

ICONES FILICUM SINICARUM

BY

REN-CHANG CHING, B. S.

FASCICLE 4

中國蕨類植物圖譜 第四卷

靜生生物調查所印行

靜生生物調查所
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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

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PLATE 151

GLEICHENIA CANTONENSIS Ching

GLEICHENIACEÆ

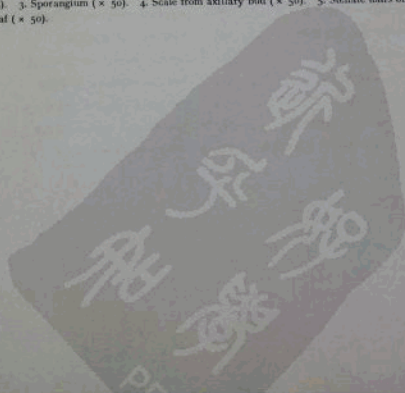
GLEICHENIA CANTONENSIS Ching, Lingnan Sci. Journ. **15**: 391 (1936).

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, pinnatifid nearly down to rachilet; *segments* 60-70-jugate, linear, suboblique, to 2 cm long (sometimes longer), 2 mm broad, margin entire but strongly revolute, apex obtuse, often 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* elongate, naked.

Kwangtung: Suni, Y. K. Wang 3096? (type), roadside, July 17, 1931; Whampoa, one specimen without collector's name in Herb. Kigsmuseum at Stockholm.

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

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



第 一 百 五 十 一 圖

廣 東 裏 白 (裏 白 科)

GLEICHENIA CANTONENSIS Ching

地下莖橫行；葉柄高達二呎，酒紅色，光滑無毛，葉分叉；一回羽葉對生，長達八十份，寬四十份或過之，腋間具一披針形鱗片之大半；二回羽葉多數，互生，間銳，具短柄，長達三十份，寬四份，線狀披針形，基部為截楔形，等寬，向頂漸尖，羽狀深裂至中肋；裂片六十至七十對，線形，歪斜出，長達二份，寬二釐，全緣，強度反捲，鈍頭，葉脈約二十對，均由基部分叉，上面光滑，下面淡粉白色，且披針狀毛，中肋亦呈酒紅色，稍具圓披針形之深栗色鱗片；子囊單中生，位於上方小脈，由二至四個子囊組成之。

分佈：廣東信宜縣及雲埔產之。

此種為廣東特產，其形態極類裏白 (*G. glauca*)，惟形體較大，葉柄及中肋呈酒紅色，二回小葉長達三十份，寬四份，且具柄，裂片歪斜出，邊緣強度反捲，葉腋間之芽所被之鱗片之長僅半之耳。

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





GLEICHENIA CANTONENSIS Ching

廣東裏白

PLATE 152

GLEICHENIA LAEVISSIMA Christ

GLEICHENIACEÆ

GLEICHENIA LAEVISSIMA Christ, Bull. Acad. G6ogr. Bot. (1902) 268; C. Chr. Ind. Fil. 322 (1905).

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

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

Rhizome wide-creeping, densely scaly; *scales* lanceolate, long-acuminate, rufo-brown, nitid, thick, entire; *frond* 2-4 cm apart, stipe 30-50 cm long, 3 mm thick near base, green or pale stramineous, smooth, glabrous above base, rounded beneath, lower part flattened with sharp edge above and upper part deeply grooved, lamina ovate, bifurcate at the tip of stipe into two similar pinnae of oblong outline, 30-40 cm long, 13-16 cm broad, acuminate, axillary bud large, densely scaly, scales ovate, entire, with long subulate apices; *pinnules* linear-lanceolate, acuminate, short-petiolate, the lower ones on the exterior side of rachis 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, consisting of 3-4 globular brownish sporangia.

Kweichow: Kwei-yang, *Bodinier 2085* (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. *Tung 22775* (1930). Yunnan: Without locality, *Delavay 46*. Kiangsi: Kinkiang, Lu-shan, *Dr. Shearer* (1887); Three Falls, C. E. *DeVol 47*, August 7, 1933, steep damp hill side. Chekiang: Tientai Shan, R. C. *Ching 1487* (1923), under forest. Kwangtung: Lokchong, N. K. *Chun 32515*. Kwangsi: Lu-chien Hsien, Miu Shan, Dar Sia 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 85586*.

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

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

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

第 一 百 五 十 二 圖

光 蕨 白 (蕨 白 科)

GLEICHENIA LAEVISSIMA Christ

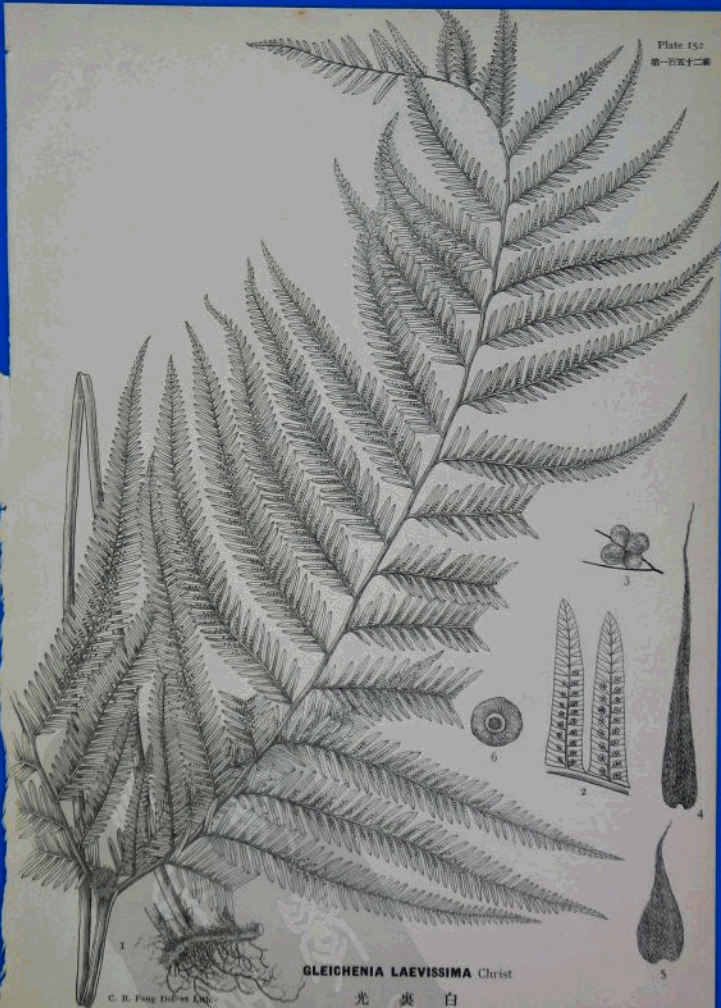
地下莖橫行，密被紅褐色之細長鱗片；葉散生，柄長達五十份，淡綠色，光亮，葉體卵形，二裂，小葉長達四十份，寬十六份，橢圓形，漸尖頭，二回羽狀分裂；葉腋間具一大芽，被淡黃色之密鱗片；二回小葉線狀披針形，漸尖頭，具短柄，基部外側數對最長，長達十二份，寬二份，內側一二對最短，漸尖頭，羽狀深裂，裂片輪流排列，長一至一·五份，寬二釐，尖頭，斜出，邊緣強度反捲，厚紙質，兩面光滑，綠色，葉脈分叉；子囊草小，圓形，生於上方小脈，由三至四個淡黃色之子囊組成之。

分佈：貴州，江西，浙江，廣東，廣西，瓊州島；日本亦產之。

此蕨本屬特殊之種，全體光綠，甚易識別。

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





GLEICHENIA LAEVISSIMA Christ

光 葉 白

GLEICHENIA SPLENDIDA Hand-Mzt

GLEICHENIACEÆ

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

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

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

Yunnan: Tibet-Burmese border, *H. Handel-Mazzetti* 9851 (type); Tengyueh, *J. F. Rock* 7178; Mengtze, *Hancock* 71. Kwangtung: Sunyi, *Y. K. Wang* 50980. Kwangsi: Lin Yen Hsien, Tsin-lung Shan, *R. C. Ching* 7048; *ibid.*, Yeo Mar Shan, *R. C. Ching* 7256. Hongkong: Victoria Peak, *Lamont* 975.

Burma: *Lace* 4748 ex Herb. Bedd.

Khasia: *Hooker f. et Thomson*.

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

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

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



第一百五十三圖

碩莪白 (莪白科)

GLEICHENIA SPLENDIDA Hand-Mzt.

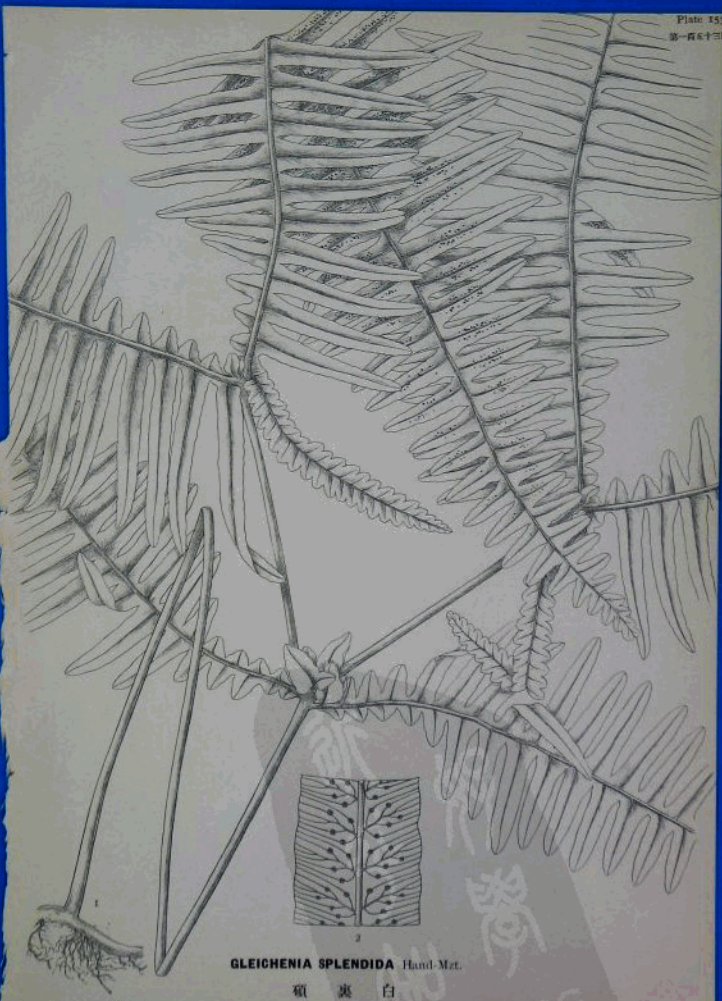
地下莖橫行，光亮，粗糙；鱗片深褐色，線形，簇生；葉長一至數呎，直立或為蔓性，葉柄深暗綠色，光亮，無毛，高自三十粉至數呎，葉體數吋分叉，每分叉處之基部下方具一對小葉片；一回小葉長三十至四十粉，寬十至十六粉，頂漸尖，基部漸狹，無柄，楔狀深裂；裂片長五至十粉，基部之寬達一粉，線狀披針形，端略鈍，邊緣呈淺波形，革質，下面稍呈白色，葉面每組具五至六數平行小脈；子囊果為不規則之二列，中生，由十至二十個子囊組成之。

分佈：雲南，廣東，廣西，香港，緬甸，安南均產之。

本種形態極類普通之線莪白 (*G. linearis*)，惟其各部形態特大，裂片長達十粉，寬一粉，邊緣呈波形，故易識別。

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





GLEICHENIA SPLENDIDA Hand-Met.

碩莪白

PLATE 154

DIPTERIS CHINENSIS Christ

DIPTERIDACEÆ

DIPTERIS CHINENSIS Christ, Bull. Acad. Géogr. Bot. (1904) 104 cum fig. et tab.; C. Chr. Ind. Fil. 242 (1905); Ching, Bull. Dept. Biol. Coll. Sci. Sun Yatsen Univ. No. 6: 23 (1933).
Dipteris Horsfieldii Christ. (non Bodd. 1869), Bull. Herb. Boiss. 6: 880 (1898).
Dipteris conjugata Hand.-Mzt. (non Reinw. 1934), Sym. Sin. 6: 28 (1929); Wu, Polyp. Yanshan, in Bot. Dept. Biol. Coll. Sci. Sun Yatsen Univ. No. 3: 94 t. 38 (1932).

Rhizome wide-creeping, woody, densely scaly; **scales** atro-brown, rigid, setaceous, linear-subulate, nitid, appressed; **frond** far apart, stipe 30-60 cm long, dark stramineous, glabrous above base, woody, rounded below, broadly grooved upward on the upper side, lamina 20-30 cm high, 30-60 cm broad, bipartite into nearly equal fan-shaped halves, each again cleft into 4-5 broad acuminate lobes, 5-8 cm broad, the exterior one divided to three-quarters of the way down, the middle one or two, less deep, and the interior one, only one-third way down, each lobe may be once forked with grossly serrated margin; **texture** crass herbaceous or subcoriaceous, turning brownish when dried; underside green or slightly bluish and with some dark brown articulated deciduous hairs along veins; main veins prominent, dichotomously branched, connected by finer transverses ones, with intermediate veinlets anastomosing copiously into hexagonal areole 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 *Gaualerie* 7641, 341 (type); Cheng-feng, Y. *Tsiang* 4706; without locality, *Esquivel* 8139, 667. Kwangsi: Yao shan, S. S. *Sin* 647, June 29, 1928; Tseing Hsien, C. *Wang* 39494, June 22, 1936; Lu-chen Hsien, Miu Shan, R. C. *Ching* 6149. Yunnan: Mengtze, *Hancock* 218; 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 sori.

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

第一百五十四圖

雙扇蕨(雙扇蕨科)

DIPTERIS CHINENSIS Christ

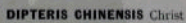
地下莖橫行，粗壯，木質，被深褐色之緊薄細長厚鱗片；葉散生，柄長三十至六十公分，木質，葉體二裂，或等大之兩扇形，各扇復四至五深裂，漸尖頭，各裂片一次深裂，具粗鋸齒，乾紙質，上面光滑，下面葉面略具深褐色之短毛，主脈數回扇狀分叉，遠以顯明之橫脈，網脈頗明顯，各網眼具分叉或單小脈；子囊果形圓而小，散生，不具蓋，線狀體密生，錫呈膨大之傘形，深棕色。

分佈：貴州，廣西，雲南，藏邊南之。

此為本屬特殊之一種，為中國特產，其形態略同亞洲熱帶產之 *D. conjugata*，惟較小，葉之分裂較少，下面呈粉白色，子囊果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，表示葉脈及子囊果(放大五十倍)，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. 葉之橫切面，表示維管束之佈置(放大五十倍)，7. 葉下面脈上之短毛(放大三倍)，8. 子囊果中之線形體(放大一百五十倍)。





雙扇戲

PLAGIOGYRIA ASSURGENS Christ

POLYPODIACEAE

PLAGIOGYRIA ASSURGENS Christ, Bull. Soc. Bot. Ital. (1901) 293; C. Chr. Ind. Fil. 495 (1905); Cop. Phil. Journ. Sci. **38**: 398 (1925).

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

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

Rhizome thick, woody; *fronds* caespitose, dimorphous, *sterile* one with stipe to 20 cm long, rigid, dark stramineous, terete beneath, broadly grooved above, base flattened, carinate, with 3 aerophores on each of exterior sides, lamina oblong-lanceolate, quite narrowed at base, to 30 cm long, 10 cm broad at middle, simple pinnate with pinnatifid acuminate apical part; *pinnæ* 30-35-jugate, linear-lanceolate with upper side of base running upward, the lower several pairs gradually shortened and strongly deflexed, the middle ones to 8 cm long, 8 mm broad, horizontally patent, entire except the acuminate apex being with a few obscure teeth, the upper pinnæ 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; *pinnæ* contracted, linear, to 3 cm long, 2 mm broad, base broadly adnate; *sori* indefinite, completely covering the under surface, except the midrib.

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

This distinct endemic fern, so far collected only thrice in mountains in the southwestern part of Szechwan, is closely related to *P. adnata* of the same region in general outline, differs in shortened and strongly deflexed lower pinnæ and the glaucous underside of lamina, less serrated apice of sterile pinnæ and broadly adnate base of fertile pinnæ. *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. Pinnæ, showing venation and serrature ($\times 2$). 3. Portion of fertile pinnæ, showing position of sori ($\times 16$). 4-5. Sporangium with spores ($\times 150$).

