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

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中 國 蕨 類 植 物 圖 譜

ICONES FILICUM SINICARUM

BY

REN-CHANG CHING, B. S.

KEEPER

LU-SHAN ARBORETUM AND BOTANICAL GARDEN

FASCICLE 4, PLATES 151-200

第 四 卷

PUBLISHED BY

THE FAN MEMORIAL INSTITUTE OF BIOLOGY

PEIPING, CHINA

January, 1937

靜 生 生 物 調 查 所 印 行

MISSOURI BOTANICAL
GARDEN LIBRARY

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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PLATE 151

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, pinntifid 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 subemarginate, 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* elonagte, naked.

Kwangtung: Suni, *Y. K. Wang 30967* (type), roadside, July 17, 1931; Whampoa, 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 pinnæ up to 30 cm long, 4 cm broad, and the longer and narrower oblique segments with strongly revoluted 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 (× 5). 3. Sporangium (× 50). 4. Scale from axillary bud (× 50). 5. Stellate hairs on the underside of leaf (× 50).

第一百五十一圖

廣東裏白(裏白科)

GLEICHENIA CANTONENSIS Ching

地下莖橫行；葉柄高達二粁，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，基部爲截楔形，等寬，向頂漸尖，羽狀深裂至中肋；裂片六十至七十對，線形，亞斜出，長達二粉，寬二糎，全緣，强度反捲，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，稍具濶披針形之深栗色鱗片；子囊羣中生，位於上方小脈，由二至四個子囊組成之。

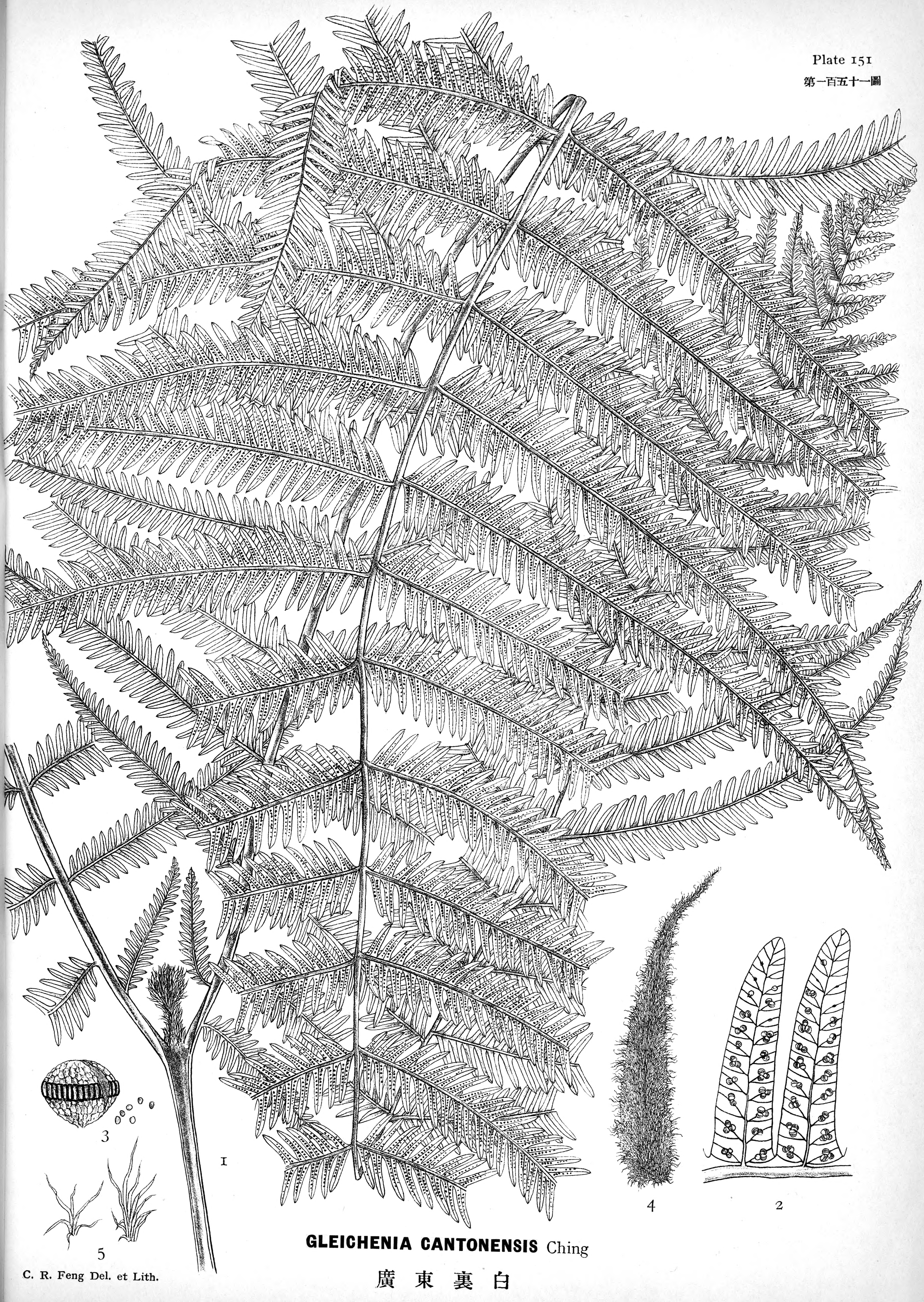
分佈： 廣東信宜縣及黃埔產之。

此種爲廣東特產，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，裂片亞斜出，邊緣强度反捲，葉腋間之芽所被之鱗片之長僅半之耳。

圖註： 1. 本種全形 (自然大)， 2. 裂片，表示葉脈及子囊羣之位置 (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)。

Plate 151

第一百五十一圖



C. R. Feng Del. et Lith.

GLEICHENIA CANTONENSIS Ching

廣 東 裏 白

PLATE 152

GLEICHENIA LAEVISSIMA Christ

GLEICHENIACEÆ

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

Mertensia laevissima 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 straminous, 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; *pinnules* 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, suboblique, all forked above base, *sori* small, medial, borne on the anterior veinlets above forking, ccnsisting 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 134.* Hainan Island: without locality, mountain summit, *C. Wang 35525.*

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 (× 3). 3. Sorus (× 50). 4. Scale from rhizome (× 16). 5. Scale from axillary bud (× 16). 6. Cross section of rhizome, showing solenostele (× 4).

第一百五十二圖

光裏白(裏白科)

GLEICHENIA LAEVISSIMA Christ

地下莖橫行，密被紅櫻色之細長鱗片；葉散生，柄長達五十粉，淡綠色，光亮，葉體卵形，二裂，小葉長達四十粉，寬十六粉，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，長達十二粉，寬二粉，內側一二對最短，漸尖頭，羽狀深裂，裂片櫛篦排列，長一至一·五粉，寬二糎，尖頭，斜出，邊緣强度反捲，厚紙質，兩面光滑，綠色，葉脈分叉；子囊羣小，圓形，生於上方小脈，由三至四個淡黃色之子囊組成之。

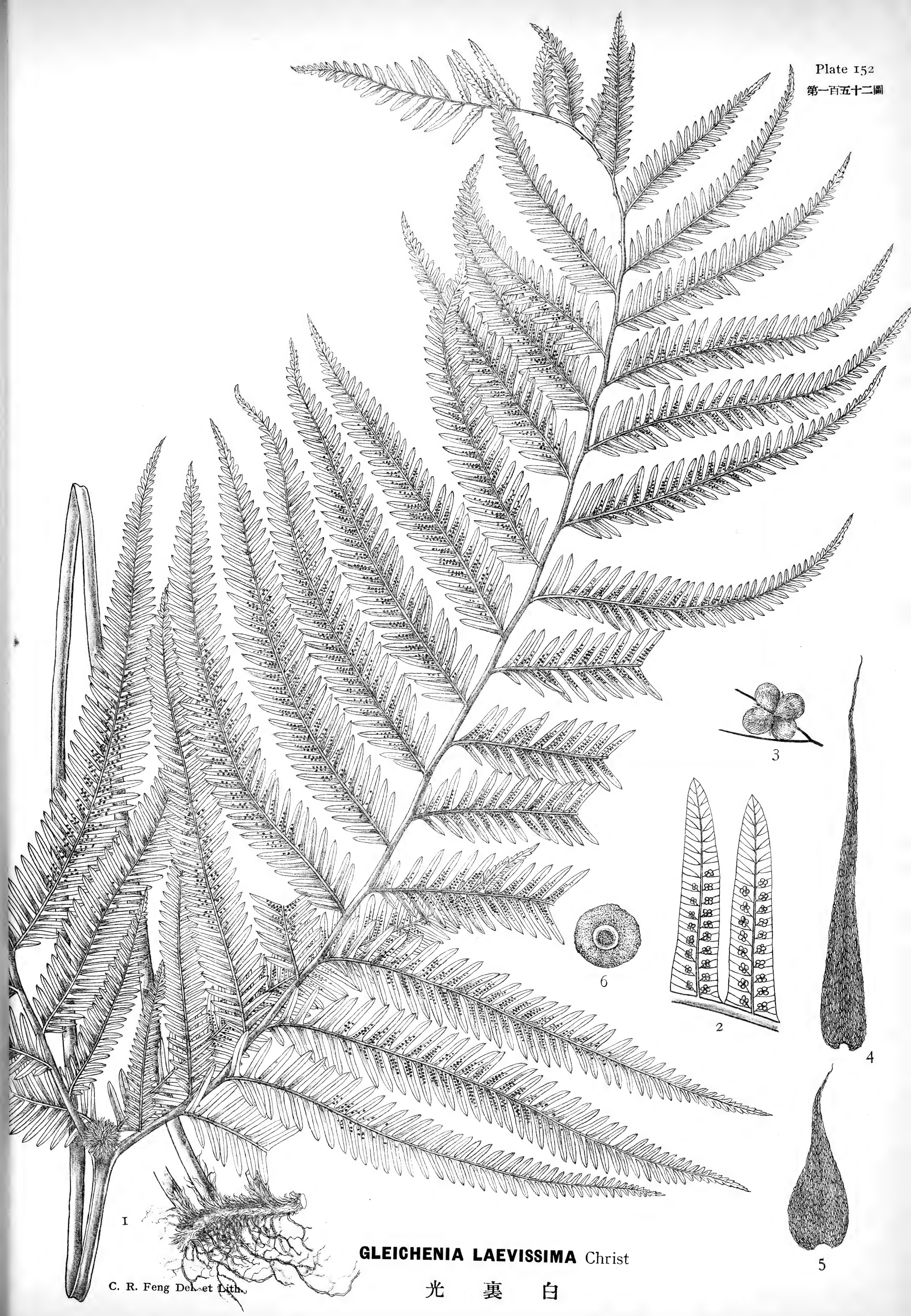
分佈：貴州，江西，浙江，廣東，廣西，瓊州島；日本亦產之。

此爲本屬特殊之種，全體光綠，甚易識別。

圖註： 1. 本種全形 (自然大)， 2. 兩裂片，表示葉脈及子囊羣之位置 (放大三倍)， 3. 子囊羣 (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)。

Plate 152

第一百五十二圖



GLEICHENIA LAEVISSIMA Christ

光　裏　白

C. R. Feng Del. et Lith.

PLATE 153

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* atro-brown, linear-subulate, rigid, spreading, tufted, deciduous; *frond* 1 to several meters tall, erect or trailing, stipe dark straminous, shining, glabrous, 4-5 mm across, 30 cm to several meters long, lamina repeatedly di- or trichotomously forked, with a distinct pair of pinnæ 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* irregeularly 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 30920.* 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 (× 4).

第一百五十三圖

碩蕨白(蕨白科)

GLEICHENIA SPLENDIDA Hand-Mzt.

地下莖橫行，光亮，粗糙；鱗片深櫻色，線形，簇生；葉長一至數釈，直立或爲蔓性，葉柄深稻稈色，光亮，無毛，高自三十粉至數釈，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，櫛狀深裂；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；子囊羣爲不規則之二列，中生，由十至二十個子囊組成之。

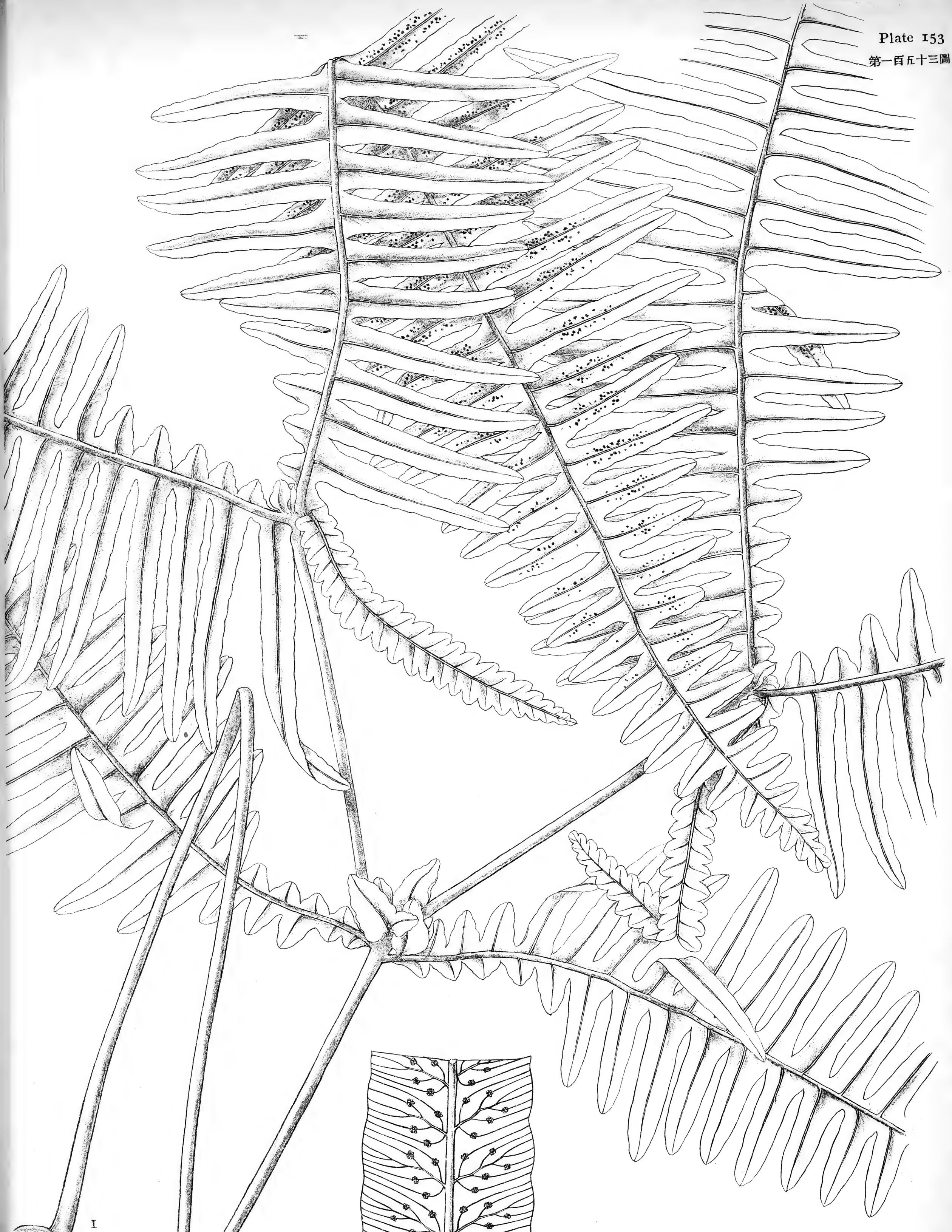
分佈： 雲南，廣東，廣西，香港，緬甸，交趾均產之。

本種形態極類普通之櫛蕨白 (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)。

Plate 153

第一百五十三圖



GLEICHENIA SPLENDIDA Hand-Mzt.

碩　裏　白

R. Feng Del. et Lith.

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 Bedd. 1869), 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 straminous, 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 areolæ 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. Chiug 6140.* 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: Htawgaw, *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 (× 5). 3. Sporangium (× 150). 4. Spores (× 150). 5. Scale from rhizome (× 40). 6. Cross section of rhizome, showing solenostele (× 5). 7. Hairs from veins on the under side of leaf (× 30). 8. Paraphyses in sorus (× 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，被深櫻色之緊覆細長厚鱗片；葉散生，柄長三十至六十粉，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，具粗鋸齒，乾紙質，上面光滑，下面葉脈略具深櫻色之短毛，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；子囊羣形圓而小，散生，不具蓋，線狀體密生，端呈膨大之傘形，深棕色。

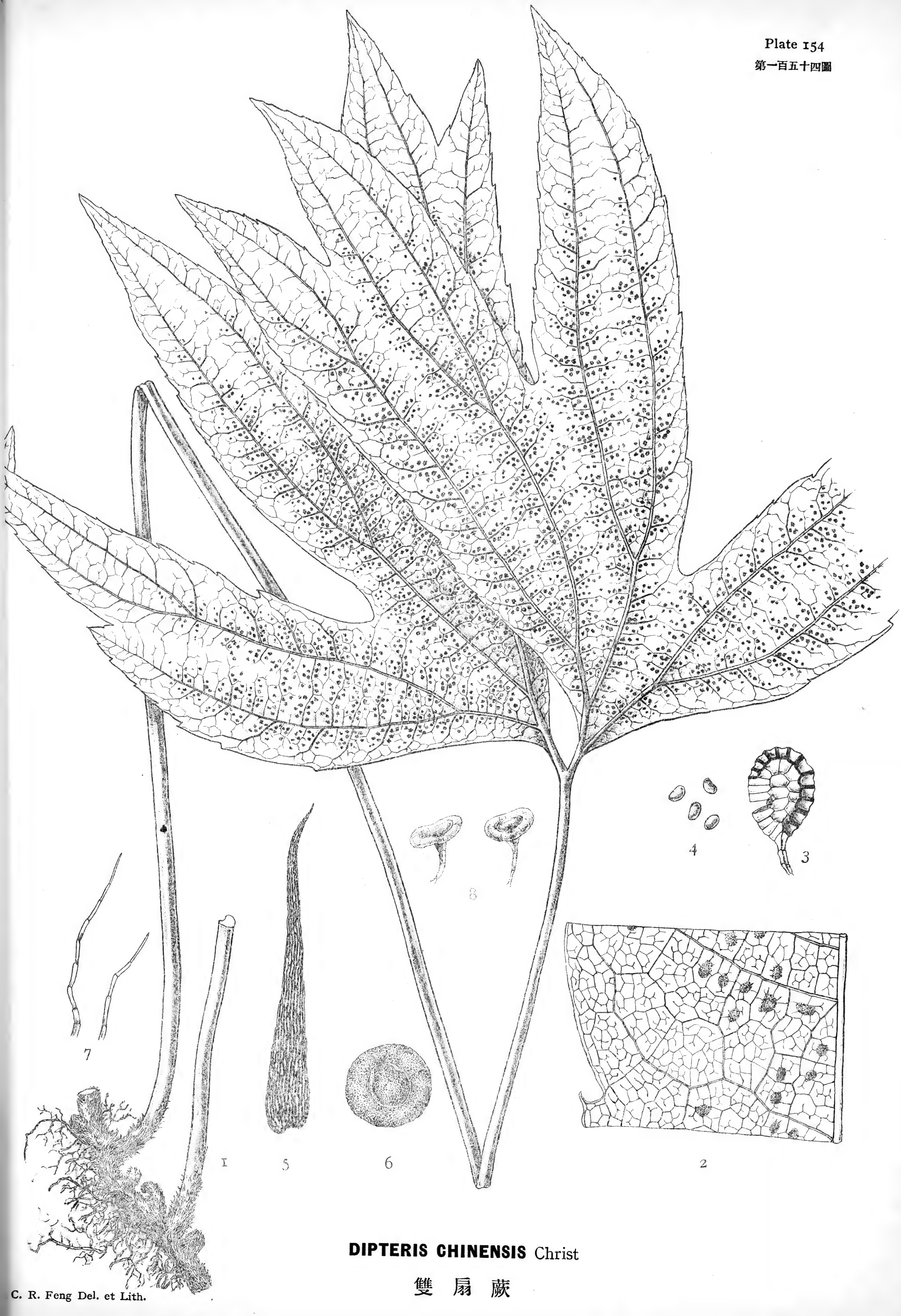
分佈： 貴州，廣西，雲南，藏邊產之。

此爲本屬特殊之一種，爲中國特產，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，子囊羣中之線狀體不呈球桿形，故易識別。

圖註： 1. 本種全形 (自然大)， 2. 葉片之一部，表示葉脈及子囊羣 (放大五倍)， 3. 子囊 (放大一百五十倍)， 4. 胞子 (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. 子囊羣中之線形體 (放大一百五十倍)。

Plate 154

第一百五十四圖



C. R. Feng Del. et Lith.

DIPTERIS CHINENSIS Christ

雙 扇 蕨

PLATE 155

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 straminous, 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 obsure 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 1023* (type of *Lomaria deflexa*); Tah Liang Shan, *T. T. Yü 4045*, Sept. 22, 1934.

This distinct endemic fern, so tar 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 (× 2). 3. Portion of fertile pinnæ, showing position of sori (× 16). 4—5. Sporangium with spores (× 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，不生子囊羣葉之柄長達二十粉，堅硬，深稻稈色，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，基部數對强度下向，且較短，中部各對長約八粉，寬八糎，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，（幼時爲綠色），葉脈多數分叉，斜出；生子囊羣之葉具較長之柄，葉體較狹，小葉强度緊縮，成細長線形，長達三粉，寬約二糎，基部膨大合生，下面中肋兩側子囊羣滿佈，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. 生子囊羣小葉之一部，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）。

Plate 155

第一百五十五圖

1

4

5

2

3

PLAGIOGYRIA ASSURGENS Christ

峨 嵋 瘤 足 蕨

C. R. Feng Del. et Lith.

PLATE 156

LINDSAYA LOBBIANA Hooker

POLYPODIACEÆ

LINDSAYA LOBBIANA Hooker, Sp. Fil. **1:** 205 t. 62C. (1846); C. Chr. Gardens Bull. Str. Settl. **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, sparcely scaly; *scales* brown, small, oblong-lanceolate, consisting 3-4 rows of elongate luminæ, entire; *fronds* aggregate or approximate, stipe 5-10 cm long, pale green or light straminous, naked, prominently 4-angular, lamina linear-lanceolate, 20-30 cm long, 2-2.5 cm broad, acuminate, slightly narrowed towards base, pinnate; *pinnae* 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 straght, 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-augular; *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 1466*, on stream banks at low altitude; Chim Fung Ling, *S. K. Lau 3596; C. Wang 33509, 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 rechis throughout.

Plate 156. Fig. 1. Habit sketch (natural size). 2. Pinna, showing venation and sori (× 5). 3. Scales from rhizome (× 40). 4. Cross section of stipe (× 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，略被組織簡單之深櫻色之小鱗片；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，寬約六糎，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；子囊羣一個，生於裂片之頂，線形或略呈弧形，蓋膜質，同形，全緣，向外開，比葉邊爲狹。

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，表示葉脈及子囊羣之位置（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）。

Plate 156

第一百五十六圖

C. R. Feng Del. et Lith.

LINDSAYA LOBBIANA Hooker

洛 氏 林 蕨

PLATE 157

LINDSAYA DECOMPOSITA Willdenow

POLYPODIACEÆ

LINDSAYA 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 *pinnae* 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 9482; Eryl Smith 1469*, beside a stream; *Hancock 119; C. Wang 35711*, 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 pinnae are also very variable, being nearly entire in type in the herbarium Willdenow.

Plate 157. Fig. 1. Habit sketch (natural size). 2a—2b. Ultimate pinnae, showing venation and sori (× 5). 3. Scale from rhizome (× 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，略被組織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，或爲線狀披針形之一回羽狀分裂，或爲掌狀分叉，具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，常强度下向，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；子囊羣邊生，線形，條直或呈弧形，每小裂片一個，蓋爲淡綠色，全緣，較葉緣爲狹。

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，表示葉脈及子囊羣之位置（放大五倍)， 3. 地下莖上之鱗片（放大三十倍)。

Plate 157

第一百五十七圖

1b

1a

2a

2b

3

C. R. Feng Del. et Lith.

LINDSAYA DECOMPOSITA Willdenow

網脈林蕨

PLATE 158

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 radicose, 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 pinnæ; *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 18831* (type); Lien-Chow, *B. C. Henry* (1881); *Rev. J. Lamont,* Oct. 1876; *Matthew* (1907), on limestone rocks; *Gerlach;* Yüyuen Hsien, *S. P. Ko 53788,* 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 pinnæ.

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

第一百五十八圖

粵鐵線蕨(水龍骨科)

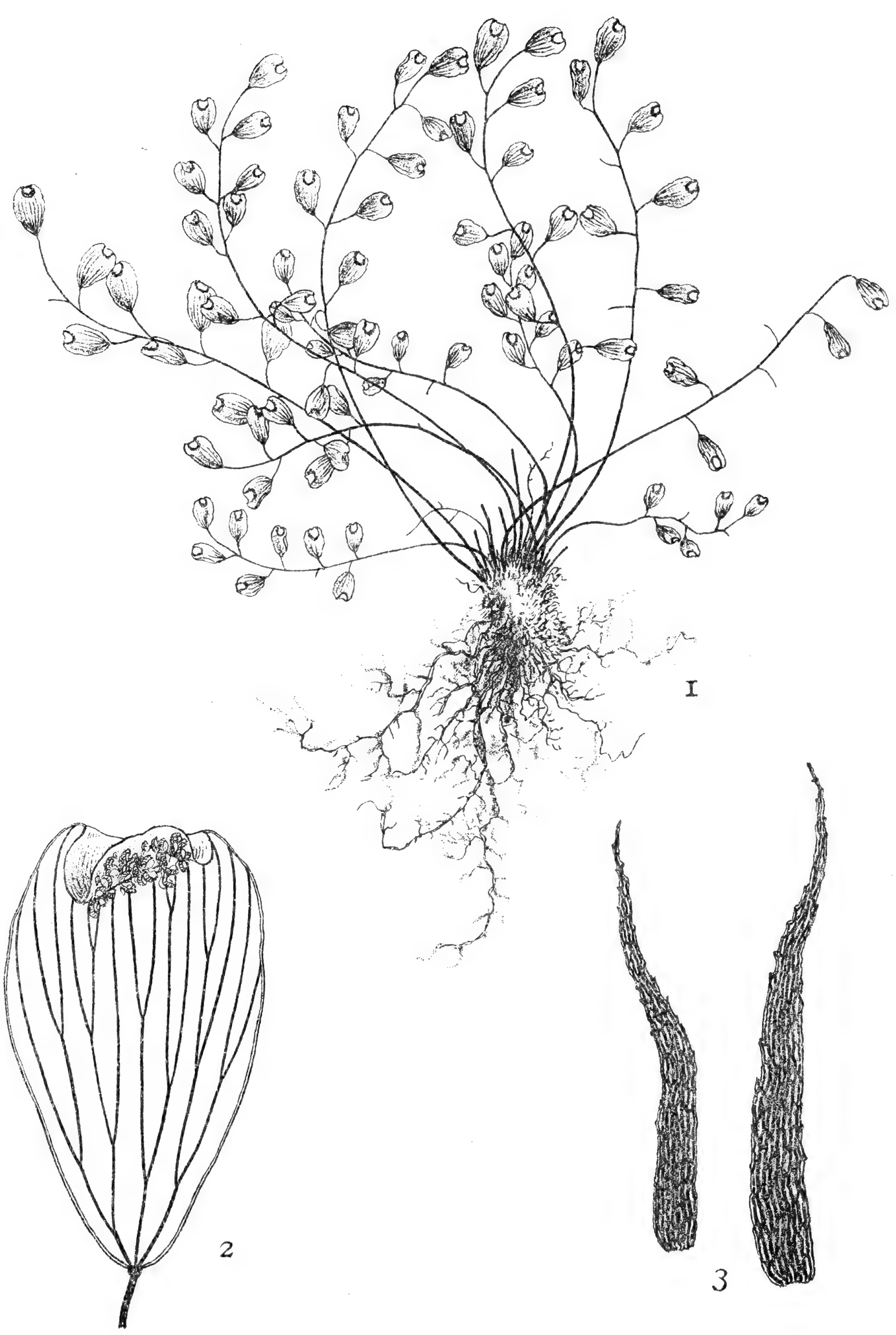
ADIANTUM GRAVESII Hance

地下莖短而直立，頂部被黑色之細長鱗片；葉簇生，柄長二至四粉，細如銅絲，光亮，栗黑色，葉體長二至五粉，寬約一·五粉，一回奇數羽狀分裂；小葉三至六對，長達六糎，寬三至五糎，倒卵形，互生，具柄，全緣，與葉柄着生處有肢節，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；子囊羣一個，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。

此爲特殊之種，本屬其他之種鮮有類此者。

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



ADIANTUM GRAVESII Hance

粵 鐵 線 蕨

C. R. Feng Del. et Lith.

PLATE 159

ADIANTUM CHIENII Ching

POLYPODIACEÆ

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

Rhizome short, erect, densely radicose and scaly; *scales* linear-subulate, atro-brown, rigid, entire; *fronds* cæspitose, 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; *pinnae* 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-aqwai,* 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 (× 5). 4. Scales from base of stipe (× 30).

第一百五十九圖

錢氏鐵線蕨(水龍骨科)

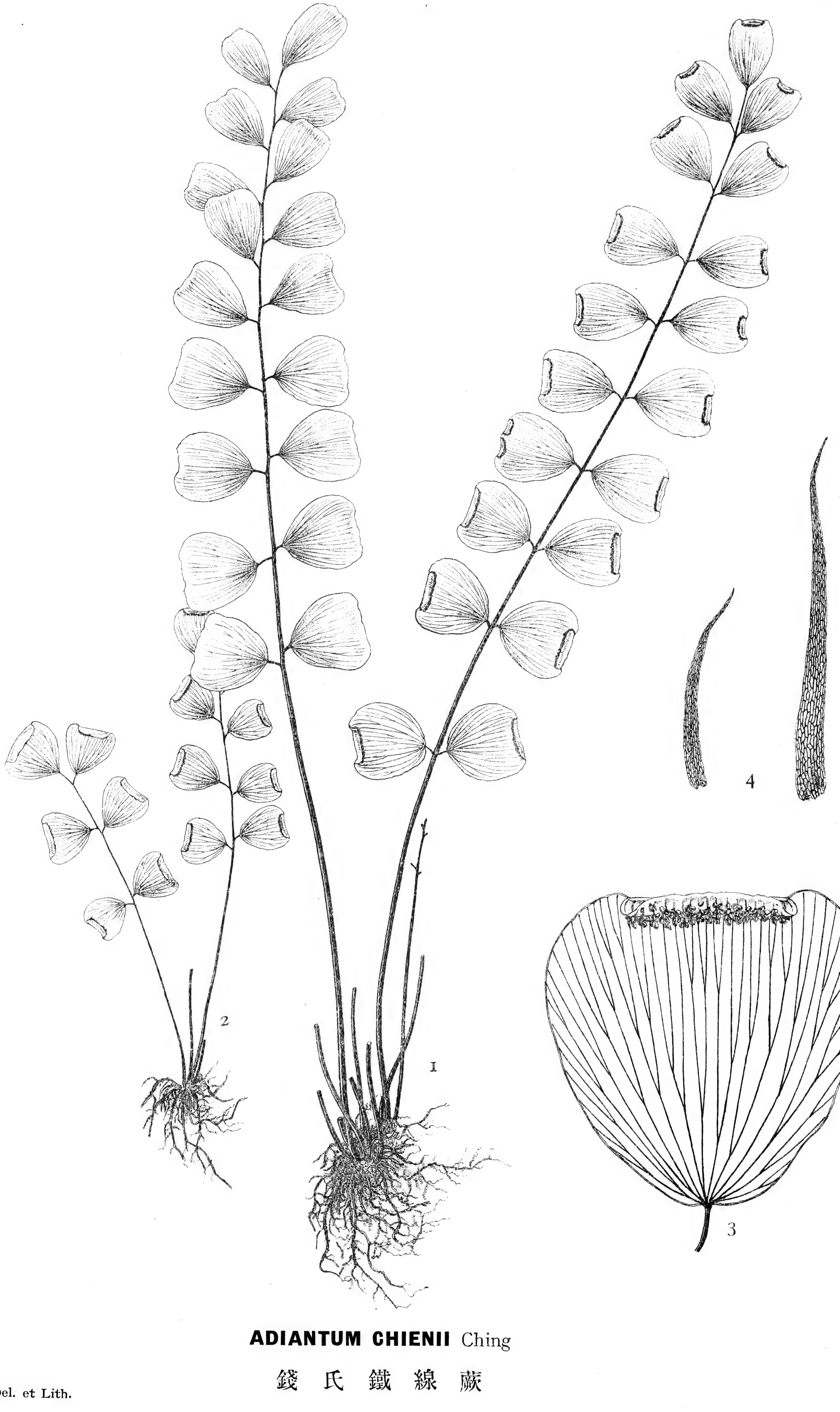
ADIANTUM CHIENII Ching

地下莖短，直立，端被深櫻色之線狀鱗片；葉多數簇生，柄長五至七粉，栗黑色，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，亞對生，倒卵狀三角形，長一·二至一·六粉，寬亦如之，全緣，具柄，亞革質，上面光亮，下面呈淡粉白色，全體光滑，葉脈扇形分叉，多數，直達骨質之邊緣；子囊羣一個，長五至六糎，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，表示葉脈及子囊羣 (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

C. R. Feng Del. et Lith.

PLATE 160

ADIANTUM ROBOROWSKII Maximowicz

POLYPODIACEÆ

ADIANTUM ROBOROWSKII Maxomowicz, Mél. 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* cæspitose, 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; *pinnae* 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); Möping, 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 (× 10). 4. Scale from base of stipe (× 30).

第一百六十圖

隴鐵線蕨(水龍骨科)

ADIANTUM ROBOROWSKII Maximowicz

地下莖短而直立，被深櫻色之細長鱗片；葉簇生，柄長六至十糎，細而圓，栗黑色，光滑，葉體與柄等長，寬二至三糎，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，長二至二·五糎，寬一·五至二糎，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；子囊羣通常每小葉兩個(有時僅一個)，蓋圓形，深櫻色，革質，着生於小葉頂部之深缺刻內。

分佈： 僅甘肅西部產之。

本種形體極似峨嵋鐵線蕨 (A. Faberi)，惟形體纖長，葉體不爲卵狀三角形，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，表示葉脈及子囊羣之位置 (放大十倍)， 4. 葉柄基部之鱗片 (放大三十倍)。

ADIANTUM ROBOROWSKII Maximowicz

隴 鐵 線 蕨

C. R. Feng Del. et Lith.

PLATE 161

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 redicose, apex clothed in lanceolate, light castaneous *scales*; *fronds* subcaespitose, stipe 25-35 cm long, pale straminous, 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, *Duclonx 6971, 5049* (type of *O. cryptogrammoides* Christ), August, 1911; Tong-chow, *E. E. Maire 1379. 2096, 2774, 1484* (1913); Without locality, *G. Forrest 285, 6068.* Szechwan, Huei-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 (× 10). 3. Portion of fertile frond (× 10). 4. Soriferous segment, with one indusium open (× 16). 5. Cross section of stipe (× 6). 6. Scale from rhizome (× 27). 7. Cross section of rhizome (× 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粉，淡稻稈色，而基部呈黑色，光滑無毛，葉體廣卵形，漸尖頭，長十五至二十五粉，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，末回小葉爲線狀披針形，具短尖頭，全緣，長三至五糎，紙質，淡綠色，兩面光滑，葉脈通直明顯；子囊羣短線形，通常由四至六個子囊組成，蓋大，膜質，灰白色，全緣，達於葉脈，宿存。

分佈： 雲南，西藏，暹羅及印度東北二部之高山均產之。

此種昔日學者多認爲與普通之烏蕨 (O. japonicum) 相同，實則其葉體之分裂度更細密，葉柄基部常爲黑色，子囊羣較短，蓋短闊，故易分別。

圖註： 1. 本種全形（自然大）， 2. 不生子囊羣小葉之一部（放大十倍），3. 生子囊羣小葉之一部（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）。

Plate 161

第一百六十一圖

ONYCHIUM CONTIGUUM (Wall.) Hope

高 山 鳥 蕨

C. R. Feng Del. et Lith.

PLATE 162

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 straminous, 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, straminous, 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, siliqueform, 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 (× 8), 3. Portion of fertile frond (× 8). 4. Ultimate segment of fertile frond, showing position of sori and indusia (× 16). 5. Scale from rhizome (× 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，被紅鑛色之細長厚質鱗片；葉散生，亞二形，不生子囊羣葉之柄長達十粉，細長，淡稻稈色，葉體爲狹線形，長十至十五粉，寬二至三粉，向基部較濶，二回羽狀分裂；一回小葉十至十五對，斜方形，具柄，基部一對長達三·五粉，基部亞楔形，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，柄長十五至二十粉，稻稈色，葉體長亦如之，濶披針形，中部以上呈尾狀狹長，基部濶達六粉，三回羽狀分裂；一回小葉十至十五對，具長柄，基部爲不等楔形，下部一對長達十粉，寬三粉，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，寬一·五糎，漸尖頭；子囊群線形，長五至七糎，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，爲其狹長亞二形之葉，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)。

Plate 162

第一百六十二圖

ONYCHIUM MOUPINENSE Ching

木 坪 烏 蕨

C. R. Feng Del. et Lith.

PLATE 163

ONYCHIUM TENUIFRONS Ching

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, straminous, 6-15 cm long, flexuose, naked, lamina oblong-lanceolate, 15-25 cm long, tripinnate at base, bipinnate towards acuminate apex; *pinnae* 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 erosed; *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-tze, *Delavay 32;* Ty-ly, *Ducloux 5821;* Tai-tsien-teen, *E. E. Maire,* Sept. 1913; Tchong-san, *Ducloux 3372,* Nov. 2, 1909; Nieou Ko Chan region, Pin-chow, *Ducloux 6973.* 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 erosed 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 (× 10). 3. Soriferous segment, showing attachment of sori and indusium with erose-dentate margin (× 16). 4. Scale from rhizome (× 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，長五至七糎，寬僅一·五糎，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；子囊羣長三至五糎，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)。

Plate 163

第一百六十三圖

C. R. Feng Del. et Lith.

ONYCHIUM TENUIFRONS Ching

狹 葉 烏 蕨

PLATE 164

ONYCHIUM IPII Ching

POLYPODIACEÆ

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

Rhizome wide-creeping, 2 mm thick; *scales* imbricate, lanceolate, atro-brown, nitente; *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 pinnæ 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.

Hupeh: 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, (× 8). 3. Portion of sterile frond (× 8). 4. Ultimate segment of fertile frond, showing position of sori and indusium (× 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)，惟其形體更爲細長，葉不爲二形，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)。

Plate 164

第一百六十四圖

ONYCHIUM IPII Ching

葉氏烏蕨

C. R. Feng Del. et Lith.

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 epigæous, 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, straminous, 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 uninerved 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 perispore and exospore).

Szechwan: Mt. Omei, *E. H. Wilson 5274.* Shensi: Mt. Huan Ton Shan, *Giraldi.* Also Amur, Japan and southern part of Corea (Quelpært, *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 (× 30). 3. Cross section of stipe (× 30). 4. Pinnæ, showing venation, hairs and position of sori (× 20). 5. Hairs on lamina (× 16). 6. The same from rhizome (× 16). 7. Sporangium with spores (× 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，被紅櫻色之細長鱗毛；葉散生，柄長一·五至五粉，細柔，稻稈色，具紅櫻色之密毛，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，長五至七糎，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櫻色之密睫毛；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蘚苔中，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. 子囊及胞子 (放大一百五十倍)。

PLEUROSORIOPSIS MAKINOI (Maxim.) Fomin

睫　毛　蕨

C. R. Feng Del. et Lith.

PLATE 166

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

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

Neurogramme fraxinea Christ, Farnkr. 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, atro-brown, 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 pinnæ 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 (× 4). 3. Scale from rhizome (× 16).

第一百六十六圖

全緣鳳了蕨（水龍骨科）

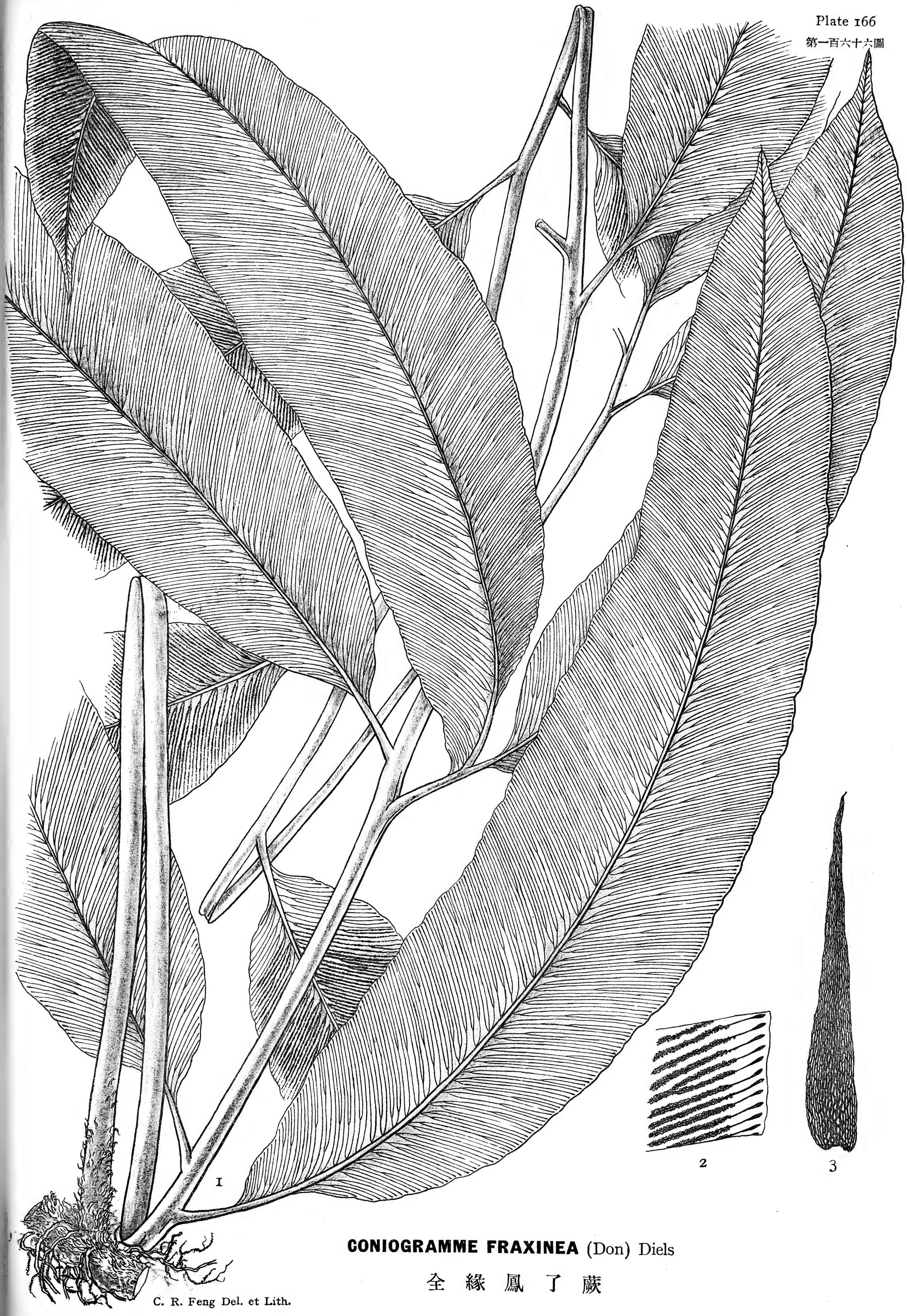
CONIOGRAMME FRAXINEA (Don) Diels

地下莖橫行，粗肥如指，被線狀深樓色之鱗片；葉大散生，柄長達一釈，基部粗達一粉，稻稈色，葉體長達一釈，寬約五十粉，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，長達三十粉，寬六至八粉，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，不爲骨質，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；子囊羣線形，分叉，自中肋幾達於葉邊。

分佈：雲南，印度，爪哇，台灣，菲列濱羣島均產之。

此爲本屬極大之一種，在中國僅產於雲南西部高山，其產於其他各省者，昔人認爲此種，實爲華鳳了蕨 (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.

PLATE 167

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 straminous, 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*), *5043*, August, 1894; February 22, 1889; Maikha-Salween divide, *G. Forrest 18332;* Shweli-Salween divide, *G. Forrest 24628, 27987;* Tchen Fong Shan, *Delavay 5043;* Shang-pa, H. *T. Tsai 58819, 58780,* in. forest. Southeastern Tibet: forest of Doyan Longba, *J. F. Rock 11627.*

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 (× 4). 3. Hairs from under surface (× 40). 4. Scale from rhizome (× 20.) 5. Sporangium (× 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。被深櫻色披針形之密鱗片；葉亞散生，柄長三十至六十粉，光滑無毛，葉體卵狀三角形，長三十至五十粉，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，長十四至二十粉，寬三至四粉，闊披針形，具柄，基部呈楔形，頂爲尾形，頂部一小葉幾等大，同形，基部一對通常二至三裂，柄長達二粉，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；子囊羣線形，自中肋外出，達於葉邊。

分佈： 雲南及喜馬拉亞山產之。

此爲本屬特殊之種，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，端爲長尾形，故易識別。

圖註： 1. 本種全形(自然大)， 2. 小葉之一部，表示葉脈，子囊，鋸齒及被毛之下面(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)。

Plate 167

第一百六十七圖

CONIOGRAMME CAUDATA (Wall.) Ching

毛 葉 鳳 了 蕨

. R. Feng Del. et Lith.

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.).

Gymnogramme 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, sparcely scaly; *scales* light brown, lanceolate, entire; *frond* distant, stipe to 60 cm long, over 0.5 cm thick near base, light straminous, deeply bisulcate above, lamina ample, over 60 cm long, 50 cm broad at base, ovate-deltoid, fully bipinnate under the simple pinnate apical part; *pinnae* 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 (× 4). 3. Scale from rhizome (× 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，淡稻稈色，葉體甚大，長逾六十粉，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，基部爲闊圓截形，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爲單葉，薄紙質，綠色，兩面光滑，葉脈明顯，僅達於鋸齒之基部；子囊羣線形，分叉，自中肋達於葉之半闊。

分佈：雲南，印度東北部及台灣高山產之。

此爲强度二回羽狀分裂之種，其基部小葉具十數對以上之二回對生小葉，葉爲薄紙質，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，表示鋸齒及子囊羣（放大四倍）， 3. 地下莖上之鱗片（放大三十倍）。

Plate 168

第一百六十八圖

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 straminous, 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, wary and generally naked margin; *texture* papyraceous, rather sparcely 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*); Lofau 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 (× 4). 3. Scales from rhizome (× 16). 4. Hairs from the under side of lamina (× 50).

第一百六十九圖

華南蓧蕨（水龍骨科）

OLEANDRA CUMINGII J. Sm.

地上莖橫行，緣石而生，被瓦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，邊緣爲骨質而呈淺波狀，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；子囊羣圓形，爲不規則之一列，蓋爲腎形，櫻色，具短毛。

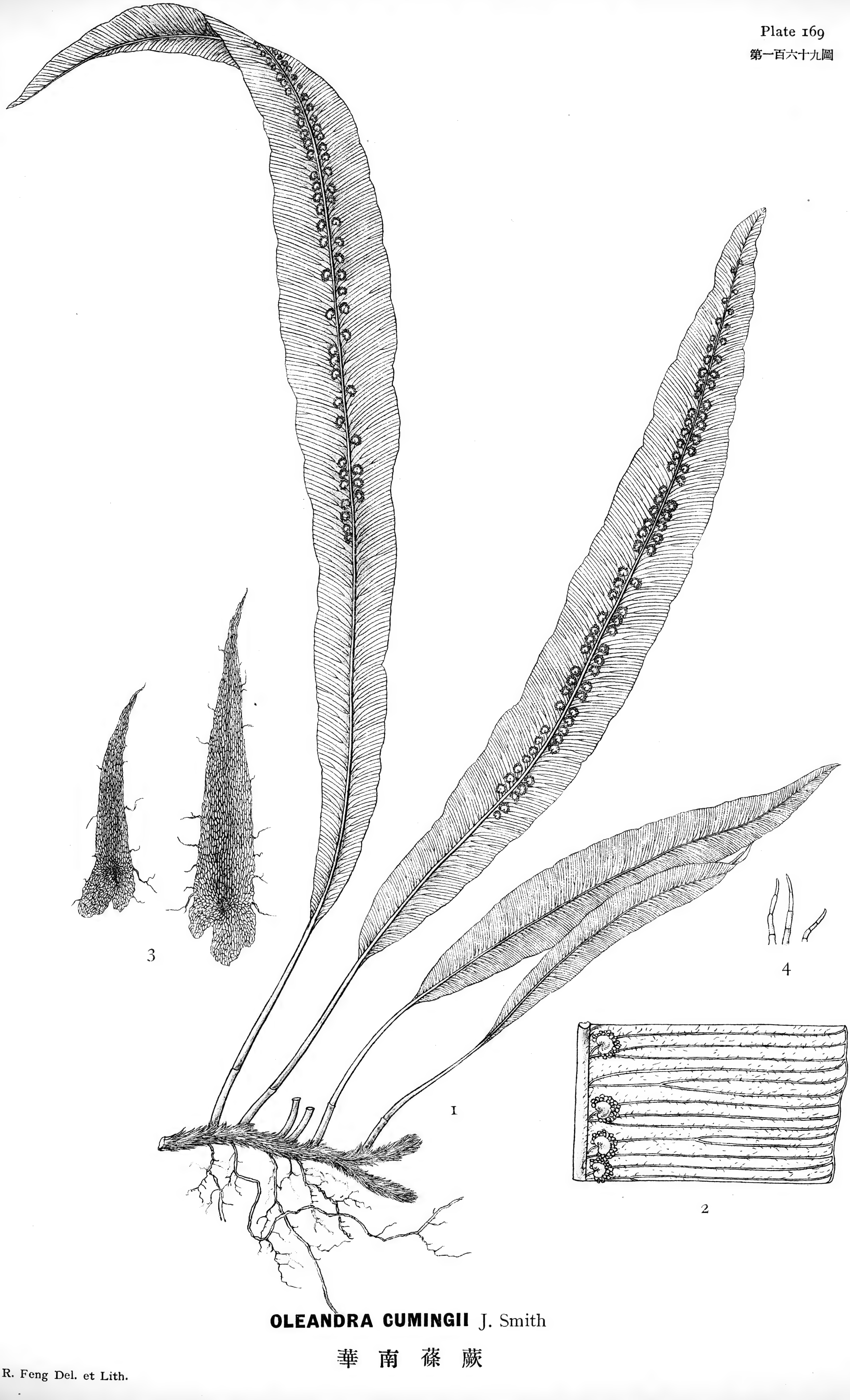
分佈： 廣東，香港，菲列濱羣島及南洋羣島均產之。

本種形體極似高山蓧蕨 (O. Wallichii)，惟其莖上之鱗片，彼此瓦覆，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，子囊羣之位置與被毛之下面，(放大四倍)， 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)。

Plate 169

第一百六十九圖



OLEANDRA CUMINGII J. Smith

華南蓧蕨

C. R. Feng Del. et Lith.

PLATE 170

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 subscarious, densely imbricate; *fronds* subfasciculated, 3-4 together, stipe 1-4 cm long, pale stramnious, 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* chartacaous, green, glabrous on both sides except the costa beneath being sparcely 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.

Kwangsi: Pin Nam, Yao Shan, *S. S. Sin & Whang 300* (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 subfaciculated 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 (× 4). 3. Scale from rhizome (× 16). 4. Scales from under side of costa (× 27). 5. Hairs from the under side of costa (× 50).

第一百七十圖

猺山蓧蕨(水龍骨科)

OLEANDRA WHANGII Ching

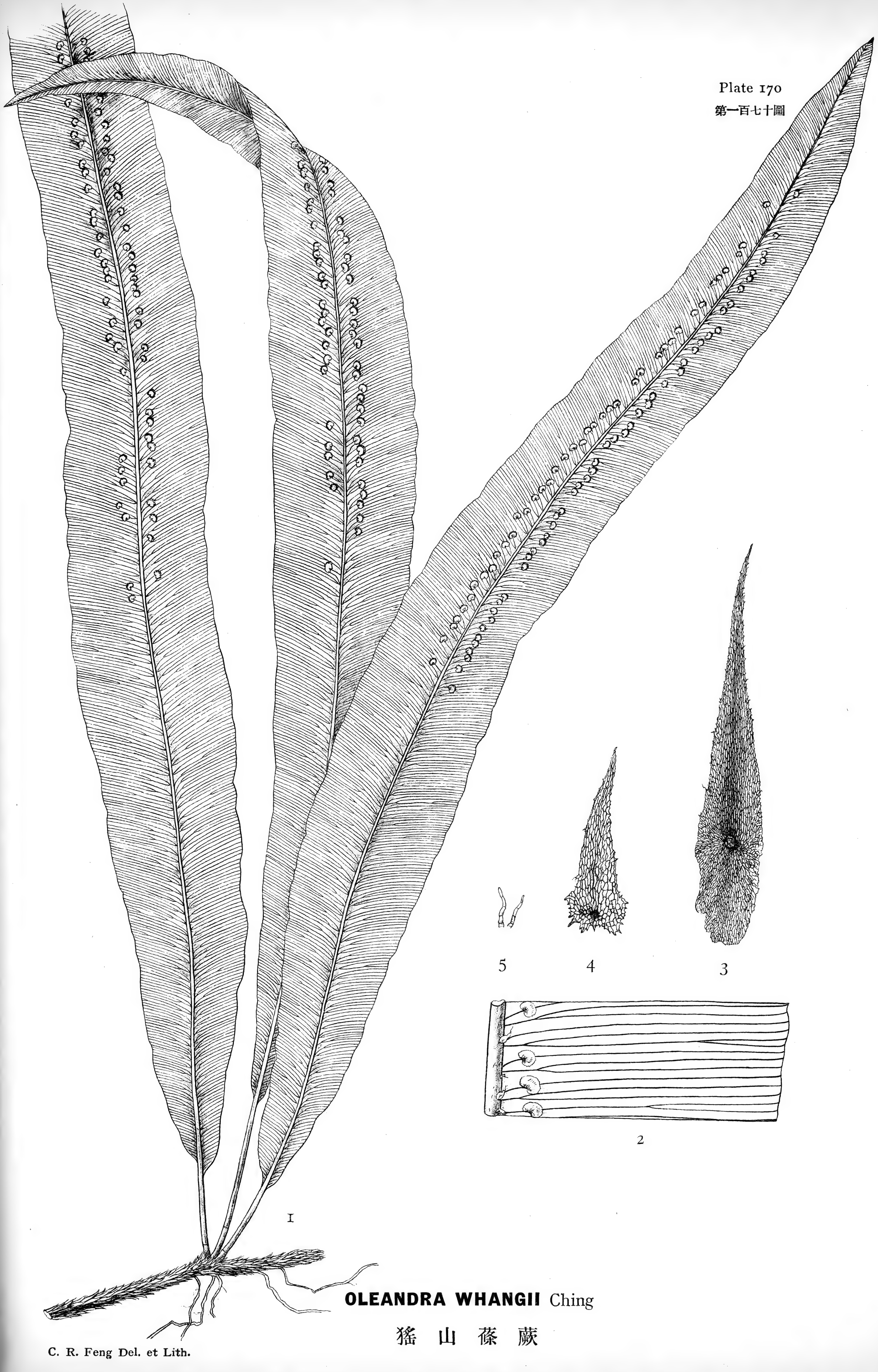
本種形體頗似一百六十九圖，惟其葉爲簇生，兩面光滑無毛，(或中肋下面略具一二細毛)，葉邊幾呈平行，子囊羣較大，距中肋較遠，蓋無毛，故易分別。

分佈： 僅產於廣西平南縣之猺山。

圖註： 1. 本種全形(自然大)， 2. 葉體之一部，表示葉脈及子囊羣之位置(放大四倍)， 3. 地上莖上之鱗片(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)。

Plate 170

第一百七十圖



C. R. Feng Del. et Lith.

OLEANDRA WHANGII Ching

猺山蓧蕨

PLATE 171

OLEANDRA UNDULATA (Willd.) Ching

POLYPODIACEÆ

OLEANDRA UNDULATA (Will.) 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 sparcely villose-fimbriate; *frond* 1-3 cm apart, stipe 13-20 cm long, dark straminous, 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); *Helfer, Meebold, 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 (×4). 3. Scale from rhizome (× 16). 4. Hairs from under side of lamina (× 50). 5. Cross section of rhizome, showing the arrangement of steles (× 10).

第一百七十一圖

長柄蓧蕨(水龍骨科)

OLEANDRA UNDULATA (Willd.) Ching

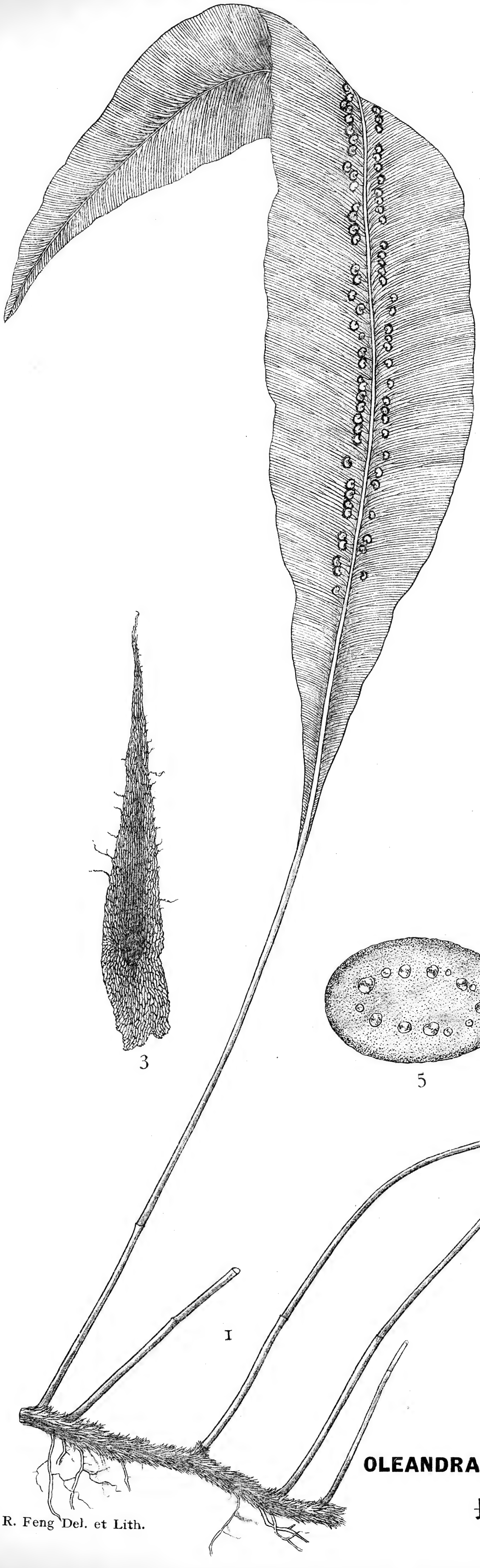
本種形體，亦如第一百六十九圖，惟葉柄甚長，其肢節位於基部三至六枡之處，葉體較濶，其最濶處在中下部，基部呈楔形或稍下延，邊緣呈波狀反捲，葉質亦較厚，故易識別。

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)。

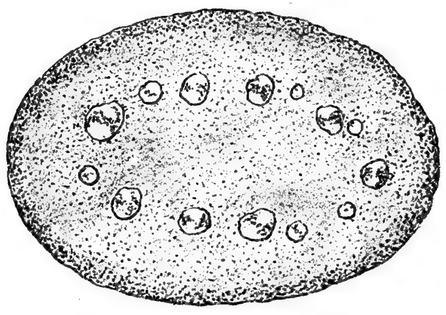
Plate 171

第一百七十一圖

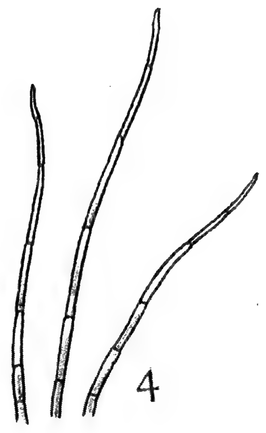


1

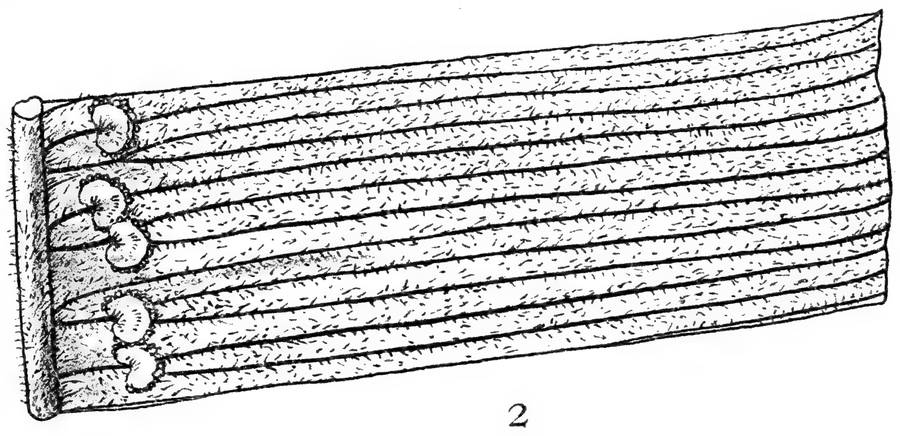
3



5



4



2

C. R. Feng Del. et Lith.

OLEANDRA UNDULATA (Willd.) Ching

長 柄 蓧 蕨

PLATE 172

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* Chrisr, 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. Gethob. **1:** 42, 55 (1924).

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

Dryopteris continentalis Petrov, Fl. Jakutiæ 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 straminous, sparcely 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 Northwestern 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. Robertianaum* (Hoffm.) Newman of northern Europe and North America, differs, above all, in leaves being eglandular, or sometimes only rachis near the articulated inseration of pinnae being sparingly and shortly glandular.

Plate 172. Fig. 1. Habit sketch (natural size). 2. Ultimate pinnule, showing venation and position of sori (× 8.) 3. Portion of rachis, showing the articulation of the base of pinnae (× 6). 4. Scale from rhizome (× 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，僅端部被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，淡稻稈色，基部被稀疏鱗片，餘皆光滑，葉體三角形，長十至十八粉，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，亞全緣或羽狀深裂；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腺，葉脈勻細而明顯，分叉或羽狀分裂；子囊羣圓或橢圓形，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. 小葉與葉柄節狀着生之情形 (放大六倍)　　4. 根上之鱗片 (放大十倍)。

Plate 172

第一百七十二圖

GYMNOCARPIUM REMOTI-PINNATUM (Hayata) Ching

C. R. Feng Del. et Lith.

肢　節　蕨

PLATE 173

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* cæspitose, several together, stipe wiry, slender, green, naked, 2-4 cm long, lamina linear-lanceolate, 4-6 cm long, about 1 cm broad, bipinnatfid, often with prolongated 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 pinnæ from base upwards, showing shape, pinnation, venation and sori (× 10). 3. Scale from rhizome (× 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，鬚根叢生；端被深棕色之卵狀披針形鱗片；葉簇生，柄長二至四粉，細如銅絲，綠色光滑，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，對生或亞對生，幾不具柄，闊卵形，長約五糎，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；子囊羣短線形，生於上部之裂片者向中肋開，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，惟形體較爲細長，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，葉脈及子囊羣 (放大十倍)， 3. 莖上之鱗片 (放大二十七倍)。

ASPLENIUM FUGAX Christ

陰地鐵角蕨

C. R. Feng Del. et Lith.

PLATE 174

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

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

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

Rhizome short, erect, densely radicose 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 prolongated 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 pinnæ, 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, 13603; Hancock 56* (1893); Pu-seh Cliff, *Henry 13392;* Chungtien Plateau. *Forrest 13043;* Mekong, *Forrest 15279A;* Kin-tchong 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 660* (pro parte); Kiang-long, *Michel 992; Cavalerie,* Jan. 1910; without locality, *Esquirol 799.*

Tibet: Muti, *Capt. Kingdom Ward 4327.*

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 prolongated 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 prolongated 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 prolongated 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 pinnæ (× 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，密被狹鱗片，葉體爲線狀披針形，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 ， 長五糎至二·五粉，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；子囊羣形長，蓋爲膜質，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，印度南部及菲列濱羣島均產之。

本種分佈甚廣，形體大小變異極大，異名疊出，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)。

ASPLENIUM EXIGUUM Beddome

低 頭 鐵 角 蕨

C. R. Feng Del. et Lith.

PLATE 175

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. Sic. 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 radicose, sparcely scaly; *scales* lanceolate, brown, fimbriate; *fronds* caespitose, stipe 20-24 cm long, pale straminous, herbaceous, sparcely scaly, with rachis compressed upon drying, lamina ovate-oblong, 17-24 cm long, 7-14 cm broad, impari-pinnate (sometimes simple and lanceolate); *pinnae* 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 8406, 8554; 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

地下莖頗粗肥，短而直立，被披針形之櫻色疏鱗片；葉簇生，柄長二十餘粉，淡稻稈色，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（間爲披針形之單葉）；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，惟基部及端爲全緣，輭紙質，淡綠色，下面鱗片疏生，側脈明顯，分叉，斜出，不達於葉邊；子囊羣直線形，長約六糎，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爲普通，其形體極似印度南部產之 A. Wightianum Wall., 惟小葉數較少較狹，基部爲亞等邊，頂部全緣，缺刻形之鋸齒疏生，故易分別。

圖註： 1. 本種全形（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）。

Plate 175

第一百七十五圖

ASPLENIUM LORICEUM Christ

南海鐵角蕨

C. R. Feng Del. et Lith.

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

Rhizome short, erect, densely radicose, sparcely 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 eroso-dentate; *texture* thin herbaceous, light green, glabrous on both sides; *veins* flabellulately 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 pinnæ, or of pinnule.

Kweichow: Tsin-gay, *Bodinier 2094* (type); Tchen-fau, *Esquirol 801, 1017, 707;* Hoang-Ko-Chou, *Bodinier 2557;* Long-Ka, *Cavalerie 3773* (type of *A. longkaense*).

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 pinnæ, showing venation, and sori (× 3). 4. Scale from base of stipe (× 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，光綠無毛，葉脈扇狀分叉，每鋸齒一脈，惟不達於尖端；子囊羣直線形，或稍呈弧形，長五粍，蓋膜質，全緣。

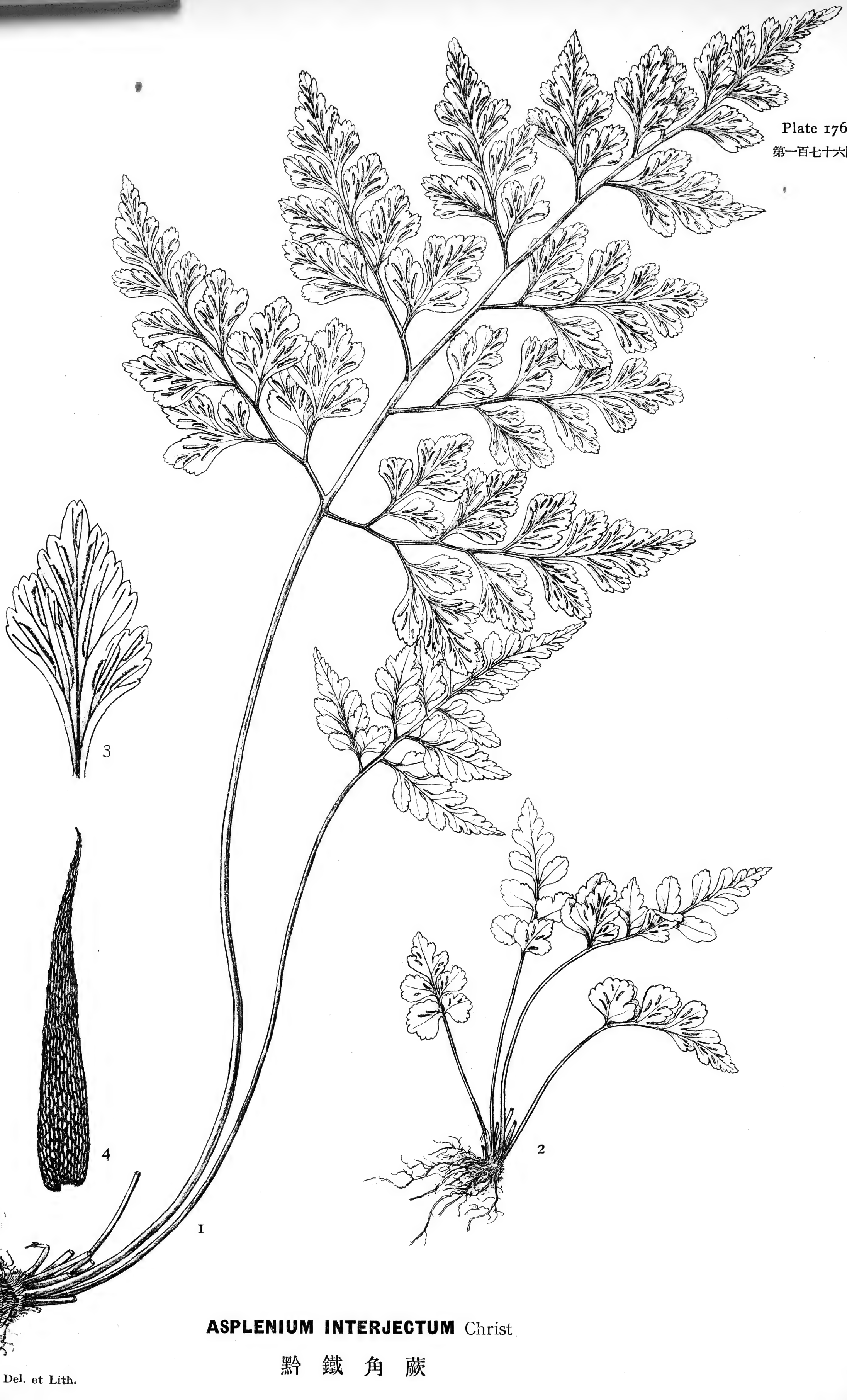
分佈： 貴州原產；頃發現於交趾。

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，表示葉脈及子囊羣（放大三倍）， 4. 葉柄基部之鱗片（放大二十七倍）。

Plate 176

第一百七十六圖



ASPLENIUM INTERJECTUM Christ

黔 鐵 角 蕨

C. R. Feng Del. et Lith.

PLATE 177

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, straminous, 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; *pinnae* 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, perdendicular 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 uninerved soriferous *lobes; texture* herbaceous, pale green or brownish, glabrous beneath except base of pinnae 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 cucculate at base; *spores* broadly winded.

Yunnan: Between Tengyueh and Burmese border, *J. F. Rock 7353.* Kwei-chow, Pin-fa, *Cavalerie 2857;* 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 rigider consistancy.

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 Davallioid 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 (× 3). 3. Ultimate pinnule, showing venation, position of sori and manner of indusial attachment (× 10). 4. Scale detached from the base of pinnule of each order (× 16). 5. Hairs from the opper side of rachilet (× 76). 6. Hairs from the upper side of pinna (× 76). 7. Scale from base of stipe (× 10).

第一百七十七圖

擬鱗毛蕨(水龍骨科)

ACROPHORUS STIPELLATUS (Wall.) Moore

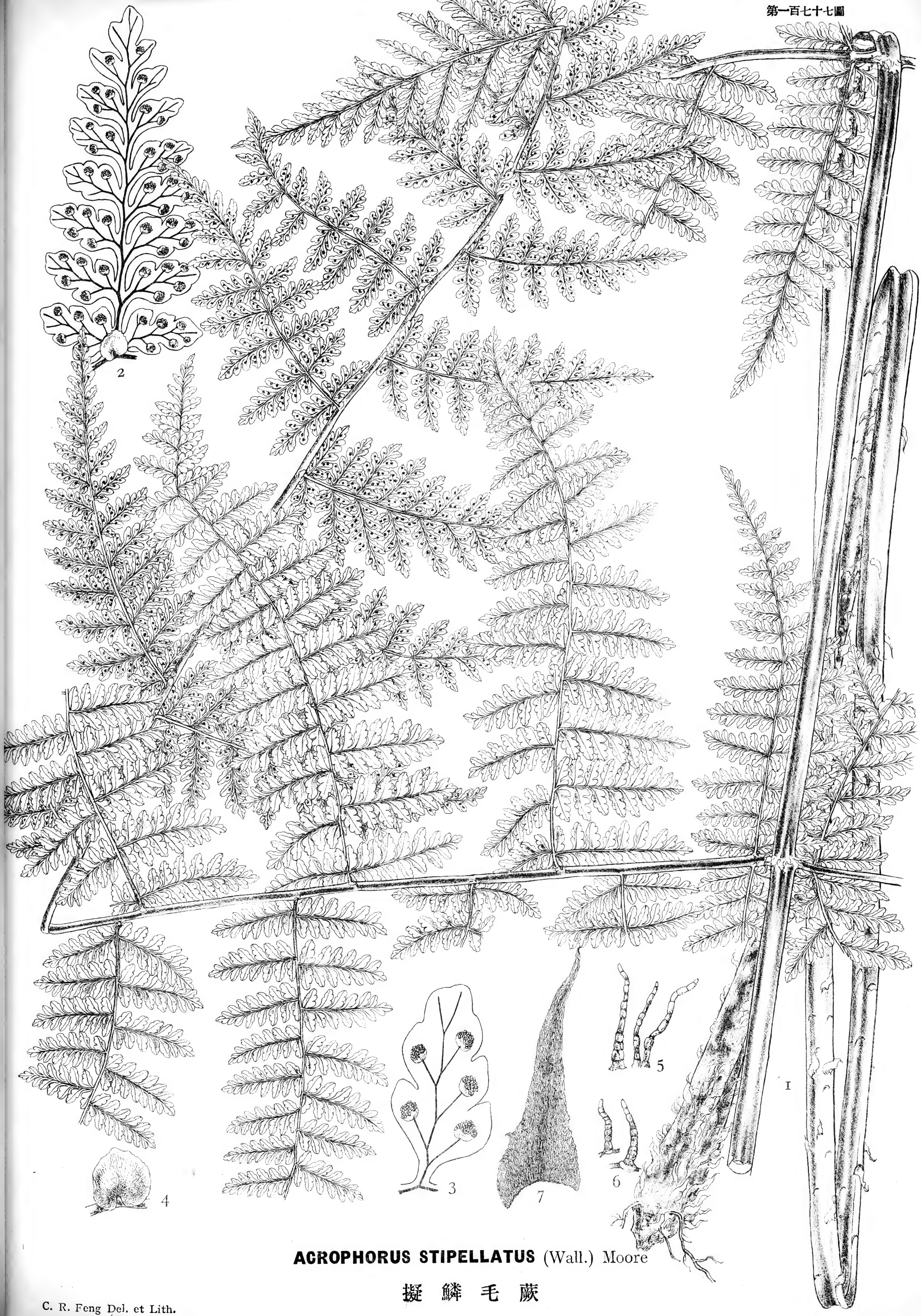
地下莖木質，粗肥，斜出或臥生，被亮棕色之卵狀大鱗片，長達一分；葉簇生，柄長三十至四十五粉，基部粗達一粉，下部粗糙並具鱗片，稻稈色，光亮，葉體大卵形，長達七十粉，寬亦如之，漸尖頭，四回羽狀分裂；一回小葉約十對，對生，開展，無柄，下部數對相距約十二粉，基部一對最大，長達四十粉，寬約三十粉，卵形，漸尖頭，中軸向上彎曲；二回小葉約十對，無柄，開展，基部一對對生，且甚短，緊靠二回小葉之中軸，第二對長達三至五粉，寬約一·二粉；末回小葉六至九對，橢圓卵形，頂圓　基部楔形，羽狀深裂，裂片一至三對，圓形　具稜角，具小脈一數，紙質，光滑，惟各回之基部着生處具一二心臟形之膜質大鱗片；子囊群小，圓形，每裂片一個，生於小脈之頂，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，子囊羣位置及基部下面着生之鱗片（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. 葉上面之刺狀毛及其着生情形（放大七十六倍），　7. 葉柄基部之鱗片（放大十倍）。

Plate 177

第一百七十七圖



ACROPHORUS STIPELLATUS (Wall.) Moore

擬 鱗 毛 蕨

C. R. Feng Del. et Lith.

PLATE 178

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* Bedd. 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 *Lastrda odontoloma* Moore, 1858), Syn. Fil. ed. 2, 498 (1874), pro parte; Bedd. Ferns Brit. Ind. Suppl. t. 373 (1876).

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

Lastrea odontoloma Bedd. (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 14 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; *pinnae* 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 pinnae 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. Pinnæ, showing venation and position of sori (× 5). 3. Indusium (× 20). 4. Scale from base of stipe (× 16).

第一百七十八圖

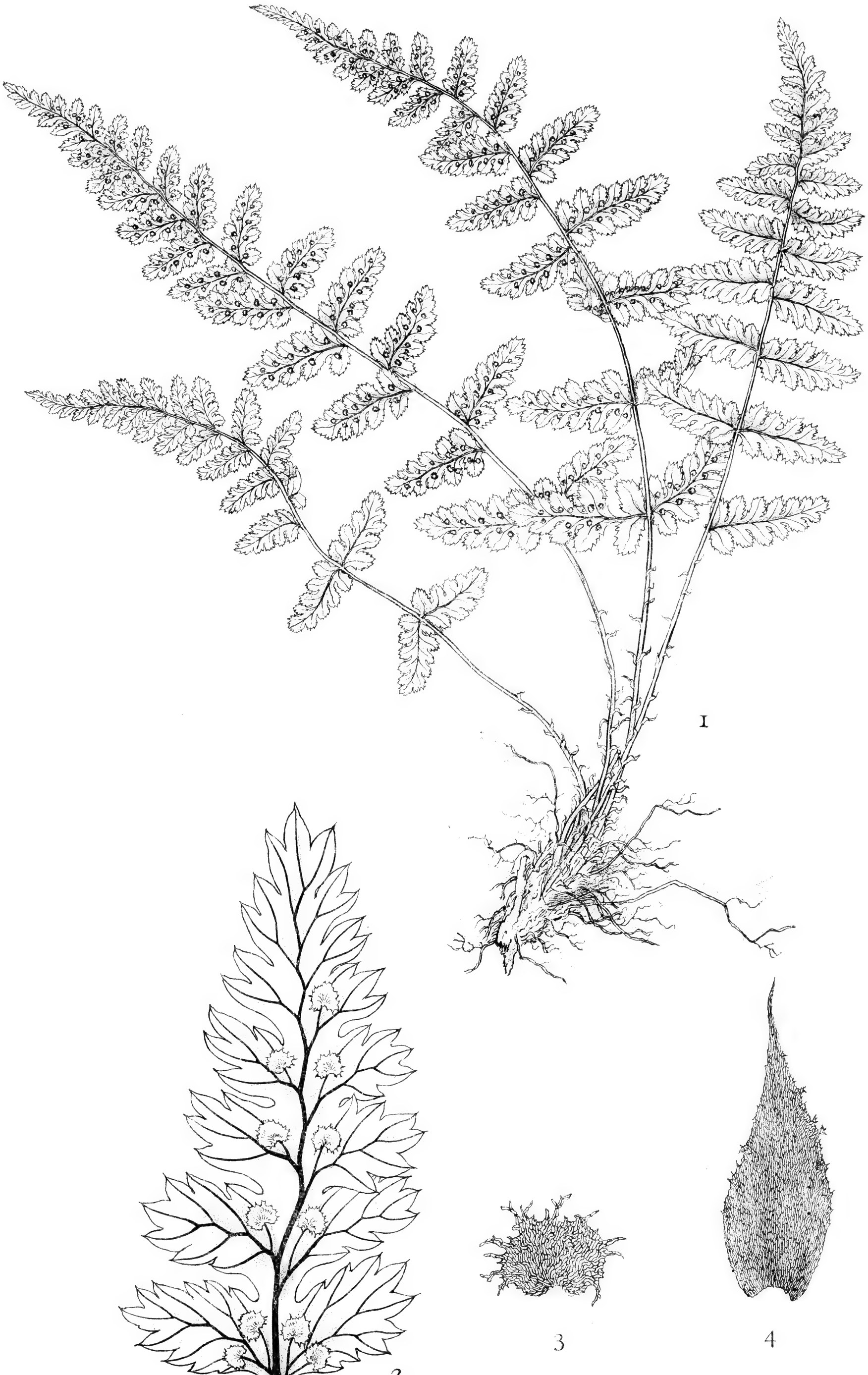
高山鱗毛蕨(水龍骨科)

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，柄長達十四粉，深稻稈色，略具鱗片，葉體長達二十粉，寬八粉，橢圓披針形，漸尖頭，基部截形，不甚狹縮，亞二回羽狀分裂；一回小葉六至十對，開展，具短柄，橢圓披針形，漸尖頭，長達四粉，寬二粉，基部呈截形，略爲心臟形，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，長約一粉，寬六糎，羽狀深裂，裂片三至四對，圓形，具開展之銳鋸齒，紙質，光滑，惟中軸及中肋略具細長鱗片，葉脈明顯，羽狀分叉；子囊羣小，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，表示葉脈及子囊羣之位置（放大五倍）， 3. 子囊羣蓋（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

C. R. Feng Del. et Lith.

PLATE 179

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 subdecipiens Hayata, Ic. Pl. Form. **3:** 181 f. 119 (1914); C. Chr. Ind. Fil. Suppl. II. 17 (1913-16).

Rhizome short, thick, erect, densely scaly; *scales* black, large, lanceolate, hair-pointed, entire; *fronds* cæspitose, stipe 25-35 cm long, straminous, 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 rotundo-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 4249;* Sihfeng, *Y. Tsiang 8727;* Chenfeng, *Y. Tsiang 4249;* 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 31217;* Yao Shan, *S. P. Ko 51967, N. K. Chun 42823. 42435.* Kwangsi: Ping-nam, Yao-shan, *S. S. Sin 442B.*

Formosa: *Faurie 401.*

Tonkin: Chapa, *A. Petélot 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 localites 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 pinnæ with crenato-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 (× 5). 3. Scale from base of stipe (× 16). 4. The same from upper part of stipe (× 16). 5. Cross section of rhizome, showing arrangment of steles (× 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粉，稻稈色，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，長二十五至三十五粉，寬十五至二十粉，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，長十至十五粉，寬一·五至二粉，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；子囊羣圓形，爲不規則之二至三列，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。

此種在以上各地極爲普通，其形體極類 D. hirtipes, 惟子囊羣無蓋，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，表示葉脈及子囊羣之位置（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）。

Plate 179

第一百七十九圖

DRYOPTERIS SCOTTII (Bedd.) Ching

史 氏 鱗 毛 蕨

C. R. Feng Del. et Lith.

PLATE 180

DRYOPTERIS LIANKWANGENSIS Ching

POLYPODIACEÆ

DRYOPTERIS LIANKWANGENSIS Ching, sp. nov.

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

Rhizome thick, woody, erect or procumbent; *fronds* cæspitose, 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; *pinnae* 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, incisely crenato-serrate with large roundish teeth; *texture* herbaceous, green, rachis densely scaly with similar but smaller scales as those on stipe, glabrous above, fibrillosely 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.

Kwangsi: 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 (× 3). 3. Scales from stipe (× 10). 4. The same from costa beneath (× 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，被紅櫻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，頂部爲短三角形，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，基部爲斜截形，幾無柄，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，子囊群較小，圓形，爲不規則之二至三列，無蓋，沿中肋兩側分佈。

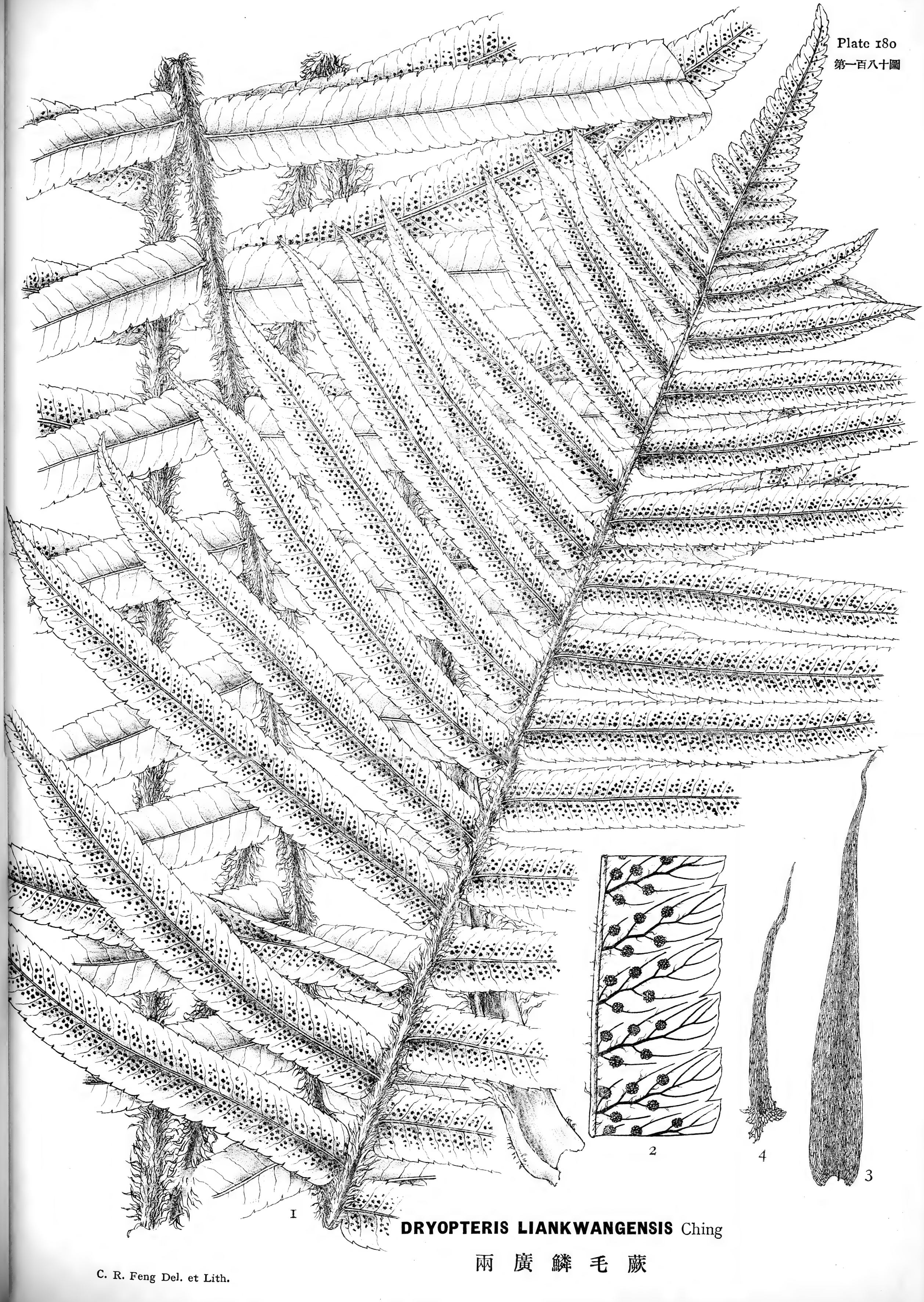
分佈： 廣西羅城縣三防鎮西二十里之九萬山及廣東信宜縣產之。

本新種爲本屬特殊之種，其異於前種者，爲其形體特大，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，表示葉脈及子囊羣（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）。

Plate 180

第一百八十圖



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DRYOPTERIS LIANKWANGENSIS Ching

兩 廣 鱗 毛 蕨

C. R. Feng Del. et Lith.

PLATE 181

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 Championi Benth. Fl. Hongk. 456 (1861).
Polypodium rheosorum Baker (non 1884), Ann. Bot. **5:** 457 (1891).
Nephrodium rheosorum Hand-Mzt. 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, membranceous, fimbriate, mixed with smaller linear ones; *fronds* caespitose, stipe 20-35 cm long, stout, rufo-straminous, 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 auriculately 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. Matthew*, June 1, 1904; Tai Ho, *Schindler 254;* Chang Cho, Yü Shan, *J. R. Chu 8024;* I-shing, Lung Chi Shan, *R. C. Ching & C. L. Tso 497;* ibid., *Y. L. Keng 2389;* Nanking, Tsehsia Shan, *Nos. 32, 37 69* ex Herb. Metrop. Mus. Nat. Hist. Chekiang: Ningpo, *Forbes 531; Staunnton; C. G. Matthew 142; Everard* (1874); Sia Kan, Fen Chiao. *R. C. Ching 3696;* Hangchow, Ling-yin Tze; *R. C. Ching 3801; T. F. Yü 9630;* Yan-tan Shan, *C. Y. Chiao 14757;* Tien-mo Shan, *K. K. Tsoong 455.* Fokien: Amoy, *Gerlach 5509* ex Herb. Warburg; Sam Sa Inlet, *Matthew*, Oct. 5, 1907: *Grijis 10150* in Herb. Hance; Chuan Chow, *H. H. Chung 3088;* Yengping, *H. H. Chung 3522; T. S. Dunn 3874;* Foo-chow, Ku-shan, *T. S. Ging 5865, 5335.* Kiangsi: Kiukiang, Lu-shan, *Forbes 1078* (1874); *Schindler 377* (1908); *Miss Reid 6; Maires; Staunton, Dr. Shearer; C. E. DeVol 124, 119, 120; R. C. Ching;* Lienchu Shan, Singping, Lingchuan, *Y. Tsiang 9944.* Hupeh: Ichang, Nanto, *A. Henry 257* (1881). Kweichow: Pingchow, *Esquirol 3607; Cavalerie 3771, 7307;* Pin-fa, *Cavalerie 1060;* Tsin-gay, *Cavalerie 1238, 452;* Kwei-yang, *Bodinier 1184;* Gan-pin, *Martin 2029;* Van-chin Shan, *Y. Tsiang 7807;* Tuh-shan, *Y. Tsiang 6619;* Yuyun, *Y. Tsiang 5596.* Szechwan: Mt. Oemi, *W. P. Fang 3080.* Anwhei: Yü-ting, Lan-tien Hsien, *K. K. Tsoong 4520, 4820;* Chu Hwa Shan, *R. C. Ching 8411;* Hwang Shan, *A. N. Steward 7148,* Kwangtung: Canton, Honam Island, *E. D. Merrill 10085; Y. Tsiang 2029;* Lohfau Shan, *C. O. Levine 1495,* North River, *Tutcher 10767, 5112; C. L. Tso 20420;* Lokcong, *N. K. Chun 42362; Y. K. Wang 31649; Hance 8275; Staunton;* Macao, *Gaudichaud.*

Hongkong: *Champion* (type); *Urquahart* 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 auriculately broadened base and thicker texture.

Plate 181. Fig. 1. Habit sketch (natural size). 2. Sorus with indusium (× 40). 3. Scale from stipe (× 16). 4. Scale from rachilet (× 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，具紅黃色之闊披針形膜質大鱗片，長達一粉；葉簇生，柄長二十至三十五粉，粗强，棕稻稈色，紅黃色之大鱗片密生，質粗糙，葉體橢圓卵形，長三十五至六十粉，寬十七至二十五粉，或過之，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，寬五至十糎，橢圓卵形，亞對生，無柄，鈍頭，基部兩側耳形膨大。幾等長，亞全緣或具鈍鋸齒或爲羽狀深裂，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。

此爲我國温暖各省習見之蕨種，昔人常誤爲 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側呈耳形凸起，頗易識別。

圖註： 1. 本種全形(自然大)， 2. 小葉，表示葉脈及子囊羣與鋸齒 (放大八倍)， 3. 子囊羣蓋(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)。

Plate 181

第一百八十一圖

DRYOPTERIS CHAMPIONI (Benth.) C. Christensen

張 氏 鱗 毛 蕨

C. R. Feng Del. et Lith.

PLATE 182

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* cæspitose, stipe 16-30 cm long, straminous, or rufo-brown on the lower part, nitente, sparcely 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; *pinnae* 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, 51643* (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 (× 2). 3-1. Scales from stipe (× 16). 5. The same from costa beneath (× 16). 6. Indusium (× 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，柄長十六至三十粉，稻稈色，或下部呈紅褐色，光亮，被大卵形之亮栗褐色鱗片，葉體精圓形，長二十五至三十五粉，寬十至十四粉，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，長六至八粉，寬一·五粉，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，下方爲楔形，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；子囊羣小，圓形，不規則二列，生於小脈上，蓋小，圓形，早落。

分佈： 此爲雲南特產。

本新種爲本屬特殊之種，其形體極似貫衆屬之 Cyrtomium Balansæ, 然其葉脈不爲網狀，故易區別。

圖註： 1. 本種全形（自然大)， 2. 小葉，表示葉脈及子囊羣（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. 子囊羣蓋（放大二十倍)。

Plate 182

第一百八十二圖

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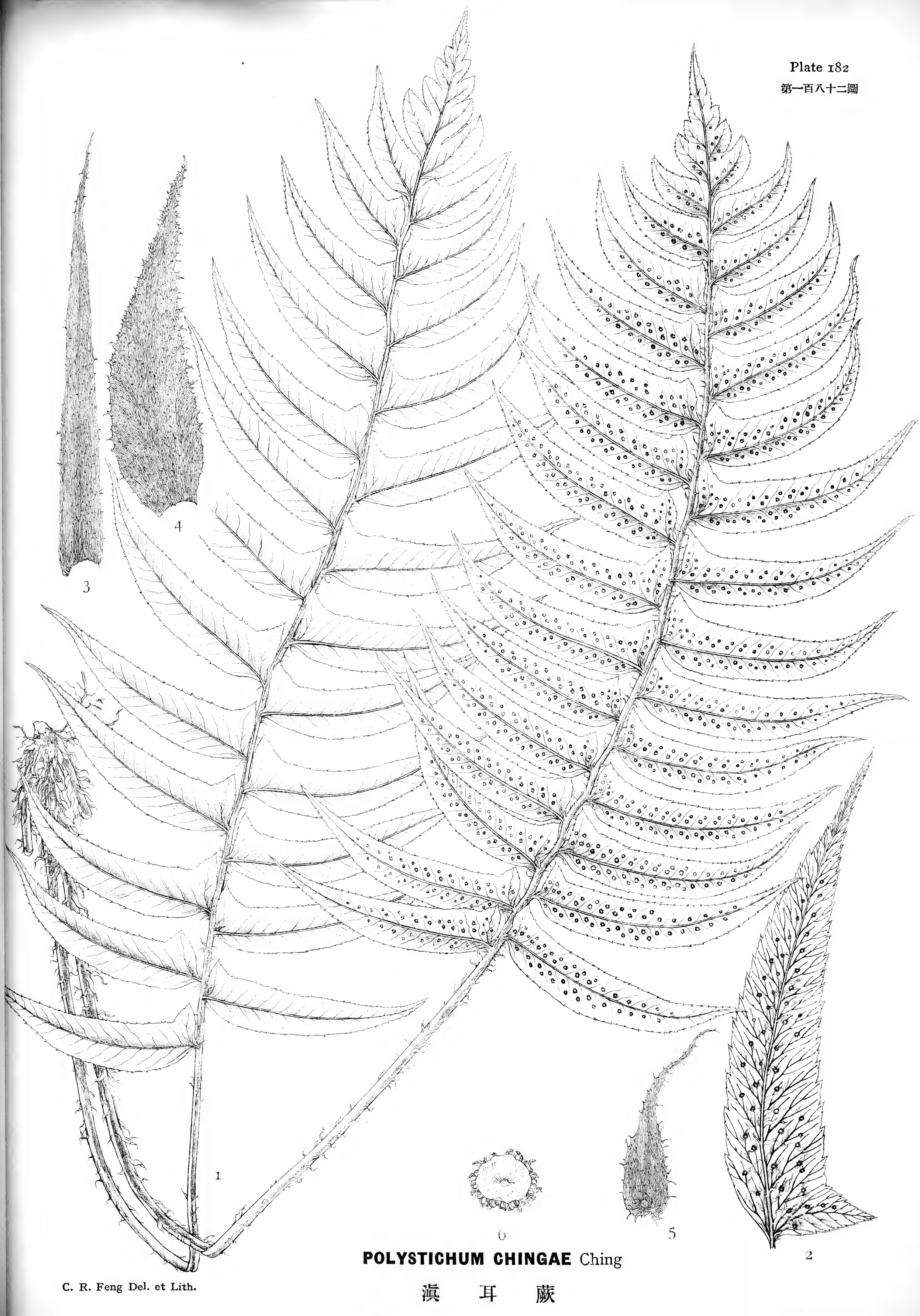

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POLYSTICHUM CHINGAE Ching

滇　耳　蕨

C. R. Feng Del. et Lith.

PLATE 183

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 falcatum 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* cæspitose, stipe 15-25 cm long, sordid brown, densely scaly on the lower part, sparcely 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, sparcely fibrillose-scaly on rachis, petiole and costa beneath, color brownish when dried; lateral *veins* subconspicuous, flexuose, areolæ generally with 2 included soriferous veinlets; *sori* rounded, scattered, *indusium* rounded, brown, coriaceous.

Yunnan: Mengtze, *Hancock 8* (type), *25*, *130*, in a deep dark glen, very rare; Szemeo, *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 pinnæ with equal and exauriculate base, which varies from cuneate to subrounded.

Plate 183. Fig. 1. Habit sketch (natural size). 2. Sorus with indusium (× 16). 3. Spores (× 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，亞對生或互生，闊披針形，具短柄，向頂部尖長，基部爲等楔形，或亞圓形，葉緣具小尖鋸齒，頂部一小葉較大，具長柄，通常爲三裂，紙質，側脈隱約可見，屈折，小脈網狀，網眼爲多角形，斜出，中有二數外出之着生子囊羣之單脈；子囊羣圓形，散生，蓋圓形，革質。

分佈： 雲南特產。

本種形體極類刺葉貫衆 (C. Caryotideum), 惟小葉爲披針形，基部上方不爲耳形凸出，故易識別。

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

Plate 183

第一百八十三圖

CYRTOMIUM AEQUIBASIS (C. Chr.) Ching

濱　貫　衆

C. R. Feng Del. et Lith.

PLATE 184

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. Gotheb. **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. Tokie **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 radicose and scaly; *scales* large, fusco-brown or nearly black, shining, ovate, acuminate, densely fimbriate, extending, when young, over the whole length of stipe; *fronds* cæspitose, stipe 16-20 cm long, dark straminous, densely scaly near the base, lamina oblong, 20-35 cm long, 13-16 cm broad, pinnate with a large, hastate, cuneate terminal pinna; pinnæ 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 areoale each with 2-3 (only 1 in the costal areolae) excurrent soriferous included veinlets after the goniophlebioid 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 26341;* Guon-Kay, *Delavay 1724, Sept. 1885; Ta-ton* 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, 4937;* 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 pinnæ 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 (× 1.5). 4. Sorus with nearly entire indusium (× 16). 5. Scale from base of stipe (× 8). 6. Cross section of basal part of stipe (× 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，葉體橢圓形，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，略呈鐮形，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，邊緣爲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，小脈網狀，網眼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)。

Plate 184

第一百八十四圖

CYRTOMIUM MUTICUM (Christ) Ching

大 葉 貫 衆

C. R. Feng Del. et Lith.

PLATE 185

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).
Acrostichum decurrens Hk. Sp. Fil. **5:** 274 (1864); Syn. Fil. ed. 2, 118, (1874); Dunn & Tutcher, 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 hainanenae 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* cæspitose; 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 pinnæ 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 transverse ones, intervening veinlets copiously anastomosing in several rows of large angular areolæ with divaricate clavate veinlets; *fertile fronds* with stipe to 40 cm long, lamina conform but smaller with contracted decurrent pinnæ to 10 cm long, 2 cm broad, areolæ 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 316; 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 1949* (type of *Tectaris dictyosora* Cop.); Kochow, *Y. Tsiang 2752* (type of *H. distinctipetiolata* Ching); Swatow, Thai-yong, *Dalziel;* Tei-loy, *Matthew*, Nov. 25, 1907; Ting Wu Shan, *S. P. Ko 50544; 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; Jutsugetsutan 370*, 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 pinnæ, 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 (× 4). 3. Portion of fertile frond, showing venation and position of sori (× 4). 4. Scales from base of stipe (× 8). 5. Cross section of rhizome, showing arrangement of steles (× 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，被線狀深櫻色厚質鱗片，長達一粉；葉簇生，二形，不生子囊羣葉之柄爲紅櫻色，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，(間爲單葉)；小葉一至二對，對生，闊披針形，基部下延或否，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，乾則變爲櫻綠色，兩面光滑，側脈明顯，小脈網狀，網眼內具分叉或簡單小脈；生子囊羣葉之柄較長，葉體羽狀分裂(或爲單葉)，小葉收縮，長僅十粉，寬二粉，下面子囊滿佈，僅中肋可見。

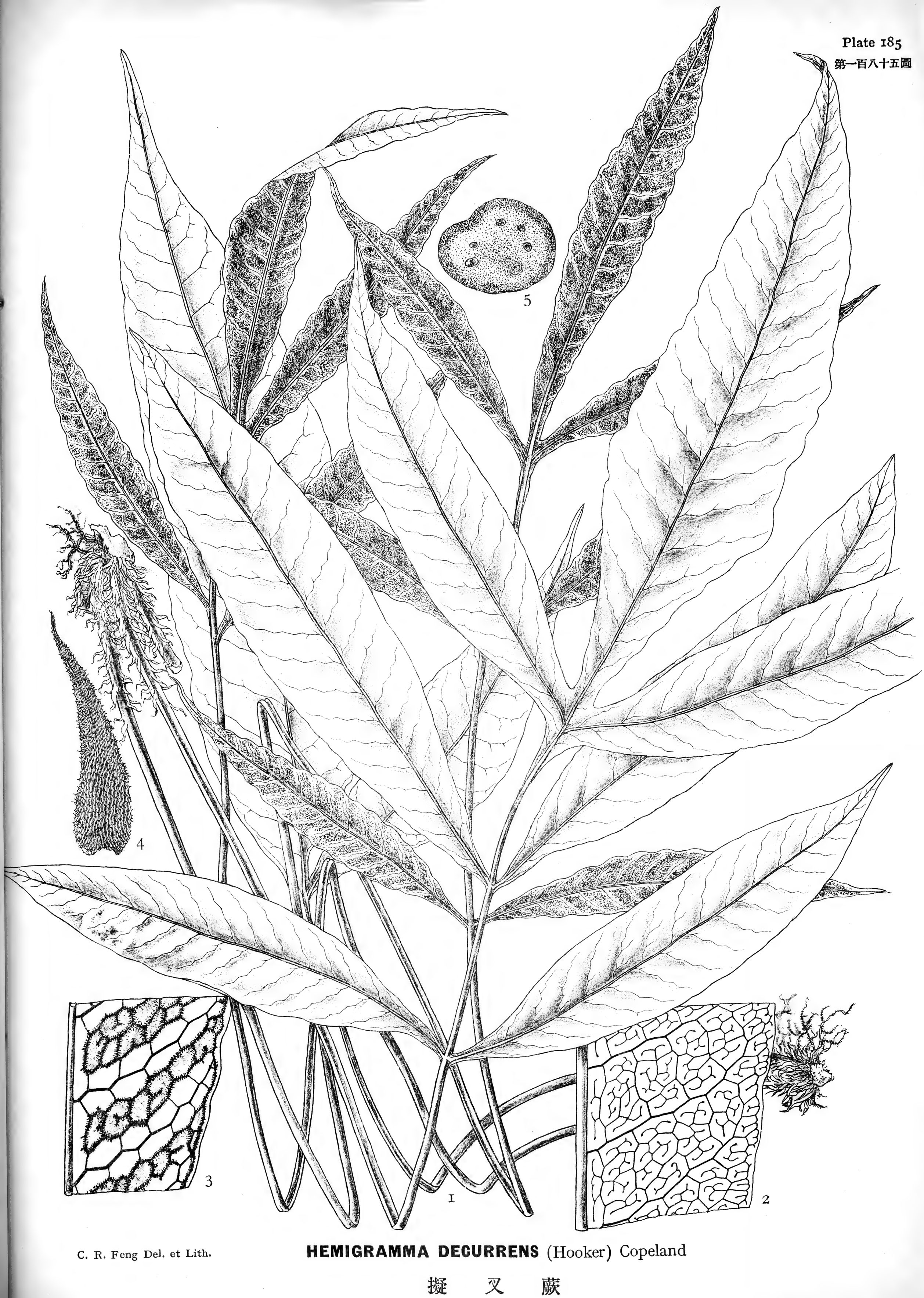
分佈： 香港，廣東，瓊州島，台灣，交趾均產之。

本屬在亞洲大陸僅此一種，其形體頗似叉蕨，惟葉爲二形，子囊不成羣，惟散佈於葉之下面，且無蓋。

圖註： 1. 本種全形 (自然大)， 2. 不生子囊羣葉之一部，表示葉脈 (放大四倍)， 3. 生子囊羣葉之一部，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)。

Plate 185

第一百八十五圖



C. R. Feng Del. et Lith.

HEMIGRAMMA DECURRENS (Hooker) Copeland

擬　叉　蕨

PLATE 186

LEUCOSTEGIA IMMERSA (Wallich) Presl

POLYPODIACEÆ

LEUCOSTEGIA IMMERSA (Wallich) Presl, Tent. Pterid. 95 t. 4, f. 11 (1836); Hk. Gen. Fil. t. 52A (1840); J. Sm. Hist. Fil. 84 (1875); Bedd. Handb. Ferns Brit. Ind. 51 (1883); Cop. Phil. Journ. Sci. **34:** 240, 252 (1927); C. Chr. Contr. U. S. Nat. Herb. **26:** 293, 331 (1931); Ind. Fil. Suppl, III. 120 (1934).

Davallia immersa Wallich, List no. 256 (1828, nom. nud.); Hk. Sp. Fil. **1:** 156 (1846); Fil. Exot. t. 79 (1858); Hk. et Bak. Syn. Fil. 91 (1865); Clarke, Trans. Linn. Soc. II. Bot. **1;** 443 (1880); Christ, Farnkr. d. Erde 302 (1897); C. Chr. Ind. Fil. 211 (1905).

Acrophorus immersus Moore, Proc. Linn. Soc. **2:** 286 (1854); Ind. Fil. 2 (1857); Bedd. Ferns S. Ind. t. 11 (1863).

Humata immersa Mett. Fil. Hort. Lips. 102 (1856); Diels in Engl. u. Prantl; Nat. Pflanzenfam. **1:** 4, 209 (1899).

Rhizome thick, woody, wide-creeping, hypogæous (subterraneous); *scales* linear-lanceolate, thin, rusty brown, sparce or rather copious at growing tip or base of stipe; *frond* far apart, stipe 20-35 cm long, firm, erect, dark-straminous or pale colored, smooth, nitente, glabrous from base upwards, lamina deltoid-ovate, acuminate, 25-35 cm long, and nearly as broad at base, tripinnate, *pinnae* about 10-jugate, oblique, long-petiolate, alternate, the basal pair much the largest, elongate-deltoid, 12-20 cm long, 6-10 cm broad, bipinnate; *pinnules* about 10-jugate under pinnate acuminate apex, the posterior basal one much the largest and produced, all petiolulate; *ultimate pinnules* 1-1.5 cm long, to 1 cm broad, subrhombic-ovate, sessile, cuneate, apex roundish, lobato-incised with 2-3 ovate lobes with bluntly dentate teeth; the upper pinnae narrowly oblong-lanceolate and gradually shortened; *texture* herbaceous, pale green, glabrous in all parts; *veins* in ultimate pinnules fine, repeatedly branched, one to each tooth, but not reaches tip and ended in a clavate hydathode; *sori* large, 1-2 to each ultimate pinnule, terminating veinlet near the margin; *indusium* large, semi-orbicular, gray, membranaceous, entire, persistent, free on all sides except the lower side.

Yunnan: Shweli-Salween divide, *G. Forrest 25329,* Szemeo, *Henry 10083A;* Mengtze, *Hancock 63* (Kew No.); Yunnan-sen, *Ducloux 1326, 6329;* between Tengyueh and Lungling, *Rock 7240;* east of Tengyueh, *Rock 7618.*

Also North India generally, Indo-China, Siam, Formosa, Luzon, the Philipping Islands and Malesia-Polynesia.

This distinct fern resembles none of the genus, to which it belongs, by subterranean habit, pale green leaves with broad segments and large membranaceous indusium.

Plate 186. Fig. 1. Habit sketch (natural size). 2. Portion of frond, showing venation and position of sori (× 10). 3. Scale from rhizome (× 27).

第一百八十六圖

膜蓋蕨(水龍骨科)

LEUCOSTEGIA IMMERSA (Wall.) Presl

地下莖木質，橫行，略被線狀披針形之膜質黃色鱗片；葉遠生，柄長二十至三十五粉，稻稈色，光滑，無毛，葉體卵狀三角形，漸尖頭，長二十五至三十五粉，寬亦如之，三回羽狀分裂；小葉約十對，斜出，具柄，互生，基部一對最大，長三角形，長十二至二十粉，寬六至十粉；二回小葉約十對，基部下方一片最大，均具柄；三回小葉長一至一·五粉，寬達一粉，亞斜方卵形，無柄，鈍頭，基部楔形，深裂，裂片具鈍鋸齒，紙質，淡綠色，兩面光滑無毛，葉脈羽狀分叉，小脈每鋸齒一數，不於達頂；子囊群形大，每三回小葉具一至二個，生於小脈之頂，蓋大，爲半圓形，膜質，全緣，宿存，僅基部着生於葉質。

分佈： 雲南，印度北部，交趾，暹羅，台灣及菲列濱群島均產之。

圖註： 1. 本種全形(自然大)， 2. 末回小葉，表示葉脈及子囊群之位置(放大十倍)， 3. 地下莖上之鱗片(放大二十七倍)。

Plate 186

第一百八十六圖

LEUCOSTEGIA IMMERSA (Wall.) Presl

膜　蓋　蕨

C. R. Feng Del. et Lith.

PLATE 187

LEUCOSTEGIA HOOKERI (Moore) Beddome

POLYPODIACEÆ

LEUCOSTEGIA HOOKERI (Moore) Bedd. Hendb. Ferns Brit. Ind. 52 (1883).

Acrophorus Hookeri Moore, Ind. Fil. 2 (1857, nom. nud.); Bedd. Ferns Brit. Ind. t. 95 (1865).

Davallia Glarkei Baker in Hk. et Bak. Syn. Fil. ed. 2, 91 (1874); C. Chr. Ind. Fil. 208 (1905), pro parte.

Leucostegia Clarkei (Baker) C. Chr. Contr. U. S. Nat. Herb. **26:** 294 (1931); Ind. Fil. Suppl. III. 120 (1934).

Araiostegia Clarkei Cop. Phil. Journ. Sci. **34:** 241 (1927).

Davallia dareaeformis Levinge ex Clarke, Trans. Linn. Soc. II. Bot. **1:** 443 (1880), pro parte.

Leucostegia dareaeformis Bedd. Ferns Brit. Ind. Suppl. 4 (1876), pro parte.

Araiostegia parva Cop. Univ. Calif. Publ. Bot. **12:** 399 pl. 53A (1931).

Leucostegia parva C. Chr. Ind. Fil. Suppl. III. 121 (1934).

Rhizome thick, woody, wide-creeping, epigaeous, densely scaly; *scales* dense, golden brown, ovate-lanceolate, finely acuminate, spreading; *frond* approximate, stipe 5-10 cm long, reddish-brown, persistent, nitente, glabrous or with a few large deciduous scales, lamina deltoid-oblong, 7-15 cm long, to 7 cm broad, 4-pinnate or pinnatifid; *pinnae* 10-jugate, patent, sessile, to 5 cm long, *ultimaie pinnules* pinnatifid with 3-4 small ligulate acute uninerved *segments*, 1-2 mm long, 0.5 mm broad; *texture* thin herbaceous, pale green, glabrous; *sori* small at the base or forking of ultimate lobes, *indusium* small, membranaceous, gray, persistent, broader than long.

Yunnan: Ho-kin, *Delavay*, July 24, 1883; *G. Forrest 15220;* Lei-lung Shan, *Forrest. 15228* (1917); Muli, west of Yalung River, *Rock 17850.* Tibet: Ya-tung, *Hobson* (1897); Yunnan-tibetan border, *Capt. Kingdom Ward 780.*

North India generally: Sikkim, *Hooker fil et Thomson 315* (type).

Rather a small fern characterized by the dense, large, broadly lanceolate scales with spreading long-acuminate tips and the dead persistent, reddish-brown soft stipes, which often break at 2-3 cm above base. In scale the species is very closely related to *L. perdurans* (Christ) Hieron. which differs by much larger size, without so characteristically persistent dead stipes of previous years. In habit and size, it resembles *L. Delavayi* (Bedd.) Ching, but differs in rhizomatic scales being not ovate and imbriate. From *L. dareaeformis* (Hk.) Bedd., our fern differs in sessile pinnae, indusiate sori and shape and color of scales.

The nomenclature of this fern has been very much confused. By priority, *Acrophorus Hookeri* Moore is found the legitimate name, because Moore's *nomen nudum* was subsequently effectively described and illustrated by Beddome in 1865, and is much older than *Davallia Clarkei* Baker. It was, however, unfortunate that Beddome himself later (Handb. p. 316) withdrew the figure under *Acrophorus Hookeri* in his Ferns Brit. Ind. t. 95 as being a mistake for *Polypodium dareaeforme* Hk., an exindusiate species, but his plate represents, in fact, a fern with fairly large indusia and, in this respect alone, agrees well with Moore's species based upon a specimen collected in Sikkim by Hooker and Thomson.

Plate 187. Fig. 1. Habit sketch (natural size). 2. Portion of frond, showing venation and position of sori (× 10). 3. Scale from rhizome (× 16).

第一百八十七圖

霍氏膜蓋蕨(水龍骨科)

LEUCOSTEGIA HOOKERI (Moore) Beddome

地下莖木質，粗肥，橫生，被金黃色之卵狀披針形之密鱗片；葉亞散生，柄長五至十粉，紅棕色，光亮，雖乾枯而仍宿存，光滑或具疏鱗片，葉體橢圓三角形，長七至十五粉，寬達七粉，四回羽狀分裂或深裂；一回小葉十對，開展，無柄，長達五粉；末回小葉羽狀深裂；裂片三至四數，線狀披針形，尖頭，具小脈一數，薄紙質，光滑；子囊羣小，圓形，生於裂片之基部，蓋小，膜質，宿存，寬過於長。

分佈： 雲南，西藏及印度北部。

本種形體極似 L. Delavayi (Bedd), 惟其莖上鱗片不爲卵形而爲卵狀披針形，具長漸尖頭，故易分別。

圖註： 1. 本種全形(自然大)， 2. 小葉之一部，表示葉脈及子囊羣之着生情形(放大十倍)， 3. 莖上之鱗片(放大十六倍)。

LEUCOSTEGIA HOOKERI (Moore) Beddome

霍 氏 膜 蓋 蕨

C. R. Feng Del. et Lith.

PLATE 188

LEUCOSTEGIA MULTIDENTATA (Wallich) Beddome

POLYPODIACEÆ

LEUCOSTEGIA MULTIDENTATA (Wallich) Beddome, Ferns Brit. Ind. Suppl. 4 (1876); Handb. Ferns Brit. Ind. 51 (1883); C. Chr. Ind. Fil. Suppl. III. 121 (1934).

Aspidium multidentatum Wallich, List no 346 (1828, nom. nud.).

Davallia multidentata Hk. Syn. Fil. 91 (1867); Clarks, Trans. Linn. Soc. II. Bot. **1:** 443 (1880); C. Chr. Ind. Fil. 212 (1905).

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

Araiostegia multidentata Cop. Phil. Journ. Sci. **34:** 241 (1927).

Acrophorus Thomsoni Moore, Ind. Fil. 4 (1857, nom nud.).

Microlepia pteropus Bedd. Ferns Brit. Ind. t. 313 (1869).

Rhizome thick, wide-creeping, epigæous, densely scaly; *scales* large, ovate-oblong, acuminate, bright brown, thin; *frond* distant, stipe 15-25 cm long, dark-straminous, nitente, densely at base and sparingly upwards clothed in large broadly ovate, acuminate, thin, brown scales, lamina ovate-deltoid, acuminate, 35-90 cm long, 17-30 cm broad near base, tripinnate; *pinnae* 10-15-jugate, patent, far apart, subalternate, petiolate (petiole about 1 cm long), the basal pair larger, 15-25 cm long, 7-10 cm broad, deltoid-oblong, acuminate, base subequal, bipinnate; *pinnules* to 10-jugate, alternate, petiolulate, the basal pair much the largest, 5-7 cm long, 3-4 cm broad at unequal base, deltoid-acuminate, pinnate to a narrow wing along costa; *ultimate pinnules* about 10-jugate, close, anterior basal one much larger, to 2 cm long, 1 cm broad, ovate-oblong, acute, deeply pinnatifid into 4-7-pairs of oblong acute segments, the lower ones again inciso-serrate; *texture* thin herbaceous, rachis and rachilets glabrous except the base of pinnae, pinnules and costa being clothed with a few large, ovate membranaceous, brown scales, glabrous or glandular beneath, rachis, rachilets and costa above densely hirsute; *veins* fine, distinct, in segments pinnate, one to each sharp tooth, but never reaches tip; *sori* small, 2-12 to each ultimate pinnule, placed at the base of its teeth on the upper side of veinlets; *indusium* small, horse-shœ-shaped, brown, membranaceous, fugaceous, free on all sides except the base.

Yunnan: Shweli-Salween divide, *G. Forrest 24701;* Tengyueh, *G. Forrest 27182* (1925); Htawgaw, *G. Forrest 27010;* Mengtze, *Hancock 17* (1893)

Himalayas: From Nepal to Bothan. Also Khasia, common.

Another distinct species of the genus, characterized by the presence of large broadly ovate thin brown scales on stipe, rachis, rachilets, and costa beneath and densely hirsute above. In hairiness, the species is closely related to another Himalayan species, *L. membranulosa* Wall., which differs by much smaller size, pinnate or bipinnatifid lanceolate leaves and pale brown lanceolate scales on rhizome.

Plate 188. Fig. 1. Habit sketch (natural size). Portion of frond, showing venation and position of sori (× 10). 3. Scale from rhizome (× 20). 4. Hairs from the costa of pinnule above (× 150). 5. Scale from the costa of pinna beneath (× 27).

第一百八十八圖

毛膜蓋蕨(水龍骨科)

LEUCOSTEGIA MULTIDENTATA (Wall.) Bedd.

地下莖木質，粗肥，橫行，被卵狀橢圓形之紅黃色大鱗片；葉遠生，柄長十五至二十五粉，深稻稈色，光亮，略具鱗片，葉體卵狀三角形，漸尖頭，長三十五至九十粉，寬十七至三十粉，三回羽狀分裂；一回小葉十至十五對，開展，相距甚遠，互生，具柄，基部一對較大，長十五至二十五粉，寬七至十粉，橢圓三角形，漸尖頭，基部亞等形，二回羽狀分裂；二回小葉約十對，互生，具柄，基部一對最大，長五至七粉，寬三至四粉，基部不等形，三角形，漸尖頭，羽狀深裂；末回小葉十對，密接，基部上方一片最大，深裂成四至七對橢圓形急尖頭之裂片，薄紙質，各回小葉基部具一二卵形膜質大鱗片，葉體上面被密短毛，葉脈明顯，每裂片具一數小脈；子囊群小，位於鋸齒之基部，蓋小，馬蹄形，膜質，早落，惟基部着生。

分佈：　雲南及印度東北二部產之。

此種異於本屬其他各種者，爲其被密短毛之葉體是也。

圖註：　1. 本種全形 (自盡大)，　2. 小葉之一部，表示葉脈及子囊羣之位置 (放大十倍)，　3. 莖上之鱗片 (放大二十倍)，　4. 中肋上面之毛 (放大一百五十倍)，　5. 中肋下面之鱗片 (放大二十七倍)。

Plate 188

第一百八十八圖

LEUCOSTEGIA MULTIDENTATA (Wall.) Beddome

毛 膜 蓋 蕨

C. R. Feng Del. et Lith.

PLATE 189

LOXOGRAMME GRAMMITOIDES (Baker) C. Christensen

POLYPODIACEÆ

LOXOGRAMME GRAMMITOIDES (Baker) C. Christensen Ind. Fil. Suppl. II, 21 (1916); III. 125 (1934).

Gymnogramme grammitoides Baker, Journ. Bot. (1889) 178.

Polypodium grammitoides Diels in Engl. Bot. Jahrb. **29:** 209 (1900); C. Chr. Ind. Fil. 530 (1905).

Selliguea grammitoides Christ, Bull. Herb. Boiss. II. **3:** 510 (1903).

Gymnogramme lanceolata var. *minor* Baker; Makino, Bot. Mag. Tokio **10:** 178 (1896).

Loxogramme minor Mak. Bot. Mag. Tokio **19:** 139 (1905)

Polypodium Yakushimae Christ, Bull. Herb. Boiss. II. **1:** 1014 (1901); C. Chr. Ind. Fil. 575 (1905); Kodama in Matsum. Ic. Pl. Koisik. **1:** no. 3, pl. 42 (1912).

Loxogramme Yakushimae C. Chr. Ind. Fil. Suppl. II. 22 (1916).

Loxogramme spatulata Cop. Phil. Journ. Sci. **30:** 331 (1926).

Rhizome epigæous, slender, wide-creeping, densely clothed in fusco-brown, lanceolate, acuminate, thin, clathrate *scales; fronds* distant, 3-10 cm long, 0.5-1 cm broad at the broadest part in the uppermost part, oblanceolate, much broadened below acute or short-acuminate apex, gradually long-attenuate until base, margin entire, thin; *texture* subcarnose, greenish-brown when dried; midrib prominently raised above, only slightly keeled or not visible beneath, *veins* not seen, forming two rows of elongate oblique areolæ on each side of midrib; *sori* linear-oblong, very oblique, 2-4 pairs, confined to the uppermost broadest part, subcostal, not reaching margin.

Hupeh: Ichang, *A. Henry 5451* (type), *5451A; Wilson 620* (type of *L. spatulata*). Kweichow: Kianghow, foot of Van-chin Shan, *Y. Tsiang 7556, 7899*. Szechwan: Hung-ya Hsien, *W. P. Fang 8496*, August, 1930. Kiangsi: Wang Lung Tze, *R. C. Ching*, Oct. 1935, on wet mose-clad rock cliff under woods. Yunnan: Long-ki, *Delavay*, August, 1899; *E. E. Maire*.

Japan: Yokohama, *Maximowicz 11* (1862), and other localities.

Also Loochoo Islands.

This fern represents one of the smallest species of the genus, being characterized by small sessile oblanceolate or spathulate leaves, much broadened in the upper one-fifth part, thence gradually narrowed and attenuate until base, by a few pairs of short and very oblique subcostal sori, confined to the uppermost broadest part. The Japanese *L. Yakushimae* (Christ) appears not specifically different from Chinese type.

Plate 189. Fig. 1. Habit sketch (natural size). 2. Portion of frond showing venation, and sori (× 5). 3. Scales from rhizome (× 28).

第一百八十九圖

小葉劍蕨(水龍骨科)

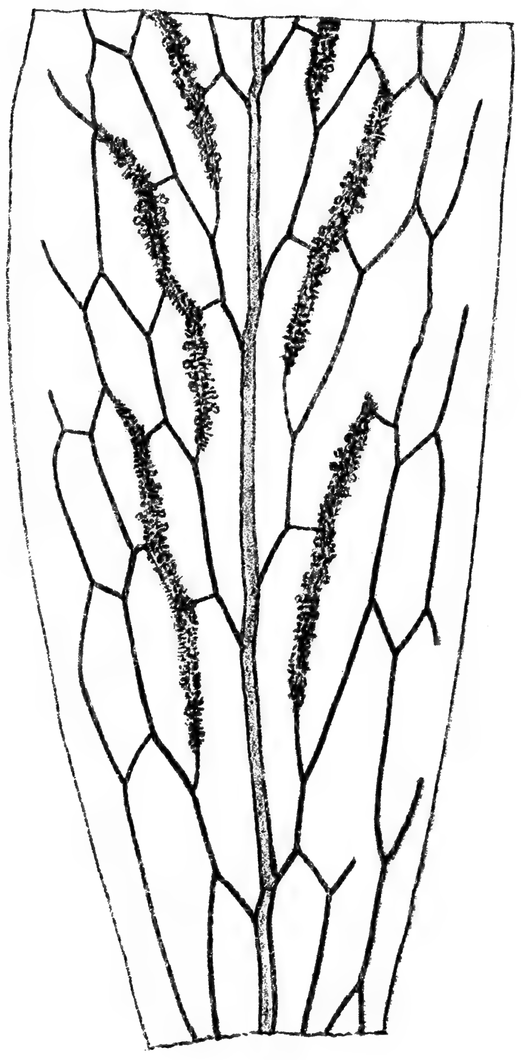
LOXOGRAMME GRAMMITOIDES (Bak.) C. Chr.

地上莖細長，橫行，被深褐色之披針形膜質鱗片；葉遠生，長三至十吩，寬五至十糎，倒披針形，急尖頭，頂部最寬，向下漸狹，延長至基部，全緣，肉質，中肋上面顯凸，下面稍隆起，葉脈不見，網眼二列；子囊羣線形，二至四對，急斜出，位於葉頂部之最寬處，不達於葉邊。

分佈： 湖北，四川，江西，雲南，日本及琉球羣島均產之。

此爲本屬極小之種之一，具倒披針形之葉，以頂部爲最闊，具二至四對急斜出之子囊羣，最易識別。

圖註： 1. 本種全形（自然大）， 2. 葉體之一部，表示葉脈及子囊羣之位置（放大五倍）， 3. 莖上之鱗片（放大二十八倍）。



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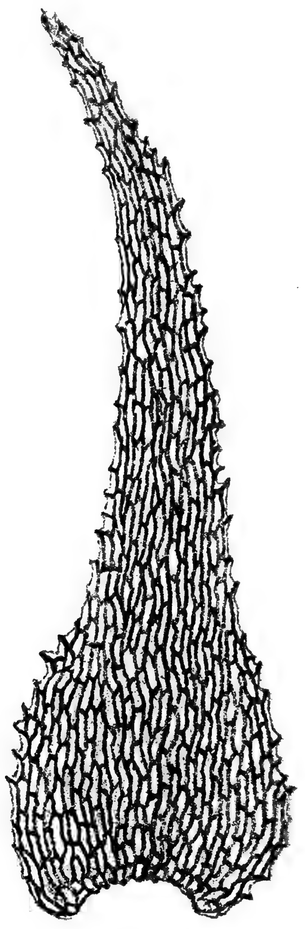


3

LOXOGRAMME GRAMMITOIDES (Baker) C. Christensen

小 葉 劍 蕨

C. R. Feng Del. et Lith.

PLATE 190

LOXOGRAMME SALICIFOLIA Makino

POLYPODIACEÆ

LOXOGRAMME SALICIFOLIA Makino, Bot. Mag. Tokio **19:** 138 (1905); Ching Bull. Dept. Biol. Coll. Sci. Sun Yatsen Univ. no. **6:** 31 (1933); C. Chr. Contr. U. S. Nat. Herb. **26:** 324 (1931); Ind. Fil. Suppl. III. 125 (1934).

Gymnogramme salicifolia Makino, Phan, Plerid. Jap. Ic. Pl. 34 (1899).
Polypodium Makinoi C. Chr. Ind. Fil. 339 (1905); 543 (1906).
Loxogramme Makinoi C. Chr. Ind. Fil. Suppl. II. 22 (1913-17).
Loxogramme Duclouxii Christ, Bull. Acad. Géogr. Bot. (1907) 140; C. Chr. Ind. Fil. Suppl. III. 125 (1934).
Polypodium succulentum C. Chr. Ind. Fil, Suppl. 1. 63 (1907-12).
Loxogramme Fauriei Copel. Phil. Journ. Sci. **9:** 232 (1914); C. Chr. Ind. Fil. Suppl. II. 21 (1913-17).
Gymnogramme involuta Bak. (non Hk. 1864) Journ. Bot. (1888) 231; Franch. Pl. David. in Nouv. Arch. Mus. II. **10:** 123 (1887).
Selliguea involuta Christ (non Kze. 1858) Bull. Soc. Bot. France **52:** Mém, I. 21 (1905); Bull. Acad. Géogr. Bot. (1906) 108.
Loxogramme involuta C. Chr. (non Presl. 1836), Acta Hort. Gothob. **1:** 104 (1924).
Polypodium scolopendrinum Wu (non C. Chr. Index) Polyp. Yaoshan. in Bull. Dept. Biol. Coll. Sci. Sun Yatsen Univ. No. **3:** t. 155 (1932).

Rhizome slender, wide-creeping, densely radicose. sparcely scaly; *scales* brown or fusco-brown; ovate-lanceolate, acuminate, entire; *frond* 1-3 cm apart, uniseriate along the rhizome, 15-35 cm long, 1.2-2.5 cm broad or rarely broader, lanceolate, broadest at the upper third, gradually narrowed downward on each side of the costa until 2-6 cm above the base of stipe, apex caudate-acuminate, margin entire, thin and slightly revolute; *texture* coriaceous, naked on both sides; *midrib* keeled beneath and prominently raised above, *veins* hidden, areolæ elongate, oblique, rarely with one short included veinlet; *sori* linear, rather slender, very obliquely extending from midrib to near the margin.

Yunnan: Mengtze, *Hancock 111; A. Henry 9059, 9059A;* Szemeo, *Henry 10343;* Hay-Y près Loa Lan, *Ducloux 133* (type of *L. Duclouxii*); Tchen Fong Chan, *Delavay*, August, 1894; Ma-eul-chan, *Delavay, 3880;* Ami, *Y. Tsiang 13096, 13180;* Wei-se Hsien, *H. T. Tsai 59885;* Tsekou, *Souliè 1665;* Mao-kou Tchang, *Delavay 17, 1199;* Without locality, *S. Ten* (1915); Salween, *Capt. Kingdom Ward*, Jan. 2, 1914; between Tengyueh and Lungling, *J. F. Rock 7295*; between Kambaiti and Tengyueh, *J. F. Rock 7543.* Szechwan: Tchen-kou-tin, *Farges 179;* Moupin, *David;* Mt. Omei, *Faber 1019* (pro parte); *Wilson 5348* (pro parte); *W. P. Fang 7453; T. Tang 23594;* Hung-ya Hsien, *W. P. Fang 8061;* Nanchuan Hsien, *W. P. Fang 5807;* ibid., Nos. *3151, 4995, 4851,* ex Herb. of West China Acad. Sci. Kweichow: Kao po, *Laborde et Bodinier 1978;* Gan-chow, *Cavalerie 877;* Van-chin Shan, *Y. Tsiang 7561; 7904;* Tuh-shan *Y. Tsiang 6925;* Sinwen, *Y. Tsiang 8688;* Pin-fa; *Cavalerie 877.* Hupeh: Hsing Shan Hsien, *Wilson 2661;* Wu-shan Hsien *Wilson 615;* without locality, *Silvestri 59.* Kiangsi: Lu-shan, Whang Lung Tze, *R. C. Ching 11591.* Fukien: Inghok, *F. P. Metcalf 820*, May 1, 1925; ibid., *H. H. Chung 2646*, April 24, 1924; Sam-sa Inlet, *Matthew*, Oct. 5, 1907. Kwangtung: Lafau Shan, *N. K. Chun 40907; Ford 33;* Sam Kok Shan, Tsungfa Hsien, *W. T. Tsang 20578;* Swatow, Thai-yong, *Dalziel*, July, 1901. Kwangsi: Lin Yen Hsien, Yeo Mar Shan, *R. C. Ching 7242.* Hongkong: Lantao Island, one specimen without collector's name in Herb. Hongkong.

Corea: *Faurie 74;* Tsus-sima, *Wilford 775;* Quelpært, *Taquet 3690.*
Formosa: *Hancock 20;* Arisan, *Faurie 464, 465.*
Japan: Kyoto, *Kiyabe 16134;* Oosumi, Kyushu, *Koidzumi*, Sept., 1921.
Liukiu Islands: *Matsumura 223.*
Tonkin: Chapa, *Eberhardt 5145.*
Assam: Manipur, *G. Watt 6133* (1882). Bothan: *Griffith.* Khasia: *Hooker f.*

A quite variable species as to size, specimens from Southeast China and Japan being generally smaller than those from West and Southwest China, but all agree in essential characters, Some specimens (Henry 9095) from Yunnan almost approaches *L. involuata* (Don) Presl in size, but differs in wide-creeping rhizome, distant leaves, thicker texture and prominently raised midrib above.

Plate 190. Fig. 1. Habit sketch (natural size). 2. Portion of lamina, showing venation, and sori (× 8). 3. Scale from rhizome (× 16). 4. Cross section of rhizome, showing the arrangement of steles (× 16).

第一百九十圖

柳葉劍蕨(水龍骨科)

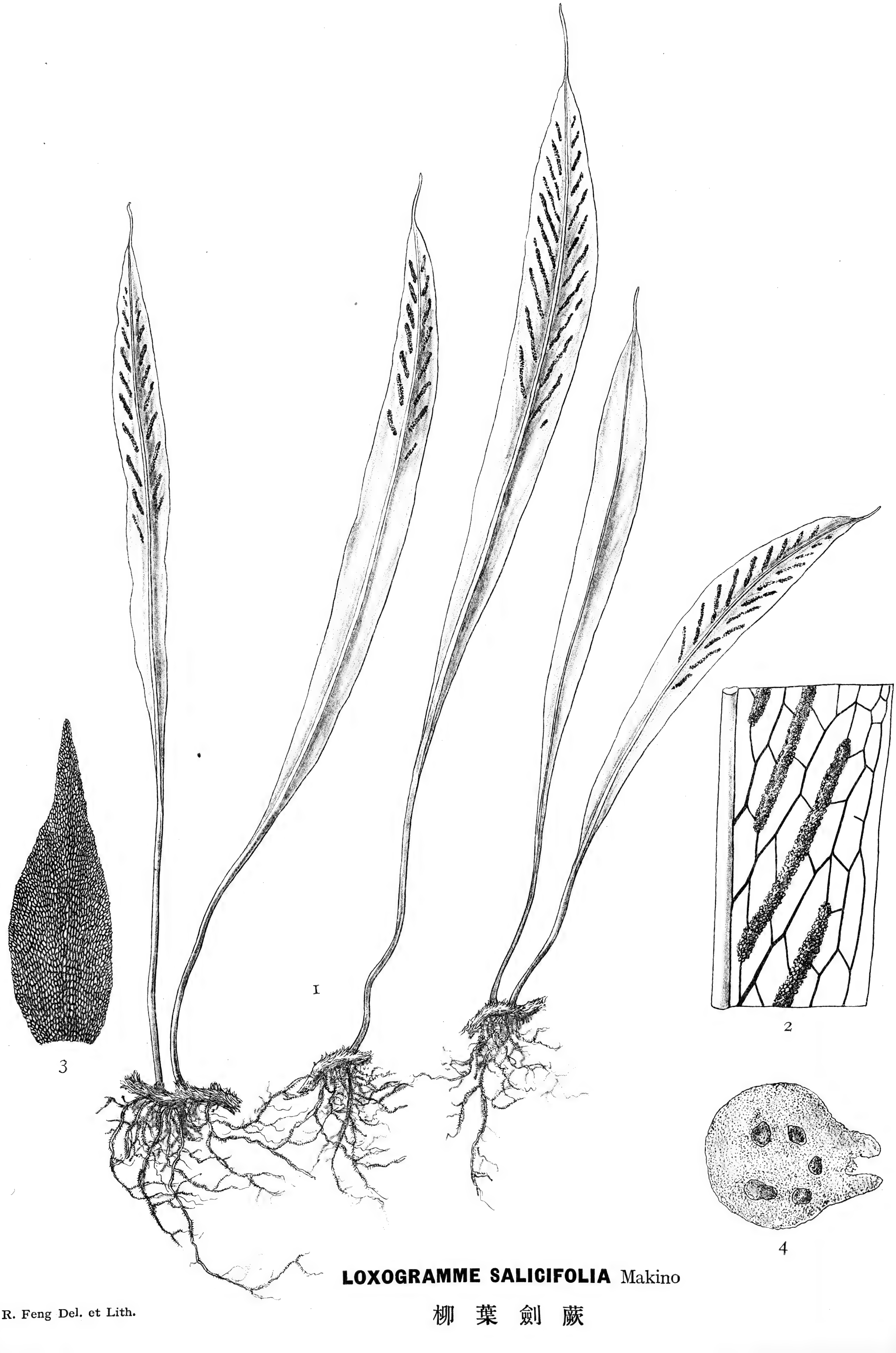
LOXOGRAMME SALICIFOLIA Makino

地下莖細長，橫行，略被卵狀披針形之深櫻色鱗片；葉散生，長十五至三十五粉，寬一·二至二·五粉，長披針形，上部三分之一處最闊，向下漸狹，沿葉柄下延，達於離基部二至六粉處，全緣，亞革質，光滑，呈淡黃色，中肋上面凸起，下面隆起，網脈不見；子囊羣線形，細長，斜出，自中肋達葉邊。

分佈： 雲南，四川，湖北，貴州，廣東，廣西，福建，江西，香港·朝鮮，日本，台灣，琉球，交趾及喜馬拉亞山亦產之。

此爲我國溫暖各省習見之種，形體大小不一，異名甚多，要皆同種也。

圖註： 1. 本種全形（自然大)， 2. 葉體之一部，表示葉脈及子囊羣之位置（放大八倍)， 3. 地下莖上之鱗片（放大十六倍)， 4. 地下莖之橫切面，表示維管束之佈置（放大十六倍)。



LOXOGRAMME SALICIFOLIA Makino

柳 葉 劍 蕨

C. R. Feng Del. et Lith.

PLATE 191

LOXOGRAMME ENSIFORMIS Ching

POLYPODIACEÆ

LOXOGRAMME ENSIFORMIS Ching, sp. nov.

Species magnitudine et configuratione *L. involutae* (Don) himalayensæ magis similis differt paleis rhizomatis duplo parvioribus, late ovatis, apice breve acuminatis (luminæ parvioribus rotundatis, creberrimis); soris multo brevioribus, crassioribus, a se magis distantibus, nec costæ nec marginem frondis attingentibus; costa centralis supera prominenti.

Rhizome short, erect, densely scaly, *scales* light brown, broadly ovate, short acuminate, entire, 5 mm long, consisting of numerous small roundish brown luminæ; *fronds* cæspitose, stipe short, thick, 2 cm long, compressed, lamina oblanceolate, long acuminate, 20-25 cm long, 3-3.5 cm broad at the upper two-thirds part, gradually attenuate along a long narrowly winged stipe; *texture* chartaceous, greenish, naked, mibrib distinct on both sides, slightly keeled below and raised above; *veins* not seen but distinct against light, the lateral veins oblique, areolæ elongate, only occasionally with one short included veinlet; *sori* oblique, thick, brown, raised, about 5 mm apart, confined to the upper half of leaf, extending from near the costa to one-third way from the margin.

Szechwan orientalis: Without locality, *T. F. Lou 231* (type); without locality *Wilson 5348* (pro parte). Kweichow: Lin-tchang, *Cavalerie 3389*, April, 1909; Pin-fa to ganchow, *Cavalerie 1303, 478.*

The present fern appears so alike the Himalayan *L. involuta* (Don) that it might well be passed for that species, from which, however, it can easily be distinguished by its broadly ovate and half as long scales with short acuminate apex and much smaller, round and more numerous brown luminæ, by leaves of green color, gradually attenuate downward from the broad upper half, and by much thicker, shorter, fewer and more widely separate sori extending from near the costa to only one-third way from the margin. The costa is slightly raised on the upper side. *L. involuta* (Don) has broadly lanceolate rhizomatic scales to 1 cm long, consisting of large, clear elongate luminæ, much longer, narrower and very oblique sori extending from costa to near the margin and not raised midrib above.

Plate 191. Fig. 1. Habit sketch (natural size). 2. Portion of l2mina, showing venation, and sori(× 3). 3. scale from rhizome (× 10).

第一百九十一圖

闊葉劍蕨(水龍骨科)

LOXOGRAMME ENSIFORMIS Ching

地下莖短而直立；鱗片爲闊卵形，漸尖頭，淡黃色；葉簇生，柄長僅二粉，扁形，葉體倒披針形，長尖頭，下部漸狹，沿葉柄下延，長二十至二十五粉，寬三至三·五粉，以上部三分之處爲最闊，亞革質，兩面光滑，中肋上面凸出，下面隆起，葉脈網狀，不見，網眼長形，間具一數單脈；子囊羣線形，斜出，行距約五糎，位於葉之上部，自中肋達葉濶三分之二。

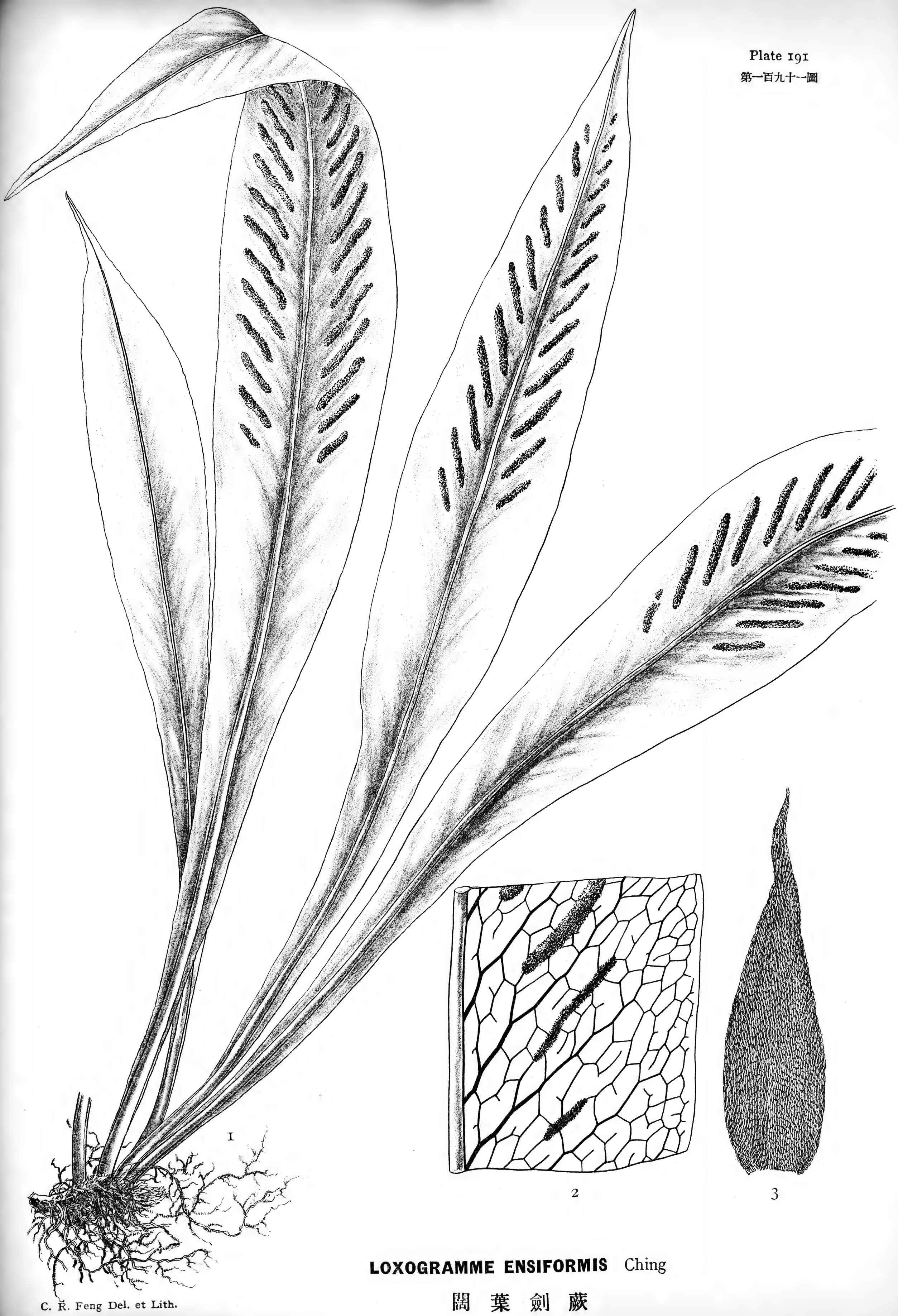
分佈　四川及貴州產之。

本種極似印度北部產之 L. involuta, 然其莖上鱗片較小，網眼亦異，子囊羣彼此相離甚遠，不達於葉邊，故可分別。

圖註：　1. 本種全形 (自然大)，　2. 葉體之一部，表示葉脈及子囊羣 (放大三倍)，　3. 地下莖上之鱗片 (放大十倍)，

Plate 191

第一百九十一圖



C. R. Feng Del. et Lith.

LOXOGRAMME ENSIFORMIS Ching

闊葉劍蕨

PLATE 192

DRYNARIA FORTUNEI (Kze.) J. Smith

POLYPODIACEÆ

DRYNARIA FORTUNEI (Kze.) J. Smith in Bot. Voy. Herald. 425 (1857); Diels in Engl. u. Prantl. Nat. Pflanzenfam. **1:** 4. 330 (1899); C. Chr. Ind. Fil. 247 (1905); Acta Hort. Gotheb, **1:** 106 (1924).

Polypodium Fortunei Kze. apud Mett. Farngatt. Polyp. 121 t. 3 f. 42-45 (1857); Hk. Sp. Fil **5:** 95 (1864); Hk. et Bak. Syn. Fil. 367 (1868); Christ, Farnkr. d. Erde 119 (1897); Baker, Journ. Bot (1888) 230; Franch. Pl. David. in Nouv. Arch. Mus. II. **10:** 121 (1887); Christ, in Warburg, Monsunia **1:** 63 (1900); Bull. Soc. Bot. Ital. (1901) 297.

Drynaria quercifolia Hk. (non J. Sm.) Journ. Bot. (1857) 357.

?Polypodinm biforme Lour. Fl. Cochinch. 827 (1790): Sw. Syn. Fil. 62 (1806).

Polypodium quercifolia Hk. (non L. 1753) in Blakiston, Five Months on the Yangtze 366 (1682).

An epiphytic fern on tree trunks or rocks. *Rhizome* wide-creeping, fleshy, thick as a finger, densely clothed in bright ferruginous, frizzy, linear-subulate *scales* with long-fimbriate margin; *fronds* dimorphous, the sterile ones sessile, reddish-brown (without chlorophyll), dry, coriaceous, nitente, imbricate, with coarse venation, 5-7 cm long, 3-6 cm broad, broadly ovate, cordate at base, acute at apex, margin crenate below, lobato-pinnatid in the upper half with 4-6 pairs of deltoid, very acute, entire lobes 1-1.5 cm long, shining glabrous above, shortly pubescent on costa and veins beneath; the *fertile* ones 25-40 cm long, including winged stipe 5-8 cm long, 14-18 cm broad at middle, oblong, acute, pinnatifid nearly down to rachis; *segments* patent, 7-13-jugate under the caudate apex, 7-9 cm long, 2-3 cm broad above the broadened base, lanceolate, acute or obtusish, margin with remote incisions, the lowest ones somewhat shorter, followed by a few auricles, the upper ones gradually shortened, sinuses broad, roundish or acute at bottom; *texture* crass chartaceous, green and glabrous on both sides; *venation* prominent on both sides, lateral veins distinct, oblique, connected by transverse veins, forming 4-5 quadri-angular soriferous areolæ, filled with free or netted included veinlets; *sori* large, roundish, copious, regularly seriate, 2-4 between costa and margin, one in each 4-angular areola, ex-indusiate.

Chekiang: Chusan, *Robert Fortune;* Ningpo, *Hancock 25*; *Cooper* (1884); Taichow, *R. C. Ching 1580;* Ping-yang Hsien, *H. H. Hu 96;* Wen-chow, *K. Ling 7407* (1924); Siachw Hsien, *R. C. Ching 1580.* Kiangsi: Kiukiang, Lu-shan, *A. N. Steward 2661;* Kwai-in Chiao (Goddess of Mercy Bridge), *R. C. Ching,* numerous specimens; *C. E. DeVol 22,* August 1, 1933; Tsoongjen, *Y. Tsiang 10228.* Kwei-chow, Gan-chow, *Cavalerie 3711, 7797.* Hupeh: Ichang, *Maires* (1880); Patung Hsien, *Henry 3704; Wilson 2646.* Szechwan: Mt. Omei, *E. Faber 1072; Brown 73;* Chung-chow, *Limprichte* (1913); *Col. Sarel; R. Francis* (1870); *Blakiston* in Herb, Hk.; Ho-chuan Hsien, *Hopkinson 108,* May 2, 1930. Yunnan: Mengtze, *Han-cock 112;* Mile, *Henry 10177A, 10177B.* Kwangtung: North River, *Tutcher 10626;* Lo-fau Shan, *C. Ford* (1833); Swatow, Thai-young, *Dalziel,* Sept. 1898; *Gerlach;* Lien-chow, *Matthew,* Dec. 1907; Lokchong, *N. K. Chun 42423; C. L. Tso 21538;* Yingtak, Wantong Shan, *H. Y. Liang 60590;* Lungtau Shan, *Y. K. Wang 31707.* Kwangsi: Lungchow, *Morse 2;* Wu-chow, *S. S. Sin & K. K. Wang 6* (1926); Lu-chen Hsien, Tze Poo, *R. C. Ching 5554.* Fukien: Foochow, *R. Fortune 34* (type); *La Touche, Forbes 2492; L. Y. Tai 11170; T. S. Ging 7104;* Ku-shan, *T. S. Ging 6848;* Lung-lau, *Alexander;* Amoy, *Medhurst* in Herb. *Hance 1409;* Yuenfu, *Warburg;* Chang-chow, *H. H. Chung 903;* Hinghwa, *H. H. Chung 971;* Sam-sa Inlet, *Matthew,* Oct. 6, 1907.

Also Formosa and Tonkin.

A common epiphytic fern in the warm parts of China and differs from *D. quercifolia* (L.) J. Sm. of Tropic Asia in much smaller size in all parts and the large uniseriate sori between lateral veins.

Plate 192. Fig. 1. Habit sketch (natural size). 2. Portion of segment, showing venation and position of sori (× 6). 3. Scale from rhizome (× 16). 4. Hairs on underside of sterile leaf (× 76).

第一百九十二圖

槲蕨(水龍骨科)

DRYNARIA FORTUNEI (Kze.) J. Sm.

一種附生於樹幹或石壁上之蕨類，地上莖橫行，肉質，肥厚如指，被金黃色之捲曲狹長鱗片；葉二形，其不生子囊群之葉爲圓卵形，無柄，彼此瓦覆，長約五至七粉，寬三至六粉，灰褐色，乾厚革質，邊緣淺裂，葉脈顯凸，網狀，其通常生子囊群之葉爲綠色，長二十五至四十粉，寬十四至十八粉，長橢圓形，具有翅之短柄，葉體向基部漸狹，厚紙質，兩面光滑，羽狀深裂，裂片七至十三對 ， 長七至九粉，寬二至三粉，漸尖頭，基部二三對縮爲耳形，邊緣具淺疏缺刻，葉脈網狀，顯凸；子囊羣大，略呈圓形，數列，無蓋。

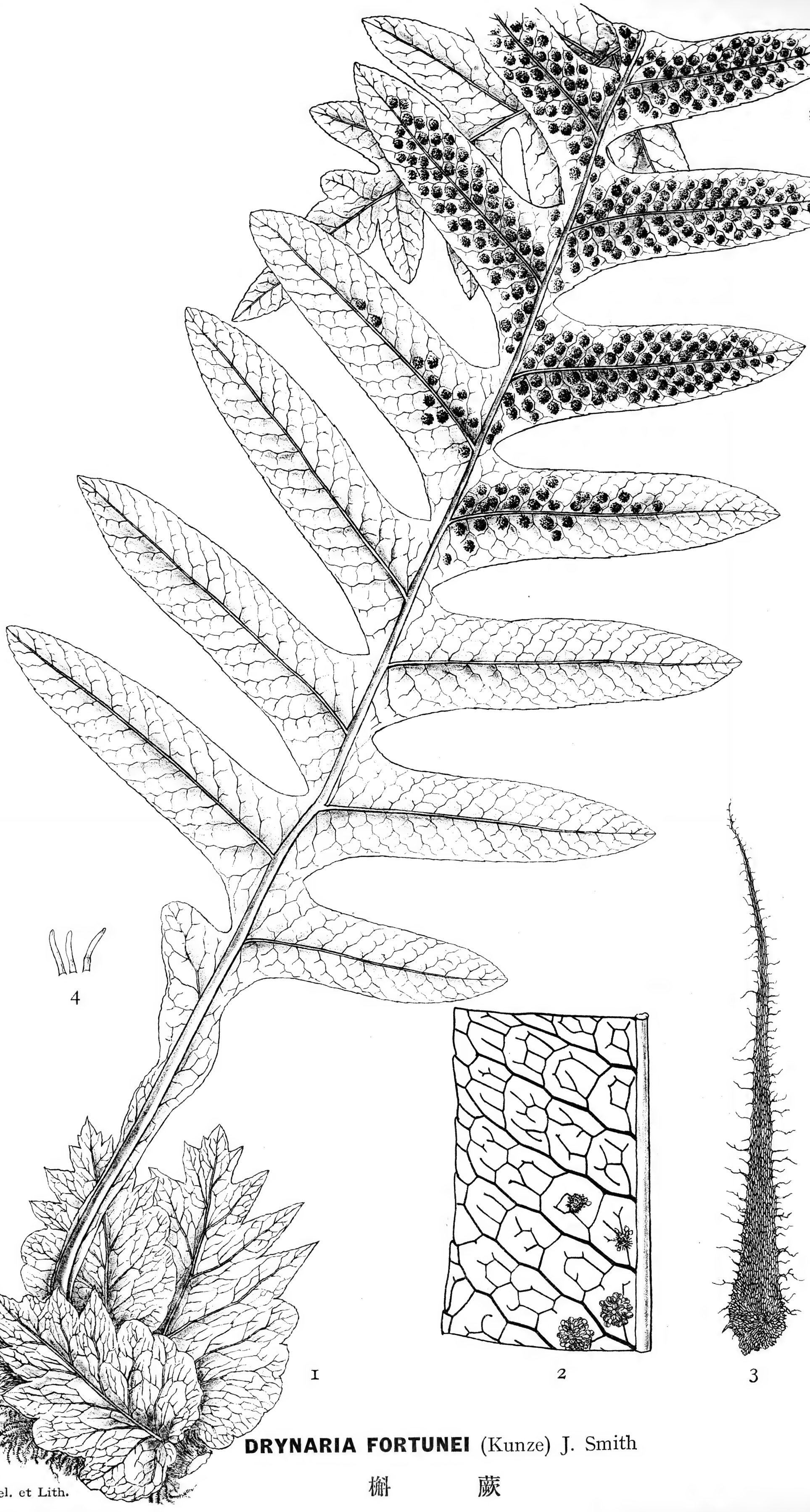
分佈： 浙江，湖北，雲南，四川，廣東，廣西，福建；台灣及交趾亦產之。

此爲中國温暖各省普通之蕨種，常附生於樹幹或乾燥之石壁上，以其肉質之莖及槲樹形之枯葉吸收雨水與落葉以供其養料，至饒興味。

圖註： 1. 本種全形 (自然大)， 2. 葉之一部，表示葉脈及子囊羣之位置 (放大六倍)， 3. 地上莖之鱗片 (放大十六倍)， 4. 不生子囊羣葉下面之毛 (放大七十六倍)。

Plate 192

第一百九十二圖



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DRYNARIA FORTUNEI (Kunze) J. Smith

槲　　蕨

C. R. Feng Del. et Lith.

PLATE 193

DRYNARIA SINICA Diels

POLYPODIACEÆ

DRYNARIA SINICA Diels in Engl. Jahrb. **29:** 208 (1900); C. Chr. Ind. Fil. 249 (1905); Acta Hort. Gotheb. **1:** 106 (1924); Journ. Wash. Acad. Sci. **17:** 498 (1927).

Polypodium Baronii Christ (non Baker 1886), Nuov. Giorn. Bot. Itat. n. s. **4:** 100 t. 2. (1897) Farnkr. d. Erde 120 (1897).

Drynaria Baronii Diels in Engl. u. Prantl. Nat. Pflanzenfam. **1:** 4. 330 (1899); Christ, Bull. Soc. Bot. France **52:** Mém. I. 23 (1905).

Drynaria reducta Christ in C. Chr. Ind. Fil. 247 (1905), C. Chr. Bot. Gaz. **56:** 332. 1913.

Rhizome wide-creeping, fleshy, thick as a small finger, densely scaly; *scales* bright ferruginous, frizzy, lanceolate-subulate, densely fimbriate; *fronds* dimorphous, the *sterile* ones rather scarce, pale green or light brown, chartaceous, or subcoriaceous, sessile, to 10 cm long, 4-5 cm broad at middle, oblong-lanceolate, acuminate, pinnatifid down nearly to rachis with deltoid-lanceolate, acute segments 2-3 cm long, with the lowest ones much reduced, glabrous beneath, pubescent above; *fertile* fronds distant, stipe 8-15 cm long, dark straminous, with narrow wing on each side running down nearly to the base, lamina 17-40 cm long, 7-11 cm broad, oblong-elongate, pinnatifid down nearly to rachis, 14-20-jugate, patent, broadly linear-lanceolate, acute or bluntish, or rounded, the middle ones 4-6 cm long, 1-1.5 cm broad above the dilated base, the basal 1-2 pairs shortened or reduced into more pair of auricles, margin finely and closely serrate with low arcuate sharp teeth; *texture* crass chartaceous, green, more or less pubescent especially on rachis and costa above; *venation* distinct on both sides, lateral veins erecto-patent, intervening veinlets anastomosing in 3-4 rows of angular areolæ occasionally with one short included veinlets; *sori* large, roundish, costal, uniseriate on each side, near the upper base of lateral veins.

Szechwan: Nanchuan, *Rosthorn 3121* (type); Mt. Omei, *Scallan:* Ta-chien-lu, *Soulie 512* (1893); without locality, *Wilson 5335;* Mao-chow, *F. T. Fang 21818;* Tungnan Hsien, *W. P. Fang 1452;* Kangtien Hsien, *W. P. Fang 3687;* Hung-yuen Hsien, *W. P. Fang 9081, 9090;* Drogochi, *Harry Smith 4502; C. S. Liu 705*, July 13, 1934; Ma-pien Hsien, *T. T. Yü 2509* (pro parte). Yunnan: Tong-chow, *E. E. Maire 1373, 1383* (1913); Tsekou, *Monbeig 277.* Shensi: Ki Shan, *Giraldi* (type of *Polypodium Baronii*); Mt. Zulu, *Giraldi,* August, 1894; *Purdom 87.* Kansu: Pingfan Hsien, *R. C. Ching 481*, forming dense carpet on moist foothill.

This endemic species is closely related to the Himalayan *D. Mollis* Bedd., differs chiefly in less pubescent fertile leaves of thicker texture and the basal part of stipe being not of dead straw-colored appearance.

Plate 192. Fig. 1. Habit sketch, (natural size). 2. Portion of segment showing venation, position of sori and serrature (× 6) 3. Scale from rhizome (× 16). 4. Hairs from the upper side of rachis (× 76). 5. Cross section of rhizome, showing arrangement of steles (× 4).

第一百九十三圖

華槲蕨（水龍骨科）

DRYNARIA SINICA Diels

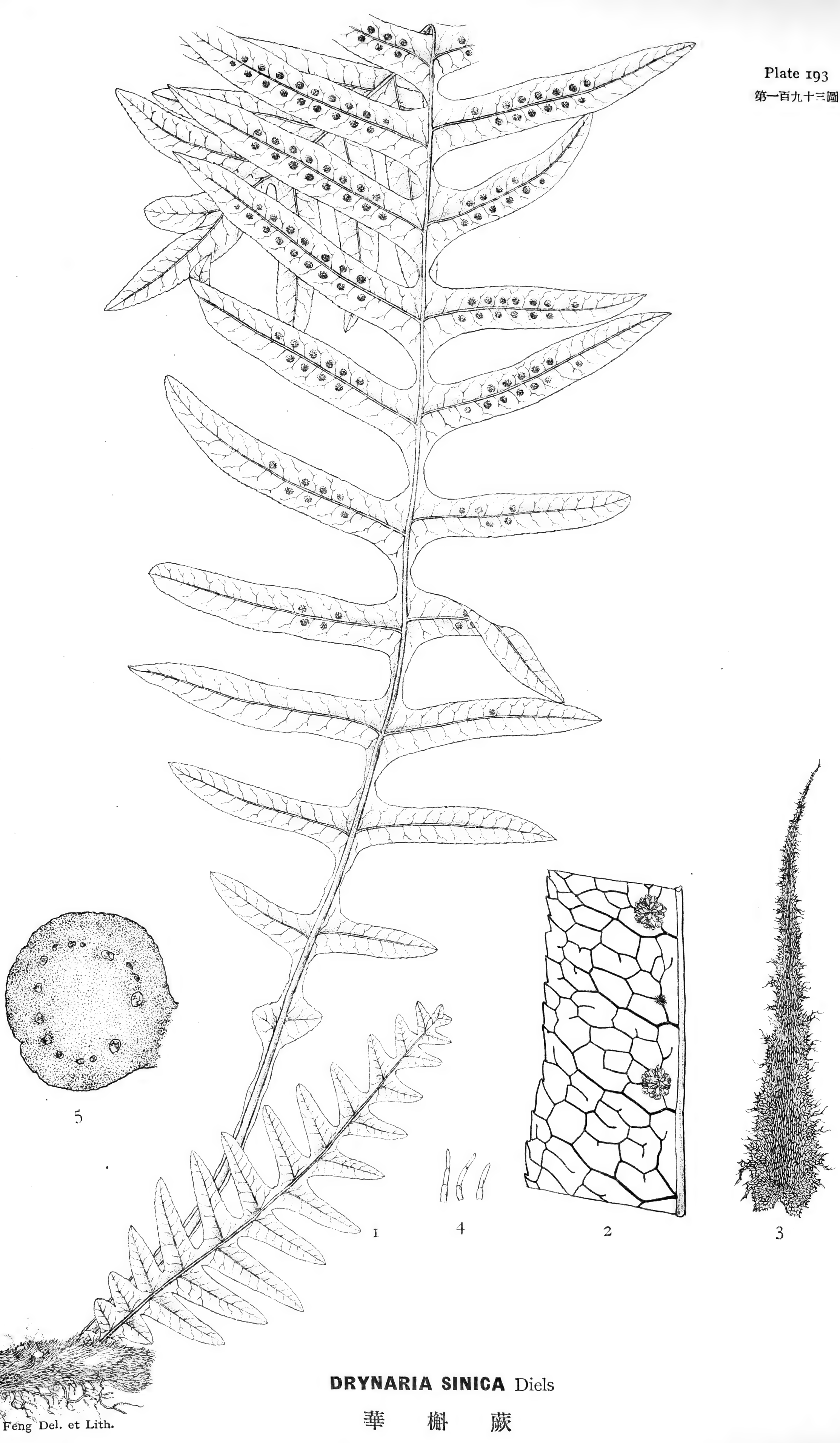
本種形體頗類前種，惟其不生子囊羣之葉疏生或往往罕見，且其形體與生子囊羣之葉無大異，惟較小，爲橢圓披針形，呈黃綠色或淡黃色，其生子囊羣之葉之兩面被甚多之短毛，（尤以中肋上面爲甚），子囊羣一列，位於中肋兩側，故易分別；又此種之生態爲半附生或土生，因其莖直接與土壤相接，可以利用土中養料，故其不生子囊羣之葉往往變爲生子囊群者。

分佈： 四川，雲南，陝西，甘肅。

此爲本屬分佈極北而且極耐寒之種，甚類喜馬拉亞山所產之毛槲蕨 (D. mollis Bedd.) 惟其葉柄下部不爲死稻稈色，葉面之毛較疏，故尙易鑑別。

圖註： 1. 本種全形（自然大）， 2. 生子囊葉之一部，表示葉脈，子囊羣之位置及鋸齒（放大六倍）， 3. 莖上之鱗片（放大十六倍）， 4. 葉之中肋上面之短毛（放大七十六倍）， 5. 莖之橫切面，表示維管束之佈置（放大四倍）。

Plate 193
第一百九十三圖



C. R. Feng Del. et Lith.

DRYNARIA SINICA Diels

華　槲　蕨

PLATE 194

COLYSIS WUI (C. Chr.) Ching

POLYPODIACEÆ

COLYSIS WUI (C. Chr.) Ching, Bull. Fan Mem. Inst. Biol. **4:** 322 (1933).

Polypodium sp. nov. Wu, Polyp. Yaoshan, in Bull. Dept. Biol. Coll. Sci. Sun Yatsen Univ. No. **3:** 318 t. 150 (1932).

Polypodium Wui C. Chr., l. c. No. **6:** 17 (1933); Ind. Fil. Suppl. III. 161 (1934)

Rhizome wide-creeping, densely scaly; *scales* fusco-brown, linear-lanceolate from rounded base, thin, clathrate; *frond* 1-2 cm apart, scarcely subdimorphous, the *fertile* one with stipe 30-35 cm long, straminous, glabrous, lamina 15-20 cm long, 5-8 cm broad at base, oblong-ovate, gradually acuminate, base rotundo-truncate, decurrent a short way along stipe, margin narrowly cartilaginous, repando-undulate; *texture* herbaceous, green, glabrous on both sides; *lateral veins* distinct, erecto-patent, flexuose, veinlets anastomosing on each side in a row of elongate areolæ with divaricate included veinlet; *sori* linear, oblique, extending regularly from costa to margin; *sterile* fronds conform, but with somewhat broader lamina on shorter stipe.

Kwangsi: Yao Shan, Sheng-tang Ling, *S. S. Sin et K. K. Wang 613* (type), June 15, 1928; Sze-loh Hsien, *Kwangsi Natural History Museum No. 27.* Kwangtung: Tung Shin Hsien, Nanlien, *K. K. Tsoong 1967*; Tai-lung Tung, Eu Wai Shan, *C. L. Tso 22410* (1929).

An endemic species, closely related to *C. pedunculata* (Hk. et Grev.) from Sikkim-Himalayas, differing in broadly ovate-oblong leaves being scarcely dimorphous, with rotundo-truncate base shortly decurrent along stipe and narrower sori being more wide apart from each other.

Plate 194. Fig. 1. Habit sketch (natural size). 2. Portion of lamina, showing venation and sori (× 1.5). 3. Scale from rhizome (× 30).

第一百九十四圖

吳氏線蕨(水龍骨科)

COLYSIS WUI (C. Chr.) Ching

地下莖橫行，被深櫻色之線狀披針形鱗片；葉散生亞二形，柄長三十至三十五粉，稻稈色，光滑，葉體長十五至二十粉，基部寬五至八粉，卵狀橢圓形，漸尖頭，基部爲圓截形，向下稍延長，葉邊呈淺波狀，紙質，兩面光滑，側脈明顯，屈折，網脈可見；子囊羣線形，自中肋達葉邊；不生子囊羣之葉體較寬，具較短之柄。

分佈： 廣東及廣西之猺山產之。

此爲稀見之種，其卵狀橢圓形之葉體具二倍長之葉柄，易與本屬各種分區。

圖註： 1. 本種全形（自然大)， 2. 葉體之一部，表示葉脈及子囊羣（放大一倍半)， 3. 地下莖上之鱗片（放大三十倍)。

Plate 194
第一百九十四圖

COLYSIS WUI (C. Chr.) Ching

吳 氏 線 蕨

C. R. Feng Del. et Lith.

PLATE 195

COLYSIS HEMIONITIDEA (Wallich) Presl

POLYPODIACEÆ

COLYSIS HEMIONITIDEA (Wallich) Presl, Epim. Bot. 147 (1849); Ching, Bull. Fan Mem. Inst. Biol. **4:** 320 (1933).

Polypodium hemionitideum Wallich, List no. 284 (1828, nom. nud.); Mett. Farngatt. Polyp. 122 (1857); Hk. Sp. Fil. **5:** 73 (1863); Syn. Fil. 360 (1864); Clarke, Trans, Linn. Soc. II. Bot. **1:** 651 (1880); Christ, Farnkr. d. Erde 105 (1807); Diels in Engl. u. Prantl, Nat Pflnzenfam. **1:** 4. 315 (1899); C. Chr. Ind. Fil. 532 (1905); Christ, Journ. Bot. de France **19:** 21 (1905); ibid. II. **1:** 9 (1908); Takeda, Notes, R. Bot. Gard. Edinb. **8:** 308 (1915); Wu, Polyp. Yaoshan. in Bull. Dept. Biol. Coll. Sci. Sun Yatsen Univ. No. **3:** 282 pl. 132 (1932).

Selliguea hemionitidea Presl, Tent. Pterid. 216 t. 9 f. 17 (1836).

Pleopeltis hemionitidea Moore, Ind. Fil. 436 (1862); Bedd. Ferns S. Ind. t. 182 (1866); Handb. Ferns Brit. Ind. 359 (1883).

Gymnopteris Feei f. *anomala* Bedd. Ferns Brit. Ind. t. 274 (1868).

Rhizome wide-creeping, sparcely scaly; *scales* rufo-brown, ovate-lanceolate, acuminate, thin, clathrate; *frond* distant, 40-60 cm long, 5-7 cm broad, broadly lanceolate, acuminate, entire, gradually narrowed and long-decurrent down ton ear the base of sparcely scaly stipe; *texture* herbaceous, brownish-green upon drying; *venation* distinct, lateral main veins subpatent, parallel, flexuose, about 8 mm apart, the intervening veinlets anastomosing in 3-rowed rectangular areolæ with divaricate included veinlets; *sori* large, oblong, short linear or roundish, one-rowed between each pair of lateral veins, exindusiate.

Kwangtung: Loh-fau Shan, *N. K. Chun 41586, 41293, 40466; C. Ford; C. O. Levine 506.* Swatow, Thai-yong, *Dr. Dalziel,* July, 1901; Tai-mo Shan, *C. G. Matthew,* Oct. 15, 1907; Yingtak, Tai Chun, *C. L. Tso 22026;* ibid., Jewhan, *H. Y. Liang 61296;* Sunyi, *S. P. Ko 51262;* Tsing-tan Hsien, *K. K. Tsoong 1286.* Kwangsi: Tze-poo, Lu-chen Hsien, *R. C. Ching 5574;* Lin Yen Hsien, Tsing-lung Shan, *R. C. Ching 6907;* Yao Shan, Ping-nam Hsien, *S. S. Sin 104A, 104B.* Hainan Island: Ng Chi Leng, *F. A. McClure 9342.* Hongkong: Lantao Island, *C. Ford* (1874); *Tutcher 642* (1909), Yunnan: Mengtze, *Henry 10342, 11488A; Hancock 50* (1893). Kweichow: Without locality, *Cavalerie 3396.*

Also Tonkin, East India, Formosa and the Philippine Islands.

A distinct and also perhaps a linking species between the genera *Colysis* and *Microsorium,* as indicated by its unstable soral conditions, which are generally interrupted into oblong or roundish shape.

Plate 195. Fig. 1. Habit sketch (natural size). 2. Portion of frond, showing venation and soral conditions (× 2). 3. Scale from rhizome (× 16). 4. Scale from base of stipe (× 16).

第一百九十五圖

斷線蕨（水龍骨科）

COLYSIS HEMIONITIDEA (Wallich) Presl

地下莖橫行，被深櫻色之卵狀披針形疏鱗片；葉疏生，長四十至六十糎，寬五至七糎，濶披針形，漸尖頭，全緣，下部漸狹，沿葉柄下延幾達基部，紙質，光滑，乾則呈淡黃色，葉脈明顯，側脈亞斜出，曲折，間距八糎，細脈網狀，眼具分叉小脈；子囊羣大，橢圓形，短線形或卵圓形，一行排列，不具蓋。

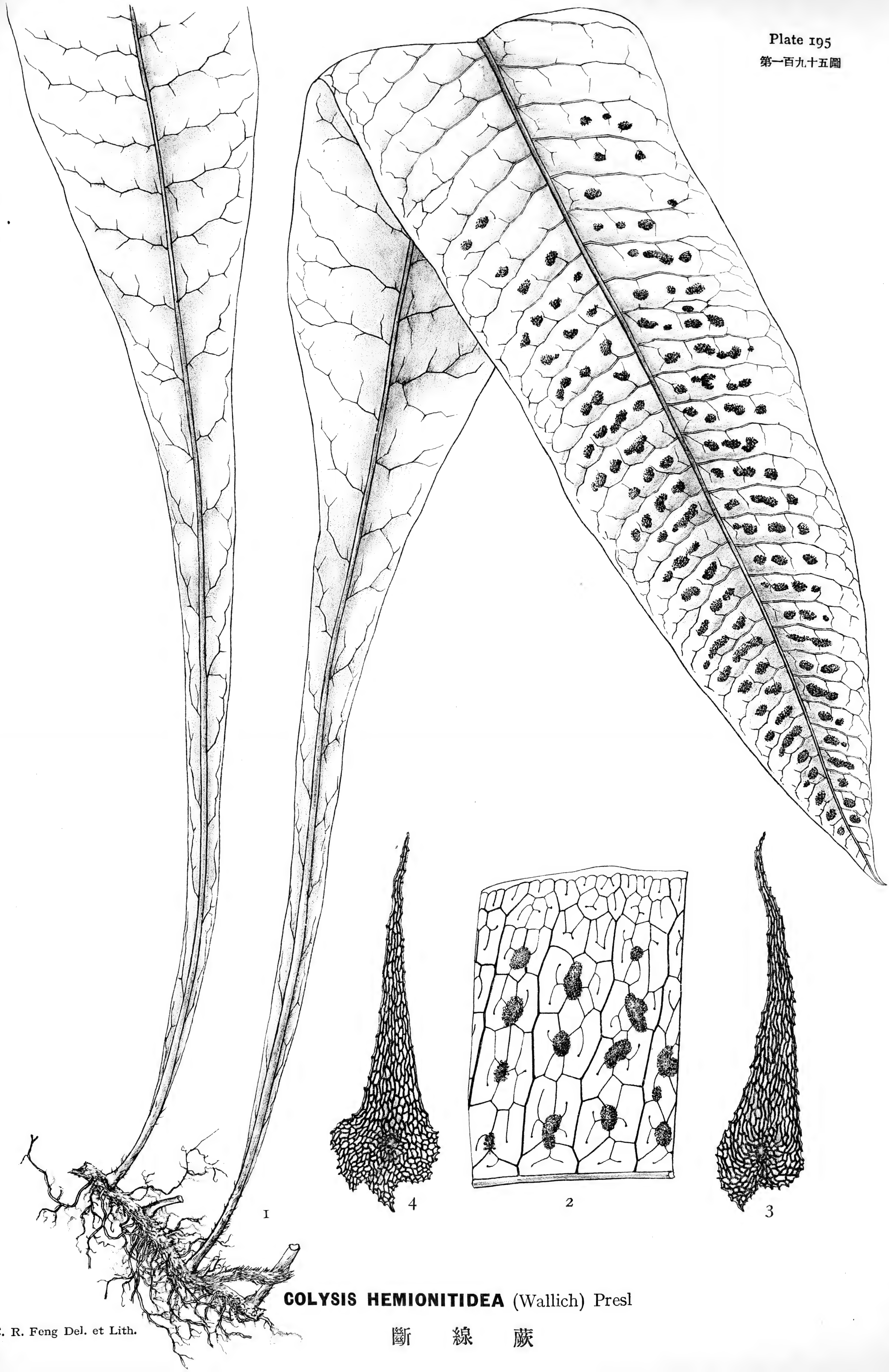
分佈：　廣東，廣西，瓊州島，香港，雲南，貴州，交趾，印度，台灣及菲列濱羣島均產之。

本種異於本屬其他各種者，爲其子囊羣不成通直線形而常斷爲橢圓形或卵圓形是也。

圖註：　1. 本種全形（自然大），　2. 葉體之一部，表示葉脈及子囊羣之情形（放大二倍），　3. 莖上之鱗片（放大十六倍），　4. 葉柄基部之鱗片（放大十六倍）。

Plate 195

第一百九十五圖



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C. R. Feng Del. et Lith.

COLYSIS HEMIONITIDEA (Wallich) Presl

斷　線　蕨

PLATE 196

COLYSIS WRIGHTII (Hooker) Ching

POLYPODIACEÆ

COLYSIS WRIGHTII (Hooker) Ching, Bull. Fan Mem. Inst. Biol. **4:** 324 (1933).

Gymnogramme Wrightii Hooker, Sp. Fil **5:** 160 t 303 (1864); Syn. Fil. 388 (1867).

Polypodium Wrightii Mett. ex Diels in Ehgl. u. Prantl: Nat. Pflanzenfam. **1:** 4. 316 (1899); C. Chr. Ind. Fil. 575 (1905).

Selliguea Wrightii J. Sm. Hist. Fil. 102 (1875).

Polypodium kusukusense Hayata, Ic. Pl. Form. **5:** 320 f. 131 (1915); C. Chr. Ind. Fil. Suppl. II. 26 (1912-16).

Rhizome wide-creeping, densely scaly; *scales* fusco-brown, lanceolate from rounded base, thin, clathrate; *frond* distant, 25-35 cm long including wingless stipe 2-5 cm long (sterile leaves almost without wingless stipe), lanceolate, 4-3 cm broad, acuminate, rather gradually narrowed and decurrent along stipe in a broad wing on each side, margin repando-undulate; *texture* thin herbaceous or submembranceous, glabrous on both sides, turning blackish upon drying; *venation* distinct, lateral main veins subpatent, flexuose, intermediate veinlets anastomosing in 2-rowed elongate areolæ with simple or divaricate included veinlets; *sori* linear, extending from costa to near the margin.

Hongkong: *Bodinier 145*, May 2, *1898*. Kwangtung: Tung Shing Hsien, *K. K. Tsoong 4843, 4905, 1950, 1153;* Yao Shan, *C. L. Tso;* North River, *C. G. Matthew*, Nov. 26, 1907; Swatow, Thai-yong, *Dr. Dalziel*, August, 1897; July, 1901; Sept. 1899. Chekiang: Pin-yang Hsien, *H. H. Hu 1898.*

Also Tonkin, Formosa and Loochoo (*C. Wright*, type).

A very distinct species which, by its present distribution, seems to be more common in the Islands Formosa and Loochoo than on the mainland. It is most closely related to *C. Leveillei* (Christ) Ching but differs in its submembranaceous leaves with repando-undulate margin, always turning blackish upon drying, of which the fertile ones are generally provided with short wingless stipes.

Plate 196. Fig. 1. Habit sketch (natural size). 2. Portion of lamina, showing venation and sori (× 2). 3. Scale from rhizome (× 30).

第一百九十六圖

萊氏線蕨(水龍骨科)

COLYSIS WRIGHTII (Hooker) Ching

地下莖橫行；鱗片爲披針形，黑褐色，質薄，網眼明顯；葉散生，長二十五至三十五粉，寬三至四粉，披針形，漸尖頭，基部自葉柄兩側下延，僅具二至五粉長無翅之柄，邊緣呈波形，側脈屈折，網脈顯明，薄紙質，乾則呈黑褐色；子囊羣線形，自中肋達葉邊。

分佈：廣東，香港，台灣，琉球及交趾產之。

此爲本屬特殊之蕨種，其異於前種者，已詳於該種，茲不贅述。

圖註： 1. 本種全形(自然大)， 2. 葉體之一部，表示葉脈及子囊羣(放大二倍)， 3. 地下莖上之鱗片(放大三十倍)。

Plate 196

第一百九十六圖

COLYSIS WRIGHTII (Hooker) Ching

萊氏線蕨

C. R. Feng Del. et Lith.

PLATE 197

COLYSIS HEMITOMA (Hance) Ching

POLYPODIACEÆ

COLYSIS HEMITOMA (Hance) Ching, Bull. Fan Mem. Inst. Biol. **4:** 326 (1933).

Polypodium hemitomum Hance, Journ. Bot. (1883) 269; C. Chr. Ind. Fil. 532 (1905).

Polypodium macrophyllum var. *fokiense* Cop. Phil. Journ. Sci. Bot. **3:** 283 (1908).

Polypodium sp. nov. Wu. Polyp. Yaoshan. in Bull. Dept. Biol. Coll. Sci. Sun Yatsen Univ. No. **3:** 316 t. 149 (1932).

Rhizome wide-creeping, densely scaly: *scales* fusco-brown, lanceolate from rounded dentate base, thin, clathrate; *frond* far apart, stipe 20-25 cm long, (half as long and broadly winged throughout in sterile leaves), straminous, sparcely scaly, winged half way down, lamina broadly lanceolate, acuminate, generally with hastate base, thence broadly decurrent downward, entire or more frequently with 1-2 pairs of lanceolate, horizontally patent lobes, or sometimes (as in type) regularly lobato-laciniate with 5-6 linear-lanceolate lobes on each side, margin entire, but undulate; *texture* herbaceous, glabrous above, more or less sparcely scaly on veins and costa beneath when young; *venation* distinct, lateral veins oblique, flexuose, veinlets anastomosing along main vein in one row of elongate areolæ with divaricate included veinlet; *sori* linear, flexuose, extending from costa to margin, often interrupted.

Kwangtung: Lien-chow, B. C. Henry (1881), 22104 in Herb. Hance (type); ibid., Fak Shan, *C. L. Tso 22626* (typical), Oct. 5, 1930; Lung-tau Shan, Iu village, *To & Tsang 12159, 12231,* May 27, 28, 1924; ibid. Ku Koong, *Y. K. Wang 31688;* North River, Lanfang Kan, *N. K. Chun 5824;* Yintak, *C. L. Tso 22626;* Lokchong, Kook Kiang, *S. P. Ko 50217; Y. K. Wang 31481; N. K. Chun 43036.* Fukien: Central kart, *S. T. Dunn 3894.* Kwangsi: Yao Shan, *S. S. Sin et K. K. Wang 102;* ibid., *S. S. Sin 3761* (f. integra); May 26, 1928, ibid., *Y. J. Wang 5209, 5309, 5342, 113.*

A peculiarly distinct endemic fern, only related to *C. Wrightii* (Hk.) Ching, differing in hastate or lobato-laciniate lamina on a long and broadly winged stipe, and green color of leaves with less undulate margin. There is an entire-leaved form (f. *integra*) which resembles *C. Wrightii* so closely that it can be distinguished from that species only by proportionally short broad lamina rather suddenly narrowed towards base and much longer stipe, which is generally winged only half way down.

Plate 197. Fig. 1. Habit sketch, representing typical form (natural size). 2. The same but with only 1-2 lobes on each side (natural size). 3. Portion of lamina, showing venation and sori (× 1.5). 4. Scale from costa beneath (× 40). 5. The same, from stipe (× 40). 6. The same, from costa beneath (× 40). 7. The same, from veinlet beneath, intermixed with sorus (× 40).

第一百九十七圖

胄葉線蕨(水龍骨科)

COLYSIS HEMITOMA (Hance) Ching

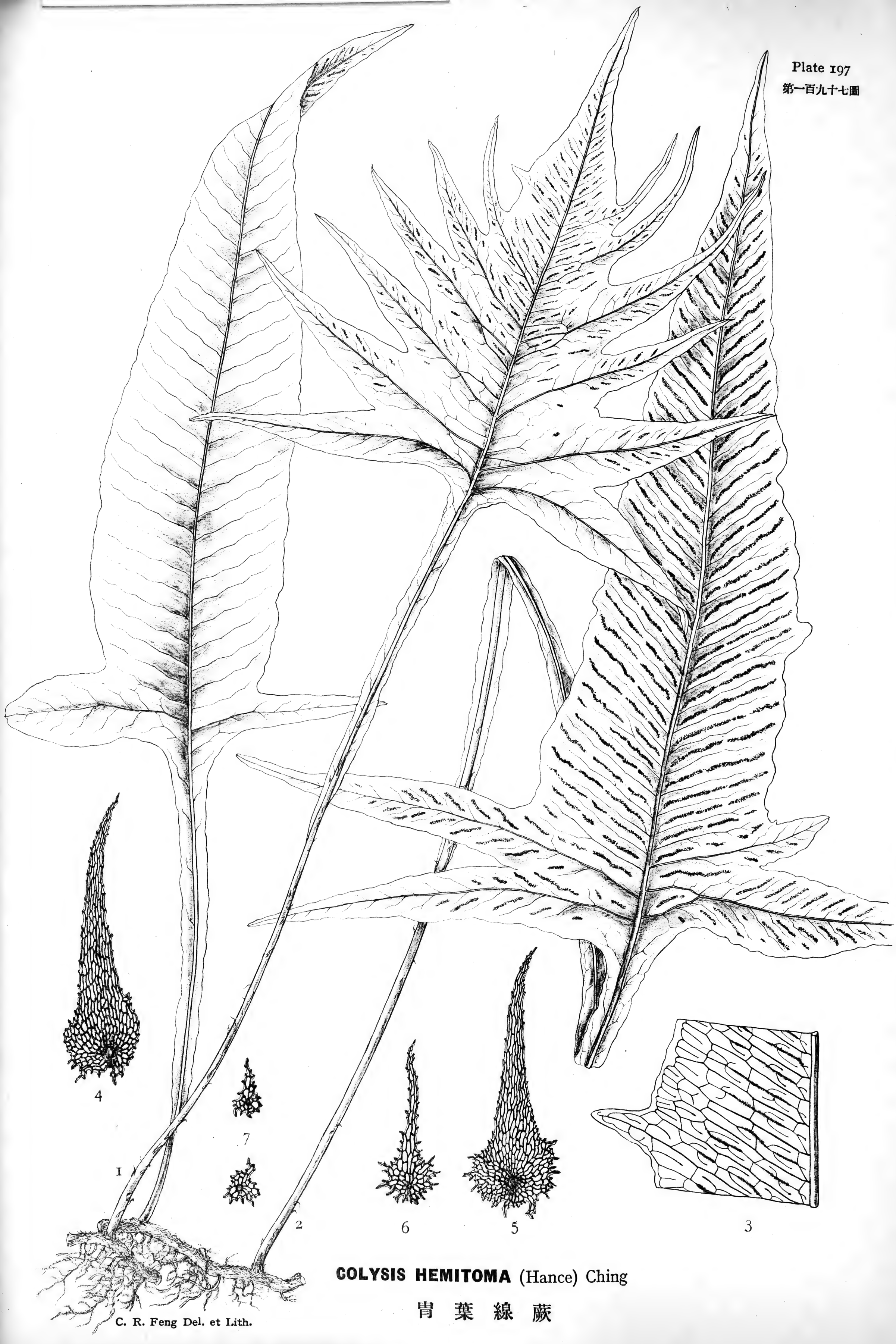
地下莖橫行，被深櫻色之披針形鱗片；葉散生，柄長二十至二十五粉，（不生子囊羣之葉之柄長僅半之），略被細長鱗片，葉體卵形三角形，長十至十六粉，基部寬達六至十粉，漸尖頭，邊緣下部淺裂成二至七對線狀披針形之裂片，基部極狹而下延，薄紙質，乾則常呈黑褐色，側脈屈折，網脈可見；子囊羣線形，自中肋達葉邊，惟常斷續。

分佈： 廣東北部，福建中部，廣西東部產之。

圖註： 1. 本種全形（自然大）， 2. 同上，惟少分裂（自然大）， 3. 葉體之一部，表示葉脈及子囊羣（放大一倍半）， 4. 地下莖上鱗片（放大四十倍）， 5. 柄上鱗片（放大四十倍）， 6. 葉體下面中肋上之鱗片（放大四十倍）， 7. 葉體下面小脈上子囊羣中之鱗片（放大四十倍）。

Plate 197

第一百九十七圖



C. R. Feng Del. et Lith.

COLYSIS HEMITOMA (Hance) Ching

胄葉線蕨

PLATE 198

COLYSIS DIGITATA (Baker) Ching

POLYPODIACEÆ

COLYSIS DIGITATA (Baker) Ching, Bull. Fan Mem. Inst. Biol. **4:** 328 (1933).

Gymnogramme digitata Baker, Journ. Bot. (1890) 267.

Polypodium digitatum C. Chr. Ind. Fil. 522 (1905).

Grammitis Finlaysoniana Wall. List 248, No. 776 (1829, nom. nud.).

Selliguea Finlaysoniana Moore, Ind. Fil. LXVL (1857); Christ, Journ. Bot. d. France 2e. sér. **1:** 11 (1908)

Gymnogramme Finlaysoniana Baker, Ann. Bot. **5:** 486 (1891).

Colysis tridactylis Fée, Gen. Fil. 176 (1850-52, nom. nud.).

Polypodium annamense Christ, Journ. Bot. d. France **19:** 77 (1905); C. Chr. Ind. Fil. 508 (1906); Merr. Enum. Hainan Pl. in Lingnan Sci. Journ. **5:** 18 (1927).

Polypodium ampelidium Christ, l.c. p. 78; C. Chr. l.c.; Merr. l.c. p. 17.

Polypodium podopterum Christ, l.c. p. 125; C. Chr. l.c. 555.

Polypodium Cadieri Christ, l.c. p. 75; C. Chr. l.c. p. 515.

Rhizome wide-creeping, copiously clothed in lanceolate hair-pointed atro-brown and clathrate thin *scales; fronds* subdimorphous, 1-3 cm apart, stipe 20-30 cm long, pale straminous, naked, base articulated, lamina 10-18 cm each way, generally palmately divided (sometimes 2-3-lobed or simple), base rarely shortly decurrent, *segments* 3-5, lanceolate, acuminate, 10-16 cm long, 1.5-3 cm broad, base somewhat narrowed, margin thickened, entire but repandulous; *texture* chartaceous, glabrous on both sides, pale green; lateral *veins* oblique, flexuose, visible; *sori* linear, oblique, between lateral main veins, extending from costa to margin; *sterile frond* conform, but on much shorter and often winged stipe and with broader segments.

Kwangsi: Lungchow, *Morse 45;* Lu-chen Hsien, *R, C. Ching 5620,* on rocks along stream under forest. Hainan Island: Lea Mui, *Eryl Smith 1513,* Jan. 4, 1923, on stream side; South of Fan Ta, *Tsang Wai-tak 17797* (1929); Five Finger Mt., *F. A. McClure 8080, 8552; W. Y. Chun 6804* (in Herb. Univ. Nanking); *Eryl Smith 2542* (f. simplex), on tree; Hoichow, *Hancock 20;* Lin-fa Shan, *F. A. McClure 8070; Tsang Wai-tak 17024, 15839; W. Y. Chun 6605;* Pat Ka Shan, *F. A, McClure 8552* (f. simplex); Tun Kao, *Eryl Smith 1510, 1518, 1511;* Huploha, *W. Y. Chun 1316;* Lohœ, *Miss Moninger 225.*

Tonkin: *Balansa 102* (type); Lang Biang, *Eberhardt 106; Gaudichaud; Mrs. Clemens 4365.* Annam: *Cadier 45* (type of *Polypodium annamense*); *Cadier 103* (type of *P. Cadieri*).

A very distinct and pretty fern, now found to be fairly common in the localities noted, but still unknown elsewhere. It differs from the other species of the genus in its palmatifid leaves with 3-4-5 lanceolate entire segments and wingless stipe, but forms with 2-3-lobed or even simple leaves have also been found not uncommon even in the same collection or on the same rhizome. *Polypodium annamense* Christ differs only in the slightly winged upper stipe, while *P. Cadieri* Christ has simple or 2-3-lobed leaves with much contracted linear fertile segments.

Plate 198. Fig. 1. Habit sketch (natural size). 2. Portion of fertile segment, showing venation and position of sori (× 3). 3. Sporangium (× 108). 4. Scale from rhizome (× 36). 5. Cross section of rhizome, showing the arrangement of steles (× 20).

第一百九十八圖

掌葉線蕨（水龍骨科）

COLYSIS DIGITATA (Baker) Ching

地下莖橫行，具黑褐色之披針形鱗片；葉散生，亞二形，葉柄長二十至三十粉，淡稻稈色，光滑，葉體長十至十八粉，寬亦如之，掌狀分裂(間爲二至三裂，或單葉)，基部略延長，裂片三至五數，披針形，漸尖頭，長十至十六粉，寬一·五至三粉，基部稍狹，全緣惟呈淺波狀，紙質，兩面光滑，側脈斜出，曲屈可見，網脈二列，內具小脈；子囊羣線形，斜出，自中肋達葉邊；不生子囊羣之葉具較短之柄與較濶之裂片。

分佈： 廣西，瓊州島；安南，交趾亦產之。

本種通常因其掌狀分裂之葉，故易於區別，然間有三至二裂者，或甚有不分裂者，是當注意耳。

圖註： 1. 本種全形（自然大）， 2. 裂片之一部，表示葉脈及子囊羣之位置（放大三倍）， 3. 子囊（放大一百〇八倍）， 4. 地下莖上之鱗片（放大三十六倍）， 5. 地下莖之橫切面，表示維管束之佈置（放大二十倍）。

Plate 198

第一百九十八圖

COLYSIS DIGITATA (Baker) Ching

掌 葉 線 蕨

C. R. Feng Del. et Lith.

PLATE 199

COLYSIS PENTAPHYLLA (Baker) Ching

POLYPODIACEÆ

COLYSIS PENTAPHYLLA (Baker) Ching, Bull. Fan Mem. Inst. Biol. **4:** 332 (1933).

Gymnogramme pentaphylla Baker, Kew Bull. (1898) 233

Polypodium pentaphyllum Christ (non Baker, 1891), Bull. Acad. Céogr. Bot. (1906) 248.

Polypodium ellipticum var. *pentaphyllum* C. Chr. Ind. Fil. 524 (1905).

Polypodium mediosorum Ching, Bull. Fan Mem. Inst. Biol. **2:** 19 t. 4 (1931); C. Chr. Ind. Fil. Suppl. III. 153 (1934).

Rhizome wide-creeping, densely radicose and scaly; *scales* ovate-acuminate, light brown, iridescent, thin, clathrate, dorsally affixed; *frond* distant, stipe 35-55 cm long, straminous, glabrous above base; lamina ovate, 15-20 cm long, nearly as broad, pinnate; *pinnae* 1-3-jugate, or rarely more, 14 cm long, to 3 cm broad, broadly lanceolate; opposite, acuminate, base attenuate and decurrent along rachis, equal-sized, margin entire, slightly repand; *texture* herbaceous, green, glabrous; *costa* prominent on both sides, *lateral main veins* visible above, veinlets anastomosing in 4 rows of elongate, oblique areolæ with included recurrent simple veinlets; *sori* linear, oblique, extending over two-thirds way to the margin.

Yunnan: Mengtze, *A. Henry 9033A, 9033 (type), 9295;* Wen Shan Hsien, Lou-chin Shan, *H. T. Tsai 51373;* ibid., Da Tsin, *H. T. Tsai 51647.*

A distinct endemic species, closely related to *C. elliptica* (Thbg.) var. *pothifolia* (Don) Ching in habit, differing in very long-stipitate leaves and proportionally short ovate lamina with only 1-3 pairs of broadly lanceolate pinnæ, thick and rather short sori and the broadly ovate-acuminate, light brown scales on rhizome.

Plate 199. Fig. 1. Habit sketch (natural size). 2. Portion of pinna, showing venation and sori (× 25). 3. Scale from rhizome (× 20).

第一百九十九圖

濱線蕨(水龍骨科)

COLYSIS PENTAPHYLLA (Baker) Ching

地下莖橫行，被卵形漸尖頭淡櫻色之鱗片；葉散生，柄長三十五至五十五粉，稻稈色，光滑，葉體卵形，長十五至二十粉，寬約如之，羽狀分裂；小葉一對至三對，對生，長十四粉，寬達三粉，闊披針形，漸尖頭，基部漸狹，沿中肋延長，葉邊全緣而稍反捲，紙質，光滑，葉脈明顯，網脈可見；子囊羣線形，斜出，自主脈外出，達葉寬三分之二。

分佈： 雲南特產。

本種形體極類橢圓線蕨 (C. elliptica) 之闊葉變種 (var. pothifolia), 惟其葉柄特長，葉體較短，僅具一至三對之小葉，莖上鱗片爲卵狀披針形，呈淡黃色，故易識別。

圖註： 1. 本種全形(自然大)， 2. 小葉之一部，表示葉脈及子囊羣之位置(放大二倍半)， 3. 地下莖上之鱗片 (放大二十倍)。

Plate 199
第一百九十九圖

C. R. Feng Del. et Lith.

COLYSIS PENTAPHYLLA (Baker) Ching

濱　線　蕨

PLATE 200

GOLYSIS MORSEI Ching

POLYPODIACEÆ

COLYSIS MORSEI Ching, Bull. Fan Mem. Inst. Biol. **4:** 330 (1933).

Polypodium Morsei Ching, Bull. Fan Mem. Inst. Biol. **2:** 17 t. 1 (1931); C. Chr. Ind. Fil. Suppl. III. 154 (1934)

Rhizome wide-creeping, densely scaly; *scales* fusco-brown, linear-lanceolate from ovate base, clathrate, entire; *frond* far apart, subdimorhpous, the fertile one with stipe to 20 cm long. straminous, glabrous, lamina 20-24 cm long, to 8 cm broad, oblong-elongate, with caudate apex, simple pinnate; *pinnae* to 16 pairs, subopposite, obliquely patent, to 5 cm long, 7 mm broad, basal ones not shortened, gradually abbreviated towards the caudate apex, narrowly lanceolate, acuminate, entire, considerably constricted above decurrent base, the upper ones are connected by a narrow wing along rachis; *texture* herbaceous, green, glabrous on both sides; *veins* anastomosing only in two rows of oblique areolæ along costa; *sori* linear, oblique, extending from near the costa to margin; *sterile fronds* conform but much shorter, on stipe 10 cm long, lamina 15 cm long, to 7 cm broad; *pinnae* 3.5 cm long, 1 cm broad, lanceolate, narrowed above decurrent base.

Kwangsi: Lungchow, Ah Chin, n. w. hills, *H. B. Morse 22, 64* (type); Lin Yen Hsien, *R. C. Ching 6633.*

Tonkin: Than-Moi, *Balansa 36, 100,* sur les roches calcaires, Jan. 19, 1886; *Pételot 4107.*

A pretty and gracil fern, closely related to the typical form of *C. elliptica* (Thbg.), differing chiefly in more pronounced dimorphism of leaves, more numerous and much narrower pinnæ with anastomosed venation of simpler type.

Plate 200. Fig. 1. Habit sketch (natural size). 2. Fertile pinna, showing venation and sori (× 2). 3. Scale from rhizome (× 50).

第 二 百 圖

馬氏線蕨（水龍骨科）

COLYSIS MORSEI Ching

地下莖橫行，被深櫻色線狀披針形之鱗片；葉散生，亞二形，柄長達二十粉，光滑，葉體長二十至二十四粉，寬達八粉，長橢圓形，端呈尾狀，羽狀分裂，小葉達十六對，亞對生，狹披針形 ， 長達五粉，寬七糎，基部數對等長，向葉端漸短，漸尖頭，全緣，基部較狹而下延，彼此分離，惟上部數對間各有狹翅連接，紙質，光滑，側脈缺如，小脈成二列斜出之網眼；子囊羣線形，斜出；不生子囊羣之葉之柄長達十粉，葉體較寬，小葉寬達一粉，中軸具狹翅。

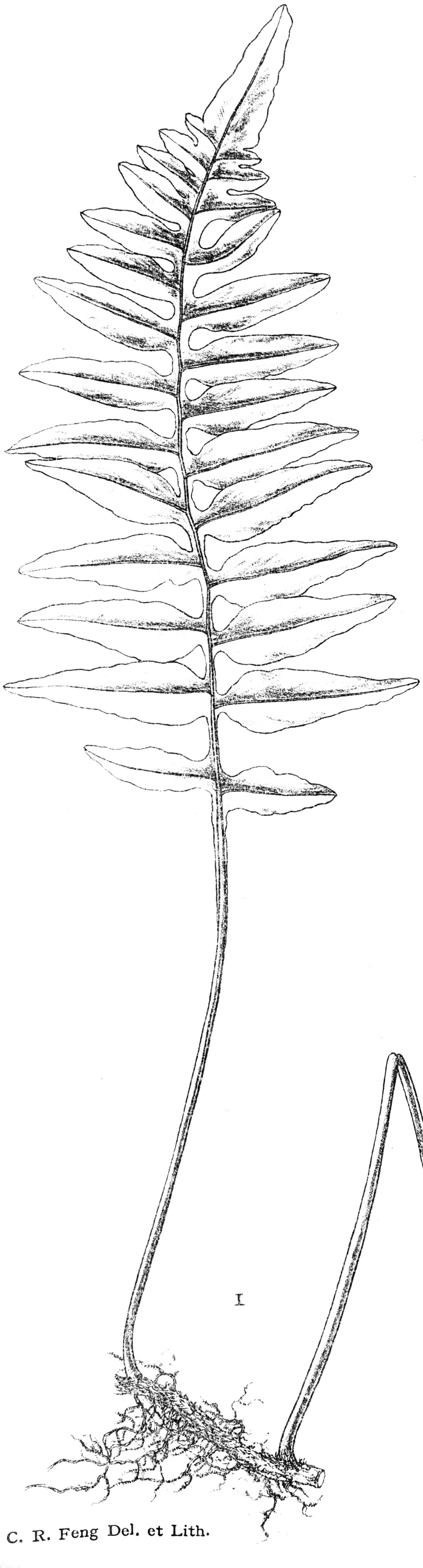
分佈： 廣西及交趾產之。

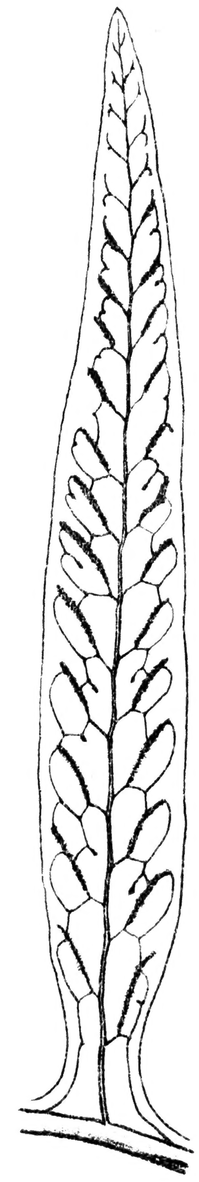
本種形體極似橢圓線蕨，惟其葉爲顯著之二形，小葉數較多而較狹，故易分別。

圖註： 1. 本種全形（自然大）， 2. 生子囊羣之小葉，表示葉脈及子囊羣（放大二倍）， 3. 地下莖上之鱗片（放大五十倍）。

Plate 200

第 二 百 圖





1

3

2

COLYSIS MORSEI Ching

馬 氏 線 蕨

C. R. Feng Del. et Lith.