸尖頭，較柄短，三四羽狀分裂，一回小葉三至五對，均具柄，基部一對最大，三角披針形，長達七粉，寬三至四粉，二回小葉橢圓形，具短柄，鈍頭，羽狀分裂，末回小葉密接，*mm* *長寬各四至七釐，上部葉緣具開展刺狀鋸齒，葉脈羽形分叉，各位中肋呈光亮之栗色，葉上面綠色，下面呈灰白或灰綠色，子囊羣中大，通常每一小葉具一個，蓋為圓腎形，黃色，厚膜質，長二至三釐，兩側葉緣具刺狀鋸齒。

分布： 四川，雲南，陝西南部及西藏東部；緬甸亦產之，惟極罕見耳。

本種為本屬特殊之一種，其末回小葉彼此密連或多小鱗覆，背現灰白色，至為美觀。

圖註： 1. 本種全形(自然大) 2. 末回小葉(放大八倍)， 3-4. 地下莖上之鱗片(放大二十五倍)。



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ADIANTUM DAVIOI Franchet

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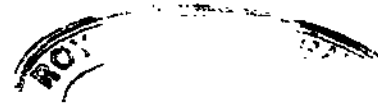


PLATE 139

ADIANTUM EDGEWORTHII Hooker

POLYPODIACEAE

ADIANTUM EDGEWORTHII Hooker, Sp. Fil. 2: 14 t. 81B (1851); Syn. Fil. 472 (1867); Fée, Gen. Fil. 114 (1852); Moore, Ind. Fil. 25 (1857); Bedd. Ferns Brit. Ind. t. 17 (1865); J. Sm. Hist. Fil. 274 (1875); Christ, Bull. Soc. Bot. France 52: Mém. 1. 61 (1905); Bull. Acad. Géogr. Bot. (1906) 136; ibid. (1910) 12; C. Chr. Ind. Fil. 26 (1905); Suppl. III. 19 (1934); Acta Hort. Gothob. 1: 47 (1924); Contr. U. S. Nat. Herb. 26: 310 (1931).

Adiantum caudatum var. *Edgeworthii* Bedd. Handb. Ferns, Brit. Ind. etc. 84 (1883).

Adiantum caudatum var. *rhizophyllum* (Wall) Clarke, Trans. Linn. Soc. II. Bot. 1: 453 (1880), non *Ad. rhizophyllum* Sw.

Adiantum Guilelmi Hance, Journ. Bot. 5: 261 (1867).

Adiantum Spencerianum Cop. Phil. Journ. Sci. 1: Suppl. II. 154 t. 11 (1906); C. Chr. Ind. Fil. Suppl. I. 4 (1912).

Rhizome short, erect, sparsely scaly at apex; *scales* black, lanceolate, subulate towards tip, rigid; *fronds* fasciculated, several together, stipe terete, glossy, castaneous, 10-18 cm long, wiry but firm, glabrous above scaly base, lamina linear-lanceolate, 10-23 cm long, 2-2.5 cm broad; *pinnae* 10-40-jugate, patent, basal ones somewhat smaller, deflexed, uppermost ones gradually diminished towards apex, which is sometimes elongate and rooting, all shortly petiolate, dimidiate, variable in size, apex rounded, anterior inner base truncate, margin more or less lobato-incised, in sterile ones cut nearly half way down into 3-5 oblong, roundish or bifid segments on the outer margin; *texture* thin herbaceous, glabrous in all parts; *veins* fine, flabellately forked; *sort* several to each pinna, *indusium* laterally oblong or subreniform, brown, glabrous.

Yunnan: San-tchang-kisu, Hokin, *Delavay 1714*; Chouany-che-tesu near Ta-pin-tze, *Delavay 7*; Ma-eul-shan, *Delavay 1189*; Mekong, *Handel-Mazzetti 8508 (1914-18)*; *Maire 1390, 2736*; *Forrest 10787*; Mengtze, *Hancock*; Szemeo, *Henry 12821*; Tali, Mo-che-tchin, *Delavay 1200*; *Schneider 2791*; *Ducloux 13, 171 1886*; *Cavalerie 1918, 1903, 1570, 4715, 7070*; environs de Yunnan-sen, *Ducloux 5*; environes de Tengyueh, *I. F. Rock 7970*. Szechwan: *Wilson 526, 5258*; Mt. Ying Shan-luan, *W. Fernusson (1910)*; Yien-pien Hsien, *T. T. Yii 1688*; Nih-yuan Hsien, Lu-shan, *Harry Smith 1797*. Kweichow: Kiang-long, *Michel 994*. Shantung: Tai-shan, *Clemens 1307 (1912)*; *Jacob 20*. Hopei: Peiping mountains, *Hancock*, Sept. 26, 1875; *S. W. Williams 13483 in herb.* Hance; *Bushell*; *Bretschneider 77*; *W. R. Carles 235*; *C. L 206 in herb.* Tsin-Hua Univ.; Changli, *Mrs. Clemens 6022, 6022B*, June 28, 1913; Mia Fan Shan, *C. T. Li 32178*, July 17, 1932; Hsing-lung Shan, *T. N. Liou*, Sept. 15, 1930.

Formosa: *Hancock 113*.

Indo-China: Hermera, *F. Neuton 1080*.

N. W. India: Luni valley, alt. 5,000 ft., *Edgeworth* (type), common.

Also the Philippines.

This pretty distinct fern belongs to the group of *A. caudatum* L. with which it has not infrequently been confounded, and from which it differs in much less divided pinnae and naked leaves. Very variable in size and dimension of pinna; Specimens from North China are generally of smaller size in every respect.

Plate 139. Fig. 1. Habit sketch (natural size). 2. The same, a smaller form (natural size). 3. Pinna (x 5). 4. Scales from rhizome (x 24). *

第 - I H t 九 圖
愛氏鐵線蕨(水龍骨科)

ADIANTUM EDG-EWOBTIII Hooker

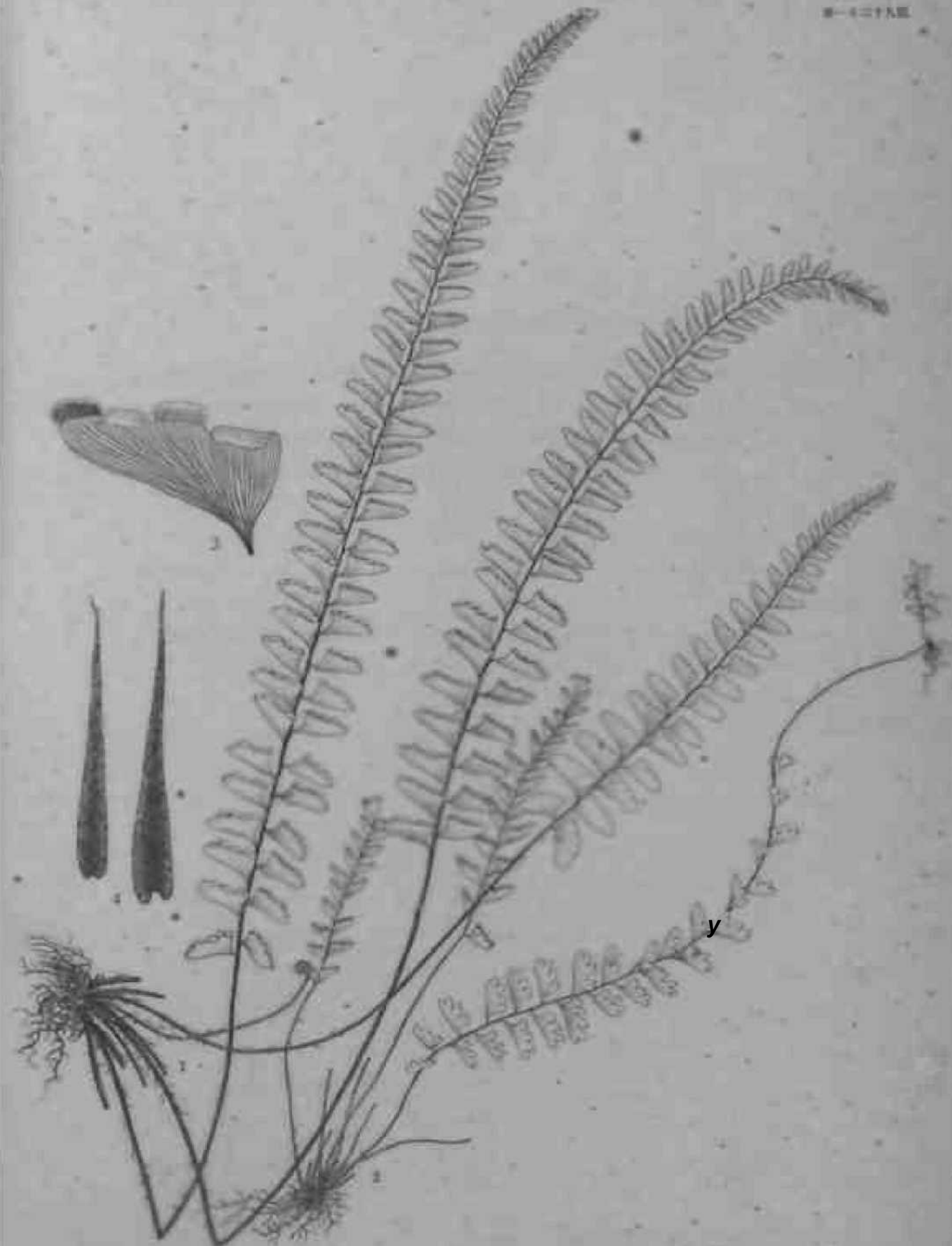
地下莖短而直立，端部具黑色狹披針形之疏鱗片；葉簇生，柄細長，圓形，光亮，紅栗色，長十至十八粉，惟基部略具鱗片，葉體線披針形，長十至二十三粉，寬二至二·五粉，一回羽狀分裂，其端常延長入土著根；小葉十至四十對，M3R 〃 橢圓三角形，基部不等，長一至二粉，基部數對較小，下向，均具短柄，外緣呈多少淺裂，兩面光滑 *紙質；葉脈扇形分叉；子囊羣每小葉數個，蓋橢圓形，或亞腎形，黃色，光滑。

分布：

台灣，交趾，印度北部及菲列濱亦產之。

本種形體極類我國南部所產之 *Ad. caudatum* Linn. 所不同者，為其葉體不具剛毛，小葉外緣僅呈淺裂是也。

圖註： 1. 本種全形(自然大)， 2. 同上，小形(自然大)， 3. 小葉(放大五倍)， 4. 地下莖上之鱗片(JBC 不十四倍)。



AD) AN IU * EOCEWofttMll It. inkert

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PTERIS PAURIEI Hieronymus

POLYPODIACEAE

PTERIS PAURIEI Hieronymus, *Hedwigia* 55: 345 (1914); C. Chr. Ind. Fil. Suppl. II: 30 (1916).

Pteris quadriaurita Hk. Sp. Fil. 2: 179 (1852); Syn. Fil. 158 (1867); Diels in Engl. u. Prantl: Nat. Pflanzenfam. 1: 4. 292 (1899), pro parte.

Pteris quadriaurita Franch. et Saw (non Retz.) Enum. Pl. Jap. 2: 214 (1877); Christ in Warburg, *Monsunia* 1: 69 (1900); Bull. Herb. Boiss. IV. 2: 612 (1904); Journ. d. Bot. France 19: 14 (1905); Bull. Acad. Géogr. Bot. (1910) 16; C. Chr. Acta Hort. Gothob. 1: 97 (1924).

Pteris biaurita C. Chr. Ind. Fil. 593 (1905). pro parte.

Pteris longipinnula Christ (non Wall. 1828), Bull. Acad. Géogr. liut. KJOJ 130; *ibid.*, (1910) 16.

Rhizome short, oblique, densely scaly; *scales* dark brown, lanceolate, rigid, appressed; *fronds* subscespitose, stipe 30-40 cm long, rufo-stramineous on the lower part, lighter-colored upwards, glabrous above the base, lamina broadly ovate-deltoid, 30-45 cm long, nearly as broad; *pinnae* 4-7-jugate under the free end-pinna, generally larger than those immediately below, the basal ones much the largest! deltoid, with 1-3 additional pinnules on the lower side of costa, all subsessile with shortly decurrent base, the middle ones 15-20 cm long, 4.5-6 cm broad, pinnatifid nearly down to costa into 20-30 pairs of linear-subfalcate, obtuse segments under the caudate, entire apex 2-4 cm long; *segments* 2.5-4 cm long, less than 1 cm broad at base with 13-17 pairs of biforked and very prominent *veins*, of which the posterior basal one springing from costa and 2-3-4-forked, the anterior basal one, from the costule of segment, biforked, with veinlets running to the margin some distance above the sharp, callous sinus; *texture* chartaceous, clear light green, glabrous on both sides, except a few brownish, thick, articulated hairs underneath, costa pale-colored, terete below, deeply sulcate and with one stout spine at the base of costule of segment above; *sori* continuous from near the sinus up to a short way from the sterile entire apex of segment, *indusium* membranaceous, gray, entire.

Numerous specimens have been seen from Kwangtung, Islands Hongkong and Hainan, Fukien, Chekiang, Hupeh, Yunnan, Szechwan and Kwangsi, besides Formosa, Japan, French Indo-China. A complete enumeration will appear later in my "Studies of Chinese Ferns."

The present species has previously been generally considered the same as *Pteris quadriaurita* Retz. from Ceylon, the type of which, I had a chance to examine some years ago, is very different from our fern in general habit, but perfectly identical with *Pteris otaria* Bedd. Ferns S. Ind. t. 41, 219. Our plate is based upon a specimen from Kwangtung (leg. Y. K. Wang No. 31655) and represents what Hieronymus has considered var. *rujida*. I.e. p. 346., a form, common in South China, which differs, according to its author, from the Formosan type (leg. Faurie No. 628) in clear light green leaves and more prominently raised veinlets on both sides; but ample material from the region has convinced me that a varietal name is hardly justified. It is possible, however, that some specimens from Szechwan and Kweichow which have more pairs of lateral pinna* with much longer linear caudate apices, may prove specifically distinct from the form from South China.

fl - I H + 圖
I R H ^ i O K S I # 科)
PTEBIS FAURIEI Hieronymus

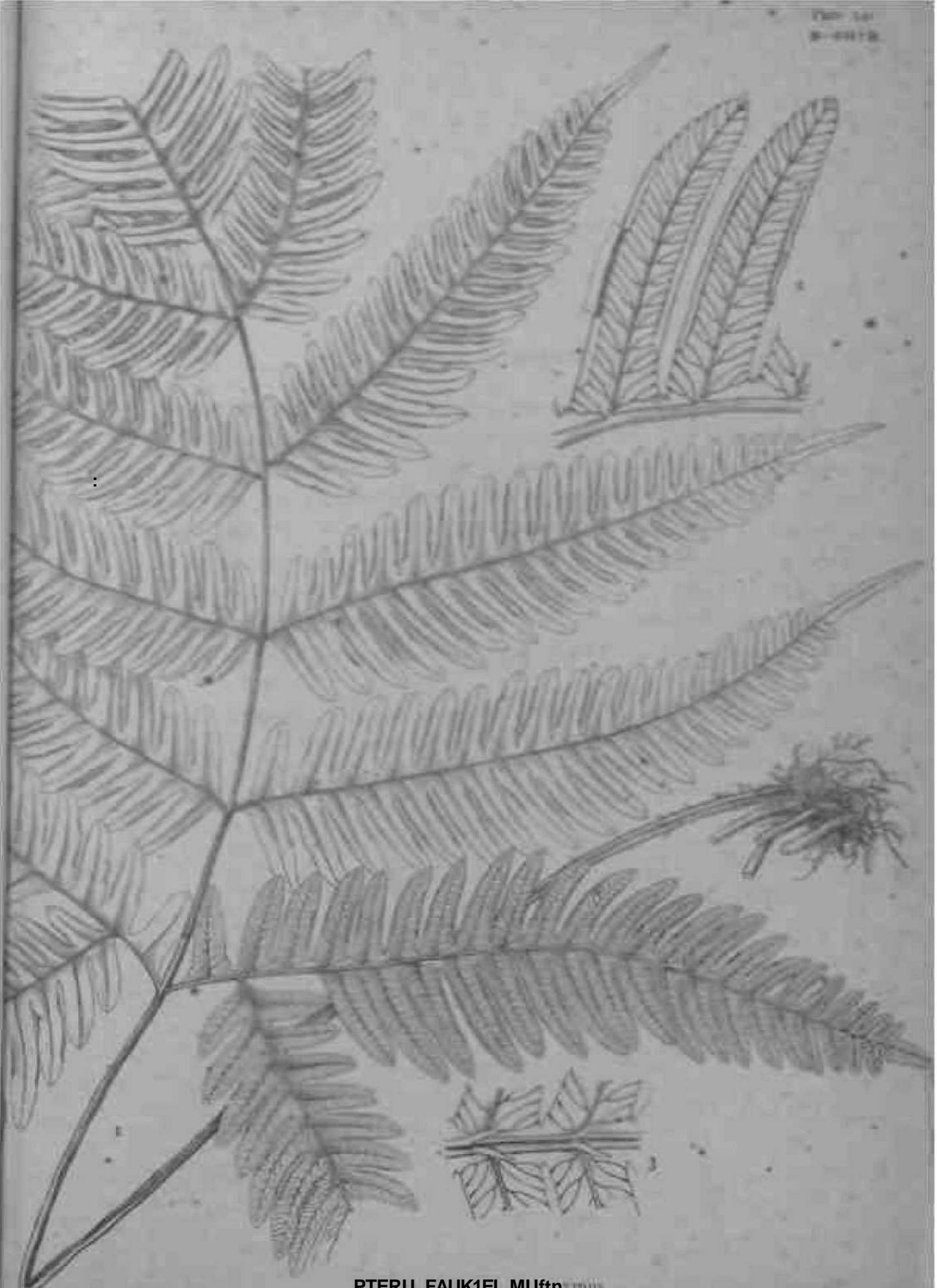
地下莖短而斜出，端具深褐色厚質披針形之密鱗片；葉亞簇生，柄長三十至四十粉，下部呈紅稻桿色，上部為淡稻桿色，光滑，葉體闊卵三角形，長三十至四十五粉，寬亦如之，二位奇數羽狀分裂，小葉四至七對，幾無柄，基部一對最大，中肋下面具一至三數小葉，中部一回小葉長十五至二十粉，寬四·五至六粉，中肋上面具肉刺，綠色，厚紙質，光滑，羽狀深裂達於中肋，頂端呈尾形；裂片二十至三十對，長二·五至四粉，寬不及一粉⁹ 線形，亞鑷形，全緣，鈍頭，葉脈十三至十七對，顯明，二叉，其基部下之脈着生於一回小葉之中肋 蓋線形，寬約一厘米，膜質，灰白色，全緣。 > Hsiax; TmvMnt * mi&mm * mm mm *

分布： 廣東，香港，瓊洲島 本，台灣及交趾亦產之。

本種為本區內習見之品， *fTfflk>mxL>Mit'mm>m)\|'Bk&'. n* 者大相
HtKn&t&\$ii0'k\$&&fttyi&£- P'- quadriaurita Retz. (sJM » Sf^'JZI

圖註： 1. 本種全形(自然大)， 2. 兩裂片，表示及葉脈及子囊羣之位置(放大四倍)， 3. 小葉之一部，表示其中肋上面之肉刺(放大二倍)。

200-101
B-4412



PTERU FAUK1EI MUftn 271112

I t I K I

C. M. ...

ICONES FILICUM SINICARUM

PLATL 141

PTERIS DAOTYLINA Hooker

POLYPODIACEAE

PTERIS DAOTYLINA Hooker, Sp. Fil. 2: 160 t. 130A (1858); Syn. Fil. 155 (1867); Baker, Journ. Bot. (1888) 226; Diels in Engl. u. Prantl: ;at. Pflanzenfam. 1: 4. 292 (1899^N Christ, Bull. Acad. Géogr. Bot. (1906) 130; O. Chr. Tnd. Fil. 596 (1905); A hort. Gothob. 1: 96 (1924); Contr. U. S. Nat. Herb. 26: 311 (1931); H Mzt. Symb. Sin. 6: 40 (1929); Clarke, Trans. Linn. Soc. II. Bot. 1: 463 (1 ; Bedd. Ferns Brit. Ind. t. 23 (1865); Handb. Ferns, Brit. Ind. etc.. 107 0 .

I "ie short-creeping, matted, glabrous except a few subulate, rufo-browa scales i firing tips; fronds numerous, tufted, stipe 15-30 cm long, slender, wiry, glossy, ; stramineous, perfect glabrous throughout, shaded dark brown Li the lower pai lamina digitate, consisting of 5-7, or rarely 3 linear elongate pinnae 5-10 cm Ion, 5-7 mm broad with deeply sulcate costa above, the barren ones sharply serrate towards apices; veins widely apart distinct, simple or bifurcate, veinlets rather atent, ended in a distinct clavate hydathode some distance below the base of tooL ; inrtitsium, gray, broac", continuous, subentire, persistent.

Yunnan Schlungba, Handle-Mazzetti ~ 5; Forrest 287. 5983, 12445, * >8569, Likiang, Schne. ?969; Delavay 1720, August, 7, 1883; J. F. Rock 4854- Kansu: F. N. Meyer 20106. ^echwan. Mt. Omei, Faber 1010; Wilson 527'- ^ong-hsiang-ying, Harry Sn th 1993; between Hai-tang and Ping-yi-pu, Harry Smith 1942. Tibet: Muti, "Cap*. Kingdon Ward 4773.

Also Sikkim-Himalayas, common

Type from Sikkim (leg. Drs. Hooker & Thomson). One of the most remarkably graceful slender fern of the group of *Pteris cretica* L. and is closely related to *P. stenophylla* Wall., differs in generally 5-7 much narrower pinnae on very wiry slender sfipe and in its densely tufted leaves. As already pointed out by Hooker (Sp. Fil. 2: 161), the frond of this fern is not strictly digitately dissected but is constructed" on the same plane as is *P. cretica*, except the petiole of the central pinna is either totally suppressed or arrested from lengthening out as in the other species.

Plate 141. Fig. 1. Habit sketch (natural size). 2. Portion of fertile pinna (x 8). 3. Portion of sterile ninna (x 10).

m - & ea + — 圖
m AL m m OK m # 科)

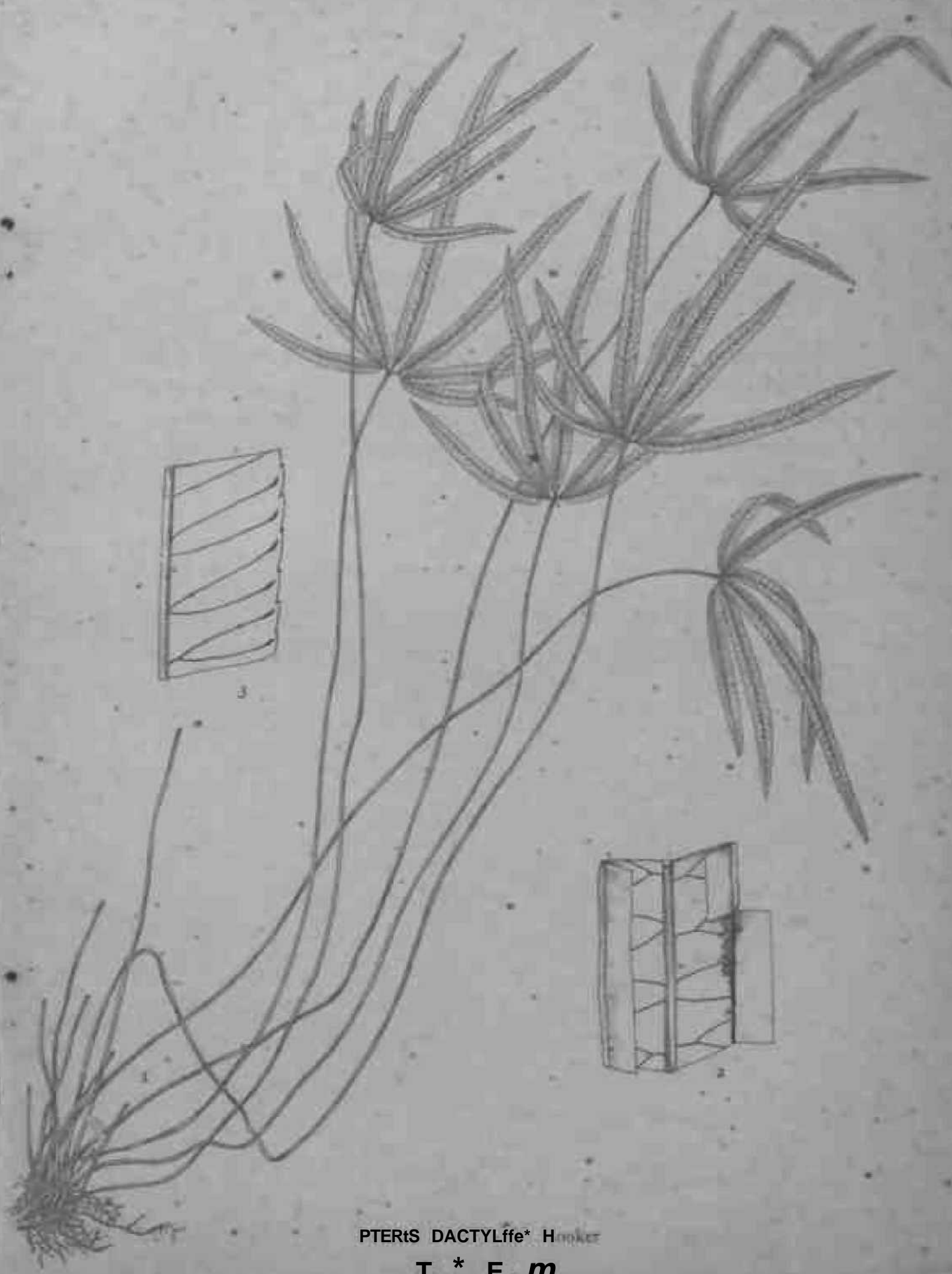
PTERIS DACTYLINA Hooker

地下莖亞蔓生，交錯 * * »，僅端具紅褐色狹針形之疏鱗片；葉多數密生，柄長十五至三十粉，細長而質軟，淡稻桿色，有光澤，全體光滑，基部呈深褐色，葉體圓卵形，掌狀分裂，小葉五至七數，間為三數，線形，長五至十粉，寬五至七釐，幾無柄，光綠色， * f fefcli Jlttffi，側脈疏生，單一或二又，達於葉緣銳鋸齒之基部，非子囊羣小葉及不生子囊羣之部分之葉緣具鋸齒；子囊羣蓋膜質，灰白色亞全緣，通直，宿存。

分布： 雲南，四川，西藏，及印度北部之高山。

本種具秀雅之形態，至為美觀，本屬特殊品種之一也。

圖註： 1. 本種全形(自然大)， 2. 子囊羣葉之一部(放大八倍)， 3. 非子囊羣葉之一» C 放大十倍)。



PTERIS DACTYLIFERA* Hooker
T * E m

PLATE 142

SCHIZOLOMA ENSIFOLIUM (Sw.) J. Smith

POLYPODIACEAE

SCHIZOLOMA ENSIFOLIUM (Sw.) J. Smith, Journ. Bot. 3: 414 (1841); Ferns Brit. & Fore. 231 (1846); Hist Fil. 271 (1875); Fée. Gen. Fil. 108 (1850-52); Bedd. Ferns S. Ind. t. 25 (1863); Handb. Ferns, Brit. Ind. etc. 80 (1883); Diels in Engl. u. Prantl: Nat. Pflanzenfam. 1: 4. 219 (1899); C. Chr. Ind. Fil. (518 (1905); v.A.v.R. Handb. Mai. Ferns 280 (1909).

Lindsaea ensifolia Sw. in Schrad. Journ. Bot. 1830²: 77 (1801); Syn. Fil. 118 (1806); Willd. Sp. Pl. 5: 420 (1810); Hk. et Grev. Ic. Fil. t. 3 (1827); Hk. Sp. Fil. 1: 220 (1844); Card. Ferns t. 62 (1840); Journ. Bot. (1857) 336; Syn? Fil. 112 (1867); Christ, Farnkr. d. Erde 297 (1897); Benth. Fl. Hongk. 4⁶ (1061); Clarke, Trans. Linn. Soc. II. Bot. 1: 452 (1880).

Lindsaya lanceolata Labill. Pl. Nov. Holl. 2: 98 t. 248. f. 1 (1806[^], *folia simplex*).

Lindsaya pentaphylla L¹k. Sp. Fil. 1: 219 t. 67 (1844).

Lindsaya Griffithiana Hk. Sp. Fil. 1: 219 t. 08B (1844); Bedd. Ferns Brit. Ind. t. 29 (1867), *folia simplex*.

Rhizome short-creeping, densely scaly; *scales* brown, lanceolate-subulate, entire; *frond* rather approximate, stipe 6-20 cm long, light castaneous, somewhat glossy, naked throughout, lamina 15-25 cm long, impari-pinnate or rarely simple (*Lindsaya Griffithiana*); *pinnae* 1-12-jugate, petiolate or sessile, alternate, 6-13 cm long, from less than 1 cm to 2 cm broad, linear-lanceolate, base obliquely truncate, both sides glabrous; *texture* thin herbaceous, margin entire (sterile ones serrate); *midrib* prominent, lateral main veins none; *veins* anastomosing in 1-2 rows of oblique, angular exappendiculate areolae on each side of midrib, free towards margin; *sori* linear, continuous, uniting the apices of free veinlets, *indusium* double, membranaceous, gray, entire, continuous, opening outwardly; *stipules* 4-angular, translucent.

Hongkong; *Fortune* 7, 27 (1848); *Faurie* 1577^{*} (1895); *C. Wright* (1853-56); *Bodinier* 887; *Lorain* (1856), *pro parte*; *Harland* 63; *Gower* ^{*} (1896); *Matthew* 304 (1904); Koolung, *C. T. Yong* 291 in herb. Tsin-Hua Univ.; *Gardner, Dill.* Kwung-tung: Swatow, *Dalziel*, Sept. 1901; Lohfau Shan, *C. Ford* (1883); *N. K. Chun* 40990. Hainan: Hoichow; *Hancock* 1 (1875); Dung Ka to Win Fa Shi, *C. L. Tso & N. K. Chun* 43728.

Widely distributed throughout tropical Asia, Australia and Polynesia. Very closely related to this fern is *Sch. heterophyllum* (Dry.), which differs in the lateral pinnae gradually decrescent towards the lobato-pinnatifid apex. Our fern is a very variable one as to the shape of frond, which varies from simple to fully pinnate with 10 pairs of pinnae of different width. Our plate is based upon a specimen from Kwangtung (leg. N. K. Chun 40990), which agrees very well with type from Island Maritius, now to be found in the herb. Swartz.

Plate 142. Fig. 1. Habit sketch (natural size). 2. Portion of pinna f x M ^{*}_f. The MUIL, NMUI open indusium (x 6). 4. Spores (x 500). 5. Scale from rhizome (x 10J).

第 一 百 四 十 二 圖

81 且 日 W O K t H ^ 科)

SOHIZOLOMA ENSIPOLIUM (Sw.) J. Smith

地下莖亞蔓生，具褐色狹披針形之密鱗片；葉近生，柄長六至二十粉，淡栗色，稍具光澤，光滑，葉體長十五至二十五粉，橢圓形，奇數一回羽狀分裂，間為線披針形之單葉；小葉一至十二對，具短柄或幾無柄，互生，長六至十三粉，寬一至二粉或較狹，線披針形，基部斜截形，兩面光滑，紙質，全緣（非子囊葉具鋸齒）；主脈明顯，側脈無，小脈網狀，網眼一至二列，斜出，內不具小脈，向葉邊分，蓋兩層，膜質，全緣，通直，向外開。

分布： 廣佈

瓊洲島亦產之。

本種酷似 *Sch. heteropyllum* (Dry.), gftTO* » AX小葉成奇數，向葉端不漸縮小是也。

圖註：

同上，具展開之雙子囊傘蓋

(放大六倍)



SCHIZOLOMA ENSIFOLIUM (Sw.) J. Smith

擬鳳尾蕨

PLATE 143

CONIOGRAMME INTERMEDIA Hieronymus

POLYPODIACEAE

CONIOGRAMME INTERMEDIA Hieronymus, *Hedwigia* 67: 301 (1916); *C. Chr. Ind. Fil. Suppl. IT.* 9 (1916); *Contr.* U. S. Nat. Herb.* 26: 307 (1931); Wu, *Bull. Dept. Biol. Sun Yatsen Univ.* No. 3: 212 t. 97 (1932).

Coniogramme javanica Hk. *Sp. Fil.* 5: 145 (1863); *Syn. Fil.* 381 (1867), pro parte.

Coniogramme fraxinea Diels in Engl. u. Prantl: *Nat. Pflanzenfam.* 1: 4. 262 (1899); *C. Chr. Ind. Fil.* 185 (1905), pro parte; Christ in Warburg, *Monsunia* 1: 58 (1900); Fedde, *Repert. Sp.* Nov. 5: 159 (1908); *Bull. Acad. Géogr. Bot.* (1910) 5, 14; Komarov, *Fl. Mansh.* 1: 140 (1900); Fomin, *Fl. Sib. et Orient. Extr.* 5: 155 (1930); Ogata, *Ic. Fil. Jap.* 3: t. in (1930), nan Diels, pro parte.

Gymnogramme javanica Christ, *Bull. Acad. Géogr. Bot.* (1906) 130.

Rhizome wide-creeping, densely scaly; *scales* brown, lanceolate, acuminate, subentire; *frond* far apart, stipe 20-40 cm long, glabrous, pale stramineous, terete below, broadly grooved above, lamina ovate-deltoid, 40-60 cm long, 30-45 cm broad, bipinnate at base, simple pinnate upwards under the free end-pinna, or rarely simple pinnate; *lateral pinnde* 3-10-jugate, alternate, the basal ones much the largest, opposite and long-petiolate (petiole to 2 cm long), over 20 cm long, generally trifoliolate or rarely pinnate, the upper ones simple or rarely the second pinnae trifoliolate or bilobed, petiolate or rarely the uppermost ones sessile or adnate, 30-15 cm long, 4-3 cm broad, broadly lanceolate, with caudate or attenuate apex, base rounded or rotundo-cuneate. margin sharply serrate; *texture* herbaceous, color light green, both sides naked or sparsely villose, rachis naked, glossy, pale stramineous; *veins* free, distinct, oblique, generally biforked from near the base, veinlets fine, straight, parallel, extending till the base of teeth or well into the teeth and ended in an elongate clavate apex; *sori* pale brown, exindusiate, following veins and veinlets till a short distance from the margin, which remains sterile with the apex'.

Var. **glabra** Ching, var. nov. Pinnis subtus glabris. *

Yunnan: Mengtze, *Hancock* 135; Manmei, *Henry* 92578; *Maire* 2733, 2808, 2768; *Delavay* 494.2; Mekong, valley, *Forrest* 12940; San Tcha Ho, *Delavay* Oct. 13, 1887; Mào Kou Tchang, *Ducloux* 13. 1169; Likiang, *l. F. Rock* 7757; Tchen-fong Shan, *Delavay* 3043 (1894). Kweichow: Pin-fa, *Cavalerie* 324; Ganchow, *Michel* 1044; Cheng-feng, *Y. Tsiang* 4603. Hupeh: Ichang, Nanto, *Henry* 2204; Koi Hsien, *Silvestri* 34, 33, 2839 (1909); Shin Shan Hsien, S. S. *Chien* 8103 in herb. Univ. Nanking. Szechwan. Mt. Omei, *Wilson* 5245; *Brown* II, 31; *W. P. Fang* 2707, 2375, 2576, 2605, 2548; **Nanchuan,** *W. P. Fang* 5738. **Hunan:** Yun-Shan, *Handel-Mazzetti* 12250. **Kwangtung:** Lohfau Shan, *Levine & McClure* 6831; *Levine* 1485; Lokchong, *W. T. Tsang* 20955. Sherisi: Tui-kio-san, *Giraldi*, Sept. 1893; Si-ku-tziu-san, *Giraldi*, July, 1894; Wei-tze-ping, *Licent* 2545 (1916). Kvangsi: Yao Shan, S. S. *Sin* 468 (1928); Tsinlung Shan, Lin-yin Hsien, *R. C. Ching* 6882; Lu-chen, *R. C. Ching* 5745. Manchuria: Kirin, *Komarov* 40 (1896); *James* (1886).

Corea: *Taquet* 2474, 2475. Also Japan, Tonkin and East India.

Var. **villosa** Ching, var. nov. Pinnis subtus plus minus pilis tenuissimis, adpressis, articulatis onustis.

Yunnan: Mengtze, *Hancock* 22; Salwin valley, *Capt. Kingdon Ward*, Jan. 2, 1014; *Maire* 2786; **Tian-chong Shan,** Tali, *K. K. Tsoong* 2589. **Szechwan:** *Henry* 7107; **Mt. Omci,** *W. P. Fang* 2697, 2697^{2of}; **Mar-pien Hsien,** *W. P. Fang* 6311; *T. F. Lou* 342; Kuan Hsien, *W. P. Fang* 2064. Kwangtung: Lohfau Shan, *E. Faber*, Sept. 22, 1886, herb. Hance; Lokchong, *C. L. Tso* 21067; *W. T. Tsang* 20892. Kweichow: Pin-fa, *Kweiting, Y. Tsiang* 5350.

Also Japan and India.

Our plate represents the var. *glabra* from Mt. Omei (leg. W. P. Fang No. 2548). Hieronymus is right in separating the Chinese and Japanese plants as distinct from true *C. fraxinea* (Don) from the Himalayas and Malesia-Polynesia, which is characterized by entire pinnae of still larger size and much thicker texture, but I can not agree with him in regarding Rosthorn's plant No. 1699 from Nanchuan and Henry's No. 2204 from Ichang (*C. Rosthornii*) as specifically distinct from var. *villosa* of the present species by merely having "shorter, stiff and easily broken hairs, consisting of 2-4 cells" on the underside of pinnae, a character which seems to be too insignificant to justify a specific rank.

Plate 143. Fig. 1. Habit sketch (natural size). 2. Portion of pinna, showing serration and* extension of veinlets (x 12). 3. Scale from rhizome (x 12).

m - w ea + H 圖
m tk T m OK fig # 科)

CONIOGRAMME INTERMEDIA Hieronymus

地下莖蔓生，橫行，具褐色披針形之鱗片；葉散生，柄長二十至四十粉，光滑，淡稻桿色，上面具闊溝槽，葉體卵三角形，長四十至六十粉，寬三十至四十五粉，奇數二回羽狀分裂，一回小葉三至十對，互生，具柄，基部一對最大，對生，柄長達二粉，長逾二十粉，通常具小葉或為羽狀分裂，二回小葉披針形，長三十至十五粉，寬四至三粉，頂部尾形或長漸尖頭，上部一回小葉不分裂，或第二對為三裂，葉緣具密尖鋸齒，兩面光滑或下面被短疏毛，ttffilt，淡綠色；葉脈明顯，斜出，自基部分二叉，平行，達於鋸齒之基部或深入，子囊羣淡黃色，線形，隨葉脈分佈，直達距葉邊近處，無蓋。

分佈：雲南，貴州，湖北，四川，廣東，廣西，東三省；日本，朝鮮及印度東部亦產之。

本種為本區域內普通之種，因其葉體下面有無短毛可分為光葉(Var. *glabra*)與毛葉 cvar. *villosa*)

圖註：1. 本種全形(自然大)， 2. 小葉之_{HB}。表示其鋸齒及葉脈(放大_{J'r:fg}) # 3. 地下莖上之鱗片(放大十二倍)。



CONIOGRAMME INTERMEDIA Hieronimus

草風了展

ICONES FILICUM SINICARUM

PLATE 144

VITTARIA FORRESTIANA Ching

POLYPODIACEAE

VITTARIA FORRESTIANA Ching, Sinensia 2: 191 f. 6 (1931); C. Chr. Ind. Fil. Suppl. III. 194 (1934).

Vittaria Doniana C. Chr. (non Hieron. 1915), Contr. U. S. Nat. Herb. 26: 313 (1931).

Rhizome thick, creeping, densely scaly; *scales fusco-hrown*, iridescent, lanceolate with hair-pointed tip, distinctly reticulated; *frond* rather far apart, 30-35 cm long, 1.5-2.5 cm broad at the broadest part, oblanceolate, acuminate, from one-third from the apex gradually narrowed and broadly decurrent along the stipe till base; *texture* fleshy in living state* coriaceous upon drying, midrib indistinct above, broad and prominent underneath; *venation* distinct against light, lateral veins fine, very oblique, regularly jointed each other towards margin; *sori* superficial, intramarginal, leaving a broad, comparatively thin, plane sterile margin, *paraphyses*, filiform, with enlarged, cup-shaped apical cell.

Yunnan: Sal win divide, *G. Forrest* 18347, 35106, Sept. 1924; Northern Maikha-Salwin divide, *G. Forrest* 27062, July, 1925, on tree of dry rocks in mixed forest, 1,0100 ft. alt.

Burma: Between Sadon and the Yunnan border, *J. F. Rock* 7423, 7496, 7398.

Tonkin: Chapa, Pételot 1598, 3901.

In gross habit, our fern resembles *V. scolopendria* Thwaites from Male si a Polynesia, but differs above all in its superficial sori; it also closely related to *F. Doniana* Hieron. of East India, which differs in much narrower and linear elongate leaves twice as long with thick and strongly reflexed margin.

Plate 144. Fig. 1-2. Habit sketch (natural size). 3. Portion of frond, showing venation and position of bori (x 2). 4. Scale from rhizome (x 12). 5. Paraphyses from sorus (x 100).

» — w a -l- ra 圖
% m m m (* n # 科)

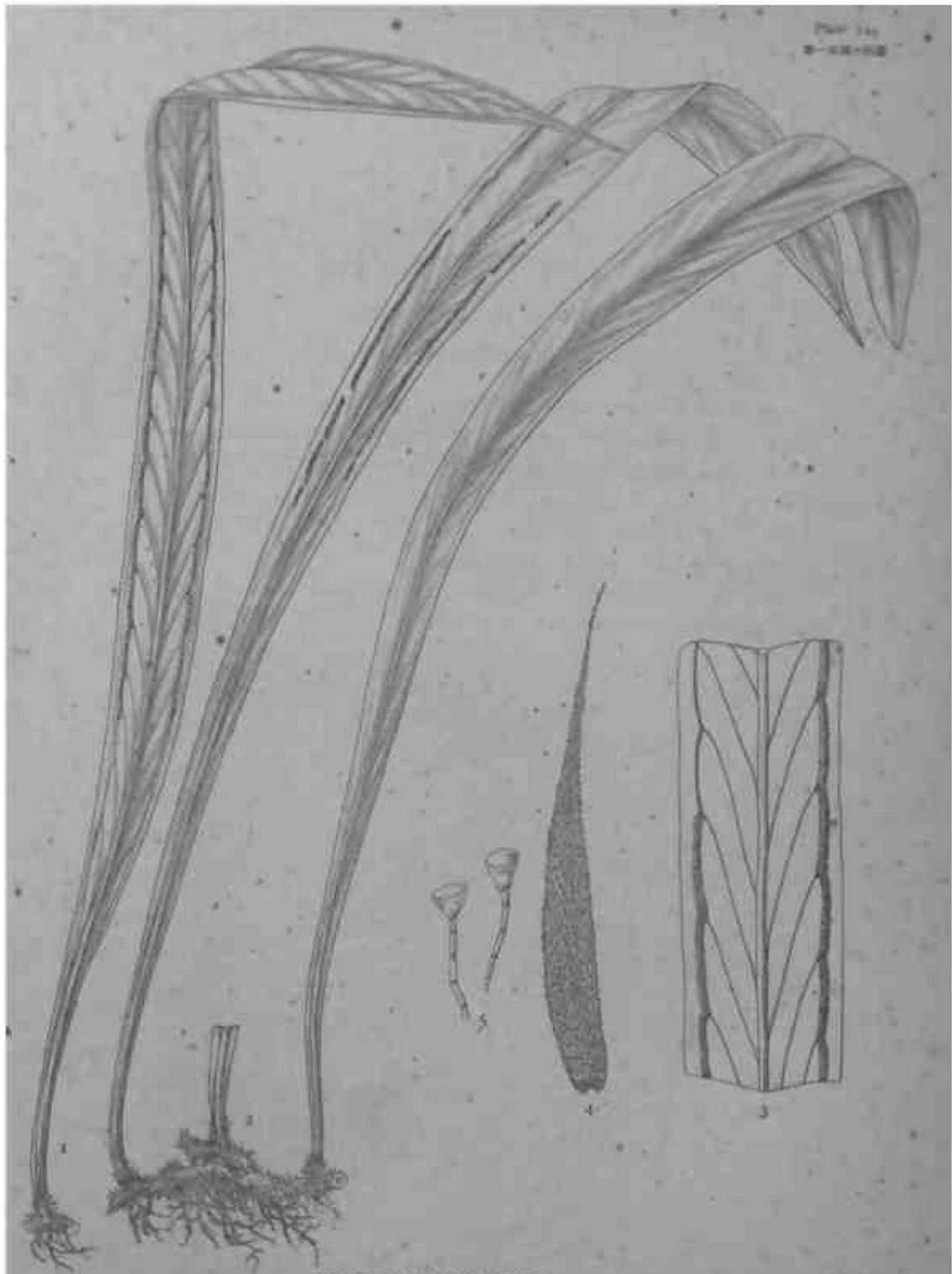
VITTARIA FORRESTIANA Ching

地下莖頗肥，蔓生，具褐褐色且富曲光性之膜質披針形大鱗片；葉頗叢生，長三十至三十五粉，寬一·五至二·五粉，倒披針形，漸尖頭，無柄，薄肉質，向基部漸狹，兩面光滑，中肋上面明顯，側脈在光下可見，斜出，達葉緣近處彼此連接；子囊羣線形，頗近葉邊，線狀體密生，端具杯狀之膨大細胞一個。

分布：雲南，緬甸及交趾。

本種為本區域內之特產，葉體寬廣，為本屬特異之種。

圖註：1-2 4m&mumx) > smmz.—*»***K&-f#*(A:—is)， 4. 地下莖上之鱗片(放大十二倍)， 5. 子囊羣中之線形體(放大一百倍)。



VITTARIA FORRESTIANA Ching

寬書帶蕨

ICONES FILICUM SINICARUM

PLATE 145

ANTROPHYUM FORMOSANUM Hieronymus

POLYPODIACEAE

ANTROPHYUM FORMOSANUM Hieronymus, *Hedwigia* 57: 210 (1915); C. Chr. Ind. Fil. Suppj. II. 4 (1916).

Antrophyum plantagineum Christ (non Kaulf.), *Bull. Herb. Boiss.* II. 4: 610 (1914).

Rhizome short, erect, densely scaly at the base of stipe; *scales* lanceolate, fusco-brown, thin, iridescent, serrulate with hair-pointed tip; *fronds* fasciculated, sessile, lanceolate, 8-15 cm long, 1.2-1.8 cm broad, acuminate, gradually attenuate towards base; *texture* herbaceous, glabrous on both sides, no midrib; *venation* reticulated, fine but distinct against light; *sori* linear, following the course of grooved veins, *paraphyses* broad, ribbon-like.

Kwangtung: Lohfau Shan, N. K. Chun 4*480, July 2, 1930. Kwangsi: Yao Mar Shan, Lin-yin Hsien, R. C. Ching 7082 (1928).

Formosa: Kushaku, *Faurie* 675 (type), June, 1903; *Hancock* 2; *Steere*; Takow, A. Henry; *Swinhoe* (1870); *Play fair* (1889).

From other species of the genus known in the region, our fern can be easily distinguished by its very broad and ribbon-like paraphyses in the sori and much thinner fronds. Our plate is based upon a specimen from Kwangtung (leg. N. K. Chun 41480), which matches the type from Formosa very well.

Plate 145. Fig. 1. Habit sketch (natural size). 2. Portion of frond, showing venation and sori (x 3). 3. Scale from rhizome (*30). 4. Paraphyses from sorus (x 80).

i - I 0 + I 圖
& m m OK n it- 科)

ANTROPHYUM FORMOSANUM Hieronymus

地下莖短而直立，端具褐褐色膜質且富曲光性之披針形鱗片；葉簇生 * *mm* > 寬披針形，長八至十五粉，寬一·二至一·八粉，漸尖頭，向基部最狹，紙質，兩面光滑，無中肋，小脈網狀，網眼垂直，不具小脈；子囊羣線形，隨網脈分佈而凹入葉質內，線狀體為寬帶狀。

分布：廣東，廣西及台灣。

本種為本區域內之特產，其異於本屬其他之種者，為其寬帶形之線狀體是也。

圖註： 1. 本種全形(自然大)， 2. 葉體之一部，表示葉脈及子囊羣(放大 \wedge .fe) * 3. 地下莖上之鱗片(放大三十倍)， 4. 線狀體(放大八十倍)。



ANTROPHYUM FORMOSANUM Hieronymus

車前蕨

PLATE 146

SAXIGLOSSUM TAENIODES (C. Chr.) Ching

POLYPODIACEAE

SAXIGLOSSUM TAENIODES (C. Chr.) Ching, Contr. Inst. Bot. Nat. Acad. Peiping 2: 2 t. 2 (1933); C. Chr. Ind. Fil. Suppl. III. 170 (1934).

Cyclophorus taeniodes C. Chr. Ind. Fil. 201 (1905); Acta Hort. Gothob. 1: 106 (1924).

Polypodium angustissimum Baker (non Fee, 1867), Ann. Bot. 5: 472 (1891); Christ, Nuov. Giorn. Bot. Soc. Ital. n. s. 4: 97 t. 3. f. 1. (1897).

Niphobolus angustissimus Diels in Engl. u. Prantl: Nat. Pflanzenfam. 1: 4. 326 (1899); Engl. Jahrb. 29 :# 207 (1900); Giesen. Farngatt. Niph. 183 (1901); Christ, Bull. Acad. Géogr. Bot. (1902) 220 c. fig.

Niphobolus Cavalcrianus Christ, Bull. Acad. Geogr. Bot. (1904) 107.

Cyclophorus Cavalcrianus C. Chr. Ind. Fil. 198 (1905).

Cyclophorus Sasakii Hayata, Ic. Pl. Form. 6: 158 (1916); Ogata, Ic. Fil. Jap. 4. t. 158 (1931),

Rhizome wiry, wide-creeping, densely scaly; *scales* at growing tips ovate-lanceolate, bright rufo-brown, with spread hair-pointed tip, on old parts, dark-brown, acuminate, j^ltaitely affixed; *frond* far apart, uniseriate 3-9 cm long, 1.5-3.5 mm broad, narrowly linear, sessile or shortly petiolate, articulated to rather a high pseudopodium, rigidly coriaceous, margin strongly revolved, upper side with a few stellate hairs at first, becoming naked at last, midrib deeply grooved, prominent underneath, underside densely clothed in brown woolly stellate hairs with fine, needle-like arms along the midrib; *venation* completely hidden, reticulated with 2-rows of elongated, exappendiculate areolas, veinlets free towards margin and ended in ovate hydathodes; *sori* linear, straight, one-rowed t between margin and midrib, completely covered by the inwardly produced flap-like leaf-margin when young, which is more or less pushed open by the growing sori later; *spores* ovoid, smooth, transparent.

By the present distribution, this peculiarly distinct fern is known from Hupeh, Shensi, Kweichow, Chekiang, Kwangtung, Kwangsi and Szechwan, besides the Island Formosa. A complete enumeration of specimens was already given in my previous paper on the genus, to which readers are referred for more detailed information.

Plate 146. Fig. 1. Habit sketch (natural size). 2. Portion of front, showing venation and position of sori (after Giesenhagen). 3. Cross section of a soriferous frond, showing the indusium-like marginal lip and soral chamber (in moist state). 4. The same, in dry state. 5. Scale from rhizome. 6. Cross section of rhizome. 7. Cross section of the base of stipe. 8. Spores. 9. Stellate hair from the underside of frond. 10. The same from the upper side of frond (2-10 greatly enlarged).

2ft — W ES + 六 圖
m •& ^ OK «i # 科)

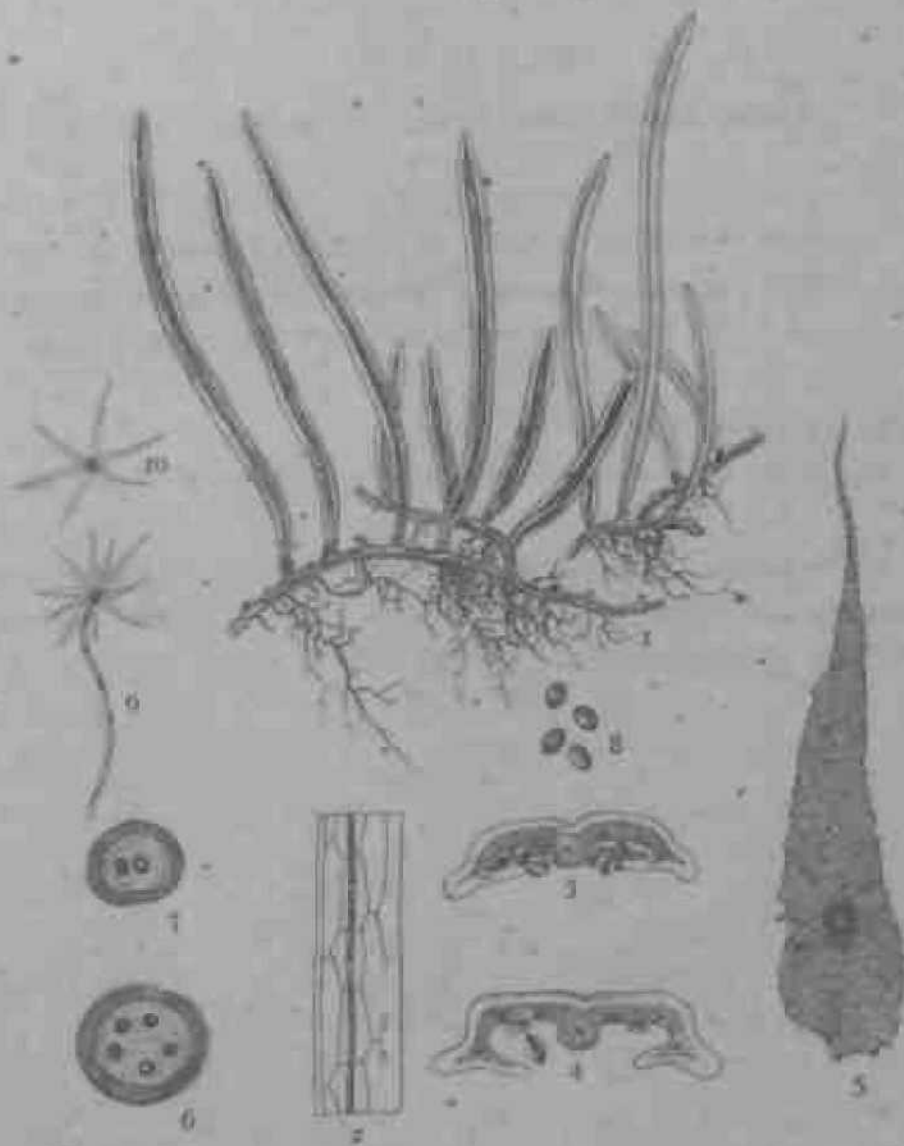
SAXIGLOSSUM TAENIODES (C. Chr.) Ching

地上莖細長，蔓生，緣直立之岩壁橫行，具卵披針形之紅褐色鱗片；葉散 至九份，
3C—•3L SH •五裂，線形，無柄或具短柄，節狀着生於莖上，硬革質，葉緣向下面強度反捲，上面切
具星芒狀之疏毛，久則脫落，中肋上面呈溝狀，下面凸出，密被黃色星芒狀毛，小脈不見，成二列網狀
，網眼垂直，或具小脈或否；子囊羣線形，位於中肋與葉邊之間，幼時全為反捲之葉邊所蓋，嗣則由一
裂縫露上。

分布： 湖北 » HW ' mm > mm > mm * mu. & tm °

此為本屬僅有之種，昔人以之隸於石草屬，據余最近之研究，覺其實與該屬不類，故特闢一新屬以
位之。

圖註： 1- *ti&JE*(Bffi*) » 2. 3dlffi-«B » ^^XHIRK?JHI^fkS ' 3. 濕潤葉之橫切
Hf • 4. KJI^tff-Uli» 5. ttLfc^;f8U5- » 6. *±IKS:« WW » 7. XM^Wiflfi» 8. 孢子，
9. 葉下面之星芒毛， 10. 葉上面之星芒狀毛 (2—10均放大) °



SAXIGLOSSUM TAENOIDES (C. Chr.) Ching

擬石莖

PYRROSIA SHEARERI (Baker) Ching

POLYPODIACEAE

PYRROSIA SHEARERI (Baker) Ching, Bull. Bot. Soc. China 1: 64 (1935).

Poly podium Sheareri Baker, Journ. Bot. (1875) 201.

Niphobolus Sheareri Diels in Enlg. u. Prantl: Nat. Pflanzenfam. 1: 4. 325 (1899).

Cyclophorus Sheareri C. Chr. Ind. Fil. 201 (1905); Acta Hort. Gothob. 1: 105 (1924); pro parte.

Polypodium Drakeanum Christ, Bull. Herb. Boiss. 6: 871 (1898), quoad pi. Faberi.

Cyclophorus Drakeanus (non C. Chr. 1905), L. H. Bailey, Gentes Herb. (1920) 9.

Cyclophorus Drakeanus f. *maxima* Wu, Bull. Dept. Biol. Sun Yatsen Univ. No. 3: 338 t. 150 (1932).

Cyclophorus Sheareri f. *maxima* C. Chr. Bull. Dept. Biol. Sun Yatsen Univ. No. 6: 18 (1933).

Rhizome thick, short-creeping, densely scaly; *scales* ferruginous, lanceolate, serrate; *fronds* subscespitose, stipe 18-30 cm long, thick, stout, articulated at base, dark olive-green, when young, densely clothed in long-stipitate stellate hairs, lamina 15-30 cm long, 3-6 cm broad,* broadly lanceolate, acuminate, somewhat broadened towards unequally subauriculate cordate or rounded base; *texture* rigidly coriaceous, green, densely pitted and also sparsely stellately hairy above when young, densely clothed underneath in thick, reddish-brown persistent indumentum consisting of appressed stellate uniform hairs with short broad arms on the same plan, midrib prominent on both sides, green underneath, dark olive-green above; *lateral main veins* visible on both sides, oblique, *veinlets* completely hidden, copiously anastomosing with numerous included clavate veinlets; *sort* punctate, dorsal or subapical on included veinlets, distinct at first, finally subconfluent.

Kiangsi: Kiukiang, Lu-shan, *Dr. Shearer* (type) (1873); *Maires* (1880); *E. Faber* 10 (1897); *Miss Reid* (1899); *ibid.*, Paradise Pool, *DeVol* 49, 51, July 15, 1933; *V. K. Up* 1770; *A. N. Steward* 4649; *R. C. Ching* 10635 (1934); Fen-cheng, Talou Shan, *Y. Tsiang* 10340 (1931). Hunan: Singning Hsien, *H. F. Chow* 41; Tienchaoping, *Inqvald Ofstad* 7337 in herb. Univ. Nanking. Anwei: Chui Hua Shan, *R. C. China* 7583 in herb. Univ. Nanking; Wu Yuan Hsien, *R. C. Ching* 8842; Hwang Shan, *R. C. Ching* 8910. Chekiang: Ching Yuan Hsien, *R. C. Ching* 2354 Tien Tan Shan, Ningpo, *C. Y. Chiao* 14407; *Sir E. Home* in herb. Hance; *Hancock* 47 (1877); *C. W. Everard*. Kweichow: Pin-fa, *Cavalerie* 1809; Tungtze, *Y. Tsiann* 5019; *Esquirol* 635; Tsin-gay, *Bodinier* 1743; Gan-pin, *Perry* (1858); Kwciyan« *Cavalerie* 705!., Hupeh: Patung, *Henry* 5028, 1428, 2569, 2813; *Wilson* 309. Szechuan: Nanchuan, *W. P. Fang* 5840; *Wilson* 309. Yunnan: Mengtze. *Henry* 4116^ *Hancock* 48; Lan Rang, *Delavay* 4954; *Maire*; San Shan, *Ducloux* 5102; *H. T. Tsar* 5149! 51338. Fukien: Kuliang, *H. H. Chung* J,294- Kwangtung: North River, Taitung, Lokchong, *S. P. Ko* 51889; *ibid.*, Kau Fung, *W. T. Tsang* 20908; Yüyuan, *S. P. How* 53747, 52811. Kwangsi: Miu Shan, Lu-chen, *R. C. Ching* 6129; Yao Shan, *S. S. Sin* 438 (f. *maxima* Wu)

Also Formosa and Tonkin.

One of the most distinct species of the genus, the following species is the only close Chinese ally which differs in generally shorter and broader lamina on much longer stipe and in very dense loose indumentum on the underside of leaves, consisting of long, needle-like arms not on the same plan.

Plate 147. Fig. 1. Habit sketch (natural size). 2. Portion of lamina, showing venation (x 4). 3. Scale from rhizome (x 15). 4. Stellate hairs from the underside of lamina (x 60). 5. The same from tip (x 60). 6. The same from the upperside of lamina (x 60). 7. Spores (X300).

m — e ra + -b 圖
*m U * t ^ c * Si it* 科)

PYRROSIA SHEARERI (Baker) Ching

地下莖肥厚，亞橫行，具锈黄色之披針形鱗片；葉亞簇生，柄長十八至三十粉，堅強，基部節狀着生，勁綠色，幼時具星芒狀之長足剛毛，旋脫落，葉體爲披針形，長十五至三十粉，寬三至六粉，漸尖頭，向基部漸闊，呈不等耳形，厚革質，綠色，上面具小孔，初被星芒狀毛，漸變光滑，下面具淡黄色宿存之厚星芒狀毛，芒短而闊，在同一平面；側脈上下可見，斜出，小脈網狀，不見，網眼具小脈；子囊橢圓形，着生於小脈之端或端下，初甚明顯，旋呈亞合生。

分布：江西，湖南，浙江，貴州，*« * 'ra;u » mm * mm*，廣東，廣西；台灣及交趾亦產之。

本種爲本屬特異之種，在廬山最爲普通，其形態頗似後種，惟葉下面之毛較厚而鬆，色鮮黃，其芒細長如針，且不在同一平面，故易與本種區別。

圖註： 1.本種全形(自然大)， 2.葉之一部，表示其葉脈(放大四倍)， 3.地下莖上之鱗片(放大十五倍)， 4.葉下面之星芒狀毛(放大六十倍) 上面之星芒狀毛(放大六十倍)



PYRROSIA fHEARERII (L.) C. Chr.

廬山石蕨

PLATE 148

PYRROSIA DRAKEANA (Franch.) Ching

POLYPODIACEAE

PYRROSIA DRAKEANA (Franch.) Ching, Bull. Bot. Soc. China 1: 64 (1935).

Polypodium Drakeanum Franch. Nouv. Arch. Mus. II. 7: 165 (1883); Christ, Bull. Herb. Boiss. 6: 871 (1898).

Niphobolus Drakeanus Diels in Engl. Jahrb. 29: 206 (1900); Giesen. Farngett. Niph. 117 (1901); Christ, Bull. Soc. Bot. France 52: Mém. 1. 24 (1905).

Cyclophorus Drakeanus C. Chr. Ind. Fil. 198 (1905); Contr. U. S. Nat. Herb. 26: 326 (1931).

Polypodium Sheareri Christ (non Baker), Nuov. Giorn. Bot. Soc. Ital. n.s. 4: 95 (1897).

Cyclophorus Sheareri C. Chr. Acta Hort. Gothob. 1: 105 (1924, non 1905), pro parte.

Niphobolus Sheareri Christ (non Diels), Bull. Soc. Bot. France 52: Mém. 1. 26 (1905).

Niphobolus inaequalis Christ, Bull. Soc. Bot. France 52: Mém. 1. 25 (1905); Bull. Acad. Géogr. Bot. (1906) 109.

Cyclophorus inaequalis C. Chr. Ind. Fil. 199 (1905).

Rhizome thick, short-creeping, densely scaly; *fronds* subcaespitose, stipe thick, stout, 13-17 cm long or much longer, ferruginously stellate hairy, lamina oblong-ovate or oblong-lanceolate, 13-16 cm long, or longer, to 6 cm broad, short acuminate, base obliquely truncate or rotundo-cuneate, slightly decurrent; *texture* rigidly coriaceous, upper side green and sparsely hairy when young, underside densely clothed in thick woolly brown persistent and loose indumentum consisting of long needle-like arms not on the same plan, midrib prominent on both sides, hairy underneath; *lateral main veins* scarcely visible; *sori* punctate, subconfluent at last.

Shensi merid: *David* (type), March, 1873; Chui-kio-suen, *Giraldi*, Sept. 29, 1897; *Purdum* 97; Thai-pei Shan, *Giraldi*. Kansu: Kua-tsa, *Meyer* 1818, Nov. 5, 1914; *Licent* 4934 (1919). Hupeh: Patung, *Henry* 3684', *Wilson* 1909, 1727, 2629; *Henry* 1428 (type of *Niph. inaequalis*); Shin-Shan Hsien, *S. S. Chien* 8324 in herb. Univ. Nanking; Ichang, *Henry* 2569. Kweichow: Gan-pin, *Bodinier* 1743; Pin-fa, *Cavalerie* 512; *Esquirol* 635, 699; *Cavalerie* 1807, 1809. (without exact locality). Szechwan: Mt. Omei, *Wilson* 5323; *Faber* 1076; *Brown*; *W. P. Fang* 2710, on tree; Nanchuan: *Bock & Kosthorn* 1713, 1059, 3123; Ta-chien-lu, *Harry Smith* 4930; *Prince Henri d'Orleans*; *Y. Chen*; Pin-yi-pu, *Harry Smith* 1984, 4930, 4825; Moupin, *David* (1870); *T. Tang* 787 (1932). Yunnan: Tsekou, *Monberg* 275 (1908); *Soulié* (1898); Mengtze, *Henry* 9114, 9116; *Hancock* 51 (Kew No); Salwin, *Forrest* 16195, 28940; Mekong, *Forrest* 13119 (1914), 19842, 19841; Kiang Yu Shan near Lan-pou, *Delavay* 1734; Ta-pin-tze, *Delavay* 3250, 4518; Pe-yen-tsin, *Simon Ten*; *Ducloux* 4984; In-on, *Maire*. Tibet orient.: *Soulié* 588.

A distinct pretty fern known only from mountains of comparatively high altitude in the western and north-western part of China; its distinction from *Py. Sheareri* (Baker) is already noted above. *Niph. inaequalis* Christ represents a slender form with lanceolate lamina on stipe nearly twice as long.

Plate 148. 1. Habit sketch (natural size). 2. Portion of lamina, showing venation (x 3). 3. Stellate hairs from the underside of lamina (x 20) 4. The same from stipe (x 20). 5. Scale from rhizome (x 10).

» — 'B' E9 + A 圖
n ^ •& ^ c*. si # 科)

PYRROSIA DRAKEANA (Franch.) Ching

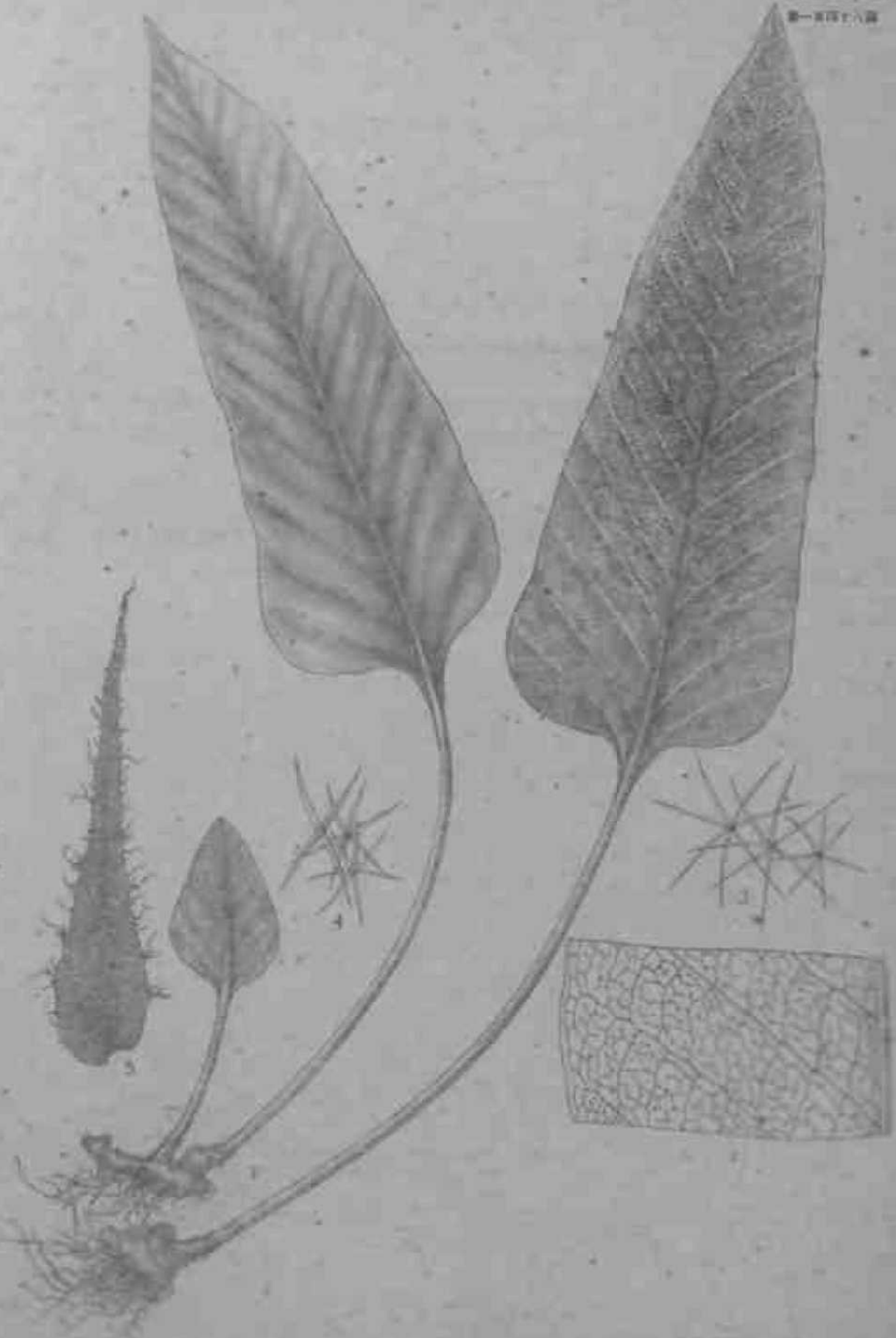
本種形體頗類前種，所異者為葉體較寬而葉柄較葉體為長，間有二倍之者，為其葉下面之氈毛較厚而發，且其芒細長如針，不在同一平面，故得易於識別，再本種之分佈概限於中國西南西北部之高山，與前者之限於中部及南部者顯然有別。

分布： 陝西，湖北，四川，西康，雲南，西藏東部。

圖註：

. 葉體下面之星芒狀

毛(放大二十倍)， 4- XfR Ji^: A£ JK^ Ctt->f~)*tf) ' 5. 地下莖上之鱗片(放大十倍)。



PYRROSIA DRAKEANA (Franch.) Ching
斑毛石蕨

ARTHROMERIS HIMALAYENSIS (Hk.) Ching

POLYPODIACEAE

ARTHROMERIS HIMALAYENSIS (Hk.) Ching, Contr. Inst. Bot. Nat. Acad. Peiping 2: *99 (1933).

Polypodium himalayense Hk. Sp. Fil. 5: 91(1863); Syn. Fil. 369 (1867); Diels in Engl. u. Prantl: Nat. Pflanzenfam. 1: 4. 321 (1899); Christ, Farnkr. d. Erde 114 (1897); Bull. Soc. Bot. France 52: Mém. 1. 19 (1905), pro parte; C. Chr. Ind. Fil. 533 (1905).

Pleopeltis himalayensis Bedd. Ferns Brit. Ind. t. 318 (1869); Handb. Ferns, Brit. Ind. etc. 372 (1883).

Polypodium venustum Wall. Cat. n. 305 (1828, nom. nud.); Clarke, Trans. Linn. Soc. II. Bot. 1: 566 (1880), non Desv. 1811.

Pleuridium venustum J. Sm. Cat. Cult. Ferns 10 (1857).

Arthromeris venusta J. Sm. Hist. Fil. 111 (1875).

Polypodium venustum var. *niphoboloides* Clarke, l.e. 567.

Rhizome thick, woody, wide-creeping, glaucous, sparsely scaly; *scales* linear from orbicular base, bright brown; *frond* far apart, stipe firm, glossy, dark stramineous, 1-15 cm long, glabrous, lamina 20-45 cm long, 15-20 cm broad, imparipinnate; *pinnae* 1-5-jugate, articulated to rachis, opposite, 5-7 cm apart, sessile, 12-16 cm long, 3-4 cm broad, oblong-lanceolate, caudate, base roundish or subcordate, margin entire but wavy and provided with a very broad whitish membrane; *texture* subcoriaceous, both sides densely glandular hairy, costa underneath with long spread hairs; *lateral main veins* fine but distinct, areolae fine, with copious included veinlets; *sori* large, rounded, irregularly 2-seriate, of 3-4 each between main veins, exindusiate.

This distinct and pretty, fern can easily be distinguished from its relatives by oblong-lanceolate and caudate, densely glandular hairy pinnae with a very broad whitish membranaceous margin.

Yunnan: South of Red River, Manmei, *Henry 9747* \ Tse-tchou-pa, *Maire; Song-san, Delavay 2612*.

Sikkim-Himalayas, from 6,000 to 10,000 ft. elevation, common.

Var. **furcans** Ching, l.e. p. 100.

Habit of *Cyrtomium caryotidetim* Presl, with irregularly lacerato-forked pinnae. Known only from Sikkim (leg. Duthie 5177).

Plate 149. Fig. 1. Habit sketch (natural size). 2. The same (natural size). 3. Portion of pinna, showing venation and sori (x 5). 4. Scale from rhizome (x 20). 5. Hairs from costa (x 80). 6. Glandular hairs from underside of lamina (x 80). 7. Rachis with articulated base of the lateral pinna (x 10).

* — w ra 十 九 圖
(水龍骨科)

ARTHROMERIS HIMALAYENSIS (Hk.) Ching

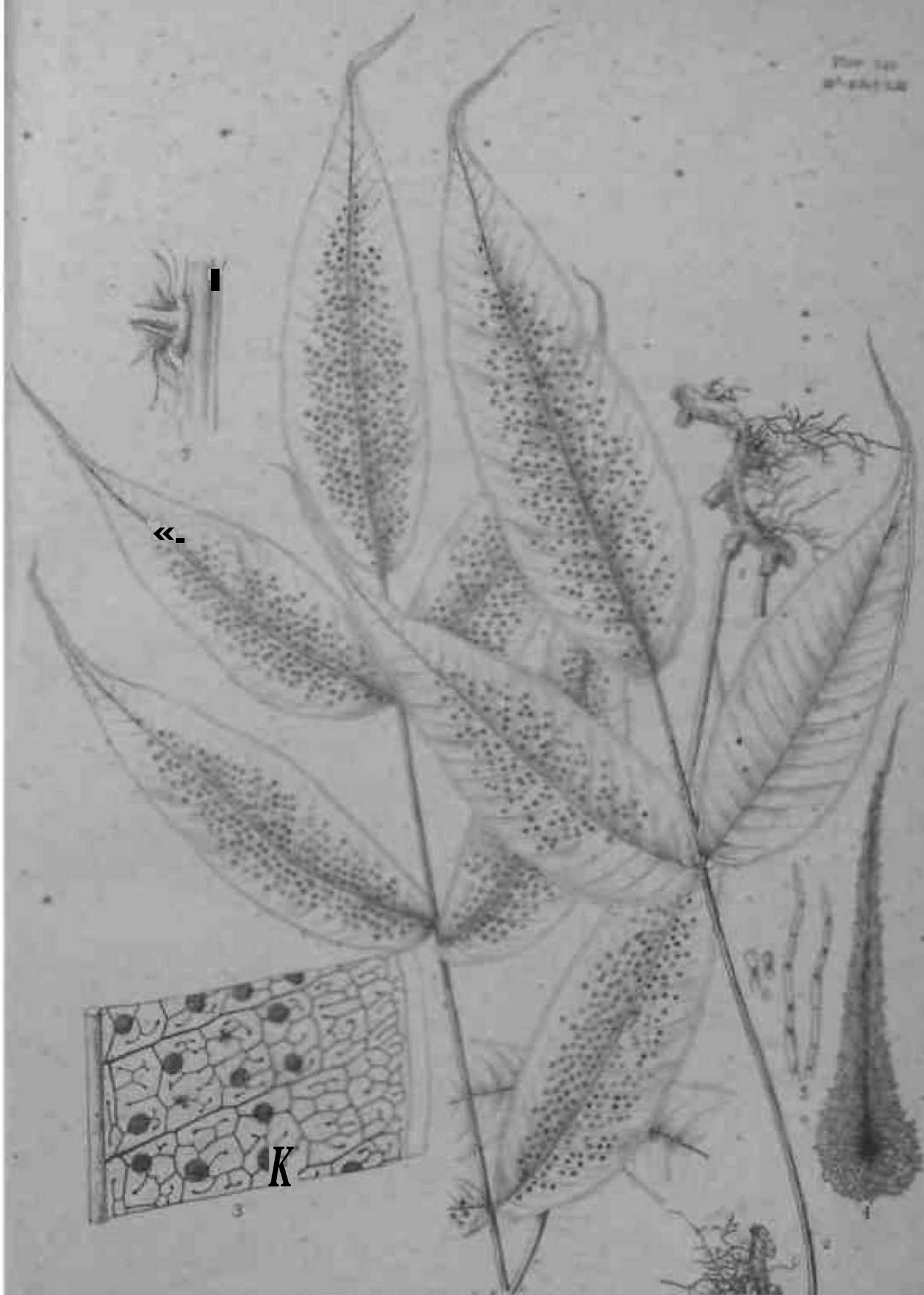
地下莖肉質，肥厚，蔓生，灰白色；鱗片疏生，線形，具卵圓形之基部，黃色；葉疏生，柄長達十五粉，堅實，深稻稈色，有光澤，光滑，葉體長二十至四十五粉，寬十五至二十粉，奇數羽狀分裂，小葉一至五對，節狀着生於中肋，對生，無柄，長十二至十六粉，寬三至四粉，闊披針形，尾狀，基部圓形或亞心臟形，全緣，具一極寬之薄膜質，兩面絨毛密生，側脈明顯，斜出，下面具長剛毛，小脈網狀，厚紙質；子囊羣圓形，呈不規則之二列，無蓋。

分布：雲南，緬甸及印度北部。

本種為本屬特殊之種，在我國惟雲南僅見之；此外尚有一種變種，產於西京，其小葉四緣深裂。

IS a: 1. »*^CB\$fc*)» 2. PIJi » 3. 小葉之一部，表示其葉脈及子囊羣(放大五倍)，
倍)» 7- 基部葉節小着狀生於中肋情形(放大十倍)。

THE
MUSEUM



ARTHROMERIS HIMALAYENSIS (Bl.) Ching

** ** ni fc

PLATE 150

ARTHROMERIS LUNGTAUENSIS Ching

POLYPODIACEA;

ARTHROMERIS LUNGTAUENSIS Ching, Contr. Inst. Bot. Nat. Acad. Peiping 2: 08 (1933).

Polypodium lungtauense Ching in C. Chr. Ind. Fil. Suppl. III. 152 (1934).

Rhizome wide-creeping, 4-5 mm thick, terete, atratous; *scales* dense, ovate, acuminate, grayish-brown with scarios **margin-**; *frond* far apart, stipe 3-10 cm **long**, dark straminous, terete, slender, naked, Jamina oblong or deltoid, 7-30 cm long, impari-pinnate; *pinnae* 1-3-8-jugate, the terminal pinna; similar to the lateral ones, which are patent, sessile, 6-10-16 cm long, 2-3 cm broad in the middle gradually acuminate, base equal, cordate, subamplexicaulous, margin entire with a cartilaginous line all around; *lateral veins* prominent, 4 mm apart, obliquely patent, transversal veinlets 4-6 between costa and margin, intervening veinlets anastomosing with included veinlets; *texture* chartaceous, brownish when dried both sides moderately villose; *sori* rather small, rounded, dark brown, bi-seriate of 3-4 each between main veins, glabrous, with a few protruding hairs from veinlets underneath.

Kwangtung: **Lungtau** Shan, **In** village, **To Rang Ping 12480 ex herb** Lingnan Univ., June 7, 1924; Tsungfa-Lungmoon Districts. *Tsang Wei Tak* *0508 May 1, 1932; Yiyuan, *S. P. Ko* 53074, July 13, 1933; Lohfau Shan, *C. Ford* 14 (1883). *C. O. Levine & McClure* 6828; *Lemne* 1545; *B. C. Henry* 22270 in herb. Hance May 1863.

A critical species, which differs from *A. himalayensis* (Hk.) in not densely pubescent surfaces of pinna of a different outline with a narrowly cartilaginous margin; from *A. Lehmanni* (Mett.) it differs in sparsely villose leaf surfaces and much smaller size.

Plate 150. Fig. 1. Habit sketch (natural size). 2-3. The same (natural size). 4. Portion of pinna showing venation and sori (x 5). 5. Scale from rhizome (x 24). 6. Hair from lamina (x 60).

ICOXES FILICUM SINICARUM

第 - W it + 圖

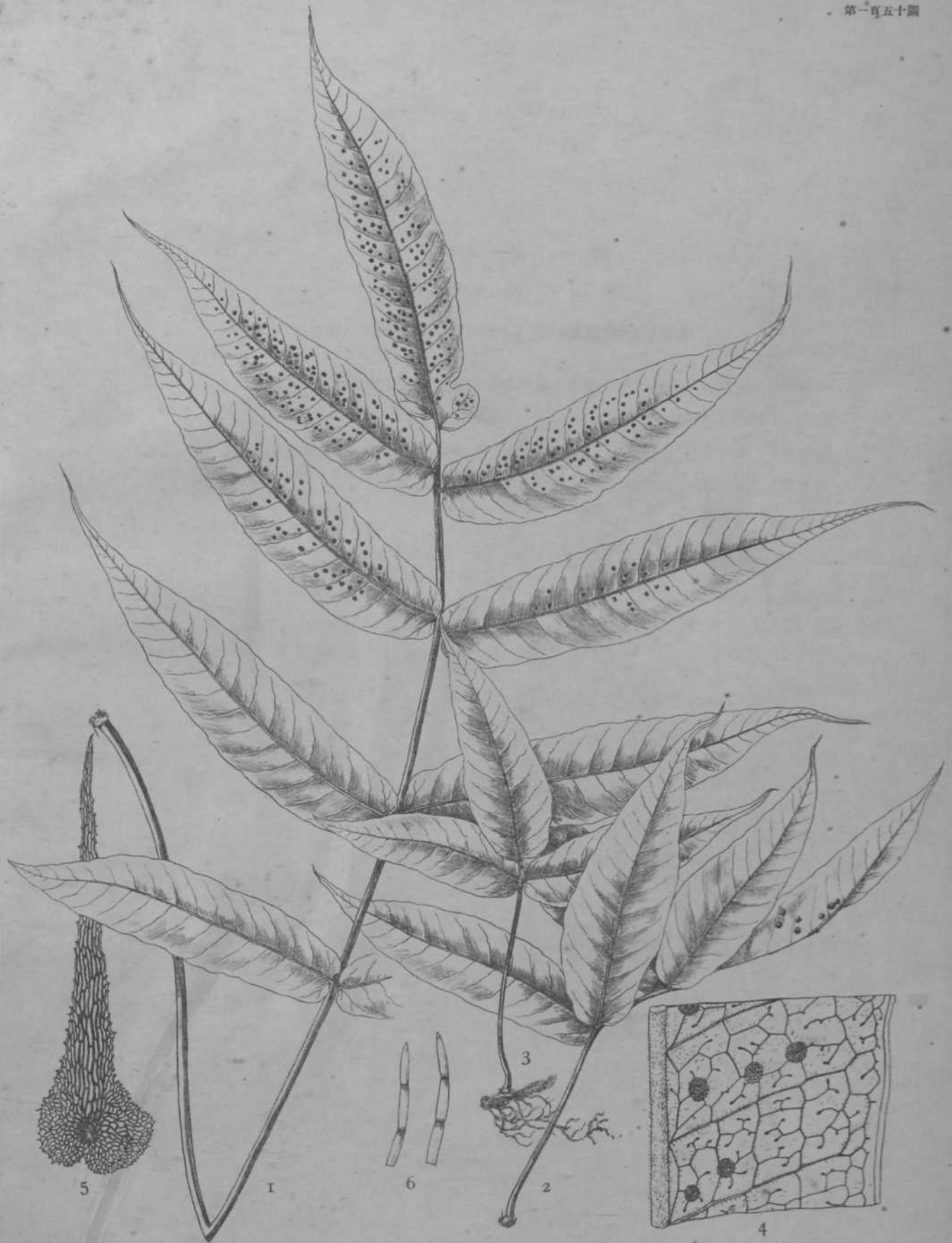
粵節肢蕨(水龍骨科)

AETHEOMERIS LTJNGTATJENSIS Ching

本種形體頗類前種，惟較小，*31僅具線狀骨質葉緣，兩面僅剛毛疏生，故得易於識別。

分布：廣州北部山中。

圖註：1. 本種全形(自然大)， 2-3. 同上， 4. 小葉之一部分，表示葉脈及子囊羣(放大五倍)，
5. 地下莖上之鱗片(放大二十倍)， 6. 葉體上之剛毛(放大六十倍)。



ARTHROMERIS LUNGTAUENSIS Ching

粵節肢蕨