

ICONES FILICUM SINICARUM

BY

REN-CHANG CHING, B. S.

FASCICLE 4

中國蕨類植物圖譜
第四卷

靜生生物調查所
江西省農業院

廬山森林植物園主任秦仁昌編纂

靜生生物調查所印行

TO
PROF. WOON-YOUNG CHUN, M. S.

DIRECTOR OF BOTANICAL INSTITUTE
NATIONAL SUN YATSEN UNIVERSITY, CANTON
AND
MY FORMER TEACHER

IN RECOGNITION OF
HIS EXEMPLARY WORK IN BOTANY OF CHINA
AND
HIS UPLIFTING INFLUENCE UPON THE
YOUNGER GENERATION OF CHINESE BOTANISTS

THIS FOURTH FASCICLE OF *ICONES FILICUM SINICARUM*
IS RESPECTFULLY DEDICATED

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GLEICHENIA CANTONENSIS Ching

GLEICHENIACEÆ

GLEICHENIA CANTONENSIS Ching, Lingnan Sci. Journ. **15**: 391 (1936).

A large straggling fern to several meters tall; *rhizome* creeping, *stipe* up to 2 meters long, stout, thick as a finger near base, wine-colored, subnitid, glabrous, forked; *primary pinnae* opposite, to 80 cm long, 40 cm or broader, axillary bud large, densely clothed in imbricate, lanceolate, atro-castaneous *scales* about 4 mm long, with densely fimbriate margin; *secondary pinnae* numerous, alternate, 3-3.5 cm apart, patent, shortly petiolate, up to 30 cm long, 4 cm broad, linear-lanceolate, base equally truncato-cuneate, gradually narrowed towards acuminate apex, pinnatifid nearly down to rachilet; *segments* 60-70-jugate, linear, suboblique, to 2 cm long (sometimes longer), 2 mm broad, margin entire but strongly revolute, apex obtuse, often submarginate, separated from each other by somewhat broader sinuses; *veinlets* 20-jugate, regularly forked above base, rachis subnitid, wine-colored, with a few broad-lanceolate, deciduous, appressed, castaneous *scales*; *texture* herbaceous, glabrous and light green above, glaucescent and sparingly stellate hairy beneath; *sori* medial on anterior veinlets, consisting of 2-4 (generally 3) large, globular, pale lemon-yellow sporangia, *receptacle* elongate, naked.

Kwangtung: Suni, Y. K. Wang 30967 (type), roadside, July 17, 1931; Whampo, one specimen without collector's name in Herb. Rigsmuseum at Stockholm.

This distinct and pretty fern is closely related to *G. glauca* Hk., from which it differs in enormously larger size, wine-red stipe and rachis, the petiolate secondary pinnae up to 30 cm long, 4 cm broad, and the longer and narrower oblique segments with strongly revolute margin and broader sinuses. The scales covering the axillary bud are only half as long as those in its relative.

Plate 151. Fig. 1. Habit sketch (natural size). 2. Segments, showing venation and position of sori ($\times 5$). 3. Sporangium ($\times 50$). 4. Scale from axillary bud ($\times 50$). 5. Stellate hairs on the underside of leaf ($\times 50$).

第一百五十一圖
廣東裏白(裏白科)

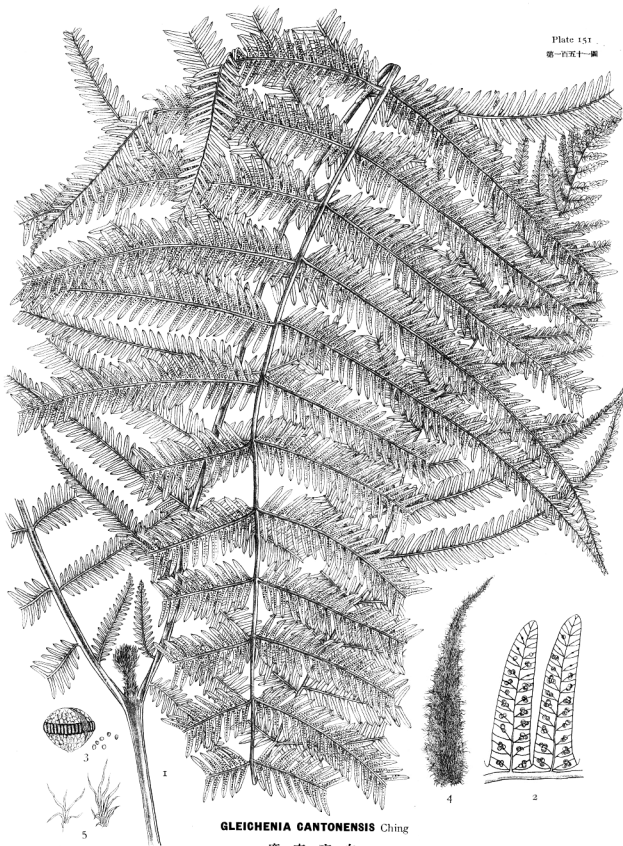
GLEICHENIA CANTONENSIS Ching

地下莖橫行；葉柄高達二呎，酒紅色，光滑無毛，葉分叉；一回羽葉對生，長達八十粉，寬四十粉或過之，腋間具一被栗黑色鱗片之大芽；二回羽葉多數，互生，開展，具短柄，長達三十粉，寬四粉，線狀披針形，基部為截楔形，等寬，向頂漸尖，羽狀深裂至中肋；裂片六十至七十對，線形，歪斜出，長達二粉，寬二側，全緣，強度反捲，鈍頭，葉脈約二十對，均由基部分叉，上面光滑，下面淡粉白色，且被星狀毛，中軸亦呈酒紅色，稍具潤披針形之深栗色鱗片；子囊草中生，位於上方小脈，由二至四個子囊組成之。

分佈：廣東信宜縣及黃埔產之。

此種為廣東特產，其形態極類裏白 (*G. glauca*)，惟形體較大，葉柄及中軸呈酒紅色，二回小葉長達三十粉，寬四粉，且具柄，裂片歪斜出，邊緣強度反捲，葉腋間之芽所被之鱗片之長僅半之耳。

同註： 1. 本種全形 (自然大)， 2. 裂片，表示葉脈及子囊草之位置 (放大五倍)， 3. 子囊 (放大五十倍)， 4. 葉腋間之芽之鱗片 (放大五十倍)， 5. 葉下面所被之星狀毛 (放大五十倍)。



GLEICHENIA CANTONENSIS Ching

廣東裏白

GLEICHENIA LAEVISSIMA Christ

GLEICHENIACEÆ

GLEICHENIA LAEVISSIMA Christ, Bull. Acad. Géogr. Bot. (1902) 268; C. Chr. Ind. Fil. 322 (1905).

Mertensia laevis Nakai, Bot. Mag. Tokio 39: 182 (1925).

Gleichenia kiusiana Makino, Bot. Mag. Tokio 18: 139 (1904); C. Chr. Ind. Fil. Suppl. I. 44 (1906-12); Ogata, Ic. Fil. Jap. 4: pl. 179 (1931).

Rhizome wide-creeping, densely scaly; *scales* lanceolate, long-acuminate, rufo-brown, nitid, thick, entire; *frond* 2-4 cm apart, stipe 30-50 cm long, 3 mm thick near base, green or pale stramineous, smooth, glabrous above base, rounded beneath, lower part flattened with sharp edge above and upper part deeply grooved, lamina ovate, bifurcate at the tip of stipe into two similar pinnae of oblong outline, 30-40 cm long, 13-16 cm broad, acuminate, axillary bud large, densely scaly, scales ovate, entire, with long subulate apices; *pinnales* linear-lanceolate, acuminate, short-petiolate, the lower ones on the exterior side of rachilet much the longest, to 12 cm long, 2 cm broad, gradually shortened upward, the interior basal one or two pairs generally much smaller, pinnatifid down to costa; *segments* numerous, pectinate, oblique, linear with sharp apices, 1-1.5 cm long, 2 mm broad, lower base decurrent, margin revolute, with rounded and as broad sinus; *texture* rigidly herbaceous, pleasing green, naked throughout, bluish beneath; *veins* in segments 10-15-jugate, tuboblique, all forked above base, *sori* small, medial, borne on the anterior veinlets above forking, consisting of 3-4 globular brownish sporangia.

Kweichow: Kwei-yang, *Bodinier* 2095 (type), March 18, 1898; Pin-fa, *Cavalerie* 528; Vanchingshan, Yinkiang, *Y. Tsiang* 7677; Kweiting, *Y. Tsiang* 5481; Tu-yun *Y. Tsiang* 5889B, 5889A. Szechwan: without locality, *T. Tang* 22775 (1930). Yunnan: Without locality, *Delavay* 46. Kiangsi: Kiukiang, Lu-shan, *Dr. Shearer* (1887); Three Falls, *C. E. DeVol* 47, August 7; 1933, steep damp hill side. Chekiang: Tientai Shan, *R. C. Ching* 1427 (1923), under forest. Kwangtung: Lokchong, *N. K. Chun* 42513. Kwangsi: Lu-chen Hsien, Miu Shan, Dar Siar Ping, *R. C. Ching* 6189; Ling Yen Hsien, Loh Hoh Tsuen, *A. N. Steward & H. C. Cheo* 184. Hainan Island: without locality, mountain summit, *C. Wang* 85525.

Also Japan: Kinsin, Oosumi, *G. Koidzumi*, April 14, 1923.

One of the most distinct species of the genus, differing from the previous one in much smaller size, narrower and more oblique segments with revolute margin and sharply pointed apices and in the scales on the axillary bud being entire, light-brown, with hair-pointed apices. By the present distribution, this species is now known from central, southern and eastern Chinese provinces.

Plate 152. Fig. 1. Habit sketch (natural size). 2. Two segments, showing venation and sori ($\times 3$). 3. Sorus ($\times 50$). 4. Scale from rhizome ($\times 16$). 5. Scale from axillary bud ($\times 16$). 6. Cross section of rhizome, showing solenostele ($\times 4$).

第 一 百 五 十 二 圖
光 裏 白 (裏 白 科)

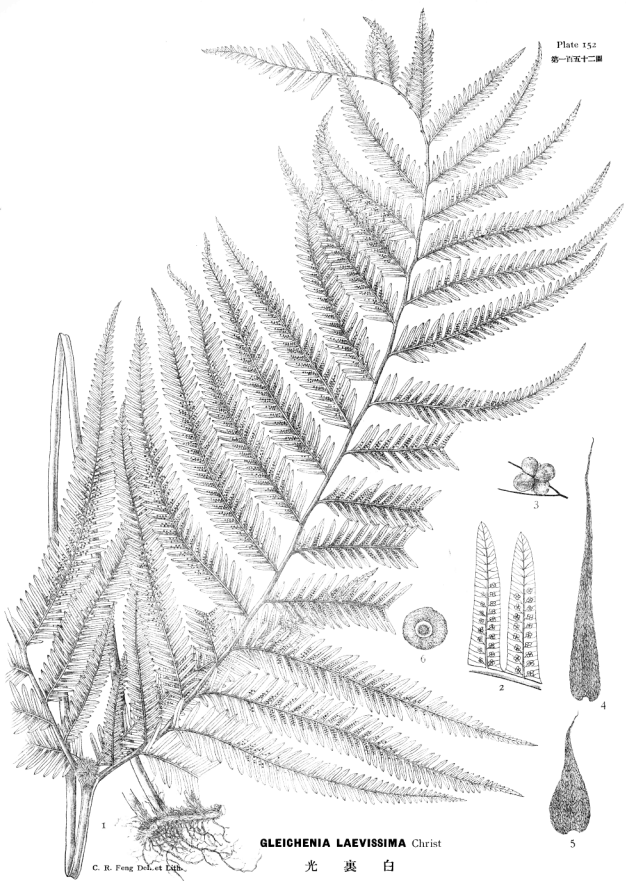
GLEICHENIA LAEVISSIMA Christ

地下莖橫行，密被紅褐色之細長鱗片；葉散生，柄長達五十份，淡綠色，光亮，葉體卵形，二裂，小葉長達四十份，寬十六份，橢圓形，漸尖頭，二回羽狀分裂；葉腋間具一大芽，被淡黃色之密鱗片；二回小葉線狀披針形，漸尖頭，具短柄，基部外側數對最長，長達十二份，寬二份，內側一二對最短，漸尖頭，羽狀深裂，裂片梯莖排列，長一至一·五份，寬二份，尖頭，斜出，邊緣強度反捲，厚紙質，兩面光滑，綠色，葉脈分叉；子囊草小，圓形，生於上方小脈，由三至四個淡黃色之子囊組成之。

分佈：貴州，江西，浙江，廣東，廣西，瓊州島；日本亦產之。

此為本屬特殊之種，全體光綠，甚易識別。

圖註： 1. 本種全形 (自然大)， 2. 兩裂片，表示葉脈及子囊草之位置 (放大三倍)， 3. 子囊草 (放大五十倍)， 4. 地下莖上之鱗片 (放大十六倍)， 5. 腋芽之鱗片 (放大十六倍)， 6. 地下莖之橫切面，表示維管束之佈置 (放大四倍)。



GLEICHENIA LAEVISSIMA Christ

光 裏 白

GLEICHENIA SPLENDIDA Hand-Mzt

GLEICHENIACEÆ

GLEICHENIA SPLENDIDA Hand-Mzt. Akad. Anz. Akad. Wien (1924) 81; Symb. Sin. **6**: 16 (1929); C. Chr. Ind. Fil. Suppl. III. 106 (1934).

Gleichenia linearis C. Chr. (non Clarke, 1880), Contr. U. S. Nat. Herb. **26**: 271 (1931), pro parte.

Rhizome wide-creeping, dull brown, subnitid, muricate, densely scaly; *scales* atrobrown, linear-subulate, rigid, spreading, tufted, deciduous; *frond* 1 to several meters tall, erect or trailing, stipe dark stramineous, shining, glabrous, 4-5 mm across, 30 cm to several meters long, lamina repeatedly di- or trichotomously forked, with a distinct pair of pinnae arising from the base of the primary forking branches and two smaller foliaceous and coriaceous ones at the axil covering the scaly terminal bud; *pinnae* 30-40 cm long, 10-16 cm broad at the middle, gradually acuminate towards apex, base decrescent either on both sides or the upper side only, sessile, pectinately pinnatifid, *segments* 5-10 cm long, up to 1 cm broad above the broadened base, linear-lanceolate, with obtusish apex, and repando-undulate margin; *texture* subcoriaceous, glaucescent beneath; *veinlets* 5-6 in each group, parallel; *sori* irregularly 1-2-rowed, medial on veinlets, consisting of 10-20 sporangia.

Yunnan: Tibet-Burmese border, *H. Handel-Mazzetti 9351* (type); Tengyueh, *J. F. Rock 7172*; Mengtze, *Hancock 71*. Kwangtung: Sunyi, *Y. K. Wang 50920*. Kwangsi: Lin Yen Hsien, Tsin-lung Shan, *R. C. Ching 7048*; *ibid.*, Yeo Mar Shan, *R. C. Ching 7256*. Hongkong: Victoria Peak, *Lamont 975*.

Burma: *Lace 4748* ex Herb. Bedd.

Khasia: *Hooker f. et Thomson*.

Tonkin: Laos, *M. Poilane*, November 6, 1921. Also Annam.

A gigantic species of the group of *G. linearis* (Burm.) Clarke and has previously been considered as identical with that common fern, from which it differs in enormously larger size in all parts, the segments being up to 10 cm long and nearly 1 cm broad, with repando-undulate margin, and more sporangia in each sorus, which is, however, rarely found present.

Plate 153. Fig. 1. Habit sketch (natural size). 2. Portion of segment, showing venation and undulate margin ($\times 4$).

第一百五十三圖

碩裏白(裏白科)

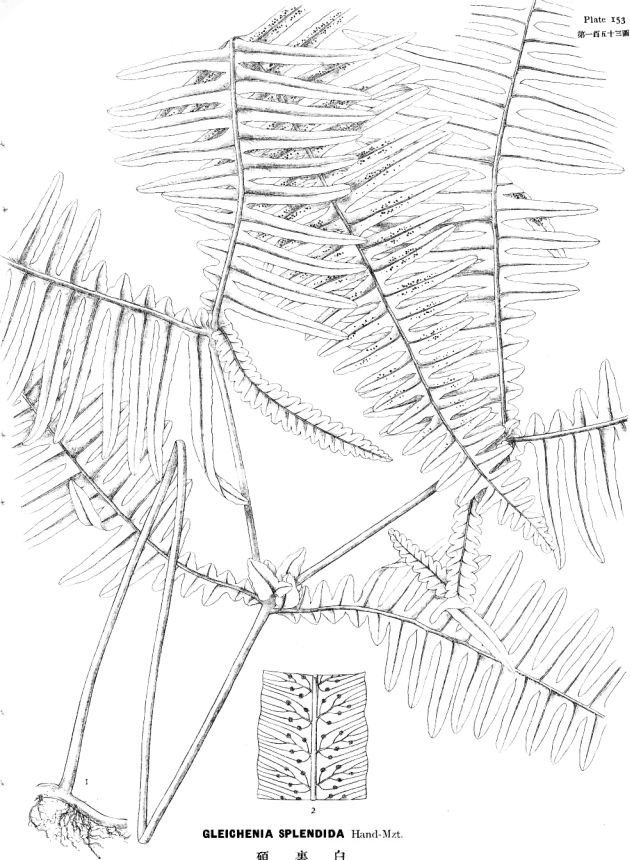
GLEICHENIA SPLENDIDA Hand-Mzt.

地下莖橫行，光亮，粗糙；鱗片深褐色，線形，簇生；葉長一至數呎，直立或為蔓性，葉柄深稻桿色，光亮，無毛，高自三十粉至數呎，葉體數回分叉，每分叉處之基部下方具一對小葉片；一回小葉長三十至四十粉，寬十至十六粉，頂漸尖，基部漸狹，無柄，橢狀深裂；裂片長五至十粉，基部之寬達一粉，線狀披針形，端略鈍，邊緣呈淺波形，亞革質，下面稍呈白色，葉脈每組具五至六數平行小脈；子囊草為不規則之二列，中生，由十至二十個子囊組成之。

分佈：雲南，廣東，廣西，香港，緬甸，交趾均產之。

本種形態極類普通之橢裏白 (*G. linearis*)，惟其各部形體特大，裂片長達十粉，寬一粉，邊緣呈波形，故易識別。

圖註：1. 本種全形 (自然大)， 2. 裂片之一部，表示葉脈及邊緣 (放大四倍)。



GLEICHENIA SPLENDIDA Hand-Mzt.

碩裏白

PLATE 154

DIPTERIS CHINENSIS Christ

DIPTERIDACEÆ

DIPTERIS CHINENSIS Christ, Bull. Acad. Géogr. Bot. (1904) 104 cum fig. et tab.; C. Chr. Ind.

Fil. 242 (1905); Ching, Bull. Dept. Biol. Coll. Sci. Sun Yatsen Univ. No. 6: 23 (1933).

Dipteris Horsfieldii Christ. (non Bodd. 1866), Bull. Herb. Boiss. 6: 880 (1898).

Dipteris conjugata Hand.-Mzt. (non Reinw. 1924), Sym. Sin. 6: 28 (1929); Wu, Polyp. Yaoshan, in Bot. Dept. Biol. Coll. Sci. Sun Yatsen Univ. No. 3: 94 t. 3⁸ (1932).

Rhizome wide-creeping, woody, densely scaly; *scales* atro-brown, rigid, setaceous, linear-subulate, nitid, appressed; *frond* far apart, stipe 30-60 cm long, dark stramineous, glabrous above base, woody, rounded below, broadly grooved upward on the upper side, lamina 20-30 cm high, 30-60 cm broad, bipartite into nearly equal fan-shaped halves, each again cleft into 4-5 broad acuminate lobes, 5-8 cm broad, the exterior one divided to three-quarters of the way down, the middle one or two, less deep, and the interior one, only one-third way down, each lobe may be once forked with grossly serrated margin; *texture* crass herbaceous or subcoriaceous, turning brownish when dried; *underside* green or slightly bluish and with some dark brown articulated deciduous hairs along veins; *main veins* prominent, dichotomously branched, connected by finer transversed ones, with intermediate veinlets anastomosing copiously into hexagonal areolae with simple or forked included veinlets; *sori* small, punctiform, superficial, campital, scattered, exindusiate, *sporangia* intermixed with atro-brown cup-shaped stalked paraphyses.

Kweichow: Pin-fa *Gavalerie* 7641, 341 (type); Cheug-feng, *Y. Tsiang* 4706; without locality, *Esquirol* 3139, 667. Kwangsi: Yao shan, *S. S. Sin* 647, June 29, 1928; Tseung Hsien, *C. Wang* 39494, June 22, 1936; Lu-chen Hsien, Miu Shan, *R. C. Ching* 6149. Yunnan: Mengtze, *Hancock* 213; *A. Henry* 9041, 9041A; Tzi-tzo-ti, *Forrest* 27693 (1925); Ping-pien Hsien, *H. S. Tsai* 55420, 60250, in thickets. Tibet-Burmese border; *H. Handel-Mazzetti* 9347.

Upper Burma: Htwagaw, *Forrest* 24613.

This distinct endemic species can be easily distinguished from the tropical Asiatic *D. conjugata* Reinw. by much less divided leaves with fewer and broader ultimate segments, green or slightly bluish under surface and not clavate but cup-shaped paraphyses in sorus.

Plate 154. Fig. 1. Habit sketch (natural size). 2. Portion of lamina, showing venation and sori ($\times 5$). 3. Sporangium ($\times 150$). 4. Spores ($\times 150$). 5. Scale from rhizome ($\times 40$). 6. Cross section of rhizome, showing solenostele ($\times 5$). 7. Hairs from veins on the under side of leaf ($\times 30$). 8. Paraphyses in sorus ($\times 150$).

第 一 百 五 十 四 圖
雙 扇 蕨 (雙 扇 蕨 科)

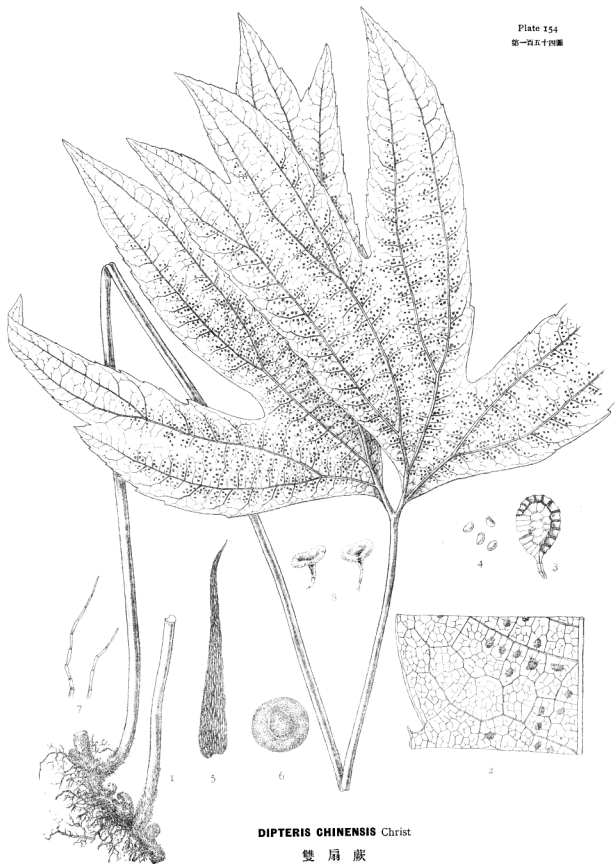
DIPTERIS CHINENSIS Christ

地下莖橫行，粗健，木質，被深褐色之緊密相長厚鱗片；葉散生，柄長三十至六十公分，木質，葉體二裂，成等大之兩扇形，各扇復四至五深裂，漸尖頭，各裂片一次深裂，其組織尚，乾紙質，上面光滑，下面葉脈略具深褐色之短毛，主脈數回扇狀分叉，連以顯明之橫脈，網脈頗明顯，各網眼具分叉或單小脈；子囊草形圓而小，散生，不具蓋，線狀體密生，端呈膨大之傘形，深棕色。

分佈： 貴州，廣西，雲南，藏邊產之。

此為本屬特殊之一種，為中國特產，其形體略似亞洲熱帶產之 *D. conjugata*，惟較小，葉之分裂較少，下面不呈粉白色，子囊草中之線狀體不呈球形，故易識別。

圖註： 1. 本種全形 (自然大)， 2. 葉片之一部，表示葉脈及子囊草 (放大五倍)， 3. 子囊 (放大一百五十倍)， 4. 孢子 (放大一百五十倍)， 5. 地下莖上之鱗片 (放大四十倍)， 6. 莖之橫切面，表示維管束之佈置 (放大五倍)， 7. 葉下面脈上之短毛 (放大三倍)。 8. 子囊草中之線形體 (放大一百五十倍)。



DIPTERIS CHINENSIS Christ

雙扇蕨

PLAGIOGYRIA ASSURGENS Christ

POLYPODIACEÆ

PLAGIOGYRIA ASSURGENS Christ, Bull. Soc. Bot. Ital. (1901) 293; C. Chr. Ind. Fil. 495 (1905); Cop. Phil. Journ. Sci. **38**: 398 (1929).

Lomaria deflexa Baker (non Col. 1844, nec Liebm. 1849), Journ. Bot. (1888) 226.

Blechnum Faberi C. Chr. Ind. Fil. 153 (1905).

Rhizome thick, woody; *fronds* caespitose, dimorphous, *sterile* one with stipe to 20 cm long, rigid, dark stramineous, terete beneath, broadly grooved above, base flattened, carinate, with 3 aerophores on each of exterior sides, lamina oblong-lanceolate, quite narrowed at base, to 30 cm long, 10 cm broad at middle, simple pinnate with pinnatifid acuminate apical part; *pinnae* 30-35-jugate, linear-lanceolate with upper side of base running upward, the lower several pairs gradually shortened and strongly deflexed, the middle ones to 8 cm long, 8 mm broad, horizontally patent, entire except the acuminate apex being with a few obscure teeth, the upper pinnae gradually shortened and oblique; *texture* subcoriaceous, glabrous in all parts, green above, glaucous or bluish-white (or green when young) underneath; *veins* distinct on both sides, oblique, mostly forked; *fertile* frond strongly contracted, on longer stipe (to 40 cm long), lamina linear-lanceolate, 5 cm broad; *pinnae* contracted, linear, to 3 cm long, 2 mm broad, base broadly adnate; *sori* indefinite, completely covering the under surface, except the midrib.

Szechwan: Tien-to-san, *Scallan* (type); Mt. Omei, *Wilson 5284*; *E. Faber 1028* (type of *Lomaria deflexa*); Tah Liang Shan, *T. T. Yü 4045*, Sept. 22, 1934.

This distinct endemic fern, so far collected only thrice in mountains in the southwestern part of Szechwan, is closely related to *P. adnata* of the same region in general outline, differs in shortened and strongly deflexed lower pinnae and the glaucous underside of lamina, less serrated apice of sterile pinnae and broadly adnate base of fertile pinnae. *Lomaria deflexa* Baker represents only a young state of this species, having thinner leaves, less prominent veins and green color beneath.

Plate. 155. Fig. 1. Habit sketch (natural size). 2. Pinnae, showing venation and serrature ($\times 2$). 3. Portion of fertile pinnae, showing position of sori ($\times 16$). 4-5. Sporangium with spores ($\times 150$).

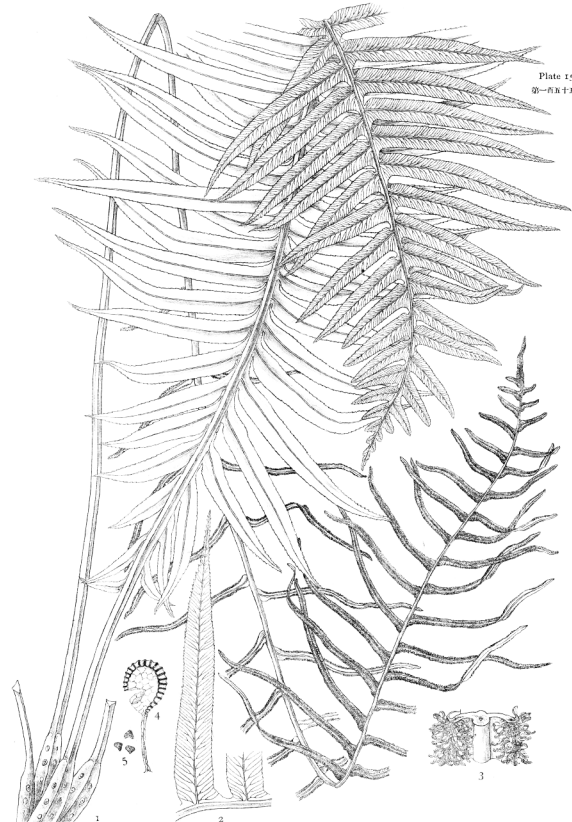
第一百五十五圖
峨嵋瘤足蕨(水龍骨科)

PLAGIOGYRIA ASSURGENS Christ

地下莖木質，粗厚，不具鱗片；葉簇生，二形，不生子囊葉之柄長達二十粉，堅硬，深棕褐色，上面具闊溝槽，基部扁形，背部具脊，兩側各具三個瘤狀凸起，葉體橢圓披針形，長達三十粉，寬約十粉，基部較狹，一回羽狀分裂，頂部漸尖，羽狀深裂；小葉三十至三十五對，線狀披針形，基部向上延長合生，基部對側強度下向，且較短，中部各對長約八粉，寬八釐，水平開展，上部各對漸短，斜出，漸尖頭，全緣，惟向頂部略具疏小鋸齒，全體光滑，上面綠色，下面呈灰白色，(幼時為綠色)，葉脈多數分叉，斜出；生子囊葉之葉具較長之柄，葉體較狹，小葉強度緊縮，成細長線形，長達三粉，寬約二釐，基部膨大合生，下面中肋兩側子囊葉滿佈，不具蓋。

分佈：四川西南部高山特產。

圖註：1. 本種全形(自然大)，2. 小葉，表示葉脈及鋸齒(放大二倍)，3. 生子囊葉小葉之一部，表示子囊着生情形(放大十六倍)，4. 5. 子囊及孢子(放大一百五十倍)。



PLAGIOGYRIA ASSURGENS Christ

峨嵋瘧尼蕨

PLATE 156

LINDSAYA LOBBIANA Hooker

POLYPODIACEÆ

LINDSAYA LOBBIANA Hooker, Sp. Fil. **1**: 205 t. 62C. (1846); C. Chr. Gardens Bull. Str. Sett.

4: 396 (1929); Ind. Fil. Suppl. III. 122 (1934), c. syn.

Lindsaya cultrata Hk. et Bak. Syn. Fil. 105 (1868), pro parte; Christ (non Sw.), Journ. Bot. d. France **19**: 9 (1905); Merr. Enum. Hainan Pl. in Lingnan Sci. Journ. **5**: 13 (1927).

Lindsaya gracilis C. Chr. Ind. Fil. 393 (1905), pro parte.

Rhizome creeping, slender, sparsely scaly; *scales* brown, small, oblong-lanceolate, consisting 3-4 rows of elongate laminæ, entire; *fronds* aggregate or approximate, stipe 5-10 cm long, pale green or light stramineous, naked, prominently 4-angular, lamina linear-lanceolate, 20-30 cm long, 2-2.5 cm broad, acuminate, slightly narrowed towards base, pinnate; *pinnæ* numerous, close, horizontally patent, alternate, about 1 cm long, 6 mm broad, broadly half-ovate, short-petiolate, base attenuate, upper side truncate, apex rounded, lower edge straight, upper edge convex and lobato-incised, gradually decrescent towards acuminate apex, lower ones rather far apart and smaller; *texture* herbaceous, light green even when dried, glabrous on both sides, rachis also 4-angular; *veins* fine, distinct green, flabellulately forked; *sori* one to each lobe, transversally linear or slightly curved, *indusium* linear, entire, greenish, narrower than the leaf-edge.

Hainan Island: Tun Fao, Kachek, *Eryl Smith 1406*, on stream banks at low altitude;

Chim Fung Ling, *S. K. Lau 3596*; *C. Wang 38509, 34571*, on rocks along stream side.

Tonkin: Tahl-Nguyen, *Pételot s. n.*; *Eberhardt 2028*.

Annam: *Cadier 63*; Tourane, *Gaudichaud (1837)*.

Siam: Koh Chang, *Johs Schmidt 779*.

Assam: *Griffith*. Also South India, Malesia and Java (type locality).

A fairly common fern in the localities noted. In general habit, it is closely related to *L. cultrata* (Willd.), but differs always by pale green and prominently 4-angular stipe and rachis throughout.

Plate 156. Fig. 1. Habit sketch (natural size). 2. Pinna, showing venation and sori ($\times 5$). 3. Scales from rhizome ($\times 40$). 4. Cross section of stipe ($\times 10$).

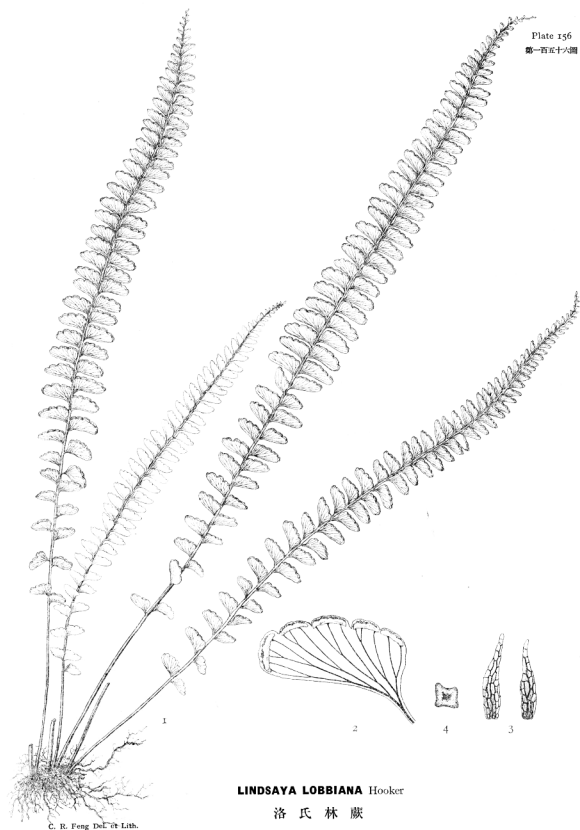
第一百五十六圖
洛氏林蕨(水龍骨科)

LINDSAYA LOBBIANA Hooker

地下莖短而橫行，略被組織簡單之深褐色之小鱗片；葉近生或亞簇生，柄長五至十粉，淡綠色，光滑，具四稜，葉體線狀披針形，長二十至三十粉，寬二至二·五粉，漸尖頭，向基部稍狹，一回羽狀分裂；小葉多數，開展，互生，長約一粉，寬約六厘，呈半卵形，向基部延長，具短柄，下邊平直，上邊向頂略呈弧形，且具淺裂片，紙質，光滑；葉脈分離，扇形分叉；子囊草一個，生於裂片之頂，線形或略呈弧形，蓋膜質，同形，全緣，向外開，比葉邊為狹。

分佈：廣東之瓊州島，交趾，安南，暹羅，緬甸及南洋羣島均產之。

圖註： 1. 本種全形（自然大）， 2. 小葉，表示葉脈及子囊草之位置（放大五倍）， 3. 地下莖上之鱗片（放大四十倍）， 4. 葉柄之橫切面（放大十倍）。



LINDSAYA LOBBIANA Hooker

洛氏林蕨

C. R. Feng Del. et Lith.

LINSAYA DECOMPOSITA Willdenow

POLYPODIACEÆ

LINSAYA DECOMPOSITA Willdenow, Sp. Pl. **5**: 425 (1810); C. Chr. Ind. Fil. 393 (1905), pro parte; Gardens Bull. Str. Settl. **7**: 236 (1934); v.A.v.R. Handb. Mal. Ferns 274 (1909); Merr. Enum. Hainan Pl. in Lingnan Sci. Journ. **5**: 12 (1927); Holttum. Gardens Bull. Str. Settl. **5**: 66 (1930).

For synonymy see C. Chr. Ind. 392.

Rhizome rather wiry, short-creeping, matted, sparingly scaly; *scales* small, brown, of very simple structure; *fronds* approximate, numerous, stipe firm, erect, naked, pale green, 4-angular, deeply grooved above, 10-25 cm long, lamina varies from linear-lanceolate and simple pinnate up to 30 cm long, 2.5 cm broad to palmately divided with 1-3 pairs of lateral linear, pinnate branches; ultimate *pinnæ* numerous, 1-2 cm long, half as broad, half-ovate, the lower ones often strongly decurved, the lower margin entire, the outer and upper shallowly lobato-incised enough to interrupt the *sori*; *texture* thin, herbaceous, light green and glabrous on both sides; *veins* anastomosing in 1-2 rows of angularly elongate oblique exappendiculate areolae; *sori* marginal, one to each shallow lobe, linear, straight or curved, *indusium* greenish, entire, narrower than the outer leaf-margin.

Hainan Island: Five Finger Mt., *F. A. McClure 9488*; *Eryl Smith 1469*, beside a stream; *Hancock 119*; *C. Wang 55711*, Dec. 20, 1933.

Widely dispersed throughout tropical Asia to Polynesia.

A very variable fern as to habit, leaves sometimes simple, sometimes 2-6-forked; the incision of pinnæ are also very variable, being nearly entire in type in the herbarium Willdenow.

Plate 157. Fig. 1. Habit sketch (natural size). 2a—2b. Ultimate pinnæ, showing venation and sori ($\times 5$). 3. Scale from rhizome ($\times 30$).

第一百五十七圖

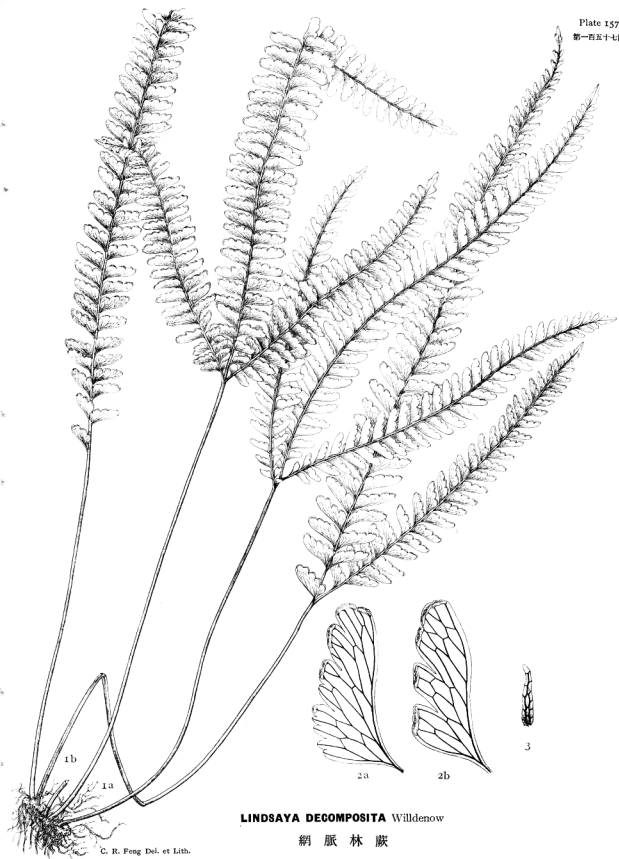
網脈林蕨(水龍骨科)

LINDSAYA DECOMPOSITA Willdenow

地下莖頗細短而橫行或捲曲生，略被粗疏簡單之紅褐色小鱗片；葉近生，多數，柄挺直，淡綠色，四稜形，上面具溝槽，長十至二十粉，葉體變異甚大，或為線狀披針形之一回羽狀分裂，或為掌狀分叉，其二至六對一回羽狀分裂線狀披針形之小葉，末回小葉多數，長一至二粉，闊半之，半卵形，位於下部者，常強度下向，下方全緣，上方向端常淺裂，紙質，淡綠色，兩面光滑無毛，葉脈網狀，具一至二列斜出網眼，內不具小脈；子囊草邊生，線形，條直或呈弧形，每小裂片一個，蓋為淡綠色，全緣，較葉緣為狹。

分佈：亞洲熱帶各地均產之，最近在中國之瓊州島發現。

圖註：1. 本種全形(自然大)，2a-2b. 末回小葉，表示葉脈及子囊草之位置(放大五倍)，3. 地下莖上之鱗片(放大三十倍)。



LINSAYA DECOMPOSITA Willdenow

網脈林蕨

ADIANTUM GRAVESII Hance

POLYPODIACEÆ

ADIANTUM GRAVESII Hance, Journ. Bot. (1875) 197; Christ, Farnkr. d. Erde 140 (1897); Diels in Engl. u. Prantl: Nat. Pflanzenfam. **1**: 4. 284 (1899); C. Chr. Ind. Fil. 27 (1905); Dunn & Tutcher, Fl. Kwangt. & Hongk. 338 (1912)

Adiantum monochlamys Christ (non Eaton, 1858) in Warburg, Monsunia **1**: 67 (1900).

Rhizome short, erect, densely radiceous, copiously scaly at apex; *scales* small, linear-subulate, almost black, scarious along the upper margin; *fronds* fasciculated, many together, stipe wiry, atro-brown or almost black, terete, 2-4 cm long, glabrous, lamina 2-5 cm long, about 1.5 cm. broad with wiry blackish rachis, impari-pinnate; *pinnae* 3-6-jugate, to 6 mm long, 3-5 mm broad, obovate or broadly obovate, alternate, patent, entire, petiolate, petiole 2-3 mm long, capillaceous (the terminal pinna with longer stalk), articulated at the base of pinna; *texture* papyraceous, glabrous on both sides, glaucescent beneath; *veins* fine but distinct against light, flabellulately forked, extending to the narrowly cartilaginous margin; *indusium* large, reniform or transversal oblong, blackish, coriaceous, one to each pinna, attached to the deeply notched apex, persistent.

Kwangtung: North River, 175 miles from Canton, *R. H. Grave 1881* (type); Lien-Chow, *B. C. Henry* (1881); *Rev. J. Lamont*, Oct. 1876; *Matthew* (1907), on limestone rocks; *Gerlach*; Yüyuen Hsien, *S. P. Ko 58788*, Oct. 21, 1933.

A very distinct and one of the most slender species of the genus, to which might safely be referred a series of Chinese forms known as *A. Mariesii* Baker from Ichang, *A. Leveillei* Christ from Kweichow, *A. Greenii* Ching and *A. nanum* Ching both from Kwangsi, which all differ from type only in the general outline and relative size of pinnae.

Plate 159. Fig. 1. Habit sketch (natural size). 2. Pinna, showing venation and sorus ($\times 10$). 3. Scales from apex of rhizome ($\times 40$).

第一百五十八圖

粵鐵線蕨(水龍骨科)

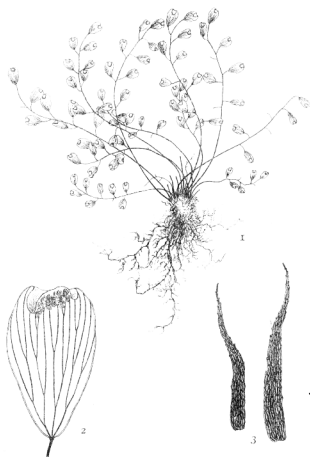
ADIANTUM GRAVESII Hance

地下莖短而直立，頂部被黑色之細長鱗片；葉簇生，柄長二至四份，細如銅絲，光亮，栗黑色，葉體長二至五份，寬約一·五份，一回奇數羽狀分裂；小葉三至六對，長達六釐，寬三至五釐，倒卵形，互生，具柄，全緣，與葉柄着生處有鼓節，紙質，兩面光滑無毛，下面稍呈粉白色；葉脈扇形分叉，達於角質之邊緣；子囊草一個，生於小葉之頂，蓋長橢圓形，着生於小葉頂部之缺刻。

分佈：僅產於廣東之北部。

此為特殊之種，本屬其他之種鮮有類此者。

圖註：1. 本種全形(自然大)，2. 小葉，表示葉脈及子囊草之位置(放大十倍)，3. 葉柄基部之鱗片(放大四十倍)。



ADIANTUM GRAVESII Hance

粵鐵線蕨

ADIANTUM CHIENII Ching

POLYPODIACEÆ

ADIANTUM CHIENII Ching, *Sinensia* **1**: 50 (1930); C. Chr. Ind. Fil. Suppl. III. 18 (1934).

Rhizome short, erect, densely radiceous and scaly; *scales* linear-subulate, atro-brown, rigid, entire; *fronds* caespitose, numerous together, stipe 5-7 cm long, ebeneous, shining, glabrous, breaking off at the middle, lamina linear-lanceolate, impari-pinnate, 13-18 cm long, 3-4 cm broad, base not any broader than above, truncate, slightly narrowed towards apex; *pinnæ* 7-9 on each side under the smaller terminal one, patent, petiolate (petiole 2 mm long), subopposite, 2-3 cm apart, the lower ones broadly deltoid-obovate, 1.2-1.6 cm each way, with rounded base, entire margin, the upper ones narrower, obovate with cuneate base, all with truncate apex; *texture* subcoriaceous, lustrous green above, pale or bluish beneath, glabrous in all parts; *veins* distinct, flabellulately forked, veinlets numerous, fine, reaching somewhat thickened margin; *sori* large, 5-8 mm long, one to each pinna, transversally linear, terminating the truncate apex, *indusium* black, coriaceous, entire, persistent.

Kwangtung: North West River, *Lo-angwai*, February, 3, 1890.

This endemic fern, only collected once, resembles *A. Leveillei* Christ in general habit, but differs in enormously larger size, much more stoutly built, with more numerous and much larger pinnæ.

Plate 159. Fig. 1. Habit sketch (natural size). 2, the same but young form (natural size). 3. Pinna, showing venation and sorus ($\times 5$). 4. Scales from base of stipe ($\times 30$).

第一百五十九圖
錢氏鐵線蕨(水龍骨科)

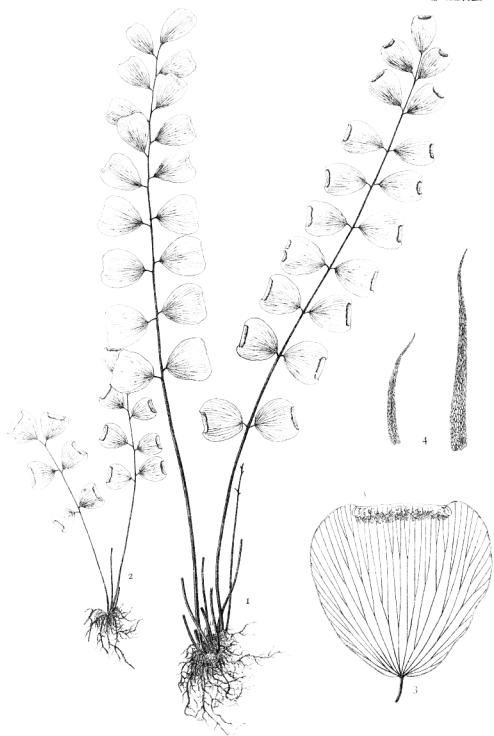
ADIANTUM CHIENII Ching

地下莖短，直立，端被深褐色之線狀鱗片；葉多數簇生，柄長五至七粉，葉黑色，光亮，無毛，葉體線狀披針形，長十三至十八粉，寬三至四粉，奇數羽狀分裂；小葉七至九對，開展，互對生，倒卵狀三角形，長一·二至一·六粉，寬亦如之，全緣，具柄，革質，上面光亮，下面是淡粉白色，葉體光滑，葉脈扇形分叉，多數，直達骨質之邊緣；子囊果一個，長五至六粉，位於小葉之截形頂部，蓋革質，黑色，全緣，宿存。

分佈： 僅產於廣東之北江。

本種形體，甚似萊氏鐵線蕨 (*A. Leveillei*)，然各部均較大，故易識別。

圖註： 1. 本種全形 (自然大)， 2. 同上，而較小 (自然大)， 3. 小葉，表示葉脈及子囊果 (放大五倍)， 4. 葉柄基部之鱗片 (放大三十倍)。



ADIANTUM CHIENII Ching

錢氏鐵線蕨

ADIANTUM ROBOROWSKII Maximowicz

POLYPODIACEÆ

ADIANTUM ROBOROWSKII Maxomowicz, Mém. Biol. **11**: 867 (1883); C. Chr. Ind. Fil. 33 (1905); Journ. Wash. Acad. Sci. **17**: 498 (1927).

Rhizome short, erect, densely scaly; *scales* rufo-brown, narrowly lanceolate, entire; *fronds* caespitose, stipe 6-10 cm long, slender, terete, castaneous, shining, rigid, lamina as long as stipe, 2-3 cm broad, lanceolate, bipinnate or subtripinnate at base; *pinnæ* 5-7-jugate, under simple pinnate apical part, alternate, oblique, petiolate, the basal ones larger, 2-2.5 cm long, 1.5-2 cm broad, deltoid, rachilet castaneous, flexuose, *pinnules* 4-3-jugate, the basal pair generally forked, or very rarely pinnate, the upper ones simple, *ultimate pinnule* triangular or broadly ovate, entire, with cuneate base, and capillaceous castaneous petiole, the middle pinnæ generally simple pinnate with 1-2 pairs of pinnules; *texture* herbaceous, green, glabrous in all parts; *veins* visible against light, flabellulately forked, not reaching leaf-margin; *sori* generally 2 to each segment (not infrequently one), *indusium* orbicular, rufo-brown, coriaceous, attached to a deep notch at apex.

Kansu: Tangut, *N. M. Przewalski* (1880), type; without locality, *Purdom* 78 (1910); Jarganar, south of Old Tao-chow, *R. C. Ching* 902 (1923); Mōping, Man-yue-szai, *Dr. D. Hummel* 2292, 2310.

A distinct endemic species of the group of *A. venustum* Don and especially closely related to *A. Faberi* Baker, differing chiefly in smaller size, narrower leaves, smaller segments of generally triangular shape.

Plate. 160. Fig. 1. Habit sketch (natural size). 2. The same but young form (natural size). 3. Ultimate pinnule, showing venation and sori ($\times 10$). 4. Scale from base of stipe ($\times 30$).

第一百六十圖
隨鐵線蕨(水龍骨科)

ADIANTUM ROBOROWSKII Maximowicz

地下草短而直立，被深褐色之細長鱗片；葉簇生，柄長六至十份，細而圓，栗黑色，光滑，葉體與柄等長，寬二至三份，披針形，基部二回或亞三回分裂，頂部一回分裂，各回小葉均具柄；一回小葉五至七對，長二至二·五份，寬一·五至二份，三角形；二回小葉四或三對，其基部一對通常分裂，末位小葉甚小，三角形或卵形，基部楔形，綠色，紙質，光滑，葉脈扇形分叉，不達於葉邊；子囊草通常每小葉兩個(有時僅一個)，蓋圓形，深褐色，革質，着生於小葉頂部之深缺刻內。

分佈： 僅甘肅西部產之。

本種形態極似峨嵋鐵線蕨 (*A. Faberi*)，惟形體纖長，葉體不為卵狀三角形，末回小葉較小，故易分別。

圖註： 1. 本種全形(自然大)， 2. 同上，幼形(自然大)， 3. 末位小葉，表示葉脈及子囊草之位置(放大十倍)， 4. 葉柄基部之鱗片(放大三十倍)。



ADIANTUM ROBOROWSKII Maximowicz

隴鐵線蕨

ONYCHIUM CONTIGUUM (Wall.) Hope.

POLYPODIACEÆ

ONYCHIUM CONTIGUUM (Wall.) Hope, Journ. Bomb. Nat. Hist. Soc. **13**: 444 (1901); Ching

Lingnan Sci. Journ. **13**: 498 (1934).

Cheilanthes contigua Wall. List. no. 72 (1828, nom. nud.).

Onychium japonicum var. *intermedia* Clarke, Trans. Linn. Soc. II. Bot. **1**: 457 (1880); Kümmerle.

Amer. Fern Journ. **29-30**: 135 (1929-30).

Onychium lucidum Bedd. (non Spr. 1827) Ferns Brit. Ind. t. 21 (1865); C. Chr. Ind. Fil. Suppl. III. 133 (1934).

Onychium japonicum Hk. et Bak. Syn. Fil. 143 (1867); Bedd. Handb. Ferns Brit. Ind. (1883); C. Chr. Ind. Fil. 469 (1905) pro parte.

Onychium japonicum var. *lucidum* Kümmerle, l. c., pro parte.

Onychium cryptogrammoides Christ in Lecomte, Not. Syst. **1**: 52 (1911).

Rhizome short, erect or procumbent, densely radiceous, apex clothed in lanceolate, light castaneous scales; *fronds* subcaespitose, stipe 25-35 cm long, pale stramineous, always black near the base, glabrous, lamina 15-25 cm each way, broadly ovate, pentagonous, acuminate, very finely 5-pinnate; *pinnae* 8-14-jugate, the basal pair much the largest, triangular, acuminate, all long-petiolate, very oblique, *pinnules* of second and third orders all petiolate, confert; ultimate *segments* linear-lanceolate, apiculate, entire, 3-5 mm long; *texture* herbaceous, pale green, naked on both sides, *veins* fine, one to each segment; *sori* linear, short, consisting of 4-6, or rarely 9 sporangia on each side, *indusium* large, broad, membranaceous, pale gray, entire, reaching costule from both sides and persistent.

Yunnan: Kiao-kia, *Ducloux* 6971, 5049 (type of *O. cryptogrammoides* Christ), August, 1911; Tong-chow, *E. E. Maire* 1579, 2096, 2774, 1484 (1913); Without locality, *G. Forrest* 285, 6068. Szechwan, Hwei-li Hsien, *T. T. Yu* 1479, Sept. 10, 1932, under woods; *W. P. Fang* 6869; Feng-hsiang-ying, *Narry Smith* 1880.

Tibet: Yatung, *Hobson* (1897).

Siam: Without locality, *H. B. J. Garrett* 453.

North-eastern India and Himalayas generally (type from Nepal).

In my recent monograph, I have treated at some length of the nomenclatural confusion for this very distinct fern, which was generally considered as identical with the widely dispersed *O. japonicum* Kze., from which our fern can always be distinguished by more finely divided lamina of a pentagonous outline, on proportionally longer pale-colored stipe always with nearly black basal part and by shorter sori with larger, broader, nearly bullate persistent indusium reaching the costule from both sides.

Plate 161. Fig. 1. Habit sketch (natural size). 2. Portion of sterile frond, showing venation ($\times 10$). 3. Portion of fertile frond ($\times 10$). 4. Soriferous segment, with one indusium open ($\times 16$). 5. Cross section of stipe ($\times 6$). 6. Scale from rhizome ($\times 27$). 7. Cross section of rhizome ($\times 6$).

第一百六十一圖
高山烏蕨(水龍骨科)

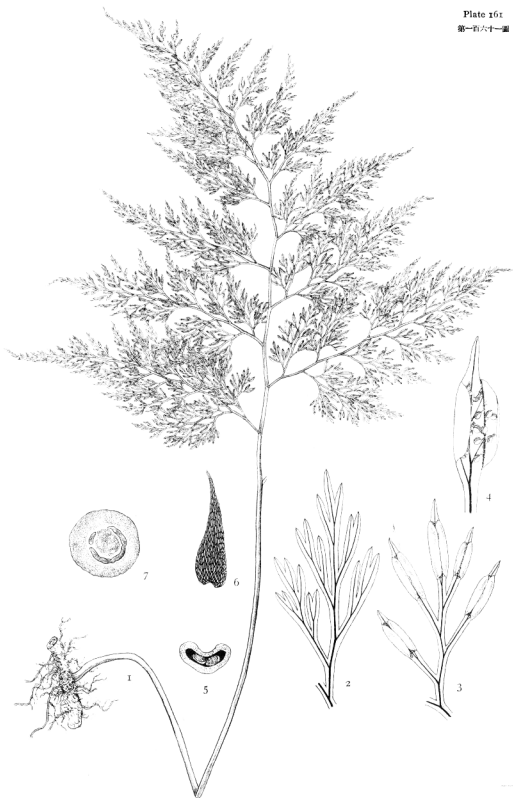
ONYCHIUM CONTIGUUM (Wall.) Hope.

地下莖短，直立或臥生，頂部被淡栗色之披針形鱗片；葉亞簇生，柄長二十五至三十五份，淡棕褐色，而基部呈黑色，光滑無毛，葉體廣卵形，漸尖頭，長十五至二十五份，寬亦如之，五回羽狀分裂，一回小葉八至十四對，基部一對最大，三角形，漸尖頭，具柄，各回小葉彼此密接，末回小葉為線狀披針形，具短尖頭，全緣，長三至五厘米，紙質，淡綠色，兩面光滑，葉脈通直明顯；子囊草短線形，通常由四至六個子囊組成，甚大，膜質，灰白色，全緣，連於葉脈，宿存。

分佈：雲南，西藏，暹羅及印度東北二部之高山均產之。

此種昔日學者多認為與普通之烏蕨 (*O. japonicum*) 相同，實則其葉體之分裂度更細密，葉柄基部常為黑色，子囊草較短，蓋短圓，故易分別。

圖註： 1. 本種全形 (自然大)， 2. 不生子囊草小葉之一部 (放大十倍)， 3. 生子囊草小葉之一部 (放大十倍)， 同上 (放大十六倍)， 5. 葉柄之橫切面 (放大六倍)， 6. 莖上之鱗片 (放大二十七倍)， 7. 莖之橫切面 (放大六倍)。



ONYCHIUM CONTIGUUM (Wall.) Hope

高山烏蕨

ONYCHIUM MOUPINENSE Ching

POLYPODIACEÆ

ONYCHIUM MOUPINENSE Ching, Lingnan Sci. Journ. **13**: 500 (1934)

Rhizome wide-creeping, 1.5 mm thick, densely scaly; *scales* rufo-brown, subulate, firm; *frond* distant, dimorphous, *sterile* one narrowly linear elongate, stipe to 10 cm long, slender, pale stramineous, lamina 10-15 cm long, 2-3 cm broad, slightly broader towards base, bipinnate; *pinnae* 10-15-jugate, rhombic, petiolate, basal pair to 3.5 cm long, upper ones 2 cm long, subunequally cuneate at base; *pinnules* 2-3-jugate, subrhombic, base slightly decurrent, apex obtuse; *segments* 2-3-jugate, small, 2-3-dentate; *texture* rather rigid, color green; *fertile frond* much longer and broader, stipe 15-20 cm long, stramineous, lamina as long as stipe, broadly lanceolate, long-attenuate towards above middle, base to 6 cm broad, tripinnate; *pinnae* 10-15-jugate, long-petiolate, base unequally cuneate, basal pair to 10 cm long, 3 cm broad, long-acuminate towards simple pinnate apex; *segments* few, sili-queform, 10 mm long, 1.5 mm broad, acuminate; *sori* linear, 5-7 mm long, *indusium* conforms, broad, gray, entire, reaching costule from both sides.

Szechwan: Moupin, *David* (type).

This species, confined to the highland of western Szechwan, differs from *O. japonicum* Kze. in much narrower and less divided frond and particularly the sterile one, which is of linear-elongate outline to 3 cm broad from somewhat broader base, and the fertile frond with extremely long-attenuate upper part.

Plate 162. Fig. 1. Habit sketch (natural size). 2. Portion of sterile frond, showing venation ($\times 8$). 3. Portion of fertile frond ($\times 8$). 4. Ultimate segment of fertile frond, showing position of sori and indusia ($\times 16$). 5. Scale from rhizome ($\times 27$).

第一百六十二圖
木坪烏蕨(水龍骨科)

ONYCHIUM MOUPINENSE Ching

地下莖細長，橫行，被紅褐色之細長厚質鱗片；葉散生，亞二形，不生子囊羣葉之柄長達十份，細長，淡稻草色，葉體為狹線形，長十至十五份，寬二至三份，向基部較圓，二回羽狀分裂；一回小葉十至十五對，斜方形，具柄，基部一對長達三·五份，基部歪楔形，二回小葉二至三對，形小，具二三個鋸齒，質頗堅厚，綠色；生子囊群之葉較長而寬，柄長十五至二十份，稻草色，葉體長亦如之，濃披針形，中部以上呈尾狀狹長，基部圓達六份，三回羽狀分裂；一回小葉十至十五對，具長柄，基部為不等楔形，下部一對長達十份，寬三份，長形漸尖頭，頂部一回羽狀分裂；末回裂片少數，扁圓形，長約一粉，寬一·五粒，漸尖頭；子囊群線形，長五至七粒，蓋膜質，全緣。

分佈：四川寶慶縣高山特產。

本種異於普通烏蕨 (*O. japonicum*) 者，為其後長亞二形之葉，其分裂度較少，頂部呈尾形細長是也。

圖註：1. 本種全形 (自然大)， 2. 不生子囊葉之一部，表示葉脈 (放大八倍)， 3. 生子囊群葉之一部 (放大八倍)， 4. 生子囊群之末回小葉，表示子囊群之位置及蓋 (放大十六倍)， 5. 地下莖上之鱗片 (放大二十七倍)。



ONYCHIUM MOUPINENSE Ching

木坪烏蕨

ONYCHIUM TENUIFRONS Ching

POLYPODIACEÆ

ONYCHIUM TENUIFRONS Ching, Lingnan Sci. Journ. **13**: 500 (1934).

Onychium japonicum var. *Delavayi* Christ, Bull. Soc. Bot. France **52**: Mém. I. 60 (1905)

Onychium lucidum Kümmerle, Amer. Fern Journ. **20**: 135 (1930); C. Chr. Ind. Fil. Suppl. III. 133 (1934) pro parte.

Rhizome short-creeping, rather thick, densely clothed in pale brown, linear-subulate scales; *fronds* subcaespitose, subdimorphous, stipe firm, erect, stramineous, 6-15 cm long, flexuose, naked, lamina oblong-lanceolate, 15-25 cm long, tripinnate at base, bipinnate towards acuminate apex; *pinnæ* 5-8-jugate, petiolate, oblique, 5-10 cm long, lanceolate; *pinnules* rhombic, pinnate; *segments* 3-5-jugate, linear, 5-7 mm long, 1.5 mm broad, acuminate, margin obscurely denticulate; *texture* rigidly coriaceous, subnitente, glabrous on both sides; *veins* prominently raised above, one to each segment, pinnate; *sori* 3-5 mm long, *indusium* gray, reaching costule from both sides, margin deeply eroded; *sterile* leaves on much shorter stipe, with broader and confert pinnules and segments.

Yunnan: Shweli-Salween divide, *G. Forrest 24175* (type), July, 1924; Loko Chan, *Delavay 1715*; Tapin-ze, *Delavay 52*; Ty-ly, *Ducloux 5821*; Tai-t sien-teen, *E. E. Maire*, Sept. 1913; Tchong-san, *Ducloux 3372*, Nov. 2, 1909; Nieou Ko Chan region, Pin-chow, *Ducloux 6373*. Szechwan: On the Yunnan border, *W. P. Fang 9191*, Oct. 20, 1930.

This endemic species is closely related to *O. japonicum* Kze. differs from that or other related species in oblong-lanceolate and once less pinnate fronds, subcaespitose leaves, pale brown scales on rhizome, more or less denticulated ultimate segments and the deeply eroded margin of indusium, which last character has so far been known only in *O. melanolepis* (Decsn), a species from Abyssine.

Plate 163. Fig. 1. Habit sketch (natural size). 2. Portion of sterile frond, showing venation ($\times 10$). 3. Soriferous segment, showing attachment of sori and indusium with erose-dentate margin ($\times 16$). 4. Scale from rhizome ($\times 27$).

第一百六十三圖
狹葉烏蕨(水龍骨科)

ONYCHIUM TENUIFRONS Ching

地下莖短而橫行，頗粗肥，被線形淡黃色之狹鱗片；葉亞簇生，亞二形，柄長六至十五粉，光滑，葉體橢圓披針形，長十五至二十五粉，基部三回羽狀分裂，上部二回羽狀分裂；一回小葉五至八對，具柄，斜出，長五至十粉，披針形；二回小葉斜方形，羽狀分裂；裂片三至五對，線形，長五至七厘，寬僅一·五釐，漸尖頭，邊緣具不明顯之鋸齒，堅革質，頗明亮，兩面光滑，葉脈兩面顯特，羽狀分裂；子囊羣長三至五個，蓋膜質，灰白色，邊緣凹凸不齊；不生子囊羣葉具較短之柄及較寬之裂片。

分佈：雲南特產。

本種略似普通之烏蕨 (*O. japonicum*)，然其葉簇生，葉體細長，分裂度較少，莖上鱗片呈淡黃色，末回裂片之邊緣具不甚顯明之鋸齒及子囊羣蓋，具凹凸不齊之邊緣，故易分別。

圖註：1. 本種全形 (自然大)， 2. 小葉之一部表示葉脈 (放大十倍)， 3. 着生子囊羣小葉之一部放大，表示葉脈及子囊羣之着生情形，並刮去一部份之胞蓋 (其邊緣有銳鋸齒) (放大十六倍)， 4. 莖上之鱗片 (放大二十七倍)。



ONYCHIUM TENUIFRONS Ching

狹葉烏蕨

ONYCHIUM IPII Ching

POLYPODIACEÆ

ONYCHIUM IPII Ching, Lingnan Sci. Journ. **15**: 282 (1936).

Rhizome wide-creeping, 2 mm thick; *scales* imbricate, lanceolate, atro-brown, nitent; *fronds* approximate, stipe slender but firm, erect, pale green, naked, sulcate above, 10-20 cm long, lamina narrowly lanceolate with deltoid base, attenuate towards apex, 10-20 cm long, 3-7 cm broad, tripinnate at base, simple pinnate towards apex; *pinnae* 10-13-jugate, basal ones much the largest, 4-7 cm long, 3-4 cm broad at base, deltoid, long-acuminate, oblique, petiole to 1 cm long; *pinnules* subrhombic, acute, 1.5 cm long, 1 cm broad, petiolulate, pinnatisect; *segments* rhombic, below 5 mm long, anterior basal one much the largest, lobato-incised with 2-4 acute soriferous teeth, the middle pinna lanceolate, to 3 cm long, about 1 cm broad, very oblique, bipinnatifid; *texture* rigidly herbaceous, light green and glabrous on both sides; *veins* prominently raised, pinnate, one to each soriferous tooth; *sori* short, 2 mm long, *indusium* conforms, gray, membranaceous, entire, completely covering sorus.

Hupei: Koo Chen Hsien, Wu Leng Shan, *K. C. Chow 3982*, Oct. 14, 1935, in shade.

This endemic species is closely related to *O. moupinense* Ching, differs in its decidedly slender habit with uniform fronds, shorter ultimate segments with very short sori.

Plate 164. Fig. 1a-b. Habit sketch (natural size). 2. Portion of fertile frond, ($\times 8$). 3. Portion of sterile frond ($\times 8$). 4. Ultimate segment of fertile frond, showing position of sori and indusium ($\times 16$). 5. Scale from rhizome (27).

第一百六十四圖

葉氏烏蕨(水龍骨科)

ONYCHIUM IPII Ching

本種略似木坪烏蕨(第一百六十二圖), 惟其形體更為細長, 葉不為二形, 末回裂片及子囊群均較短, 故易識別。

分佈: 湖北古城縣之烏龍山特產。

圖註: 1. 本種全形(自然大), 2. 生子囊群葉之一部(放大八倍), 3. 不生子囊群葉之一部(放大八倍), 4. 生子囊群葉之末回小葉, 表示子囊群之位置及蓋之着生情形(放大十六倍), 5. 地下莖上之鱗片(放大二十七倍)。



ONYCHIUM IPII Ching

葉氏烏蕨

PLATE 165

PLEUROSORIOPSIS MAKINOI (Maxim.) Fomin

POLYPODIACEÆ

PLEUROSORIOPSIS MAKINOI (Maxim.) Fomin, Bull. Jard. Bot. Kieff **11**: 8 (1929); Fl. Sib. et Orient. Extr. **5**: 215 (1930); C. Chr. Ind. Fil. Suppl. III, 142 (1934).

Gymnogramme Makinoi Maxim.; Makino, Bot. Mag. Tokio **8**: 481 c. tab. (1894); Phan. et Pterid. Jap. Icon. Illustr. **1**: pl. 47 (1899-1901); Christ, Bull. Acad. Géogr. Bot. (1906) 129.

Anogramma Makinoi Christ in C. Chr. Ind. Fil. **58** (1905); Ogata, Ic. Fil. Jap. **1**: pl. 2 (1928).

Rhizome epigeous, wiry, branched, wide-creeping, densely clothed in rufo-brown, hair-like, unicellular, softly shaggy *hairs*; *fronds* far apart, erect, stipe 1.5-5 cm long, slender, stramineous, densely clothed throughout in similar hairs, lamina oblong or oblong-ovate, acute or bluntish, base not narrowed. 1.5-6 cm long, 1-2 cm broad, bipinnate; *pinnae* 4-7-jugate under pinnatifid apex, petiolate, 5-7 mm long, deltoid, obtuse, base cuneate, pinnate with 1-2 pairs of oblong-ligulate entire or slightly notched uninnerved decurrent segments under the trilobed terminal part; *texture* thin herbaceous, rachis, petiole and both sides copiously clothed in reddish-brown, spreading, septate, transparent hairs; *veins* visible against light, one to each lobe, falling far short below apex; *sori* linear, along veins and costa of pinnae, exindusiate; sporangium broadly subglobular, shortly stalked; *spores* ovate-reniform, discolored, bilateral, and smooth (with both perispor and exospor).

Szechwan: Mt. Omei, *E. H. Wilson 5274*. Shensi: Mt. Huan Ton Shan, *Gibaldi*. Also Amur, Japan and southern part of Corea (Quelpert, *Taquet 3946*).

This is a singularly interesting little fern, epiphytic on tree trunks or growing in mosses on rocks under forest. The genus comprising only one species, differs from *Anogramma* in wide-creeping and branched rhizome, with distant leaves, dense reddish-brown articulated hairs in all parts and the bilateral reniform-ovate spores.

Plate 165. Fig. 1. Habit sketch (natural size). 2. Cross section of rhizome ($\times 30$). 3. Cross section of stipe ($\times 30$). 4. Pinnae, showing venation, hairs and position of sori ($\times 20$). 5. Hairs on lamina ($\times 16$). 6. The same from rhizome ($\times 16$). 7. Sporangium with spores ($\times 150$).

第一百六十五圖
睫毛蕨(水龍骨科)

FLEUROSORIOPSIS MAKINOI (Maxim.) Fomin

地上莖細長，橫行，分叉，被紅褐色之細長鱗毛；葉散生，柄長一·五至五粉，細柔，稍帶色，具紅褐色之密毛，葉體橢圓形或橢圓卵形，急尖頭，或鈍頭，基部等寬，高一·五至六粉，寬一至二粉，二回羽狀分裂；小葉四至七對，具柄，長五至七釐，三角形，鈍頭，基部楔形，羽狀深裂；裂片一至二對，橢圓舌形，全緣或頂端稍呈缺刻，具一數小脈，紙質，中軸及葉之兩面均被紅褐色之密陡毛；子囊羣線形，循小脈及主脈生，無蓋。

分佈：四川，陝西，日本，朝鮮及西比利亞東部。

本屬僅此一種，附生於樹幹或林中岩石上之巒苔中，在中國僅四川及陝西產之。

圖註：1. 本種全形(自然大)，2. 莖之橫切面(放大三十倍)，3. 葉柄之橫切面(放大三十倍)，4. 一回小葉，表示葉脈，睫毛及子囊羣之位置(放大二十倍)，5. 葉體上之睫毛(放大十六倍)，6. 莖上之毛(放大十六倍)，7. 子囊及孢子(放大一百五十倍)。



PLEUROSORIOPSIS MAKINOI (Maxim.) Fomin

睫毛蕨

CONIOGRAMME FRAXINEA (Don) Diels

POLYPODIACEÆ

CONIOGRAMME FRAXINEA (Don) Diels in Engl. u. Prantl: Nat. Pflanzenfam. **1**: 4. 262 (1899);

C. Chr. Ind. Fil. 185 (1905), pro parte; Suppl. II, 9 (1913-17); Contr. U. S. Nat. Herb. **26**: 307 (1931); Hieron. Hedwigia **57**: 286 (1916).

Diplazium fraxineum Don. Prod. Fl. Nepal. 12 (1825).

Gymnogramme fraxinea Bodd. Ferns Brit. Ind. Suppl. 24 (1876), excl. Ferns Brit. Ind. t. 232, and Ferns S. Ind. t. 57.

Syngramme fraxinea Bodd. Handb. Ferns Brit. Ind. 386 (1883), pro parte.

Neurogramme fraxinea Christ, Farakr. d. Erde 63 (1897), pro parte.

Gymnogramme javanica Bl. Enum. Pl. Jav. 112 (1828); Fl. Jav. 95 t. 41 (1828).

Coniogramme javanica Fée, Gen. Fil. 167 t. 14 B, f. 1 (1850-52).

Rhizome creeping, thick as a finger, densely scaly; *scales* linear-subulate, atrobrown, thick, entire; *frond* ample, 2-3 cm apart, *stipe* up to 1 meter long, 1 cm thick and scaly near base, prominently bisulcate on the upper side and terete beneath, straminous or dark straminous; *lamina* over 1 meter long, 50 cm broad, ovate or oblong-ovate, simple impari-pinnate, *pinnae* 6-10-jugate, opposite or subalternate, 10-15 cm apart, oblique, lower ones long-petiolate (petiole 1.5 cm long), uppermost ones nearly sessile, basal ones generally simple, or very rarely bifid, to 30 cm long (sometimes longer), 6-8 cm broad, oblong-lanceolate, base cuneate (unequally so in lower ones), long-caudate at apex, margin entire to the very tip, generally repand, thin, and not cartilaginous; *texture* chartaceous, glabrous and green on both sides; *veins* distinct beneath, mostly forked above base, veinlets parallel, ended in large clavate straight hydathodes some distance from the thin leaf-margin; *sori* linear, forked, extending from costa to near the margin.

Yunnan: Tengyueh, *G. Forrest 9496, 26688*; between Muang Hun and Muang Hai, *J. F. Rock 2401*; without locality, *H. T. Tsai 56934*.

Also Sikkim-Himalayas, S. India, Java, Philippines and Formosa.

One of the largest species of the genus, characterized by generally simple pinnate leaves and large subopposite pinnae with very entire, thin margin and long-caudate apex. From the available herbarium material, this distinct fern seems by no means abundant in the localities noted and has hitherto generally been utterly misunderstood by authors in the past. *Coniogramme fraxinea* of authors on Indian and Chinese ferns generally represents a mixture of a number of species, while its previous report from different parts of China has mostly been a mistake for *C. intermedia* Hieron. (cf. pl. 143 of this Icones), the specimens cited above from Yunnan constituting the first and only authentic record of the species from China. The other and the only species, which is similar to our fern in size, general habit and entire leaf-margin, is *C. macrophylla* (Bl.) Hieron. var. *Copelandii* (Christ) Hieron. (l.c. 292) of the Philippine Islands and recently collected in the Island Hainan (F. A. McClure 2147), which differs, however, in its veins ended in similarly prominent but somewhat arcuate hydathodes connected with the broadly cartilaginous margin by sclerenchymatous cells.

Plate 166. Fig. 1. Habit sketch (natural size). 2. Portion of pinna, showing veins with prominent clavate hydathodes and entire thin leaf-margin ($\times 4$). 3. Scale from rhizome ($\times 16$).

第一百六十六圖
全緣鳳了蕨 (水龍骨科)

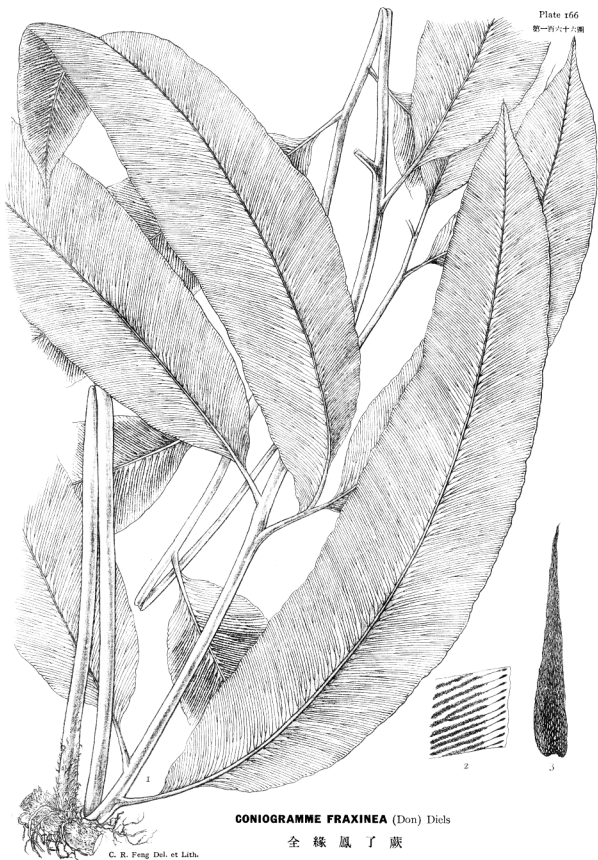
CONIOGRAMME FRAXINEA (Don) Diels

地下莖橫行，粗肥如指，被線狀深褐色之鱗片；葉大散生，柄長達一呎，基部粗達一吋，稍帶色，葉體長達一呎，寬約五吋，卵形或卵狀橢圓形，一回奇數羽狀分裂；小葉六至十對，對生或亞互生，斜出，具柄，長達三吋，寬六至八份，橢圓披針形，端呈尾狀，基部楔形，亞等形，上部數對無柄，較小，全緣而質薄，不為骨質，紙質，兩面光滑無毛，綠色，葉脈下面明顯，多數分叉，平行，端直而膨大，不達於葉邊；子囊果線形，分叉，自中肋變達於葉邊。

分佈：雲南，印度，爪哇，台灣，菲律賓羣島均產之。

此為本屬極大之一種，在中國僅產於雲南西部高山，其產於其他各省者，昔人認為此種，實為華鳳了蕨 (*C. intermedia*) 也。

圖註： 1. 本種全形 (自然大)， 2. 小葉之一部，表示葉脈及邊緣 (放大四倍)， 3. 地下莖上之鱗片 (放大十六倍)。



CONIOGRAMME FRAXINEA (Don) Diels

全緣鳳了蕨

C. R. Feng Del. et Lith.

CONIOGRAMME CAUDATA (Wall.) Ching

POLYPODIACEÆ

CONIOGRAMME CAUDATA (Wall.) Ching in C. Chr. Ind. Fil. Suppl. III, 56 (1934).

Grammitis caudata Wall. List no. 4 (1828, nom. nud.).

Gymnopteris caudata Presl, Tent. Pterid. 218 (1836, nom. nud.); Ettingash, Farnkr 57 t. 37 f. 7, t. 38 f. 13 (1865).

Gymnogramme javanica var. *spinulosa* Christ, Bull. Soc. Bot. France 52: Mém. I. 55 (1905).

Coniogramme spinulosa Hieron. Hedwigia 57: 311 (1916); C. Chr. Ind. Fil. Suppl. II, 10 (1913-17); Contr. U. S. Nat. Herb. 26: 307 (1931).

Coniogramme pubescens Hieron., l.c. p. 314; C. Chr., l.c.

Gymnogramme serrulata Wall. (non Bl.), List no. 134 (1828, nom. nud.).

Gymnogramme javanica Bedd. Ferns S. Ind. 77 t. 232 (1864).

Gymnogramme fraxinea var. *pilosa* Clarke (non Brack.), Trans. Linn. Soc. II. Bot. 1: 569 (1880)

Rhizome wide-creeping, thick as a small finger, densely scaly; *scales* narrowly lanceolate, entire, dark-brown, thick; *frond* 1-3 cm apart, stipe 30-60 cm long, dark stramineous, naked, deeply grooved above, lamina ovate-deltoid, 30-50 cm each way, simple pinnate or bipinnate at base; *pinnae* generally 1-3-jugate under the terminal one similar to the lateral, 14-20 cm long, 3-4 cm broad, broadly lanceolate, petiolate, attenuate-cuneate at base, caudate at apex, the basal pair long-petiolate (petiole to 2 cm long), generally 2-3-foliolate with the lower one or basal pair of pinnules somewhat smaller than the upper or central one; *texture* thickly chartaceous, margin regularly and prickly serrate with deltoid cartilaginous teeth, glabrous above, densely pubescent beneath; *veins* fine, distinct, once or twice forked, veinlets parallel, extending into the serrature, each provided with a large prominent brown hydathode at the tip; *sori* linear, extending from costa to near the margin.

Yunnan: Tsans-chan, *Delavay 4212* (type of *C. spinulosa*), 5045, August, 1894; February 22, 1889; Maikha-Salween divide, *G. Forrest 18332*; Shweli-Salween divide, *G. Forrest 24628, 27987*; Tchen Fong Sian, *Delavay 5043*; Shang-pa, H. T. Tsai 58819, 58780, in forest. Southeastern Tibet: forest of Doyan Longba, *J. F. Rock 11137*.

India: Nepal, *Wallich 4* (type). Also Sikkim-Himalayas, common.

This distinct fern, now found to be common in Sikkim-Himalayas and the western part of Yunnan, is characterized by simple pinnate frond often with bipinnate base, only 1-3 pairs of pinnae with long-caudate apex, regularly and prickly serrated margin and densely pubescent under surface.

Plate 167. Fig. 1. Habit sketch (natural size). 2. Portion of pinna, showing venation, sori, serrature and pubescent under surface ($\times 4$). 3. Hairs from under surface ($\times 40$). 4. Scale from rhizome ($\times 20$). 5. Sporangium ($\times 40$).

第一百六十七圖
毛葉鳳了蕨(水龍骨科)

CONIOGRAMME CAUDATA (Wall.) Ching

地下莖橫行，粗肥如指。被深褐色披針形之密鱗片；葉叢散生，柄長三十至六十公分，光滑無毛，葉體卵狀三角形，長三十至五十公分，寬如之，一回奇數羽狀分裂，基部二回分裂，小葉通常二至三對，長十四至二十公分，寬三至四公分，闊披針形，具柄，基部呈楔形，頂為尾形，頂部一小葉幾等大，同形，基部一對通常二至三裂，柄長達二公分，厚紙質，邊緣具刺狀骨質之密鋸齒，上面光滑，下面被密毛，葉脈明顯，一回或二回分叉，直達於鋸齒之端；子囊草線形，自中肋外出，達於葉邊。

分佈：雲南及喜馬拉亞山產之。

此為本屬特殊之種，葉之下面被密毛，其葉脈直達於刺狀骨質之密鋸齒之頂，小葉二至三對，端為長尾形，故易識別。

同註： 1. 本種全形(自然大)， 2. 小葉之一部，表示葉脈，子囊，鋸齒及披毛之下面(放大四倍)， 3. 葉下面之毛(放大四十倍)， 4. 地下莖上之鱗片(放大二十倍)， 5. 子囊(放大四十倍)。



CONIOGRAMME CAUDATA (Wall.) Ching

毛葉鳳了蕨

PLATE 168

CONIOGRAMME PROCERA (Wall.) Fée

POLYPODIACEÆ

CONIOGRAMME PROCERA (Wall.) Fée, 10 Mém. 22 (1865); Hieron. Hedwigia **57**: 317 (1916);

C. Chr. Ind. Fil. Suppl. 11. 10 (1913-17); Contr. U. S. Nat. Herb. **26**: 307 (1931).

Grammitis procera Wall. List no. 3 (1828, nom. nud.).

Cymnogramme javanica Hook. Sp. Fil. **4**: 145 (1862), pro parte.

Coniogramme parvipinnula Hayata, Ic. Pl. Form. **4**: 237 f. 166 (1914); C. Chr. Ind. Fil. Suppl. II. 10 (1913-17).

Rhizome creeping, thick as a small finger, sparsely scaly; *scales* light brown, lanceolate, entire; *frond* distant, stipe to 60 cm long, over 0.5 cm thick near base, light stramineous, deeply bisulcate above, lamina ample, over 60 cm long, 50 cm broad at base, ovate-deltoid, fully bipinnate under the simple pinnate apical part; *pinnæ* about 10-jugate, patent, petiolate, the basal ones much the longest, to 30 cm long, 9 cm broad, imparipinnate with 10-13 pairs of opposite (or subopposite) pinnules to 5 cm long, 2 cm broad, with sessile or slightly adnate, broadened rotundo-truncate base, caudate apex and crenate-serrated margin, the upper several pairs of pinnæ gradually shortened with 9-7-5 pairs of pinnules respectively under the much longer terminal one, the upper middle pinnæ with only 3-2-1 pairs of pinnules under still longer terminal one, the uppermost 3-5 pairs generally simple, under the similar terminal one; *texture* thin herbaceous, green and glabrous on both sides; *veins* fine, forked above base, veinlets parallel, with slightly enlarged tip, extending to the base of serrature; *sori* linear, forked; extending to little over half way to the margin.

Yunnan: Mengtze, *Hancock 16*; Schweli-Salween divide, *G. Forrest 25233*; *Handel-Mazzetti 7057*; without locality, *Delavay* (1886); Salween, *G. Forrest 26234* (1925); *H. T. Tsai 52486, 51765*, Feb. 1932; Tchen Fong Shan, *E. E. Maire*; between Tengyueh and Burmese border, *J. F. Rock 7328*.

India orientalis: Nepal, *Wallich 3* (type).

Formosa: Arisan, *B. Hayata et S. Sasaki*, Jan. 1912.

One of the most distinct species of the genus, being characterized by fully bipinnate lower half of lamina, with the basal pinna having 10-13 pairs of small, opposite, sessile or slightly adnate pinnules with caudate apex and broadened rotundo-truncate base, and by thin herbaceous light green glabrous leaves. Tsai's no. 52486 represents an unusual large form with pinnules in lower pinna to 15 cm long, 3.5 cm broad.

Plate 168. Fig. 1. Habit sketch (natural size). 2. Portion of pinnule, showing serrature and sori ($\times 4$). 3. Scale from rhizome ($\times 30$).

第一百六十八圖
高山鳳了蕨(水龍骨科)

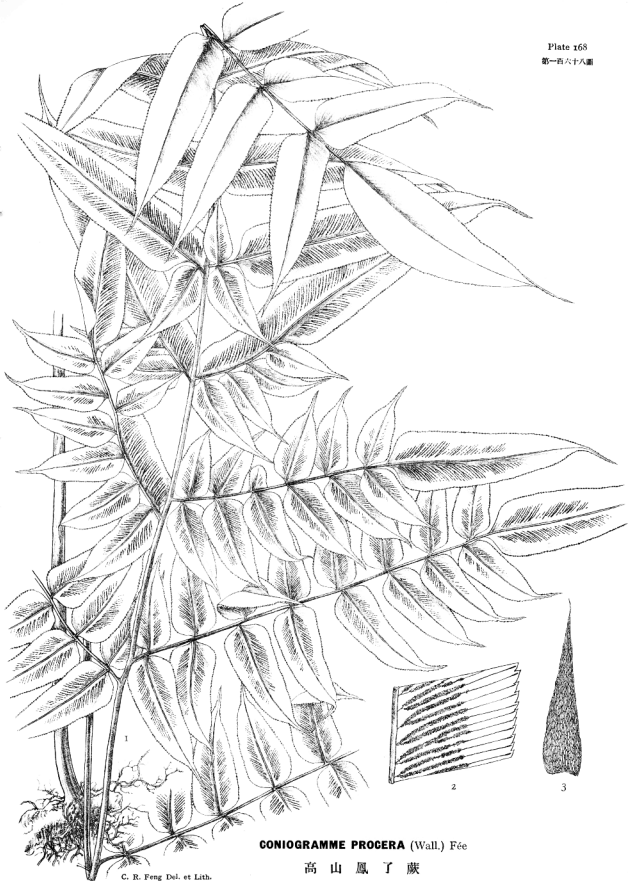
CONIOGRAMME PROCERA (Wall.) Fée

地下莖橫行，粗肥如小指，略被淡黃色之披針形鱗片；葉散生，柄長達六十粉，光滑，淡稻草色，葉體甚大，長達六十粉，寬約五十粉，二回奇數羽狀分裂；小葉約十對，開展，具柄，基部一對最大，長達三十粉，寬九粉，奇數羽狀分裂，二回小葉十至十三對，對生，長約五粉，寬二粉，無柄，或多少合生，端呈尾形，基部為圓截形，邊緣鋸齒整齊，上部小葉漸短，二回小葉漸少，其位於葉頂下部數對為單葉，薄紙質，綠色，兩面光滑，葉脈明顯，僅達於鋸齒之基部；子囊草線形，分叉，自中肋達於葉之半圓。

分佈：雲南，印度東北部及台灣高山產之。

此為強二回羽狀分裂之種，其基部小葉具十數對以上之二回對生小葉，葉為薄紙質，綠色，兩面光滑無毛，最易識別。

圖註： 1. 本種全形(自然大)， 2. 二回小葉之一部，表示鋸齒及子囊草(放大四倍)， 3. 地下莖上之鱗片(放大三十倍)。



CONIOGRAMME PROCERA (Wall.) Fée

高山鳳了蕨

C. R. Feng Del. et Lith.

PLATE 169

OLEANDRA CUMINGII J. Smith

POLYPODIACEÆ

OLEANDRA CUMINGII J. Smith. Journ. Bot. **3**: 413 (1841, nom. nud.); Presl, Epim. Bot. 41 (1849); Hk. Sp. Fil. **4**: 158 (1860); Hk. et Bak. Syn. Fil. 303 (1874); Diels in Engl. u. Prantl: Nat. Pflanzenfam. **1**: 4. 204 (1899); C. Chr. Ind. Fil. 466 (1905); Copel. Polyp. Phil. Isl. 49 (1905); Dunn & Tutcher, Fl. Kwangt. & Hongk. 349 (1912).
Oleandra chinensis Hance, Ann. Sci. Nat. IV. **18**: 238 (1861); C. Chr. Ind. Fil. Suppl. III. 132 (1934).

Rhizome wide-creeping, densely scaly, *scales* lanceolate, long-acuminate, imbricate, ferruginously brown, margin long-fimbriate; *fronds* 0.5-1 cm apart, stipe dark stramineous, hairy, articulated at 1-2 cm above base, lamina linear-lanceolate, 15-30 cm long, 2-3 cm broad, acuminate, gradually narrowed downward, with narrowly cartilaginous, wavy and generally naked margin; *texture* papyraceous, rather sparsely and shortly pubescent beneath and with a few very fine appressed hairs above; *veins* fine, distinct, forked above base; *sori* irregularly 1-rowed, subcostal, *indusium* reniform, brown, hirsute.

Kwangtung: Sichu Shan, *Sampson 1998* in Herb. Hance (type of *O. chinensis*); Lofan Shan, *Ford* (1883); *N. K. Chun 40930*; North River, Feiloy Hap, *Matthew*, Nov. 25, 1907; Canton, Peiyun Shan, *H. Y. Liang 60252*, July 3, 1930; White Cloud Hill, *W. Hillebrand*. Hongkong: Mt. Parker, *Matthew*, Oct. 12, 1907.

Philippine Islands: Luzon, *Cuming 60* (type). Also Malesia-Polynesia.

Closely related to *O. undulata* (Willd.) Ching, from which it differs in characters as will be noted under that species. Upon a close comparison made in the herbarium at Kew in winter, 1930, I could see no tangible differences between the Philippine type and the southern Chinese plant, known as *O. chinensis* Hance.

Plate 169. Fig. 1. Habit sketch (natural size). 2. Portion of lamina, showing venation, sori and hairy under side ($\times 4$). 3. Scales from rhizome ($\times 16$). 4. Hairs from the under side of lamina ($\times 50$).

第一百六十九圖

華南蕨蕨(水龍骨科)

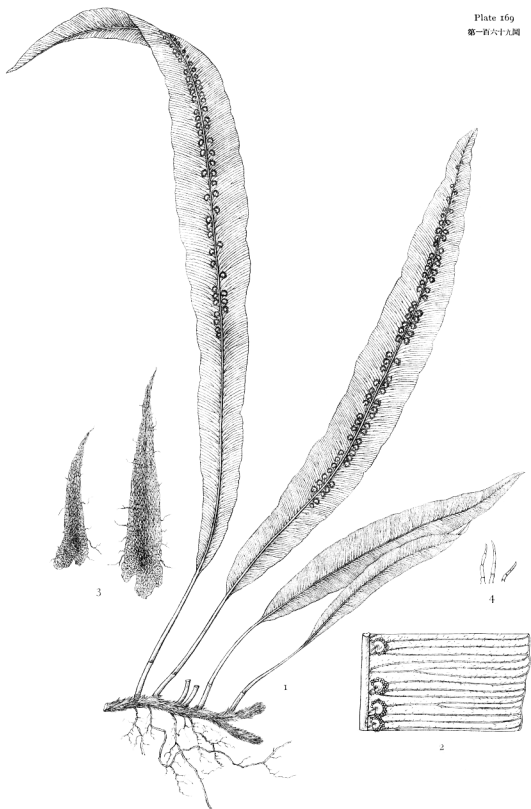
OLEANDRA CUMINGII J. Sm.

地上莖橫行，緣石而生，被互覆狀之金黃色披針形之鱗片；葉亞散生，柄深稻稈色，長二至四粉，基部上面一至二粉處有顯特之肢節，葉體線狀披針形，長十五至三十粉，寬二至三粉，漸尖頭，下部漸狹，邊緣為骨質而呈淺波狀，紙質，兩面具多少之細毛，葉脈細長，顯明，自基部分叉，達於葉邊；子囊果圓形，為不規則之一列，蓋為腎形，褐色，具短毛。

分佈：廣東，香港，菲列賓羣島及南洋羣島均產之。

本種形態極似高山蕨蕨 (*O. Wallichii*)，惟其莖上之鱗片，彼此互覆，葉柄較長，葉緣通常光滑無毛，故易分別。

圖註：1. 本種全形(自然大)，2. 葉體之一部，表示葉脈，子囊果之位置與被毛之下面，(放大四倍)，3. 地上莖上之鱗片(放大十六倍)，4. 葉體下面之細毛(放大五十倍)。



OLEANDRA CUMINGII J. Smith

華南 蓀 蕨

OLEANDRA WHANGII Ching

POLYPODIACEÆ

OLEANDRA WHANGII Ching, Bull. Dept. Biol. Coll. Sci. Sun Yatsen Univ. No. **6**: 23 (1933); C. Chr. Ind. Fil. Suppl. III. 133 (1934).

Oleandra musifolia Wu (non Bl. 1828), l. c. No. **3**: t. 37 (1932).

Rhizome wide-creeping along the rock surface, densely scaly; *scales* rusty brown, lanceolate, thick, dorsally affixed, margin subscarios, densely imbricate; *fronds* sub-fasciculated, 3-4 together, stipe 1-4 cm long, pale strammious, nitid, naked, articulated above base, lamina broadly linear-lanceolate, 25-35 cm long, 3-5 cm broad with almost parallel margin except towards both ends being slowly narrowed, margin subundulate; *texture* chartaceous, green, glabrous on both sides except the costa beneath being sparsely provided with brown scales and a few short articulated hairs; *veins* fine, but distinct, mostly forked from base, parallel, extending to the cartilaginous margin; *sori* irregularly 1-rowed some distance from costa, *indusium* reniform, large, brown, membranaceous, glabrous.

Kwangsí: Pin Nam, Yao Shan, S. S. *Sin & Whang 500* (type), June 2, 1928, *ibid.* C. Wang 39287, July 3, 1936, 3000 ft. alt., on rocks.

This distinct endemic species, known so far only from one single locality, differs from its all Chinese relatives in subfasciculated fronds on very short stipes, naked surfaces of lamina (or with very few short hairs along costa beneath) of broadly linear-lanceolate outline with nearly parallel edges, and large naked indusium at some distance from the costa.

Plate 170. Fig. 1. Habit sketch (natural size). 2. Portion of lamina, showing venation and position of sori ($\times 4$). 3. Scale from rhizome ($\times 16$). 4. Scales from under side of costa ($\times 27$). 5. Hairs from the under side of costa ($\times 50$).

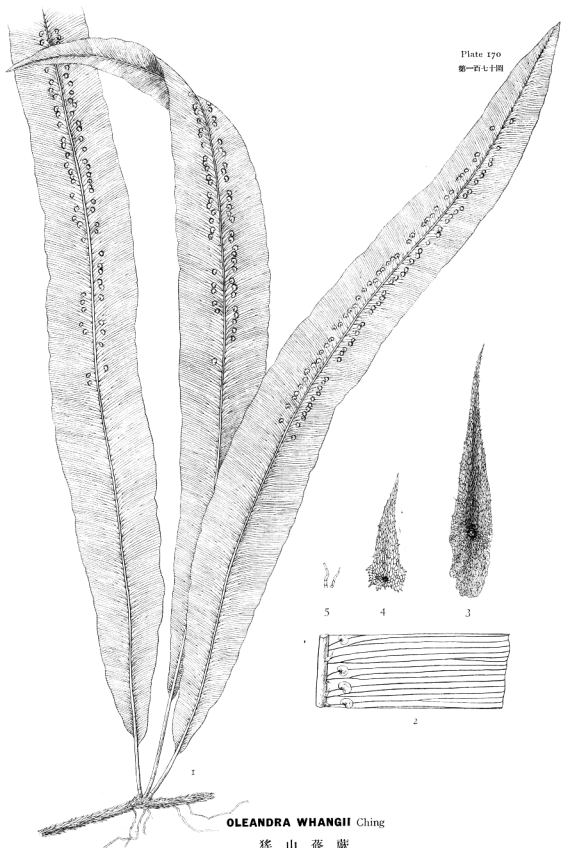
第一百七十圖
嶺山蕨 (水龍骨科)

OLEANDRA WHANGII Ching

本種形體頗似一百六十九圖，惟其葉為簇生，兩面光滑無毛，(或中肋下面略具一二細毛)，葉邊幾呈平行，子囊草較大，距中肋較遠，蓋無毛，故易分別。

分佈：僅產於廣西平南縣之嶺山。

圖註：1. 本種全形(自然大)， 2. 葉體之一部，表示葉脈及子囊草之位置(放大四倍)， 3. 地上部之鱗片(放大十六倍)， 4. 中肋下面之鱗片(放大二十七倍)， 5. 中肋下面之細毛(放大五十倍)。



OLEANDRA WHANGII Ching

猿山蕨

OLEANDRA UNDULATA (Willd.) Ching

POLYPODIACEÆ

OLEANDRA UNDULATA (Willd.) Ching, Lingnan Sci. Journ. **12**: 565 (1933); C. Chr. Ind. Fil.

Suppl. III, 132 (1934).

Polypodium undulatum Willd. Sp. **5**: 155 (1810).

Oleandra Cumingii var. *longipes* Hk. Sp. Fil. **4**: 158 (1860); Bedd. Ferns Brit. Ind. t. 135. (1866); C. Chr. Contr. U. S. Nat. Herb. **26**: 290 (1931).

Oleandra Cumingii (non J. Sm.) Hk. et Bak. Syn. Fil. 303 (1868); Clarke, Trans. Linn. II. Bot. **1**: 542 (1880); Bedd. Handb. Ferns Brit. Ind. 288 (1883); C. Chr. Ind. Fil. 466 (1905), pro parte.

Oleandra pubescens Cop, Univ. Calif. Publ. Bot. **12**: 397 pl. 52a (1931)

Rhizome thick, wide-creeping, densely scaly; *scales* linear-subulate, ferruginous-brown, imbricate, margin sparsely villose-fimbriate; *frond* 1-3 cm apart, stipe 13-20 cm long, dark stramineous, naked, articulated at 4-6 cm above the base, lamina broadly lanceolate, 20-26 cm long, 3-4.5 cm broad at the lower middle, being the broadest part, acuminate, base cuneate, shortly decurrent, margin naked, repando-undulate; *texture* thick chartaceous, densely pubescent on the under side (hairs on costa spreading), glabrous and subnitid above; *veinlets* fine, distinct, forked from base; *sori* irregularly 1-rowed some distance from costa, *indusium* reniform, large, dark brown, hirsute.

Hainan Island: Chim Shan, Fan Maan Tsuen, *F. A. McClure 20061*, May 4-20, 1932; Ue Lung Shan, Chang-kiang Hsien, *S. K. Lau 3108*, Jan. 9, 1934; Ka Chik Shan, *ibid.*, *S. K. Lau 1490*, April 8, 1933.

Siam: Doi Chang, *Eryl Smith 1072* (type of *O. pubescens*); Kao Sabap, *Eryl Smith 531*, June 29, 1931.

Formosa: Mt. Arisan, *Faurie 483*, May, 1914.

Burma: Keng Teng Territory, *J. F. Rock 2026, 2026A*. Assam: *Griffith*.

India orientalis: Tranquebar, *Klein 887* (1800, type); *Helper, Mebold, Wight*.

Also French Indo-China.

A close relative of *O. Cumingii* J. Sm., from which it can easily be distinguished by its decidedly longer stipe with articulation at 3-6 cm above base, broadly lanceolate (broadest at the lower middle) lamina of thicker texture, with repando-undulate margin and cuneate, or shortly decurrent base, more densely pubescent under and glabrous upper, surfaces.

Plate 171. Fig. 1. Habit sketch (natural size). 2. Portion of lamina, showing venation, sori and strigose hairy under side ($\times 4$). 3. Scale from rhizome ($\times 16$). 4. Hairs from under side of lamina ($\times 50$). 5. Cross section of rhizome, showing the arrangement of steles ($\times 10$).

第一百七十一圖

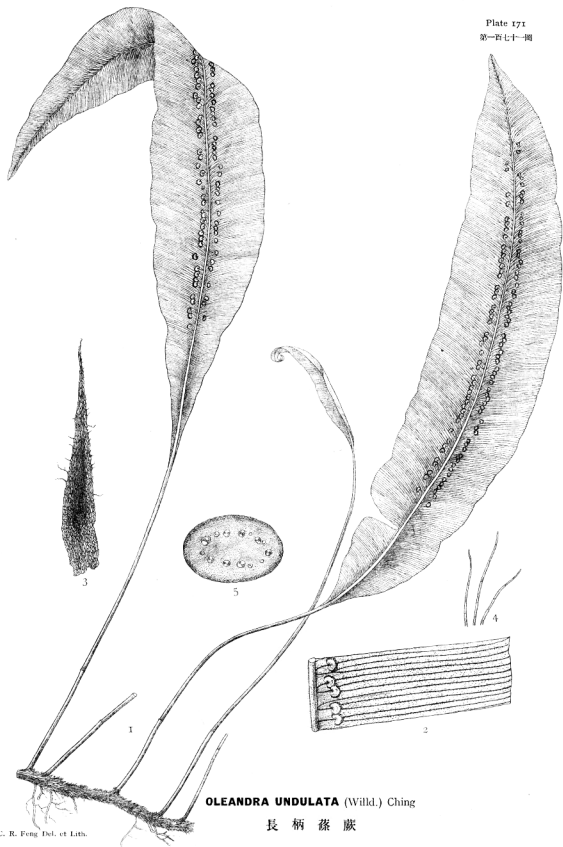
長柄蕨(水龍骨科)

OLEANDRA UNDULATA (Willd.) Ching

本種形體，亦如第一百六十九圖，惟葉柄甚長，其莖節位於基部三至六分之處，葉體較薄，其最潤處在中下部，基部呈楔形或稍下延，邊緣呈波狀反捲，葉質亦較厚，故易識別。

分佈：廣東之瓊州島，暹羅，緬甸，台灣及印度東部。

圖註：1. 本種全形(自然大)，2. 葉體之一部，表示葉脈，子囊羣之位置與被剛毛之下面(放大四倍)，3. 地上莖上之鱗片(放大十六倍)，4. 葉體下面之剛毛(放大五十倍)，5. 莖之橫切面，表示維管束之佈置(放大十倍)。



OLEANDRA UNDULATA (Willd.) Ching

長柄蓀蕨

GYMNOCARPIUM REMOTI-PINNATUM (Hayata) Ching

POLYPODIACEÆ

GYMNOCARPIUM REMOTI-PINNATUM (Hayata) Ching, Bull. Chin. Bot. Soc. **1**: No. 2, xiv (1935).

Dryopteris remoti-pinnata Hayata, Gen. Ind. Ic. Pl. Form. 108 (1917); C. Chr. Ind. Fil. Suppl. III. 96 (1934).

Dryopteris remota Hayata, Mater. Fl. Form. in Journ. Coll. Sci. Imp. Univ. Tokio **30**: 421 (1911); Ic. Pl. Form. **4**: 177 (1914); C. Chr. Ind. Fil. Suppl. II. 16 (1913-16).

Gymnocarpium remotum Ching, Contr. Biol. Lab. Sci. Soc. Chin. Bot. **9**: 41 (1933).

Aspidium Dryopteris var. *longulum* Chr. Bull. Herb. Poiss. II, **2**: 830 (1902); Bull. Soc. Bot. France **52**: Mem. I. 35 (1915).

Dryopteris Linnaeana C. Chr. Ind. Fil. 275 (1905), pro parte; Acta Hort. Gothob. **1**: 42, 55 (1924).

Dryopteris Robertiana C. Chr. (non Index, 1905) Acta Hort. Gothob. **1**: 55 (1924).

Dryopteris continentalis Petrov, Fl. Jakutiae 15 c. ic. 1930.

Rhizome slender, wide-creeping, densely scaly on new shoots; *scales* ovate-lanceolate, light brown, membranaceous, fimbriate, long-acuminate; *frond* far apart, or sometimes approximate, stipe 15-26 cm long, slender, firm, pale stramineous, sparsely scaly in the lower part; lamina deltoid, 10-18 cm each way, tripinnatifid at base; *pinnae* 5-8-jugate under the deeply pinnatifid acuminate apical part, opposite, subpatent, all prominently articulated to rachis, the lowest two pairs generally petiolate, the upper ones sessile, the basal pair much the largest, 7-13 cm long, 3-5 cm broad, ovate-oblong, on petiole to 2 cm long, bipinnatifid under the deeply pinnatifid acuminate apical part; *pinnules* 5-8-jugate, opposite, sessile or adnate or petiolulate in the anterior basal one, which is the longest, patent, deltoid-lanceolate, 1-2-3 cm long, 1-1.5 cm broad at base, acuminate, pinnatifid down nearly to costa into 5-8 pairs of oblong, rounded, entire or inciso-crenate *segments* under the pinnatifid apex; the second pair of pinnae much smaller, broadly lanceolate, to 8 cm long, 2 cm broad at base, pinnules oblong, sessile, pinnatifid or incised, the third pair and further upper pinnae linear-lanceolate, sessile, pinnatifid or pinnate at base with oblong crenate or entire pinnules with rounded apex; *texture* submembranaceous, light green, glabrous on both sides, except rachis near the insertion of pinnae being sparingly and shortly glandular; *venation* fine, distinct, forked or pinnate; *sori* roundish, brown, exindusiate, much nearer to the margin.

The species is now found to be fairly common in North and North-western China, Manchuria, Sibiria, Sahalin; Corea, Japan and Formosa and also North-western Himalayas. In China, it has been reported from provinces Hopei, Shensi, Shansi, Kansu, Szechwan, Sinkiang and Manchuria (cf. my Monograph of *Gymnocarpium* p. 41).

In general habit, this fern resembles *G. Robertianum* (Hoffm.) Newman of northern Europe and North America, differs, above all, in leaves being eglandular, or sometimes only rachis near the articulated insertion of pinnae being sparingly and shortly glandular.

Plate 172. Fig. 1. Habit sketch (natural size). 2. Ultimate pinnule, showing venation and position of sori ($\times 8$). 3. Portion of rachis, showing the articulation of the base of pinnae ($\times 6$). 4. Scale from rhizome ($\times 10$).

第一百七十二圖
肢節蕨(水龍骨科)

GYMNOCARPIUM REMOTI-PINNATUM (Hayata) Ching

地下莖細長，橫行，僅端部披卵狀披針形淡黃色之膜質鱗片；葉遠生，柄長十五至二十六粉，細長，光滑，淡稻草色，基部披稀疏鱗片，餘皆光滑，葉體三角形，長至十八粉，寬亦如之，三回羽狀深裂，頂部漸尖頭，羽狀深裂；第一回小葉五至八對，對生，基部以肢節着生於中軸，下部二對具柄，餘皆無柄，長七至十三粉，寬三至五粉，卵狀橢圓形；二回小葉五至八對，對生，無柄，或基部上方一片具短柄，部全緣或羽狀深裂；第一回小葉之第二對較小，闊披針形，長達八粉，寬二粉，一回小葉橢圓形，無柄，羽狀深裂或具缺刻，亞紙質，淡綠色，兩面光滑無毛，惟中軸與小葉着生處略具淡黃色之球形鱗，葉脈勻細而明顯，分叉或羽狀分裂；子囊羣間或橢圓形，黃色，無蓋，貼近葉緣。

分佈：中國西北二部各省，東三省，日本，朝鮮，台灣及印度北部均產之。

圖註：1. 本種全形(自然大)，2. 葉之一部，表示葉脈及子囊羣(放大八倍)，3. 小葉與葉節着生之情形(放大六倍) 4. 根上之鱗片(放大十倍)。



GYMNOCARPIUM REMOTI-PINNATUM (Hayata) Ching

C. R. Feng Del. et Lith.

肢 節 蕨

ASPLENIUM FUGAX Christ

POLYPODIACEÆ

ASPLENIUM FUGAX Christ, Bull. Soc. Bot. France **52**: Mém. 1. 53 (1905); Bull. Acad. Géogr. Bot. (1910) 13; C. Chr. Ind. Fil. 112 (1905); Acta Hort. Gotheb. **1**: 82 (1924).

Rhizome short, erect, densely radicose; *scales* fusco-brown, ovate-lanceolate, entire; *fronds* caespitose, several together, stipe wiry, slender, green, naked, 2-4 cm long, lamina linear-lanceolate, 4-6 cm long, about 1 cm broad, bipinnatifid, often with prolonged and viviparous nodding apex; *pinnae* 8-11-jugate, opposite or subopposite, subsessile, broadly ovate, 5 mm each way, gradually smaller upwards, deeply pinnatifid into 1-2 pairs of oblong-ovate, entire or bifid segments under the 3-2-fid or entire terminal segment; *texture* thin herbaceous, green, glabrous; *veins* simple and uninerved to each segment, not reaching the acute apex of segments; *sori* short-linear, one to each segment, *indusium* linear, membranaceous, entire, those on the upper segments opening towards costa of pinnae, while those on the lower segments generally opening downward.

Kweichow: Ouan-ly, *Esquirol 3213* (type). Szechwan: Tchen-kou-ting, *Farges 657*. Yunnan: without locality, *Henry*.

A distinct endemic fern, inhabiting dripping calcareous rocks and only closely related to *A. exiguum* Bedd. from which it differs in much slender habit and less divided fronds.

Plate 173. Fig. 1. Habit sketch (natural size). 2a-2b. Lateral pinna from base upwards, showing shape, pinnation, venation and sori ($\times 10$). 3. Scale from rhizome ($\times 27$).

第一百七十三圖
陰地鐵角蕨(水龍骨科)

ASPLENIUM FUGAX Christ

地下莖短而直立，根叢叢生；端披深棕色之卵狀披針形鱗片；葉簇生，柄長二至四粉，細如鋼絲，鐵色光滑，葉體長四至六粉，線狀披針形，寬約一粉，二回羽狀深裂，頂部常延長具一芽，着地生根；小葉八至十一對，對生或近對生，幾不具柄，闊卵形，長約五厘，寬亦如之，向上漸小，深裂，裂片一至二對，下者二至三裂，上者不分裂，頂部三至二裂，全緣，薄紙質，光滑，淡綠色，葉脈簡單，每裂片一脈，不達於頂；子囊草短線形，生於上部之裂片者向中動間，生於基部之裂片者向下開。

分佈：貴州，雲南，四川特產。

本種生於陰濕之石灰岩洞中，頗類後種，惟形體較為細長，葉之分裂較少，故易分別。

圖註：1. 本種全形(自然大)，2a-2c. 自基部至頂部之各小葉，表示其形態，分裂度，葉脈及子囊草(放大十倍)，3. 莖上之鱗片(放大二十七倍)。



ASPLENIUM FUGAX Christ

陰地鐵角蕨

ASPLENIUM EXIGUUM Beddome

POLYPODIACEÆ

ASPLENIUM EXIGUUM Beddome, Ferns S. Ind. t. 145 (1863); Hope, Journ. Bomb. Nat. Hist. Soc. **13**: 663 (1900-1); C. Chr. Ind. Fil. 110 (1905); Suppl. III. 32 (1934).

Asplenium fontanum var. *exiguum* Bedd. Handb. Ferns Brit. Ind. 158 (1883).

Asplenium yunnanense Franch. Bull. Soc. Bot. France **32**: 28 (1885); Diels in Engl. u. Prantl:

Nat. Pflanzenfam. **1**: 4. 241 (1899); C. Chr. Ind. Fil. 138 (1905); Acta Hort. Gothob. **1**:

80. 1924; Blot, Aspl. du Tonkin 42 t. 4 f. 1-4 (1932).

Asplenium fontanum var. *yunnanense* Bedd. Handb. Ferns Brit. Ind. Suppl. 31 (1892).

Asplenium Loherianum Christ, Bull. Herb. Boiss. **6**: 152 (1898); C. Chr. Ind. Fil. 118 (1905).

Asplenium woodsiioides Christ, Bull. Soc. Bot. Ital. (1900) 261; C. Chr. Ind. Fil. 138 (1905).

Asplenium lushanense C. Chr. Acta Hort. Gothob. **1**: 80 t. 16 l. e-g (1924).

Asplenium fontanum Clarke, Trans. Linn. Soc. II. Bot. **1**: 484 (1880), pro parte.

Rhizome short, erect, densely radiceous and scaly; *scales* linear-lanceolate, dark brown, thin, iridescent; *fronds* tufted, stipe 1.5-3 cm long, atro-castaneous, densely fibrillose-scaly throughout, lamina linear-lanceolate, 1-3 cm broad, varying from 10-30 cm long, narrowed towards both ends, bipinnatifid or rarely subbipinnate, rachis quite glabrous, castaneous below, green towards apex which often prolonged and rooting at tip; *pinnae* 15-28-jugate, shortly petiolate, ovate-oblong to oblong-lanceolate, patent, 0.5-2.5 cm long, deeply incised into 3-6 pairs of oblong, dentate segments with the anterior basal segment not infrequently being the largest and subpinnatifid; *texture* herbaceous, both sides glabrous; *veins* obscure, each tooth with one veinlet; *sori* elongate, *indusium* membranaceous, gray, entire, opening mostly towards the costa of pinnae, but those on the anterior basal pinnules often towards costules.

Yunnan: Lan-kong, *Delavay*, April 7, 1883 (type of *A. yunnanense*); Mengtze, *A. Henry* 10106, 13608; *Hanceck* 56 (1893); Pu-seh Cliff, *Henry* 13392; Chungtien Plateau. *Forrest* 13043; Mekong, *Forrest* 15279A; Kin-tchow Chow, *E. E. Maire* 2805; Yunnan-fu near Laka Tiang, *Schneider* 458 (1914); Yungling Mt., *Forrest* 15244; Hockiang, *Schneider* 2789; Tcheou-Kia-Tze-Tang, *Maire* 1412A. Szechwan: Moupin, *David*; *Wilson* 2658, 5350; 5349; Nin-Yuan-Fu, *Harry Smith* 1801 (type of *A. lushanense*). Kweichow: Ma-jo, *Cavalerie* (1908); Pin-fa, *Cavalerie* 666 (pro parte); Kiang-long, *Michel* 992; *Cavalerie*, Jan. 1910; without locality, *Esquirol* 799.

Tibet: Muti, *Capt. Kingdom Ward* 4827.

Also Himalayas, South India, Tonkin and Luzon, the Philippine Islands (leg. *Loher*, type of *A. Loherianum*).

A distinct but very variable fern, now known rather extensively in Asia. The frond varies from scarcely 5 mm to over 3 cm in width and leaf-apex sometimes prolonged and rooting at tip. The nearest relative is evidently *A. fontanum* (L.) Bernh. from which it differs in less pinnatifid fronds of dark green color, in costal sori and sometimes prolonged and rooting leaf-apex. The type based upon a specimen from Mt. Nilgari, South India, represents a small and simple form with some fronds having prolonged and rooting apex and agrees well with *A. lushanense* C. Chr. The Philippine plant described under *A. Loherianum* differs from the mainland form in no respect. The Mexican *A. Glenniei* Baker has been found not specifically different from the typical form of our fern, as already pointed out by Hope (l. c.) long ago.

Plate 174. Fig. 1. Habit sketch (natural size). 2. Lateral pinnae (× 6). 3. Scale from the base of stipe (× 24).

第一百七十四圖
低頭鐵角蕨(水龍骨科)

ASPLENIUM EXIGUUM Beddome

地下莖短而直立，具黑色小線狀披針形之鱗片；葉簇生，葉柄長一·五至三粉，深栗色，密被與鱗片，葉體為線狀披針形，長十至三十粉，寬一至三粉，向兩端漸狹，二回羽狀深裂，中軸光滑，其頂部常延長而着地生根；一回小葉十五至二十八對，具短柄，卵狀橢圓形或橢圓披針形，開展，長五釐至二·五粉，深裂成三至六對橢圓形之裂片，其基部上方一裂片較大，鋸齒尖銳，薄紙質，兩面光滑，葉脈分叉，直達鋸齒；子囊草形長，蓋為膜質，灰白色，全緣，向中肋開，惟生基部上方之二回小葉者，則向其主脈開。

分佈：雲南，四川，貴州，西藏，喜馬拉亞山，印度南部及菲律賓羣島均產之。

本種分佈甚廣，形體大小變異極大，異名甚出，實皆一種也。

圖註：1. 本種全形(自然大)， 2. 一回小葉(放大六倍)， 3. 葉柄基部鱗片(放大二十四倍)。



ASPENIUM EXIGUUM Beddome

低頭鐵角蕨

ASPLENIUM LORICEUM Christ

POLYPODIACEÆ

ASPLENIUM LORICEUM Christ in C. Chr. Ind. Fil. 119 (1905).

Asplenium formosae Christ (non *A. formosanum* Baker, 1891). Bull. Herb. Boiss. II. 4: 613 (1904).

Diplazium Makinoi Yabe in Matsum. et Hayata, Fnum. Pl. Form. in Journ. Coll. Sc. Imp. Univ. Tokio 22: 600 (1906).

Asplenium Makinoi Hayata, Ic. Pl. Form. 4: 224 f. 154 (1914); C. Chr. Ind. Fil. Suppl. I. 6 (1913-17).

Asplenium Wightianum Merr. (non Wall. 1828). Enum. Hainan Pl. in Lingnan Sci. Journ. 5: 15 (1927).

Rhizome rather thick, short, erect, densely radiceose, sparsely scaly; *scales* lanceolate, brown, fimbriate; *fronds* caespitose, stipe 20-24 cm long, pale stramineous, herbaceous, sparsely scaly, with rachis compressed upon drying, lamina ovate-oblong, 17-24 cm long, 7-14 cm broad, impari-pinnate (sometimes simple and lanceolate); *pinnæ* 2-4-jugate, 10-15 cm long, 1.6-2.5 cm broad, lanceolate, long-acuminate, base subequal, short-attenuate on petiole about 5 mm long, margin remotely incise-serrate above base and below long-acuminate entire apex; *texture* soft herbaceous, pale green, with a few small scales on the under side; *costa* prominent on both sides; *veins* quite distinct, mostly forked, veinlets oblique, parallel, extending to some way below leaf-margin; *sori* straight, oblique, about 8 mm long, borne on the anterior veinlet of each group, extending from costa to one-third way from margin, *indusium* gray, linear, entire, persistent.

Hainan Island: Ng Chi Leng, *F. A. McClure 8306, 8553; Katsumada 6687* ex Herb. Hongkong; *W. Y. Chun 6624* in Herb. Univ. Nanking; *Eryl Smith 1429; Sha Po Leng, W. T. Tsang 16185*. Kwangtung: Sunyi, Sick Toun, *C. Wang 32032* in moist place in revine.

Formosa: Urai, *Faurie 669* (type), 159; Taihoku, *S. Sasaki 21525; Y. Shemada 114* (1915).

Annam: Thue-Lui, *Cadier 100, 161; Chevalier 38, 718*.

Tonkin: *Billet 7727*.

This distinct species is closely related to *A. Wightianum* Wall. from S. India and Ceylon, differs in fewer and broader pinnæ with subequal base and only a few remote incisions on the margin below the entire long-acuminate apex.

Plate 175. Fig. 1. Habit sketch, (natural size). 2. Portion of pinnæ, showing venation and serrature (× 4). 3. Scale from base of stipe (× 16). 4. Scale from under side of pinnæ (× 20).

第 一 百 七 十 五 圖
南 海 鐵 角 蕨 (水 龍 骨 科)

ASPLENium LORICEUM Christ

地下莖傾斜肥壯，短而直立，被披針形之褐色疏鱗片；葉簇生，柄長二十餘粉，淡稻草色，略具細長鱗片，扁形，葉體卵狀橢圓形，長十七至二十四粉，寬七至十四粉，一回奇數羽狀分裂（因為披針形之單葉）；小葉二至四對，長十至十五粉，寬一·六至二·五粉，披針形，長漸尖頭，基部亞等形，稍下延，具短柄，邊緣具疏缺刻形之鋸齒，惟基部及端為全緣，紙質，淡綠色，下面鱗片疏生，個個明顯，分叉，斜出，不達於葉邊；子囊葉直線形，長約六釐，生於上方小脈，斜出，達於小葉寬三分之二，蓋膜質，全緣，宿存。

分佈：廣東之信宜縣及瓊州島；台灣，交趾，安南亦產之。

此種在其分佈區域內甚為普通，其形態極似印度南部產之 *A. Wightianum* Wall. 惟小葉數較少較狹，基部為亞等邊，頂部全緣，缺刻形之鋸齒疏生，故易分別。

圖註： 1. 本種葉形（自然大）， 2. 小葉之一部，表示葉脈及鋸齒（放大四倍）， 3. 葉柄上之鱗片（放大十六倍）， 4. 葉下面之鱗片（放大二十倍）。



ASPLENIUM LORICEUM Christ

南海鐵角蕨

PLATE 176

ASPLENIUM INTERJECTUM Christ

POLYPODIACEÆ

ASPLENIUM INTERJECTUM Christ, Bull. Acad. Géogr. Bot. (1902) 241; (1907) 149; C. Chr. Ind. Fil. 116 (1905); Blot, Aspl. d. Tonkin 41 t. 2. f. 3 (1932).

Asplenium cuneifolium var. *vegetius* Christ, loc. cit. p. 240.

Asplenium interjectum var. *elatum* Christ, Bull. Acad. Géogr. Bot. (1907) 149.

Asplenium cuneifolium Christ (non Viv. 1806), Bull. Acad. Géogr. Bot. (1910) 13.

Asplenium longhaense Rosenst. in Fedde, Repert. Sp. Nov. 13: 123 (1913); C. Chr. Ind. Fil. Suppl. II. 6 (1913-17).

Rhizome short, erect, densely radicate, sparsely scaly; *scales* linear-subulate, blackish, thin, clathrate, iridescent; *fronds* caespitose, stipe 15-12 cm long, atro-castaneous throughout, or green, naked, herbaceous, lamina deltoid, 10-15 cm long, and nearly as broad, tripinnate at base; *pinnae* 5-7-jugate under simple pinnate and acuminate apex, petiolate, patent, the basal pair much the largest, to 9 cm long, 6 cm broad, deltoid, with unequal base: petiolate (petiole 1 cm long), bipinnate; *pinnules* 3-4-jugate, anadromously arranged (i.e. the pinnule nearest to the rachis is borne on the upper side of rachilet), petiolulate, the lower ones 2-3 cm each way, deltoid-ovate, obtuse, pinnatifid or deeply lobed into 2-3 ovate, rounded, dentate lobes, the upper ones rhombic, incised and crenate-dentate; *texture* thin herbaceous, light green, glabrous on both sides; *veins* flabelulately forked, with veinlet running into each tooth but falling short of the tip; *sori* linear, straight or slightly curved, to 5 mm long, *indusium* narrow, gray, entire, opening towards costule of ultimate lobes, or towards costa on the apical portion of pinnae, or of pinnule.

Kweichow: Tsin-gay, *Bodinier 2004* (type); Tchen-fau, *Esquirol 801, 1017, 707*; Hoang-Ko-Chou, *Bodinier 2557*; Long-Ka, *Cavalerie 3773* (type of *A. longhaense*).

Also Tonkin.

A distinct endemic fern, closely related in habit to *A. adiantum nigrum* L. of Europe, differing in much less divided green leaves of thin herbaceous texture.

Plate 176. Fig. 1. Habit sketch (natural size). 2. The same but young form (natural size).

3. Upper pinnae, showing venation, and sori ($\times 3$). 4. Scale from base of stipe ($\times 27$).

第一百七十六圖
黔鐵角蕨(水龍骨科)

ASPLENIUM INTERJECTUM Christ

地下莖短而直立，被深栗黑色之細長鱗片；葉簇生，柄長十二至十五粉，栗色或綠色，光滑，葉體三角卵形，漸尖頭，長十至十五粉，寬亦如之，下部三回羽狀分裂；小葉五至七對，具柄，開展，基部一對最大，長九粉，寬六粉，三角形，基部不等邊，柄長一粉，羽狀分裂，二回小葉三至四對，具柄，基部下方一片長二至三粉，寬如之，卵狀三角形，鈍頭，羽狀深裂；裂片二至三數，卵形，有鋸齒，薄紙質，光緣無毛，葉脈扇狀分叉，每鋸齒一脈，惟不達於尖端；子囊草直線形，或稍呈弧形，長五釐，蓋膜質，全緣。

分佈：貴州原產；頃發現於交趾。

此種形體稍似歐洲產之 *A. adiantum nigrum* L., 惟葉質較薄，分裂較少耳。

圖註：1. 本種全形(自然大)，2. 同上，幼形(自然大)，3. 上部小葉，表示葉脈及子囊草(放大三倍)，4. 葉柄基部之鱗片(放大二十七倍)。



ASPLENium INTERJECTUM Christ

黔鐵角蕨

ACROPHORUS STIPELLATUS (Wallich) Moore

POLYPODIACEÆ

ACROPHORUS STIPELLATUS (Wallich) Moore, Gard. Chron. (1854) 135; C. Chr. Ind. Fil. 4 (1905) pro parte; Contr. U. S. Nat. Herb. **26**: 273 (1931); Wu Polyp. Yaoshan. in Bull. Dept. Biol. Coll. Sci. Sun Yatsen Univ. No. **3**: 20 t. 1 (1932); Ogata, Ic. Fil. Jap. **5**: t. 201 (1933).

Davallia stipellata Wallich List no. 260 (1828, nom. nud.).

Acrophorus nodosus J. Sm. Hist. Fil. 222 (1875); Christ Farnkr. d Erde 285 (1897); Diels in Engl.

u. Prantl: Nat. Pflanzenfam. **1**: 4, 164 (1899) pro parte; Bedd. Ferns Brit. Ind. t. 93 (1865).

Davallia nodosa Hk. sp. Fil. **1**: 157 (1846); Hk. Journ. Bot. (1857) 9 t. 10; Syn. Fil. 92 (1867).

pro parte.

Leucostegia nodosa Bedd. Ferns Brit. Ind. Suppl. 4 (1876); Handb. Ferns Brit. Ind. 56 (1883).

Rhizome subterraneous, thick, woody, oblique or short-creeping, densely scaly;

scales large, bright brown, over 1 cm long, ovate-acuminate, thin, entire, extending upward to some distance above base of stipe; *fronds* caespitose, stipe 30-45 cm long, nearly 1 cm thick at base, stramineous, subnitid, lower part densely scaly and muricated by transversed scars from the persistent base of fallen scales, lamina immense, ovate, to 70 cm long, nearly as broad, acuminate, 4-pinnate; *pinnæ* about 10-jugate, opposite, horizontally patent, sessile, the lower pairs 12 cm apart, the basal pair much the largest, to 40 cm long, 30 cm broad, ovate, acuminate, rachilet curved upward, *pinnules of first order* about 10-jugate, sessile, patent, basal pair opposite and much shortened, 4 cm long, the second one on posterior side much the largest, to 15 cm long, those on the anterior side all much smaller than those on the other side, oblong-lanceolate, acuminate, far apart; *pinnules of second order* about 10-jugate, perpendicular to rachilet, oblong-lanceolate, sessile, basal pair opposite, shortened, against rachilet of first order, the second pair 3-5 cm long, 1.2 cm broad; *ultimate pinnules* 6-9-jugate, oblong-ovate, cuneate, rounded, lobato-incised with 1-2-3 pairs of rounded angular uninnervated seriferous lobes; *texture* herbaceous, pale green or brownish, glabrous beneath except base of pinnæ and pinnules of different order being provided with a few large broadly ovate acuminate deeply cordate scales at the point of insertion, upper side of rachis and rachilets pustulately hairy, of ultimate segments with a few short, appressed, rufo-red, articulated hairs, of costa somewhat spinulose; *veins* in ultimate pinnule distinct, pinnate, one to each lobe, falling far short from margin; *sori* small, rounded, one to each lobe, terminating the veinlet some distance below margin, *indusium* small, gray, membranaceous erosed at top, free on all sides except being cucullate at base; *spores* broadly wined.

Yunnan: Between Tengyueh and Burmese border, *J. F. Rock 7858*. Kwei-chow, Pin-fa, *Cavalerie 8857*; Tuhshan, *Y. Tsiang 6959, 6720*; Van-chin Shan, *Steward et Chiao 858*. Kwangtung: Lokchong, *N. K. Chun 42404*. Kwangsi: Yao Shan, *S. S. Sin 459A*. Szechwan: Without locality, *W. P. Fang 8257*.

Formosa: Mt. Arisan, *Drs. F. et C. Baker*, Nov. 1914, 2300 ft. alt., (pro parte); *U. Faurie 662*.

Also Himalayas, Khasia and Tonkin.

The genus *Acrophorus* comprises to-day two species, the other being *A. Blumei* Ching (*Aspidium nodosum* Bl.) from Malesia-Polynesia, which differs from the continental one in smaller size, more finely dissected leaves of an opaque color when dried, more copiously scaly and hairy lamina and much larger indusium of brown color and rigid consistency.

Fern students have been much divided in their opinions as to the systematic position of this rather isolated genus, but in the light of anatomical and morphological evidences, I am convinced that its natural position falls with Davalloid ferns, and especially *Leucostegia* (*L. perdurans* Christ, for instance).

Plate 177. Fig. 1. Habit sketch (natural size). 2: Pinnule of 2nd. order, showing venation, position of sori and the large orbicular scale at its base beneath ($\times 3$). 3. Ultimate pinnule, showing venation, position of sori and manner of indusial attachment ($\times 10$). 4. Scale detached from the base of pinnule of each order ($\times 16$). 5. Hairs from the upper side of rachilet ($\times 70$). 6. Hairs from the upper side of pinna ($\times 76$). 7. Scale from base of stipe ($\times 10$).

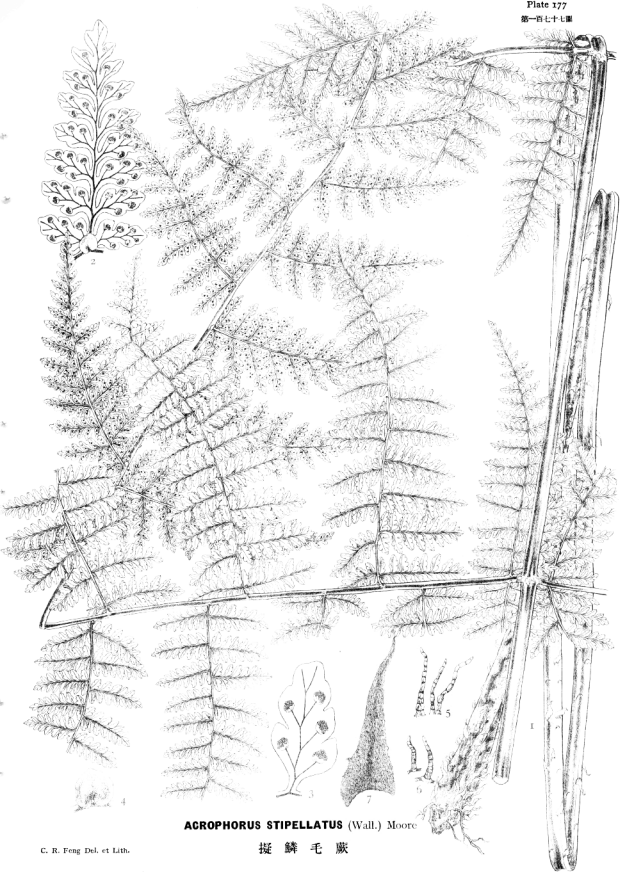
第一百七十七圖
擬鱗毛蕨(水龍骨科)

ACROPHORUS STIPELLATUS (Wall.) Moore

地下莖木質，粗肥，斜出或臥生，被亮棕色之卵狀大鱗片，長達一分；葉簇生，柄長三十至四十五粉，基部粗達一粉，下部組織並具鱗片，稻稈色，光亮，葉體大卵形，長達七十粉，寬亦如之，漸尖頭，四回羽狀分裂；一回小葉約十對，對生，開展，無柄，下部數對相距約十二粉，基部一對最大，長達四十粉，寬約三十粉，卵形，漸尖頭，中軸向上彎曲；二回小葉約十對，無柄，開展，基部一對對生，且甚短，緊靠二回小葉之中軸，第二對長達三至五粉，寬約一、二粉；末回小葉六至九對，橢圓卵形，頂圓，基部楔形，羽狀深裂，裂片一至三對，圓形，具稜角，具小脈一數，紙質，光滑，惟各回之基部着生處具一二心臟形之膜質大鱗片；子囊群小，圓形，每裂片一個，生於小脈之頂，蓋小，圓卵形，膜質，僅基部着生。

分佈：雲南，四川，貴州，廣東，廣西，台灣，交趾及印度均產之。

圖註：1. 本種全形(自然大)， 2. 二回小葉，表示葉脈，子囊羣位置及其部下面着生之鱗片(放大三倍)， 3. 末回小葉，表示子囊羣及蓋着生情形(放大十倍)， 4. 着生於各回小葉基部下面之鱗片(放大十六倍)， 5. 中肋上面之毛(放大七十六倍)， 6. 葉上面之羽狀毛及其着生情形(放大七十六倍)， 7. 葉柄基部之鱗片(放大十倍)。



ACROPHORUS STIPELLATUS (Wall.) Moore

擬鱗毛蕨

DRYOPTERIS SERRATO-DENTATA (Beddome) Hayata

POLYPODIACEÆ

DRYOPTERIS SERRATO-DENTATA (Beddome) Hayata, Ic. Pl. Form. **4**: 179 f. 116 (1914); C. Chr. Ind. Fil. Suppl. III. 98 (1934).

Lastrea filix-mas var. *serrato-dentata* Bodd. Handb. Ferns Brit. Ind. Suppl. 55 (1892).

Nephrodium serrato-dentatum Hope. Journ. Bomb. Nat. Hist. Soc. **12**: 622 t. 10 (1899).

Nephrodium filix-mas var. *odontoloma* Baker (non *Lastrea odontoloma* Moore, 1858). Syn. Fil. ed. 2, 498 (1874). pro parte; Bodd. Ferns Brit. Ind. Suppl. t. 373 (1876).

Nephrodium odontoloma Clarke (non *Lastrea*, Moore, 1858), Trans. Linn. Soc. II. Bot. **1**: 521 (1880).

Lastrea odontoloma Bodd. (non Moore, 1858) Handb. Ferns Brit. Ind. 248 f. 128 (1883).

Woodsia Veitchii Christ. Bull. Acad. Géogr. Bot. (1906) 121; C. Chr. Ind. Fil. Suppl. I. 74 (1912).

Rhizome short, erect or oblique, densely scaly; *scales* broadly lanceolate, finely acuminate, denticulate, atro-brown or castaneous; *fronds* caespitose, stipe to 1.4 cm long, soft; dark-straminous below with lax lanceolate smaller scales, lamina to 20 cm long, 8 cm broad at base, oblong-lanceolate, acuminate, base hardly narrowed, truncate, subbipinnate; *pinnæ* 6-10-jugate, patent, short-petiolate, oblong-lanceolate, acuminate, to 4 cm long. 2 cm broad at truncate-cordate base, pinnate; *pinnules* to 10-jugate, sessile or more or less adnate, patent, ovate-oblong; rounded, base truncate, to 1 cm long, 6 mm broad, pinnatifid half-way down with 3-4-jugate, rounded, sharply dentate teeth; *texture* thin, soft, becoming hyaline towards margin, rachis and costa of pinnæ fibrillose-scaly, otherwise glabrous; *veins* very distinct, pinnate in ultimate segments, one to each tooth, but not reaching the tip; *sori* rather small, rounded, one-rowed and nearer to costa of pinnule than margin, borne on the lower middle of anterior basal veinlet of each ultimate segment, *indusium* fairly large, rounded, deeply notched, gray, membranaceous, with fimbriate margin.

Szechwan: Without locality, *E. H. Wilson 5400* (type of *Woodsia Veitchii*). Yunnan: Tibet border, *Capt. Kingdom Ward 730* (1913). Hupeh: Ichang, *A Henry* (1889).

Himalayas, Sikkim and Bothan; also Formosa Island; very common in Sikkim.

A distinct rather little fern of the genus, characterized by, above all, spinulose-dentate serrature and gray membranaceous indusium with rather long-fimbriate margin.

Plate 178. Fig. 1. Habit sketch (natural size). 2. Pinna, showing venation and position of sori ($\times 5$). 3. Indusium ($\times 20$). 4. Scale from base of stipe ($\times 16$).

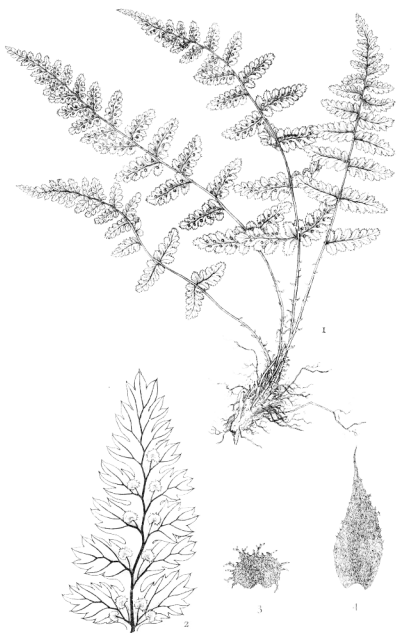
第一百七十八圖
高山鱗毛蕨(水龍骨科)

DRYOPTERIS SERRATO-DENTATA (Bedd.) Hayata

地下莖短而直立或斜生，被闊披針形之深棕色或栗褐色鱗片；葉簇生，柄長達十四份，深暗棕色，略具鱗片，葉體長達二十份，寬八份，橢圓披針形，漸尖頭，基部截形，不甚與縮，葉二回羽狀分裂；一回小葉六至十對，開展，具短柄，橢圓披針形，漸尖頭，長達四份，寬二份，基部呈截形，略為心臟形，羽狀深裂；二回小葉達十對，無柄或稍合生，開展，卵狀橢圓形，圓頂，基部截形，長約一份，寬六種，羽狀深裂，裂片三至四對，圓形，其開展之銳鋸齒，紙質，光滑，惟中軸及中肋略具細長鱗片，葉脈明顯，羽狀分叉；子囊草小，圓形，生於二回小葉，一列，大蓋，圓腎形，膜質，邊緣具刺狀之鋸齒。

分佈：四川，湖北，西藏，喜馬拉亞山及台灣高山產之。

圖註：1. 本種全形(自然大)， 2. 小葉，表示葉脈及子囊草之位置(放大五倍)， 3. 子囊草蓋(放大二十倍)， 4. 葉柄基部之鱗片(放大十六倍)。



DRYOPTERIS SERRATO-DENTATA (Bedd.) Hayata

高山鱗毛蕨

DRYOPTERIS SCOTTII (Bedd.) Ching

POLYPODIACEÆ

DRYOPTERIS SCOTTII (Bedd.) Ching, Bull. Dept. Biol. Coll. Sci. Sun Yatsen Univ. No. 6: 3 (1933); C. Chr. Ind. Fil. Suppl. III. 97 (1934).

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

Phegopteris Scottii Bedd. Ferns Brit. Ind. Suppl. 19 (1876).

Phegopteris grossa Christ, Bull. Herb. Boiss. 7: 13 (1899).

Dryopteris grossa C. Chr. Ind. Fil. 269 (1905).

Dryopteris hirtipes C. Chr. Ind. Fil. 270 (1905), pro parte; Wu (non O. Ktze.) Polyp. Yaoshan in Bull. Dept. Biol. Coll. Sci. Sun Yatsen Univ. No. 3: 26 pl. 4 (1932).

Dryopteris subcoccipiens Hayata, Ic. Pl. Form. 3: 181 f. 119 (1914); C. Chr. Ind. Fil. Suppl. II. 27 (1913-16).

Rhizome short, thick, erect, densely scaly; *scales* black, large, lanceolate, hair-pointed, entire; *fronds* caespitose, stipe 25-35 cm long, stramineous, basal part densely clothed in black lanceolate scales, sparingly fibrillose-scaly upwards, lamina oblong, 25-35 cm long, 15-20 cm broad, acuminate, base not narrowed, simple pinnate under the large, deltoid acuminate adnate apical pinna with lower part pinnatifid; *pinnae* 6-10-jugate, lanceolate, acuminate, 10-15 cm long, 1.5-2 cm broad or broader, subsessile, base rotund-truncate, patent, alternate, margin regularly serrated with crenate-cuspidate teeth; *texture* herbaceous, glabrous above, sparingly fibrillose-scaly on rachis as well as costa beneath; *veins* distinct, lateral main vein flexuose, veinlets 3-4-jugate, ascending-oblique, all reaching margin except the basal pair, which stop somewhere midway; *sori* rounded, 2-3 irregularly seriate, dorsal on veinlets, exindusiate.

Yunnan: Mengtze, *A. Henry 10266, 11558* (type of *Phegopteris grossa* Christ); *Hancock*, Oct. 1893; Souan-tsai-owen, *Maire*, alt. 600 m. Kweichow: Pin-fa, *Cavalerie 2874*; *Esquirol 918*; Kenngfeng, *Y. Tsiang 4219*; Sihfeng, *Y. Tsiang 8727*; Chenfeng, *Y. Tsiang 4219*; Van-chin Shan, *Y. Tsiang 7874, 7864, 7682, 7768*; Tuhshan, *Y. Tsiang 7022*; Siao-tchang-Onglan, *Cavalerie 4221*. Kwangtung: Lohfau Shan, *N. K. Chun 42435*; North River, *C. L. Tso 20692*; Sunyi, *Y. K. Wang 51217*; Yao Shan, *S. P. Ko 51967*, *N. K. Chun 42883, 42435*. Kwangsi: Ping-nam, Yao-shan, *S. S. Sin 442B*.

Formosa: *Faurie 401*.

Tonkin: Chapa, *A. Petlot 3309* (1929); *Colani 2825, 3309*; Lang-Bian, *Chevalier 30886*. N. W. India: Kashima, *C. B. Clarke 2882*, Nov. 7, 1885.

The species, now found to be common in the localities cited, resembles *D. hirtipes* (Bl.) O. Ktze. in general habit, to which it has generally been referred, from which, however, it differs in exindusiate sori, fewer and more distant lateral pinnae with crenate-cuspidate serrature, thinner texture and sparingly fibrillose-scaly rachis and upper part of stipe. *D. hirtipes* (Bl.) has never been found in China, Himalayas and Tonkin and its report therefrom by authors in the past has chiefly been a mistake for the present fern.

Plate 179. Fig. 1. Habit sketch (natural size). 2. Portion of pinna, showing venation and position of sori ($\times 5$). 3. Scale from base of stipe ($\times 16$). 4. The same from upper part of stipe ($\times 16$). 5. Cross section of rhizome, showing arrangement of steles ($\times 4$).

第一百七十九圖
史氏鱗毛蕨(水龍骨科)

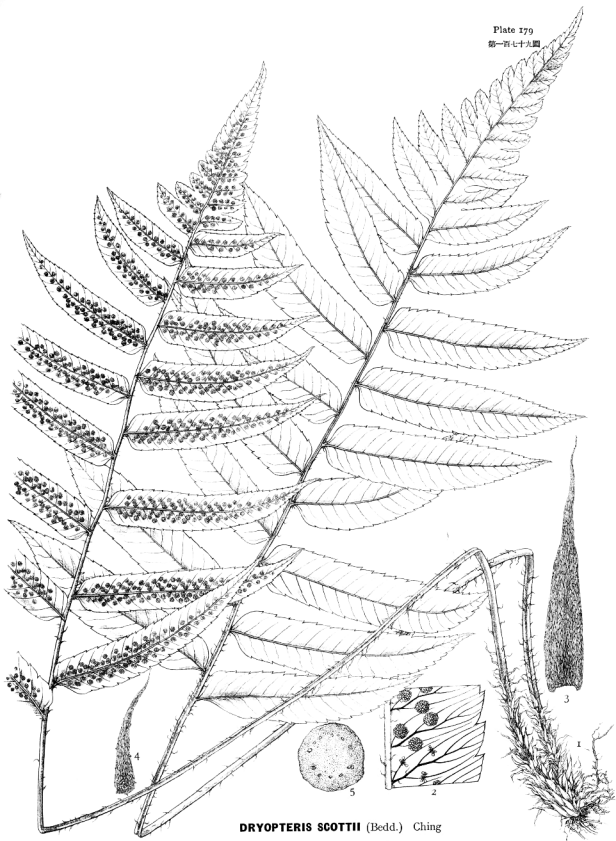
DRYOPTERIS SCOTTII (Bedd.) Ching

地下莖頗粗，短而直立，被大披針形之細長黑色稠密鱗片；葉簇生，柄長二十五至三十五份，稍桿色，基部被披針形之黑色密鱗片，向上部細長鱗片疏生，葉體橢圓形，長二十五至三十五份，寬十五至二十份，漸尖頭，基部等寬，一回羽狀分裂，頂部三角形，漸尖頭，羽狀深裂；小葉六至十對，披針形，漸尖頭，長十至十五份，寬一·五至二份，或稍寬，幾無柄，基部圓截形，開展，互生，邊緣具整齊之鈍鋸齒，紙質，上面光滑無毛，中軸及肋下面略具細長鱗片，葉脈明顯，側脈曲折，羽狀分裂，小脈三至四對，急斜出，除基部一對外餘均達葉邊；子囊果圓形，為不規則之二至三列，生於小脈上，無蓋。

分佈：雲南，貴州，廣東，廣西，台灣，交趾及印度西北部均產之。

此種在以上各地極為普通，其形態極類 *D. hirtipes*，惟子囊果無蓋，小葉數較少，距離較遠，具鈍鋸齒，葉質較薄，中軸略具細長鱗片，故易分別；且 *D. hirtipes* 在中國，交趾及喜馬拉亞均未見之。

圖註：1. 本種全形(自然大)，2. 小葉之一部，表示葉脈及子囊果之位置(放大五倍)，3. 葉柄基部之鱗片(放大十六倍)，4. 中軸上部之鱗片(放大十六倍)，5. 地下莖之橫切面，表示維管束之佈置(放大四倍)。



DRYOPTERIS SCOTTII (Bedd.) Ching

史氏鱗毛蕨

C. R. Feng Del. et Lith.

DRYOPTERIS LIANKWANGENSIS Ching

POLYPODIACEÆ

DRYOPTERIS LIANKWANGENSIS Ching, sp. nov.

Species *D. Scottii* (Bedd.) Ching proxime affinis, differt multo majore, pinnis lateralibus numerosis, longioribus, paleis stipitis rachisque rufobrunneis creberris, majoribus, persistentibusque.

Rhizome thick, woody, erect or procumbent; *fronds* caespitose, stipe 45-60 cm long, over 1 cm thick near base, broadly grooved above, densely clothed throughout in subdimorphous rufo-brown, lanceolate, hair-pointed, membranaceous, spreading scales to 1.2 cm long, lamina oblong-elongate, 80-100 cm long, 30 cm broad, simple pinnate under the rather short, caudate, deltoid, pinnatifid and acuminate apical part; *pinnæ* 20-jugate or more, basal ones not shortened, 20 cm long, 2.5 cm broad, the uppermost ones to 8 cm long, 1.2 cm broad, broadly linear, acuminate, base truncate, slightly oblique, subsessile, patent, alternate, 3-4.5 cm apart, incisedly crenato-serrate with large roundish teeth; *texture* herbaceous, green, rachis densely scaly with similar but smaller scales as those on stipe, glabrous above, fibrillose scaly beneath, and especially on the lower part of costa; *venation* free, distinct, lateral main veins flexuose, pinnate with 5 pairs of obliquely ascending veinlets, of which the basal pair stop short midway, the rest extending towards margin; *sori* rather small, rounded, irregularly 2-3-seriate, exindusiate, leaving rather a broad sterile margin.

Kwangsî: San Fan, Chu Fen Shan, north of Lu-chen Hsien, *R. C. Ching 5832* (type), in deep wooded ravine, very common. Kwangtung: Suni, *Y. K. Wang 31042*, July 22, 1931, in moist ravine.

This distinct endemic species of the group of *D. hirtipes* (Bl.) resembles none but perhaps *D. Scottii* (Bedd.), with which it has in common exindusiate sori, from which, however, it differs in enormously larger size with numerous close, longer pinnæ and very dense reddish-brown linear-lanceolate large thin scales not only on stipe but also on rachis.

Plate 180. Fig. 1. Habit sketch (natural size). 2. Portion of pinna, showing venation and sori ($\times 3$). 3. Scales from stipe ($\times 10$). 4. The same from costa beneath ($\times 10$).

第一百八十圖
兩廣鱗毛蕨(水龍骨科)

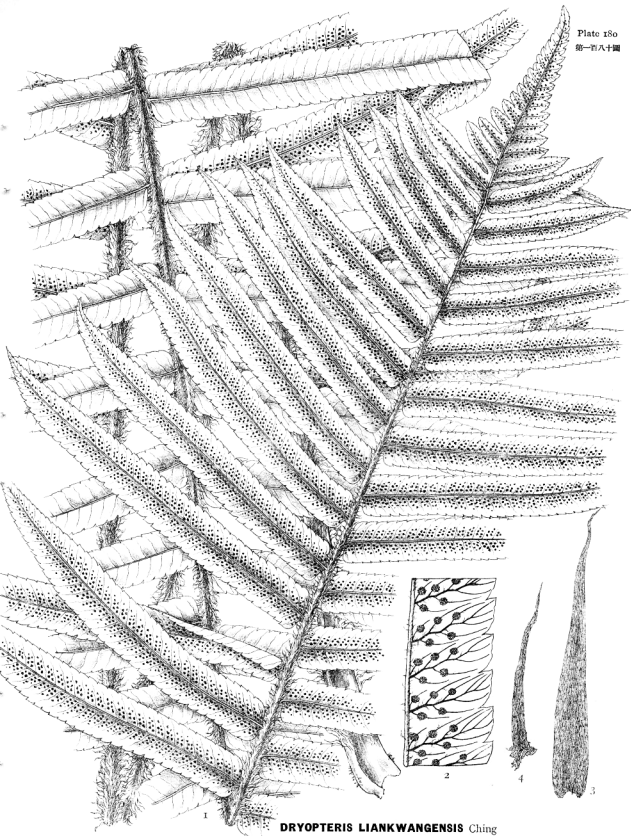
DRYOPTERIS LIANKWANGENSIS Ching

地下莖粗肥，木質，直立或斜生；葉簇生，柄長四十五至六十粉，基部厚達一粉，被紅褐色亞二形之披針形薄質鱗片，長逾一粉，葉體長橢圓形，長八十至一百粉，寬達三十粉，一回羽狀分裂，頂部為短三角形，羽狀分裂；小葉約二十對或較多，長二十粉，寬二·五粉，位於基部者等長，向頂部者長約八粉，寬達一·二粉，闊披針形，漸尖頭，基部為斜截形，雙無柄，開展，互生，彼此相距三至五粉，邊緣具鈍鋸齒，紙質，綠色，中軸及下面被細長之密鱗片，上面光滑，葉脈分離，明顯，曲折，羽狀分裂，五對，斜出，其基部一對僅達於小葉之中部，子葉群較小，圓形，為不規則之二至三列，無蓋，沿中肋兩側分佈。

分佈：廣西羅城縣三防鎮西二十里之九萬山及廣東信宜縣產之。

本新種為本屬特殊之種，其異於前種者，為其形體特大，小葉多至二十餘對，全體密被細長薄鱗片是也。

圖註：1. 本種全形(自然大)， 2. 小葉之一部，表示葉脈及子囊群(放大三倍)， 3. 葉柄上之鱗片(放大十倍)， 4. 小葉中肋下面之鱗片(放大十倍)。



DRYOPTERIS LIANKWANGENSIS Ching

兩廣鱗毛蕨

C. R. Feng Del. et Lith.

DRYOPTERIS CHAMPIONI (Benth.) C. Christensen

POLYPODIACEÆ

DRYOPTERIS CHAMPIONI (Benth.) C. Christensen apud Ching, *Sinensia* **3**: 327 (1933), C. Chr.

Ind. Fil. Suppl. III, 83 (1935).

Aspidium Championii Benth. Fl. Hongk. 456 (1861).

Polypodium rheosorum Baker (non 1884), Ann. Bot. **5**: 457 (1894).

Nephrodium rheosorum Hand-Mrt. Symb. Sin. **6**: 24 (1929).

Dryopteris lepidorachis C. Chr. Ind. Fil. 274 (1905).

Aspidium erythrosorum var. *amoyense* Christ in Warburg, *Monsunia* **1**: 80 (1900).

Dryopteris erythrosora var. *Cavaleriei* Rosenst. in Fedde, *Repert. Sp. Nov.* **13**: 131 (1914).

Dryopteris mingetsuensis Hayata, Ic. pl. Form. **5**: 281 f. 109 (1915).

Dryopteris erythrosora auctt. plur. quoad plant. chin.

Rhizome thick, woody, oblique or erect, densely scaly; *scales* bright ferruginous-brown, to 1 cm long, broadly lanceolate, long-acuminate, membranaceous, fimbriate, mixed with smaller linear ones; *fronds* caespitose, stipe 20-35 cm long, stout, rufo-stramineous, densely clothed throughout in similar but somewhat smaller spreading curled scales, which extend upward over entire rachis and base of pinnae beneath, lamina oblong-ovate, 35-60 cm long, 17-25 cm broad, acuminate, base not narrowed, bipinnate; *pinnae* 8-14-jugate, 10-20 cm long, 3-4 cm broad, linear-lanceolate, acuminate, subpatent, basal ones opposite, upper ones subopposite, 5-6 cm apart, short-petiolate, base truncate, slightly cordate, fully pinnate under deeply pinnatifid apical part; *pinnules* 14-18-jugate, 1.5-3.5 cm long, 5-10 mm broad, deltoid-oblong, subopposite, sessile, obtuse with auriculate broadened base on both sides, basal ones in the basal pinnae rarely any longer than neighbouring ones, subentire, or crenate-serrate or, in large forms, lobato-pinnatifid half-way down into 4-6 pairs of oblong truncate lobes under serrate acuminate apex; *texture* coriaceous, light green, glabrous above, rather copiously fibrillose-scaly on costa of pinnae beneath, stipe and rachis moderately muricate by the persistent base of fallen scales; *venation* obscure, veins in pinnules or lobes pinnate; *sori* rounded, medium-sized, brown, one-rowed midway between costa and margin or often much nearer to the margin, dorsal on the anterior basal veinlet of each group; *indusium* rotundo-reniform, notched, brown, subcoriaceous and fallen off at last.

Kiangsu: Shanghai, Fen Wang Shan, *Forbes* 531; C. G. *Matthae*, June 1, 1904; Tai Ho, *Schindler* 254; Chang Cho, Yü Shan, J. R. *Chiu* 8024; 1-shing, Lung Chi Shan, R. C. *Ching* & C. L. *Tso* 497; 11bd., Y. L. *Keng* 2899; Nanjing, Tschia Shan, Nos. 39, 37 69 ex Herb. Metrop. Mus. Nat. Hist. Che-kiang: Ningpo, *Forbes* 531; *Stanton*; C. G. *Matthae* 142; *Everard* (1874); Sia Kan, Fen Chiao, R. C. *Ching* 3690; Hangchow, Ling-yin Tze; R. C. *Ching* 3801; T. F. *Yu* 0630; Yan-tan Shan, C. Y. *Chiao* 1377; Tien-mo Shan, K. K. *Tsoong* 455. Fokien: Amoy, *Georch* 5509 ex Herb. Warburg; Sam Sa Inlet, *Matthae*, Oct. 5, 1907; *Grijfs* 10150 in Herb. Hance; *Chuan* Chow, H. H. *Cheng* 3088; Yengping, H. H. *Chung* 552; T. S. *Dunn* 3874; Foo-chow, Ku-shan, T. S. *Ging* 3895, 5335. Kiangsi: Kiukiang, Lu-shan, *Forbes* 1078 (1874); *Schindler* 377 (1908); *Miss Reid* 6; *Maires*; *Stanton*, *Dr. Shearer*; C. E. *Dr.* 144, 119, 120; R. C. *Ching*; Lienchiu Shan, Singping, Linghuan, Y. *Tsiang* 9944. Hupei: Ichang, Nanto, A. *Henry* 257 (1881). Kwetchow: Pingchow, *Esquirol* 2097; *Cavalerie* 3771, 7307; Pin-fa, *Cavalerie* 1099; Tsingay, *Cavalerie* 1258, 452; Kwei-yang, *Bodinier* 1184; Gan-jin, *Martin* 2029; Van-chin Shan, Y. *Tsiang* 7897; Tuh-shan, Y. *Tsiang* 6619; Yuyun, Y. *Tsiang* 5596. Szechwan: Mt. Ocmi, W. P. *Fang* 2080. Anhwei: Yü-ting, Lan-tien Hsien, K. K. *Tsoong* 4530, 4830; Chu Hwa Shan, R. C. *Ching* 8411; Hwang Shan, A. N. *Steward* 7148, Kwangtung: Canton, Honam Island, E. D. *Merrill* 10083; Y. *Tsiang* 2029; Lohfau Shan, C. O. *Levine* 1495, North River, *Tutcher* 10767, 5112; C. L. *Tso* 20430; Lokcong, N. K. *Chan* 4232; Y. K. *Wang* 31649; *Hance* 8275; *Stanton*; Macao, *Gandthard*.

Hongkong: *Champion* (type); *Urquhart* in Herb. Hk.

Also Japan and Formosa.

This distinct fern, now found to be very common in the eastern and south-eastern parts of China, resembles in general habit *D. erythrosora* (Eaton) with which it has hitherto been considered as identical and from which, however, it can always be distinguished by, above all, the characteristically golden brown, spreading, broadly lanceolate, fimbriate, curled, dense large scales from base of stipe upwards throughout the entire length of rachis and the underside of costa, by somewhat oblong-deltoid falcate pinnules with auriculate broadened base and thicker texture.

Plate 181. Fig. 1. Habit sketch (natural size). 2. Sorus with indusium ($\times 40$). 3. Scale from stipe ($\times 16$). 4. Scale from rachilet ($\times 16$).

第一百八十一圖
張氏鱗毛蕨(水龍骨科)

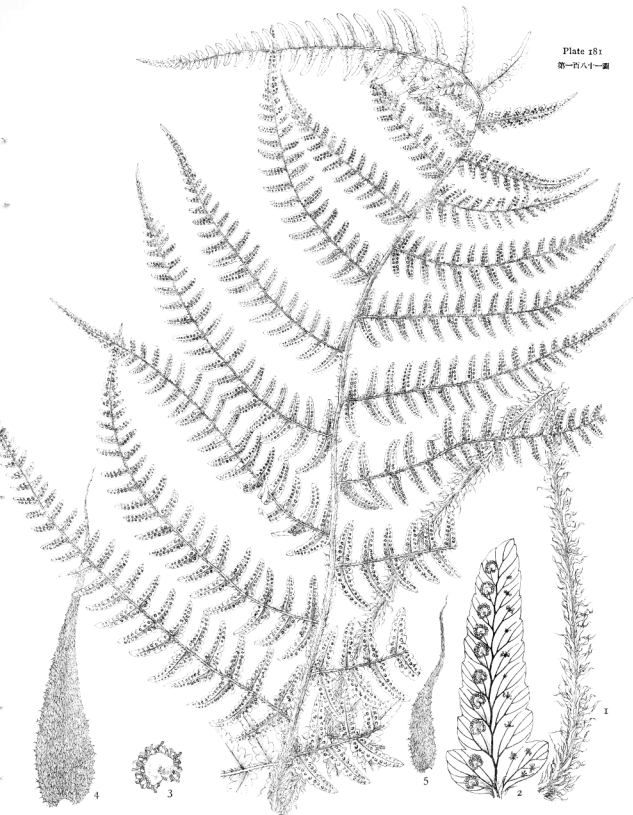
DRYOPTERIS CHAMPIONI (Benth.) C. Christensen

地下莖木質，粗肥，直立或斜生，具紅黃色之圓披針形膜質大鱗片，長達一粉；葉簇生，柄長二十至三十五粉，粗強，棕褐色，紅黃色之大鱗片密生，質粗澀，葉體橢圓卵形，長三十五至六十粉，寬十七至二十五粉，或為之，漸尖頭，基部圓形，二回羽狀分裂；小葉八至十四對，長十至二十粉，寬三至四粉，披針形，漸尖頭，亞斜出，基部一對對生，上部各對互生，彼此相距五至六粉，具短柄，基部截形，略呈心臟形，羽狀分裂，二回小葉十四至十八對，長一·五至三·五粉，寬五至十釐，橢圓卵形，亞對生，無柄，鈍頭，基部兩個耳形膨大。幾等長，亞全緣或具鈍鋸齒或為羽狀深裂，亞革質，上面光滑，下面略具小鱗片，葉脈不甚明顯，羽狀分叉；子囊群圓形，一列，常貼近葉邊生，蓋腎圓形，具一深缺刻，革質，最後脫落。

分佈：江蘇，浙江，福建，廣東，香港，江西，安徽，湖北等省均甚普通；日本及台灣亦產之。

此為我國溫暖各省習見之蕨種，昔人常誤為 *D. erythrosora*，實則以其葉柄及其他各部所具紅黃色之大鱗片與二回小葉之基部兩個耳形凸起，頗易識別。

圖註：1. 本種全形(自然大)，2. 小葉，表示葉脈及子囊群與雪齒(放大八倍)，3. 子囊群蓋(放大四十倍)，4. 葉柄上之鱗片(放大十六倍)，5. 中肋上之鱗片(放大十六倍)。



DRYOPTERIS CHAMPIONI (Benth.) C. Christensen

張氏鱗毛蕨

POLYSTICHUM CHINGAE Ching

POLYPODIACEÆ

POLYSTICHUM CHINGAE Ching, sp. nov.

Species *P. xiphophylli* Baker proxime affinis, differt paleis stipitis rachisque castaneo-brunneis, ovatis, pinnis majoribus, falcatis, basi anteriore auricula deltoidea magna acutissima instructa, soris utraque costæ latere biseriatis.

Rhizome short, erect, densely scaly; *scales* linear-lanceolate, ferruginous brown; *fronds* caespitose, stipe 16-30 cm long, stramineous, or rufo-brown on the lower part, nitente, sparsely clothed in large ovate, castaneous-brown shining scales, lamina oblong, 25-35 cm long, 10-14 cm broad, base not attenuate, simple pinnate under rather short acuminate, coadunate apex; *pinnæ* 13-17-jugate, horizontally patent, close, 6-8 cm long, 1.5 cm broad at middle, falcate-lanceolate, long-acuminate, the basal ones as long as next above, more or less deflexed, the uppermost ones shortened, subsessile, anterior side provided with a large deltoid, sharply pointed auricle, the posterior side cuneate, margin remotely serrate with low, sharply pointed and appressed teeth; *texture* coriaceous, color green, glabrous above, under side and rachis copiously clothed in light brown, lanceolate, fimbriate, appressed scales; *venation* not distinct on both sides, lateral veins flexuose, pinnate, 4-6 in each group, the anterior basal one stops midway, the rest extend to margin; *sori* small, rounded, irregularly 2-rowed, dorsal on veinlets, *indusium* small, rounded, fugaceous.

Yunnan: Without locality, *H. T. Tsai* 51800, 51648 (type).

This remarkably distinct species, resembling *Cyrtomium Balansae* Christ in general habit but with free venation, finds no close relative in the genus but *P. xiphophyllum* Baker, which differs in much smaller size, coal-black subulate scales on stipe and rachis, in smaller pinnæ with at most bluntly auriculated anterior base and always uniseriate sori on each side of costa.

The species is named after my wife, in recognition of her untired assistance in ably typewriting my manuscripts for this *Icones* and many other papers so far published.

Plate 182. Fig. 1. Habit sketch (natural size). 2. Pinna, showing venation and sori ($\times 2$). 3-1. Scales from stipe ($\times 16$). 5. The same from costa beneath ($\times 16$). 6. Indusium ($\times 20$).

第一百八十二圖

滇耳蕨(水龍骨科)

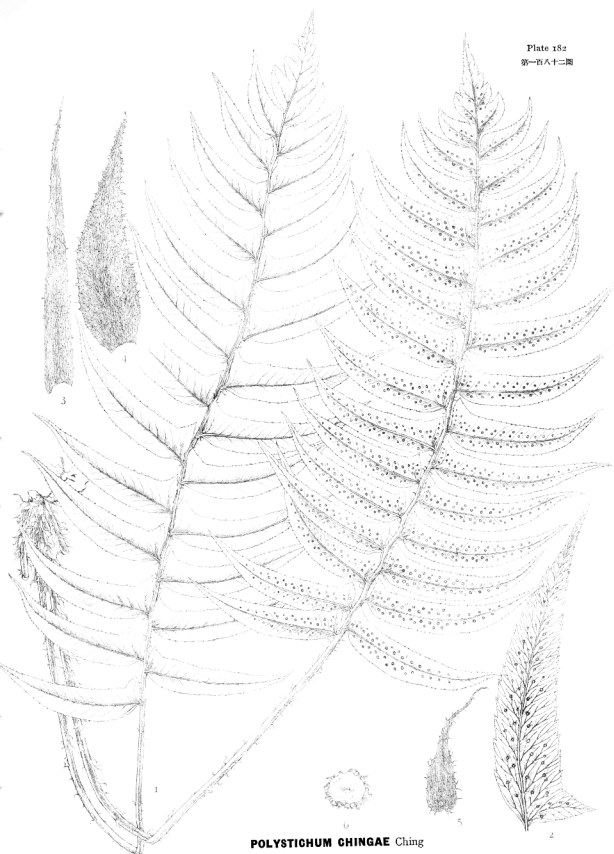
POLYSTICHUM CHINGAE Ching

地下莖短肥，直立，被線狀披針形之黃褐色密鱗片；葉簇生，柄長十六至三十份，稍帶色，或下部呈紅褐色，光亮，被大卵形之亮氣腰色鱗片，葉體橢圓形，長二十五至三十五份，寬十至十四份，基部等大，一回羽狀分裂，頂部短漸尖頭，三角形，羽狀深裂；小葉十三至十七對，水平開展，彼此接近，長六至八份，寬一·五份，鐮狀披針形，長漸尖頭，基部數對等長，下向，向頂部漸短，幾無柄，基部上方呈尖銳三角形凸出，下方為楔形，邊緣具疏短銳鋸齒，革質，綠色，上面光滑無毛，中軸及葉下面被細長鱗片，葉脈不顯明，側脈曲折，羽狀分裂，小脈四至六對，其基部上方一脈僅達小葉之中部，餘達於葉邊；子囊草小，圓形，不規則二列，生於小脈上，蓋小，圓形，早落。

分佈：此為雲南特產。

本新種為本屬特殊之種，其形態極似其近屬之 *Cyrtomium Balansae*，然其葉脈不為網狀，故易區別。

圖註：1. 本種全形(自然大)，2. 小葉，表示葉脈及子囊草(放大二倍)，3-4. 葉柄上之鱗片(放大十倍)，5. 小葉下面之鱗片(放大十倍)，6. 子囊草蓋(放大二十倍)。



POLYSTICHUM CHINGAE Ching

滇耳蕨

CYRTOMIUM AEQUIBASIS (C. Chr.) Ching

POLYPODIACEÆ

CYRTOMIUM AEQUIBASIS (C. Chr.) Ching, Bull. Chin. Bot. Soc. **2**: 99 (1936).

Cyrtomium caryotideum var. *aequibasis* C. Chr. Amer. Fern Jour. **20**: 51 (1930).

Aspidium faleatum Christ (non Sw.), Bull. Herb. Boiss. **6**: 969 (1898).

Rhizome short, thick, oblique, densely scaly; *scales* large, ovate-oblong, acuminate, intermixed with linear-lanceolate ones, black or atro-brown, sparingly fimbriate, extending over half way up the stipe; *fronds* caespitose, stipe 15-25 cm long, sordid brown, densely scaly on the lower part, sparsely so upwards, lamina oblong, 20-40 cm long, to 15 cm broad, impari-pinnate; *pinnae* 4-6-jugate, 10-15 cm long, 2-3 cm broad, subopposite or alternate, lanceolate, shortly petiolate, long-attenuate towards apex, base equal, cuneate or subrounded, margin regularly minutely cuspidate-serrate above base, the terminal pinna much the largest, long-petiolate, hastately tri-lobed, base cuneate; *texture* thin chartaceous, glabrous, sparsely fibrillose-scaly on rachis, petiole and costa beneath, color brownish when dried; lateral *veins* subconspicuous, flexuose, areolae generally with 2 included sciriferous veinlets; *sori* rounded, scattered, *indusium* rounded, brown, coriaceous.

Yunnan: Mengtze, *Hancock 8* (type), *25, 130*, in a deep dark glen, very rare; *Szemes, Henry 9123, 9123A, 9123B*; Without locality, *Handel-Mazzetti 6852*; *H. T. Tsai 56333*; Long-ky, *E. E. Maire* (pro parte).

An endemic species, closely related to *C. caryotideum* (Wall.) Presl, differing chiefly in lanceolate lateral pinnae with equal and exauriculate base, which varies from cuneate to subrounded.

Plate 183. Fig. 1. Habit sketch (natural size). 2. Sorus with indusium ($\times 16$). 3. Spores ($\times 15$). 4. Scales from base of stipe.

第一百八十三圖

滇貫衆(水龍骨科)

CYRTOMIUM AEQUIBASIS (C. Chr.) Ching

地下莖短粗，斜生，遍被卵形光亮栗色大鱗片，而間以細長之小鱗片；葉簇生，柄長十五至二十五粉，土褐色，下部被密鱗，上部較疏，葉體長橢圓形，長二十至四十粉，寬達十五粉，奇數羽狀分裂；小葉四至六對，長十至十五粉，寬二至三粉，互對生或互生，闊披針形，具短柄，向頂部尖長，基部為等楔形，或亞圓形，葉緣具小尖鋸齒，頂部一小葉較大，具長柄，通常為三裂，紙質，側脈隱約可見，屈折，小脈網狀，網眼為多角形，斜出，中有二數外出之着生子囊草之草梗；子囊草圓形，散生，蓋圓形，革質。

分佈：雲南特產。

本種形體極類似葉貫衆 (C. Caryotideum)，惟小葉為披針形，基部上方不為耳形凸出，故易識別。

圖註：1. 本種全形 (自然大)， 2. 子囊草及蓋 (放大十六倍)， 3. 孢子 (放大一百五十倍)，
4. 葉柄基部之鱗片 (放大八倍)。



CYRTOMIUM AEQUIBASIS (C. Chr.) Ching

漢 貫 衆

CYRTOMIUM MUTICUM (Christ) Ching

POLYPODIACEÆ

CYRTOMIUM MUTICUM (Christ) Ching in C. Chr. Ind. Fil. Suppl. III. 66 (1933)

- Cyrtomium falcatum* var. *muticum* Christ in *Lecomte, Not. Syst.* 1: 37 (1909).
Polystichum falcatum var. *macropterum* Diels in *Engl. Bot. Jahrb.* 29: 195 (1900); C. Chr. *Acta Hort. Gotteb.* 1: 72 (1924).
Cyrtomium falcatum var. *macropterum* Christ, *Bull. Soc. Bot. France* 52: Mém. I. 32 (1905); *Bull. Acad. Géogr. Bot.* (1906) 115.
Aspidium falcatum var. *macrophyllum* Makino, *Bot. Mag. Tokio* 16: 90 (1902).
Polystichum falcatum var. *macrophyllum* Matsum. *Ind. Pl. Jap.* 1: 342 (1904).
Polystichum caryotideum var. *macropterum* Nakai, *Bot. Mag. Tokio* 29: 115 (1925).
Polystichum macrophyllum Tagawa, *Acta Phytotax. et Geobot.* 2: 194 (1933).
Cyrtomium macrophyllum Tagawa, *ibid.* 3: 63 t. 3 f. 5-7 (1924).

Rhizome short, thick, erect, densely radiceous and scaly; *scales* large, fusco-brown or nearly black, shining, ovate, acuminate, densely fimbriate, extending, when young, over the whole length of stipe; *fronds* caespitose, stipe 16-20 cm long, dark stramineous, densely scaly near the base, lamina oblong, 20-35 cm long, 13-16 cm broad, pinnate with a large, hastate, cuneate terminal pinna; pinnae 2-5-jugate, subopposite or alternate upwards, falcate, basal ones broadly ovate, the upper ones oblong-ovate, 10 cm long, 5-7 cm broad, acuminate, base rounded or rotundo-cuneate, nearly equal or much broadened above, shortly petiolate, the uppermost ones under the 3-lobed end-pinna only slightly smaller, margin obscurely or minutely cuspidate-serrate above the middle; *texture* chartaceous, green, glabrous above, moderately fibrillose-scaly on rachis, petiole and costa beneath; lateral *veins* distinct, oblique, flexuose, intervening veinlets anastomosing in 1-rowed angular areolae each with 2-3 (only 1 in the costal areolae) excurrent soriferous included veinlets after the goniophleboid type; *sori* rounded, scattered, dorsal or subapical on included veinlets, *indusium* large, gray, coriaceous, subentire.

Yunnan: San-shan près Tchen-hiong, *Ducloux 5098* (type); *E. E. Maire*: Shweli-Salwin divide, North of Ho-tou, *Forrest 2634*; Guon-Kay, *Delavay 1724*, *Sept. 1885*; Taton près Ta-pin-tze, *Delavay 2311*, Lan-ping Hsien, *H. T. Tsai 54021*; Wei-se Hsien, *H. T. Tsai 57825*, without locality, *H. T. Tsai 51234*, *52758*, *52773*, *52288*, *51044*, *50872*; Kwei-chow: Sihfeng; *Y. Tsiang 8723*; Tuyun; *Y. Tsiang 5816*; Kiangkow, foot of Van-ching Shan, *Y. Tsiang 7649*; *ibid.*, Huang Chia Wan, *Steward, Chiao & Cheo 444*; Lou-mong-touan, *Cavalerie 1565*; *Perny* (1858). Szechwan: *Farges 656A*, *4987*; Hai-tang, *Harry Smith 1983*; Nanchuan, *Rosthorn 45* (var. *macropterum* Diels); Mt. Omei, *E. Faber 1058*; *W. P. Fang 2488*; *Wilson 5339*; Le-po Hsien, *T. T. Tu 3559*. Hupeh: Patung, *Henry 3687*; *Wilson 195*, *2628*, *2634*.

Hiamalayas: Simla District of Bashahr State, *R. N. Parker 3018*.

Japan, common.

A large fern of the habit of *C. caryotideum* (Wall.), from which it differs in generally larger, oblong-ovate pinnae with rounded or rotundo-cuneate and almost equal-sided base without deltoid auricle, subentire margin from base upward and a few remote small teeth towards apex, and in inducium with subentire margin. A very common fern in West China from where I have seen numerous specimens.

Plate 184. Fig. 1-2. Habit sketch (natural size). 3. Portion of pinna, showing venation, and sori ($\times 1.5$). 4. Sorus with nearly entire indusium ($\times 16$). 5. Scale from base of stipe ($\times 8$). 6. Cross section of basal part of stipe ($\times 8$).

第一百八十四圖

大葉貫衆 (水龍骨科)

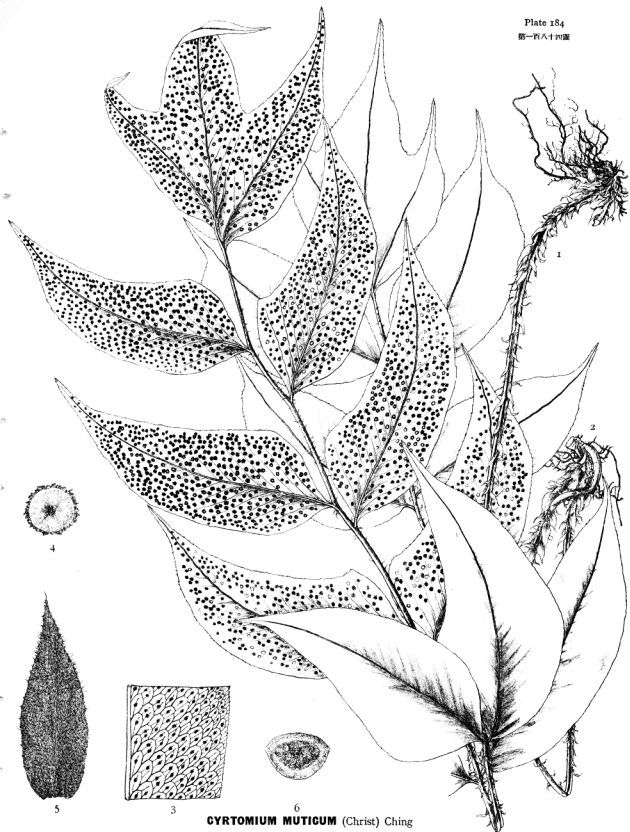
CYRTOMIUM MUTICUM (Christ) Ching

地下莖短粗，直立，遍被深栗褐色之卵形大鱗片；葉簇生，柄長十六至二十粉，下部被密鱗，上部較稀，葉濃橢圓形，長二十至三十五粉，寬十三至十六粉，奇數羽狀分裂，小葉二至五對，亞對生或互生，卵狀橢圓形，略呈鐘形，基部一對最大，長達十粉，寬五至七粉，漸尖頭，基部圓形或圓截形，兩邊幾等大，或上邊稍呈圓耳形，具短柄，上部數對小葉漸小，頂部一小葉甚大，三裂，邊緣為亞全緣或小鋸齒疏生，直達葉頂，厚紙質，中肋及葉柄具細長鱗片，側脈可見，小葉膜狀，網脈具二至三數外出之生子囊羣之單脈；子囊羣圓形，散生，蓋大，圓形，革質，全緣。

分佈：雲南，四川，貴州，湖北山林中均產之，在日本亦甚普通。

本種形體極類刺葉貫衆 (*C. Caryotideum*)，惟較大，小葉基部不具三角形之尖耳形凸起，邊緣不具刺狀之密齒，故易分別。

圖註：1-2. 本種全形 (自然大)， 3. 小葉之一部，表示葉脈及子囊羣 (放大一倍半)， 4. 子囊羣及蓋 (放大十六倍)， 5. 葉柄基部鱗片 (放大八倍)， 6. 葉柄基部橫切面 (放大八倍)。



CYRTOMIUM MUTICUM (Christ) Ching

大葉貫衆

HEMIGRAMMA DECURRENS (Hooker) Copeland

POLYPODIACEÆ

HEMIGRAMMA DECURRENS (Hooker) Copeland, Phil. Journ. Sci. **37**: 404 (1928); C. Chr. Ind. Fil. Suppl. III. 109 (1934), cum. syn.

Gymnopteris decurrens Hk. Journ. Bot. **9**: 359 (1857); Fil. Exot. t. 94 (1859); Benth. Fl. Hongk. 443 (1861) (non Hk. Gard. Ferns t. 6, 1862).

Aerostichum decurrens Hk. Sp. Fil. **5**: 274 (1864); Syn. Fil. ed. 2, 118, (1874); Dunn & Tutchet, Fl. Kwangt. & Hongk. 355 (1912).

Leptochilus Harlandii C. Chr. Ind. Fil. 385 (1905), cum. syn.

Polypodium dimorphum Baker (non Link, 1833). Ann. Bot. **5**: 477 (1891).

Polypodium hainanense C. Chr. Ind. Fil. 531 (1905).

Gymnopteris Bonii Christ, Bull. Herb. Boiss. II. **4**: 610 (1904); Copel. l. c. 405.

Leptochilus Kanashiroi Hayata, Ic. Pl. Form. **5**: 298 f. 120 (1915).

Tectaria dictyosora Cop. Phil. Journ. Sci. **38**: 187 (1929).

Hemigramma distinctipetiolata Ching, Bull. Fan Mem. Inst. Biol. **1**: 156 (1930).

Rhizome thick, woody, oblique or short-creeping, densely scaly at extremity and base of stipe; scales linear-subulate, over 1 cm long, atro-brown or castaneous, shining, rather thick and firm; fronds caespitose; strongly dimorphous, sterile ones with rufo-brown or castaneous shining stipe, 10-25 cm long, broadly winded over two-thirds way towards scaly base, lamina ovate, 16-35 cm long, less broad; pinnatifid or pinnate at base (sometimes simple) with 1-2 or 3 pairs of opposite, broadly lanceolate, acuminate, entire pinnae to 20 cm long, 5 cm broad, narrowed towards decurrent or sessile base, the terminal pinna much the largest, narrowed towards both ends and connected with the lower lateral pair by broad decurrent wing on each side; texture subcoriaceous, firm, rich brown-green, glabrous on both sides, costa and rachis shining brown or light castaneous beneath; venation distinct, lateral main veins oblique, connected by finer transverses ones, intervening veinlets copiously anastomosing in several rows of large angular areole with divaricate clavate veinlets; fertile fronds with stipe to 40 cm long, lamina conform but smaller with contracted decurrent pinnae to 10 cm long, 2 cm broad, areole mostly without included veinlets; sori indefinite, appear at first in a medial band along veinlets between main veins, finally confluent over the entire under surface.

Hongkong: Harland (type); Wilford 516; G. G. Matthew, March 25, 1907; Hance 94; Forbes 581.

Kwangtung: North River, C. Ford, May 26, 1888 (f. simplex); Lungtau Mt., C. O. Levine 1939 (type of *Tectaria dictyosora* Cop.); Kochow, Y. Tsiang 2752 (type of *H. distinctipetiolata* Ching); Swatow, Thai-vong, Dalziel; Tei-loy, Matthew, Nov. 25, 1907; Ting Wu Shan, S. P. Ko 50644; S. Y. Lau 20246; Namhoi, Sai Chiu Shan, S. P. Ko 51536. Hainan Island: H. Y. Liang 64687, 63457; Rev. A. G. Henry 86B (type of *Polypodium dimorphum* Baker).

Formosa: Tamsui, Hancock 47; Jutsugetutan 570, Oct. 2, 1929.

Annam: Cadier 62 (type of *Gymnopteris Bonii* Christ).

The species represents type of the genus *Hemigramma* Copeland now comprising 4 or 5 species in the warm parts of Asia and Polynesia. As a genus, which is closely related to *Bolbitis* Schott, *Hemigramma* is characterized by thick short woody rhizome, tectarid type of scale and venation, dimorphous leaves with strongly contracted fertile ones and indefinite sori.

A variable fern as to the degree of pinnation. *Gymnopteris Bonii* Christ differs in frond having 2-3 pairs of lateral pinnae, of which the lower 1-2 pairs not decurrent along stipe and rachis, but sessile or short-petiolate in basal pairs. *H. distinctipetiolata* Ching, based upon Y. Tsiang's No. 2782 from southwestern part of Kwangtung, proves to be the same, as represented by our plate.

Plate 185. Fig. 1. Habit sketch (natural size). 2. Portion of sterile frond, showing venation ($\times 4$). 3. Portion of fertile frond, showing venation and position of sori ($\times 4$). 4. Scales from base of stipe ($\times 8$). 5. Cross section of rhizome, showing arrangement of steles ($\times 10$).

第一百八十五圖

擬叉蕨 (水龍骨科)

HEMIGRAMMA DECURRENS (Hooker) Copeland

地下莖粗厚，木質，斜出或臥生，被線狀深褐色厚質鱗片，長達一粉；葉簇生，二形，不生子囊草葉之柄為紅褐色，光亮，長十至二十五粉，基部具鱗片，葉體卵形，長十六至三十五粉，寬幾如之，基部由柄下延，奇數羽狀深裂或分裂，(間為單葉)；小葉一至二對，對生，闊披針形，其部下延或否，而具短柄，長達二十粉，寬五粉，漸尖頭，向基部漸狹，全緣，頂部一小葉較長，亞革質，乾則變為淺綠色，兩面光滑，側脈明顯，小脈網狀，網眼內具分叉或簡單小脈；生子囊草葉之柄較長，葉體羽狀分裂(或為單葉)，小葉收縮，長僅十粉，寬二粉，下面子囊滿佈，僅中肋可見。

分佈：香港，廣東，瓊州島，台灣，交趾均產之。

本屬在亞洲大陸僅此一類，其形態頗似叉蕨，惟葉為二形，子囊不成草，惟散佈於葉之下面，且無蓋。

圖註： 1. 本種全形(自然大)， 2. 不生子囊草葉之一部，表示葉脈(放大四倍)， 3. 生子囊草葉之一部，表示葉脈及子囊着生情形(放大四倍)， 4. 葉柄基部之鱗片(放大八倍)， 5. 莖之橫切面，表示維管束之佈置(放大十倍)。



C. R. Feng Del. et Lith.

HEMIGRAMMA DECURRENS (Hooker) Copeland

擬叉蕨