

# ICONES FILICUM SINICARUM

BY

REN-CHANG CHING, B. S.

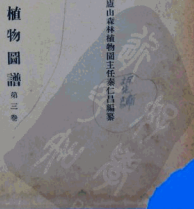
FASCICLE 3

## 中國蕨類植物圖譜 第三卷

靜生生物調查所 印行

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

THE LU-SHAN ARBORETUM AND BOTANICAL GARDEN

OF

THE FAN MEMORIAL INSTITUTE OF BIOLOGY AND  
KIANGSI PROVINCIAL AGRICULTURAL INSTITUTE

FASCICLE 3, PLATES 101-150

第三卷

057804

PUBLISHED BY  
THE FAN MEMORIAL INSTITUTE OF BIOLOGY  
PEKING, CHINA  
Nov. 1933

群生生物調查所印行

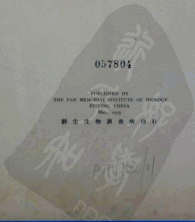


TABLE  
 PLATES OF FASCICLE 3  
 Arranged in Numerical Order

Plate No.

102. *Woodia macrocladus*. 大蓋岩蕨  
 103. *Woodia macfarlandii*. 滿洲岩蕨  
 104. *Davallia Marioni*. 海州骨碎補  
 105. *Davallia orientalis*. 華南骨碎補  
 106. *Bianzia americana*. 高山隱石蕨  
 107. *Arthropogon obliterata*. 蕨蕨  
 108. *Camplopus sibiricus*. 滿山蕨  
 109. *Athyrium Sheareri*. 鹿角蕨  
 110. *Athyrium otophorum*. 光蹄蕨  
 111. *Athyrium Goeringianum*. 柯氏蹄蕨  
 112. *Asplenium Sewellii*. 華中隱夾蕨  
 113. *Asplenium Simpsonii*. 雲南隱夾蕨  
 114. *Asplenium pringleianum*. 長生隱夾蕨  
 115. *Asplenium crinale*. 毛雞尾蕨  
 116. *Asplenium sancti*. 琴尾蕨  
 117. *Woodwardia orientalis*. 東方狗脊  
 118. *Dicranella Griffithii*. 拳蕨  
 119. *Quercifolia reynoldsii*. 雞耳蕨  
 120. *Bolbitis heteroclada*. 長葉寶蕨  
 121. *Hypodermis cretacea*. 鱗尾蕨  
 122. *Hypodermis Fendleri*. 網氏鱗尾蕨  
 123. *Hypodermis cyathophylla*. 山東鱗尾蕨  
 124. *Tectaria subtriplylla*. 三叉蕨  
 125. *Tectaria macroclada*. 高山三叉蕨

Plate No.

126. *Cytosium Fortunei*. 貫眾  
 127. *Cytosium bilobatum*. 金絲貫眾  
 128. *Cyclophella ovata*. 龜背蕨  
 129. *Polystichum frutescens*. 瓦楞耳蕨  
 130. *Polystichum ottophanum*. 高山耳蕨  
 131. *Polystichum orientale*. 鐵鰓耳蕨  
 132. *Pellaea Smithii*. 史氏旱蕨  
 133. *Cheilanthes Delessii*. 杜氏粉背蕨  
 134. *Cheilanthes Hancei*. 韓氏粉背蕨  
 135. *Cheilanthes chinensis*. 舟山粉背蕨  
 136. *Cheilanthes trichophylla*. 毛粉背蕨  
 137. *Adiantum refractum*. 扇尾蕨  
 138. *Adiantum Davidi*. 白背扇尾蕨  
 139. *Adiantum Edgeworthii*. 愛氏扇尾蕨  
 140. *Pteris Fargesii*. 韓氏鳳尾蕨  
 141. *Pteris distylina*. 掌鳳尾蕨  
 142. *Schizocera ovalifera*. 圓耳尾蕨  
 143. *Coniogramme intermedia*. 華鳳尾蕨  
 144. *Vittaria Fendleri*. 黃連帶蕨  
 145. *Acrostichum himalaicum*. 卷蕨  
 146. *Sauvagesiana taenioides*. 網石蕨  
 147. *Pyrenia Shearerii*. 鹿角石蕨  
 148. *Pyrenia Diakozii*. 網毛石蕨  
 149. *Arthropteris bimaculata*. 斑葉蹄蓋蕨  
 150. *Arthropteris longicaulis*. 琴蓋蕨

TABLE  
PLATES OF FASCICLE 3  
Arranged in Alphabetical Order

Plate No.	Plate No.
<i>Adiantum Davidi</i> , 白背蕨屬葉.....338	<i>Cyrtanthus Fortunei</i> , 苜蓿.....326
<i>Adiantum Edgeworthii</i> , 愛氏蕨屬葉.....339	<i>Davallia Martiana</i> , 海州骨附屬.....393
<i>Adiantum refractum</i> , 岡蕨屬葉.....337	<i>Davallia orientalis</i> , 華南骨附屬.....394
<i>Antrophyum formosense</i> , 華蕨屬.....343	<i>Dielychne Griffithii</i> , 卷蕨.....327
<i>Arthropteris himalayensis</i> , 瓦蕨屬葉.....349	<i>Hamata asiatica</i> , 高山卷石蕨.....395
<i>Arthropteris longicaulis</i> , 粵蕨屬.....350	<i>Hypodematium crenatum</i> , 鱗足蕨.....323
<i>Arthropteris chitensis</i> , 藤蕨.....356	<i>Hypodematium cyrtanthoides</i> , 山卷蕨屬.....322
<i>Asplenium crinale</i> , 毛蕨屬葉.....314	<i>Hypodematium Fordii</i> , 鱗蕨屬葉.....322
<i>Asplenium prolongatum</i> , 長生蕨屬葉.....313	<i>Nelara Smithii</i> , 史氏草蕨.....332
<i>Asplenium Sempsonii</i> , 蕨南蕨屬葉.....312	<i>Polystichum fimbriatum</i> , 瓦蕨耳蕨.....329
<i>Asplenium Sarrilii</i> , 華中國蕨屬.....311	<i>Polystichum emicnense</i> , 鱗蕨耳蕨.....331
<i>Asplenium mastoia</i> , 粵蕨屬葉.....315	<i>Polystichum chlorophorum</i> , 高山耳蕨.....330
<i>Athyrium Goringianum</i> , 柯氏細葉蕨.....320	<i>Pteris daurica</i> , 華蕨耳蕨.....321
<i>Athyrium chlorophorum</i> , 光腳蕨屬.....309	<i>Pteris Faurei</i> , 樺瓦蕨屬.....320
<i>Athyrium Shearerii</i> , 蕨白細葉蕨.....308	<i>Pymosia Dinkara</i> , 藍白石草.....328
<i>Bolbitis heteroclita</i> , 長葉蕨屬.....319	<i>Pymosia Shearerii</i> , 蕨白石草.....327
<i>Bolbitis subcordata</i> , 蕨白蕨屬.....323	<i>Quercilites mylenica</i> , 地耳蕨.....325
<i>Campocorus chinensis</i> , 滿山蕨.....369	<i>Saxifragas ternstroedii</i> , 腳石草.....326
<i>Cheilanthes chinensis</i> , 丹白粉背蕨.....335	<i>Schizocoma ensiformis</i> , 腳風耳蕨.....322
<i>Cheilanthes Duchauxii</i> , 杜氏粉背蕨.....333	<i>Tectaria macrostata</i> , 蕨山三叉蕨.....325
<i>Cheilanthes Hancockii</i> , 韓氏粉背蕨.....334	<i>Tectaria subtriplylla</i> , 三叉蕨.....324
<i>Cheilanthes trichophylla</i> , 毛粉背蕨.....336	<i>Vittaria Forrestiana</i> , 寬齒蕨屬.....324
<i>Coniogramme intermedia</i> , 拳足蕨屬.....342	<i>Woodia macrocladus</i> , 大囊耳蕨.....392
<i>Cyclophorus crenata</i> , 蕨蕨屬.....325	<i>Woodia manchuriana</i> , 蕨西耳蕨.....393
<i>Cyrtanthus labellum</i> , 金線苜蓿.....327	<i>Woodwardia orientalis</i> , 東方狗脊.....396



## PLATE 101

## WOODSIA MACROCHELONA Mettenius

## POLYPODIACEAE

**WOODSIA MACROCHELONA** Mettenius ex Kuhn, Journ. Bot. (1868) 279; *Linnæus* 36: 129 (1899); C. Chr. Ind. Fl. 657 (1905); Suppl. III, 105 (1934); Fomín, Fl. Sib. et Orient. Extr. 5: 10 c. fig. (1930); Ching, *Sinensia* 3: 143, 1932.

*Woodsia woodleyi* Hb. et Bak. (non Hance, 1864) Syn. Fl. 47 (1867).

*Woodsia Brandii* Fitch. et Sav. Enum. Pl. Jap. 2: 263, 665 (1876).

*Woodsia japonica* Makino, Bot. Mag. Tokio 18: 134 (1904); Ogata, Ic. Pl. Jap. 2: t. 149 (1924).

*Woodsia sinense* Makino, Bot. Mag. Tokio 21: 64 (1907, non 1904); Christ, Bull. Acad. Géogr. Bot. 20: 157 (1909, non 1902).

*Woodsia frondosa* Christ in Focke, Report Sp. Nov. 2: 12 (1908).

*Rhizome* short, erect, densely radiceous, apex densely clothed in bright brown, lanceolate, acuminate, sparsely fimbriate *scales*; *fronds* fasciculated, stipe 2-30 cm long, stramineous or brownish, scaly at base, hirsute upwards, lamina 5-12 cm long, 2-4 cm broad, pinnate under pinnatifid acutish apex, *pinnae* 5-12-jugate, the lower ones free, subsessile, the upper ones adnate, the basal pair springs from the prominent articulation of stipe, always somewhat smaller than those above, deflexed, ovate-deltoid, with more or less auriculate anterior base, the middle pinna 1.2-2 cm long, oblong-ovate, adnate with wingless rachis between contiguous pairs, lobate-sinate or pinnatifid into oblong sinuate segments, rachis and both sides moderately clothed in ferruginous needle-like, articulated appressed hairs, no trace of scales; *terrors* herbaceous, soft; *veins* in segments pinnate; *axils* large, terminal on veinlets, 1-2 to each lobe, or 4-6 in each segment, *indusium* cup-shaped, large, membranaceous, setose hairy, irregularly 4-6 creased at top; *spermatia* shortly stipitate.

Shantung: Chifoo, Schottmüller (type), August, 1861; *B. Drey* 245, Sept. 17, 1867; *A. C. Melrose* 12, August-Sept. 1862; *Cosley* 411 (1920); *Ferbus* 2232 (1881); Wei-hai-wei, C. G. Mathew, Sept. 1936. Shansi: *F. Livet* (without locality). Manchuria: *Swinsko* 6516 in herb. Hance, Port Arthur; *Nies Müller*, Oct. 28, 1928.

Corea: Oum San, *U. Faurie* 101 (type of *W. frondosa*). Quelhart: *U. Faurie* 5616, 2172 (f. *typica*).

Japan: Prov. Chochiu, *Kramer* 1852 (type of *W. Brandii*); C. G. Mathew, July 23, 1906.

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

Plate 101. Fig. 1. Habit sketch, *U. typica* (natural size). 2. Upper middle pinna, showing venation and axils ( $\times 6$ ). 3. Sorus with indusium ( $\times 20$ ). 4. The same, cut vertically ( $\times 20$ ). 5. Scales and hair from the base of stipe ( $\times 10$ ). 6-7. Hairs from rachis and leaf surfaces ( $\times 30$ ). 8. Basal pinnae attached to the articulation of stipe ( $\times 20$ ). 9. Spermatium (greatly enlarged). 10. Spore (greatly enlarged).

ICOWS FILICUM SINICARUM

第一百零一圖  
大囊岩蕨(水龍骨科)

WOODSIA MACROCHLAENA Mettenius

地下莖短而直立，頂部具較黃色之披針形葉鱗片；葉簇生，柄長二至十粉，拱形褐色，基部具鱗片，上部滿被剛毛，葉柄長五至十二粉，寬約二至四粉，一回羽狀分裂，下部小葉幾無柄，基部一對着生於葉柄頂部之節上，較小，下向，上部小葉與中葉合生，長約一、二至二粉，徑圓卵形，波狀分裂，或深裂，中肋及葉面被短剛毛，不具鱗片，紙質；葉脈羽狀分裂；子囊果卵圓，着生於葉脈之節，蓋為圓杯形，膜質，被剛毛，徑約四至六粉，口具四至六個齒。

分布： 自東北、河北、陝西、東三省；朝鮮及日本亦產之。

本種為我國東北部的有之種，最初在山東烟台發現，現為華北常見之種。

附註： 1. 本種全形(自然大)。 2. 中部小葉，表明其葉脈及子囊果着生狀(放大六倍)。 3. 子囊果與蓋(放大二十倍)。 4. 同上，唯直切面(放大二十倍)。 5. 葉柄基部之鱗片及剛毛(放大十六倍)。 6-7. 葉柄上之剛毛(放大三十倍)。 8. 基部一對小葉着生於葉柄之節上(放大二十倍)。 9. 子囊果(高倍放大)。 10. 翅子(高倍放大)。





*WOODSIA MACROCHLAENA* Mettenius

大藏岩蕨

## PLATE 102

## WOODSIA MANCHURIENSIS Hooker

## POLYPODIACEAE

**WOODSIA MANCHURIENSIS** Hooker, 2nd. Cent. Ferns 1: 98 (1861); Syn. Fil. 48 (1867); Middle, Fil. Europ. et Atlant. 168 (1867); Christ. Farukr. d. Erde 283 (1867); Diels in Engl. u. Prantl: Nat. Pflanzenfam. 1: 4: 161 (1896); C. Chr. Ind. Fil. 657 (1905); Fomin, Fl. Sib. et Orient. Extr. 5: 9 (1930); Ogata, Ic. Fil. Jap. 5: t. 249 (1933).

*Dicranis manchuriana* Tuck. Musc. Gen. Bot. Soc. Ind. 7: 166 (1893).

*Phymatium manchuriana* Nakai, Bot. Mag. Tokio 19: 175 (1925).

*Woodsia insularis* Harms, Ann. Sci. Nat. IV, 15: 225 (1911); Diels in Engl. u. Prantl: Nat. Pflanzenfam. 1: 4: 162 (1896).

**Rhizome** short, erect; **scapes** light brown, thin, ovate-lanceolate, acuminate, clothing the apex; **fronds** campitose, stipe short, terete, 2-5 cm long, glossy, stramineous, sparsely scaly, lamina lanceolate, 10-20 cm long, 2-4 cm broad, or even broader, membranaceous, clear light green, glabrous on both sides, deeply bipinnatifid under pinnatifid acuminate apex, rachis glabrous, deeply sulcate above; **pinnae** 13-40-jugate, oblique, sessile, the lower ones much abbreviated and opposite, the upper ones alternate, 1-3 cm long, oblong-obtuse, base truncate, deeply pinnatifid; **segmente** 2-8-jugate, oblique, oblong-ovate, obtuse, entire or slightly sinuate; **neurae** pinnate, 2-4-jugate, veinlets fine, oblique, fall short of the margin with enlarged apex; **costae** large, on the anterior basal veinlets of each segment, below the sinus, **indusium** large, globose, gray, thin membranaceous, opening with a toothed edge of the contracted mouth at the top.

Shantung: Chieho, *Hance* II; *W. R. Curtis*, Sept. 1859; *E. Faber* 1860, Oct. 1898; Tai-Shan, *Jacob* 29, July 11, 1923; *K. S. Rao* 1730, July 10, 1931 (partly). Manchuria: *C. Wilford* 1094 (type), July-August, 1859; *H. E. M. James*, May-August, 1886; *Kanawon* 2; Chien-shan, *J. Rao* 524 (1877); Kirin, *F. H. Chen* 207 (1931). Hopei: Tsung-bo, *M. S. Clemens* 6928A, August 9, 1913; Changli, *M. S. Clemens*, Oct. 13, 1913.

Also Corea and Japan.

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

PLATE 102. Fig. 1. Habit sketch (natural size). 2. Pinna, showing venation and position of costae ( $\times 5$ ). 3. Scape with one side of the indusium removed ( $\times 30$ ). 4. Spores (greatly enlarged). 5. Scape from rhizome ( $\times 30$ ).



第一百零二圖  
滿洲岩蕨(水龍骨科)

WOODSIA MANCHURIENSIS Hooker

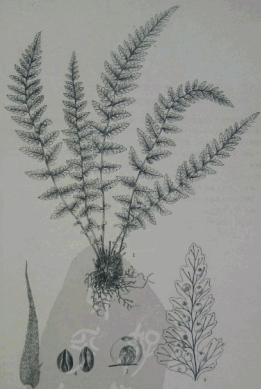
地下莖短而直立，鱗片橙黃色卵狀針形之鱗片；葉叢生，柄長二至五粉，呈暗棕色，有光澤，近基部略具鱗片，葉體披針形，長十至三十粉，寬二至四粉，或較寬，薄紙質，淡綠色，兩面光滑，二回羽狀深裂，小葉十五至四十對，斜出，無柄，下部葉對較小，對生，上部小葉長一至三粉，互生，橢圓形，鈍頭，基部截形，先端深裂，裂片五至八對，斜出，卵形圓形，鈍頭，全緣，或呈波形；葉脈羽狀分叉，二至三對，羽柄長大，不達葉緣；子囊果大，着生於上方基部葉面，呈圓錐形，薄紙質，頂部開一小口。

分布：山東，河北，東三省；朝鮮及日本亦產之。

本種之標本為其光綠色薄紙質之葉體及其球形圓形質之子囊果五。

圖註：1. 本種全形(自然大) 2. 小葉(放大五倍) 3. 子囊果及其蓋(放大五十倍) 4. 孢子(高倍放大) 5. 地下莖上之鱗片(放大三十倍)。





**WOODSIA MANCHURIENSIS** Hooker

滿洲岩蕨

## DAVALLIA MARIESII Moore

## POLYPODIACEAE

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

*Davallia bullata* Franch. et Sav. Enum. Pl. Jap. 2: 208 (1877); Christ in Warburg, Monata 1: 96 (1926).

*Rhizome* thick, 7 mm across, long-crawling, densely scaly; *scales* large, imbricate, lanceolate from broadly ovate base, fimbriate, ferruginous on the growing tip, but whitish on the old part; *frond* far apart, articulated at base, stipe 6-10 cm long, stramineous, naked, terete underneath, grooved on the upper side, lamina deltoid-pentagonous, 8-14 cm long and broad, shortly acuminate, tripinnate; *pinnae* 6-7-jugate, rather shortly petiolate, the basal ones much the largest, deltoid, 3-7 cm long and broad; *pinnae* 6-7-jugate, shortly petiolulate on narrowly winged rachislet, the lower basal ones the largest, oblong-ovate, 2.5-4 cm long, 1-1.5 cm broad, ovate-oblong, base cuneate-decurrent, deeply pinnatifid into 5 linear, blunt or bifid uni-nerved segments; *testae* coriaceous, glabrous on both sides; *indusium* brown, tubular, coriaceous, twice as long as broad, overlapped by two horns of generally unequal length.

Shantung: Chefoo mountains, *Fuker* 58; *Carles* (1888); *R. Zimmermann* 545, May 5, 1902; *Maijapoy* 5 (1902); *Husock* 5; Tsingtau, Lao Shan, *F. H. Sze* 529 in herb. Shantung Univ., July 18, 1932; Yuchiasho, Mooping, *T. N. Liew* 065, May 27, 1930. Kiangsu: Haichow, Hai-shan, *Joseph* 7, 86, 890.

Japan: Ex Her. Veitch [type]; Nagasaki, *Murimori* 116 (1945).

Corea: *Tayson* 2330; Soul, *Warburg*.

Formosa: *Husock* 115, 118.

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

Plate 103. Fig. 1. Habit sketch (natural size). 2. Ultimate pinnae, showing venation and shape of indusium ( $\times 16$ ). 3. Scale from rhizome ( $\times 16$ ).

第一百零三圖  
海州骨碎補(水龍骨科)

*DAVALLIA MARIESII* Moore

地下莖肥夫，肉質，叢生，橫行，具線形之葉鱗片，長達一拵餘，灰白色或白黃褐色；葉叢生，葉柄長六至十拵，暗褐色，光滑，葉體呈五角形，長寬各八至十四拵，先端，三回分裂，一回小葉六至七對，具短柄，基部一對最大，長寬各五至七拵，二回小葉六至七對，具短柄，中脈具短翅，基部一對較大，卵圓形，長二。五至四拵，寬一至一。五拵，自基部漸狹，深裂，裂片約五數，線形，鈍頭，成二回，具一葉脈；革質，兩面光滑；子囊果處於葉緣，五筒管狀，革質，黃色，長二倍於寬，端部具小角狀苞頭。

分佈：廣東及江蘇北部沿海；日本，朝鮮及台灣亦產之。

此蕨亞洲東北部特有之種，與印度北部產之 *Davallia bulbata* Wall. 相似，然葉體形不似分裂極甚，且上鱗片亦較長，且呈瓦覆狀，故得區別。

圖註：1. 本種葉形(自然大)，2. 一回小葉，表示其葉脈及子囊果蓋形狀(放大十倍)，3. 地下莖上之鱗片(放大十倍)。







DAVALLIA MARIESII Moore

海州骨碎蕨

## DAVALLIA ORIENTALIS C. Christensen

## POLYPODIACEAE

DAVALLIA ORIENTALIS C. Christensen ex Wn. Bull. Dept. Biol. Sun Yatsen Univ. No. 3: 194 t. 43 (1932); No. 6: 4 (1933); Ind. Fil. Suppl. III. 65 (1934).

*Davallia elegans* Hk. (non Sw. 1801) Fernald. Hongk. in Journ. Bot. (1877) 111: Syn. Fil. 95 (1867); Desh. Fl. Hongk. 461 (1861).

*Davallia diversicata* Christ (non B. 1828). Bull. Soc. Fl. et Belg. 88: 260 (1898); Dunn & Tutch. Fl. Kwangt. & Hongk. 127 (1912); Merr. Exans. Hainan Fl. in Lingnan Sci. Journ. 3: 11 (1907).

*Davallia denticulata* Merr. l.c. (non Mett. 1867).

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

Hainan: Yih Tsch Mao, F. A. McClure 3717 (type); Nodon, Lin Fa Ling, W. Y. Chao 1799; McClure 5919; Five Finger Mt., McClure 8252, 8578; Hung Mo Shan, W. Y. Tenny 7777. Kwangtung: Man Sei Ho, Tutcher 10359; Lohfan Shan, C. Ford (1883); X. K. Chao 11276; Swinfour, Dalziel, Sept. 1899. Hongkong: Chapman 552; Matthew 72 (1905); May 18, 1904; April 12, 1907; C. Wright (1833-36); Lantau Island, C. L. Tay (1929); Benthley (1866); Alexander. Kwangsi: Yao Shan, S. S. Sui 5538, Sept. 29, 1925; Lin-yen Hsien, outside of the south city gate, R. C. Ching 6653, 6751; Seh Fung Dar Shan, on the border of Tonkin, R. C. Ching 1869. Yunnan: Saemao, Henry 13211.

Tonkin: Mt. Bana, Clemens 5852; environs de Chocho, Pitelot, April 14, 1926. Chapa. Pitelot 5206; Cao-Bang, Pitelot 2710; Billet 1187; Bos 2957.

The present species has hitherto been generally considered as identical with the Malasia-Polynesian *D. diversicata* Hk. from which it differs in thinner leaves, greenish color, even when dried, much longer and more ascending scrobiculate veinlets and in longer, narrower indusium with exserted sterile margin as high as the scrobis itself.

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

Plate 104. Fig. 1. Habit (March 1926) (x 8). 2. Pinnaule of 2nd. order (x 8). 3. Sorus, with part of indusium removed (x 25). 4. Scale from rhizome (x 12).

第一百零四圖  
華南骨碎補(水龍骨科)

*DAVALLIA ORIENTALIS* C. Christensen

地下莖大如小指，肉質，蔓生，橫行，具光澤其黃色之鱗片有膜鱗片，瓦蓋一層；葉叢生，柄長三十至六十份，自基部以上光滑，黃褐色，葉薄大，長寬約各六十五至九十份，呈三角形，漸尖頭，四回羽狀分裂，一回小葉約十對，互生，具長柄，基部一對最大，長三角形，長二十至三十份，寬十二至十八份，漸尖頭，上部各對漸小，中部一對最寬呈卵形，長十五份，寬六份，具二回小葉約十對，三回小葉長約一、五份，無柄，卵狀，深裂，末回裂片細長，有刺齒；葉脈型革質，光滑，葉脈細密，分佈，每一脈室一刺齒；子囊羣起於葉緣，每脈面一個，高筒狀，長二倍於寬，扁盤狀形，其上具小角形之葉質。

分佈：廣東，廣西，香港，越南及雲南南部；愛羅亞南香港之。

本種與雲南南部大陸特有之種，形體極似馬來羣島所產之 *Davallia (Guzinkia) D.* 所不同者，其葉較薄之葉背，子囊羣起於葉緣，子囊羣着生之葉脈者較長而更其向上。

圖說：1. 本種全形(自然光) 2. 二回小葉(放大八倍) 3. 子囊羣及一部分之莖(放大二十五倍) 4. 地下莖上之鱗片(放大十二倍)。





**DAVALLIA ORIENTALIS** C. Christensen

華南骨碎補

**HUMATA ASSAMICA** (Bedd.) C. Christensen

POLYPODIACEAE

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

*Asplenium assamicum* Bedd. Ferns Brit. Ind. 1. 94 (1866).

*Leucostegia assamica* J. Soc. Nat. Fil. 84 (1873); Bedd. Handb. Ferns, Brit. Ind. etc. 37 (1882);  
Suppl. 13 (1892).

*Davallia assamica* Baker in Hb. Syn. Fil. ed. 1. 432 (1888); ed. 2. 467 (1871); Clarke, Trans.  
Linn. Soc. II. Bot. 1. 445 (1896).

*Davallia micans* Mett. ex Baker in Hb. Syn. Fil. ed. 1. 95 (1887).

*Humata micans* Diels in Engl. u. Prantl, Nat. Pflanzenfam. 4. 4. 309 (1893).

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

*Yunnan*: Shweli-Salween divide, *G. Forrest* 24500; South of Tengyueh, *G. Forrest* 26581, June, 1925; between Tengyueh and the Burmese border, *J. F. Rock* 7312; between Kambaiti and Tengyueh, *J. F. Rock* 7565; Salwin, *H. Handel-Mazzetti* 9564.

*Bothan*: Mishoo, *Griffith*, *Jardou* (type).

*Manipore*: Clarke; and also Upper Burma: *Forrest* 26562.

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

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

Plate 103. Fig. 1. Habit sketch (natural size). 2. Pinnae from the middle pinna ( $\times 3$ ). 3. Scale from rhizome ( $\times 10$ ). 4. Scale from the lower part of rachilet underneath ( $\times 14$ ).

第一百零五圖  
高山險石蕨(水龍骨科)

*HUMATA ASSAMICA* (Bedd.) C. Christensen

地下莖肥厚，肉質，具銀灰色披針形之大鱗片；葉叢生，柄細長，長五至十份，光滑，葉線披針形，長十五至二十八份，寬五至七份，漸尖頭，基部與上部與等寬，三回羽狀深裂，一回小葉二十至三十對，互生，線狀披針形，具短柄，基部不等形，長達四份，基部寬二、五份，漸尖頭，中脈上部具軟毛，二回小葉七至十對，無柄，卵形或形，長一、二份，寬五至八份，其位於下部者羽狀深裂，裂片五至七對，具軟毛二至三對；葉脈不甚明顯，羽狀分叉；葉質，有光澤，中脈下部下面具卵圓形之褐色大鱗片，餘均光滑；子葉早延於葉緣，呈半圓形，光亮，僅基部着生。

分佈：雲南及印度北部。

本種原產於印度北部，最近在香港西部發現，其實於 *Humata Griffithiana* He. 者，其具長披針形之葉體及其一回小葉中脈下部下面所具之卵圓形褐色大鱗片是也。

圖註：1. 本種全形(自然大) 2. 一回小葉(放大八倍) 3. 地下莖上鱗片(放大十四倍) 4. 一回小葉中脈下部下面所具之鱗片(放大十四倍)。





**HUMATA ASSAMICA** (Bedd.) C. Christensen

高山踏石蕨

## PLATE 106

## ARTHROPTERIS OBLITERATA (R. Br.) J. Smith

## POLYPODIACEAE

**ARTHROPTERIS OBLITERATA** (R. Br.) J. Smith, Cat. Cult. Ferns 62 (1827); C. Chr. Ind. Fil. 63 (1905); v. A. v. R. Handb. Mal. Ferns 155 (1908); Bonap. Notes Pterid. Pl. 14: 103 (1823); Merr. Enum. Hainan Pl. in Lingnan Sci. Journ. 5: 11 (1927).

*Nephrolepis obliterata* R. Br. Prod. Fl. Novae-Holl. 148 (1810).

*Asplenium obliteratum* Spreng. Syst. Veg. 4: 99 (1827).

*Nephrolepis obliterata* J. Sm. Journ. Bot. 4: 207 (1841); Hk. Sp. Fl. 4: 154 (1842); Beekh. Ferns S. Ind. 1: 251 (1846).

*Nephrolepis sinensis* Macrae, Ind. Fil. 225 (1938); Hk. et Bak. Sp. Fl. 301 (1869); Beekh. Handb. Ferns, Brit. Ind. etc. 275 (1883).

*Arthropteris sinensis* Mett. Novora Exp. Bot. 4: 214 (1876); Diels in Engl. u. Prall. Nat. Pflanzenfam. 1: 4: 298 (1895).

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

Hainan: Nodosa, Sha Po Shan, F. A. McClure 8157 (1921). Kwangsi: Bako Shan, south of Pei-seh, R. C. Ching 7539 (1925).

Tonkin: Cao-Bang, Bourret 132.

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

A very variable fern in respect to the shape and size of pinnae; very rare on the mainland. R. C. Ching No. 7539 and Bourret No. 132 are the only specimens seen by me.

The genus *Arthropteris* now comprising about 10 species chiefly in the tropical Asia, has been generally considered as closely related to *Nephrolepis* Schott; and this is true only in so far as the articulated pinnae, type of venation and seed conditions are concerned, but in point of anatomical features, and particularly, the type of stelar structure in rhizome, it shows a marked difference from that genus, nor is it comparable with *Gleichenia* Cav. in this respect, to which it is also held as a close relative by workers to-day. Meanwhile, I consider it one of the fern genera *incertae sedis*.

Plate 106. Fig. 1. Habit sketch (natural size). 2. Pinna, showing venation and sori ( $\times 2$ ). 3. Sori with indusium ( $\times 15$ ). 4. Scale from scabrous rhizome ( $\times 40$ ).



第一百零六圖  
 蕨蕨 (水龍骨科)

ARTHIOPTEERIS OBLITERATA (H. Br.) J. Smith

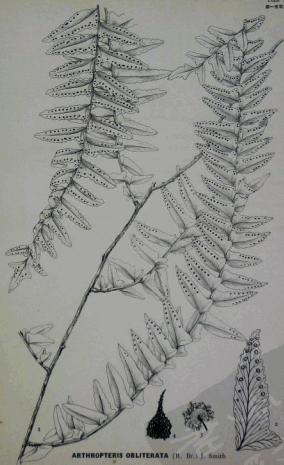
地上莖蔓生，緣端斜上升，高可達十數呎；鱗片疏生；葉散生，葉柄長一至二呎，葉形着生於莖莖上，葉體披針形，長二十至四十吋，寬四至六吋，一回奇數羽狀分裂，小葉數十對，長三至四吋，寬約一吋，頂端一葉向下部狀較小，葉圓披針形，上基部呈楔形尖出，下基部呈倒形，葉柄或圓形，葉緣呈波狀，幾無柄，形狀着生於具星毛之中葉，葉面光滑，葉上脈上面時具星毛；葉脈明顯，分叉，不達於緣葉，材質：子囊卵圓形，着生於每一上基部葉脈之端，長筒形，紅褐色。

分布： 產於雲南，貴州，馬來及南洋羣島，菲律賓，澳大利亞及非洲熱帶；最近發現於我國之海南島及廣西西南部之八角山，然不多見也。

本種為本屬在亞洲熱帶大陸常見之種，其特異點為其莖形之地上葉緣端斜或懸垂上升，葉與小葉之形狀着生，基於散生是也。

圖註： 1. 本種全形(自然大)。 2. 小葉，表明其葉脈及子囊着生之位置(放大二倍)。 3. 子囊(放大十六倍)。 4. 莖葉上之鱗片(放大四十倍)。





**ARTHROPTERIS OBLITERATA** (H. Br.) J. Smith

蕨 類

## CAMPTOSORUS SIBIRICUS Ruprecht

## POLYPODIACEÆ

**CAMPTOSORUS SIBIRICUS** Ruprecht, *Distr. Crypt. Vasc. Ross.* 45 (1845); Ledeb. *Fl. Ross.* 522 (1853); Milde, *Fl. Europ. et Atlant.* 95 (1867); Franch. *Pl. David.* 2: 290 (1887); Komarov, *Fl. Mansh.* 1: 177 (1901); C. Chr. *Ind. Fil.* 166 (1905); Kümmerle, *Ann. Mus. Hungar.* 24: 90 (1926); Ogata, *Te. Fil. Jap.* 2: 1: 59 (1929); Fomin, *Fl. Sib. et Orient. Extr.* 5: 139 (1930).

*Scelopodium sibiricum* Hk. and. *Cent. Foss.* 1: 35 (1861); Sp. *Fl.* 4: 4 (1866); Syn. *Fl.* 248 (1867); Christ, *Farskr. d. Erde* 258 (1897); in Werberg, *Memoirs* 1: 73 (1902); Dick in *Engl. u. Pracht. Nat. Pflanzenfam.* 1: 4: 232 (1893).

*Asplenium sibirica* J. Sm. *Hort. Fil.* 132 (1875).

*Phyllis sibirica* O. Ktze, *Rev. Gen. Pl.* 2: 808 (1841).

*Asplenium rhizophyllum* L. Sp. *Pl.* 2: 2078 (1753), pro parte.

*Camptosorus rhizophyllum* var. *sibiricus* Christ ex Ledeb., *Bull. Acad. Géogr. Bot.* (1910) 4.

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

Hopei (formerly Chihli): Peiping, *Bushell*, Oct. 1882; *Farber* (1882); *Carles*, July 16, 1882; I-yuan-kou, *Clemens* 37036 (1913); Pin-chow, Wang-mu Kou, *Chenot* 551; Peitaiho, *Cowley* 227; Siawutai Shan, C. L. Li; *ibid.*, C. W. Wang 60549 (1933); Jüeh: David. Shantung: Chefoo, *Faber* (1890); *Swinko* (1873); *Hansen* 17 (1873); *Warburg*; Wei-hai-wei, C. G. *Mathew* 250 (1904); Tai-shan, C. F. *Chiao* 21286 (1929); *Jacob* 7; H. S. *Hoo* 1810, July 15, 1931; Tsingtau, C. L. *Tse* (1933). Mongolia: Peitcho-ly, E. *Léorat* (1927). Manchuria: *Haximovica* 430 (1860); *James*, May-August, 1846; *Ross*, Oct. 1857; *Webster*, May, 1845; *Komarov* 28; Kirin, in the vicinity of Chinggho, H. W. *Kung* 2104, August 14, 1931; *Fengtien*, H. W. *Kung* 876, August 1, 1930.

Corea: *Tayset* 2479.

Pert Arthur: *Mias Müller* (1926).

Also Japan, Siberia and Kamtschatka.

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

Plate 107. Fig. 1. Habit sketch (natural size). 2. Portion of fertile frond, showing venation and position of sori ( $\times 4$ ). 3. Scale from rhizome ( $\times 30$ ). 4. Spores ( $\times 100$ ).

第一百零七圖  
過山蕨(水龍骨科)

*CAMPTOSORUS SIBIRICUS* Ruprecht

地下莖短而直立，端具暗棕色之鱗片狀形鱗片，位於節上性；莖叢生，二形，葉子莖葉體莖葉形，鈍圓，長一至四份，柄長一至五份，紙質，綠色，全緣；葉脈斜狀，網脈二列，斜出，不具小脈；子葉莖葉體葉狀形，具較長之柄，葉端通常呈線狀伸曲而入土著根，葉高不具心臟形，但為短楔形；葉脈亦為斜狀，極面光滑；子葉葉形長，於中肋端部成極不規則之一至二回，葉葉質，有向上方開者，有向下方開者，更有彼此相向開者。

分布：河北，山東，遼三省，蒙古；日本，朝鮮，西伯利亞東部均產之。

本種與我國東北部之材料產，實與於美國東北部材料產之 *Campt. chlorophyllum* (Linn.) 者，其葉形較小，基部不具心臟形是也；本種特其極長著根之葉端，使自一地變至他地，故特名之曰過山蕨。

圖註：1. 本種全形(自然大)，2. 葉生子葉莖葉體之一部，表明其葉脈及子葉葉之位置(放大六倍)，3. 地下莖端之鱗片(放大三十倍)，4. 孢子(放大百倍)。





*CAMPTOSORUS SIBIRICUS* Ruprecht

過山蕨

## ATHYRIUM SHEARERI (Baker) Ching

## POLYPODIACEÆ

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

*Nephrodium Sheareri* Baker, Journ. Bot. (1895) 400.*Dryopteris Sheareri* C. Chr. Ind. Fil. 202 (1905).*Nephrodium isolatum* Baker, Gard. Chron. n. s. 14: 494 (1886).*Aspidium polypodiiforme* Makino, Bot. Mag. Tokio 4: 46 (1892, nom. nud.)*Nephrodium polypodiiforme* Makino, Bot. Mag. Tokio 15: 58 (1899); Matsum. Ind. Fl. Jap. 1: 213 (1904).*Dryopteris polypodiiformis* C. Chr. Ind. Fil. 205 (1905); Makino et Nemoto, Fl. Jap. 1641 (1924).*Athyrium polypodiiforme* Tagawa, Acta Phytobot. et Geobot. 1: 159 (1922).*Aspidium otarioides* Christ, Bull. Acad. Géogr. Bot. (1901) 247.*Dryopteris otarioides* C. Chr. Ind. Fil. 204 (1905).*Dryopteris subagenoides* Christ, Bot. Acad. Géogr. Bot. (1900) 2; C. Chr. Ind. Fil. Suppl. 1. 40 (1922); Nakai, Fl. Kor. 2: 396.

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

Kingki: Kiukiang, Lu-shan, *Dr. Shearer* (type) (1873); *Maire* (type of *Nephrodium isolatum*); *N. E. Up* 1832; Paradise Pools, *Charles E. DeVal* 26, July 27, 1933, edge of stream. Chekiang: Hangchow, Fan-chiao, *R. C. Ching* 3715. Hupeh: Shin Shan Hsien, *S. S. Chien* 8212 in herb. Univ. Nanking, July 29, 1922. Kweichow: Tanyen, *F. Swinh* 5802; Tin-fan, *Ceslerie* 2650; Pin-fa, *Caroleis* 25, 1839; Tsinguy, *Boschman* 2052 (type of *Aspidium otarioides*). Szechwan: Nanchuan, *W. P. Fang* 5794.

Corea: Quelpert, *Tajvet* 2782 (type of *Dryopteris subagenoides*).

Also Japan, common.

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

Plate 108. Fig. 1. Habit sketch (natural size). 2. Portion of basal pinna, showing venation and position of sori ( $\times 5$ ). 3. Indusium (greatly enlarged). 4. Scale from rhizome ( $\times 40$ ).

第一百零八圖  
廬山蹄蓋蕨(水龍骨科)

*ATHYRIUM SHEARERI* (Baker) Ching

地下莖橫行，黑色，先端及葉柄基部具褐色之薄質鱗片形鱗片；葉散生，柄長十至二十粉，稍暗色，光滑，葉體橢圓形或卵三角形，長十五至二十粉，寬十至十五粉，一回羽狀分裂，頂部漸尖圓，深裂，紙質，綠色，光滑，葉中肋及主脈下面疏具短剛毛；小葉三至八對，線形，下部散對無柄，上部散對合生，漸尖頭，基部呈截形或短楔形，長六至十粉，寬一、五至二粉，葉緣具不規則之疏鋸齒；葉脈明顯，羽狀分叉，漸入網脈；子囊果小，腎圓形，着生於葉一對葉脈上，殼質形，具短剛毛，不久即脫落。

分布：江西，浙江，貴州，四川；日本及朝鮮亦產之；最初發現於廬山。

本種通常發生於森林中，罕見有藥用者，故採集時往往不能於一處得多數標本也。

圖說：1. 本種全形(自然大)， 2. 基部小葉之一部，表示其葉脈及子囊果之位置(放大五倍)，  
3. 子囊果(高倍放大)， 4. 地下莖上之鱗片(放大二十倍)。



Plate 207  
8-25842



**ATHYRIUM SHEARERI** (Baker) Ching

崑山蹄蓋蕨



## ATHYRIUM OTOPHORUM (Miq.) Koidzumi

## POLYPODIACEAE

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

*Asplenium otophorum* Miq. Ann. Lugd. Bot. 2: 173 (1867); Franck. et Sav. Enum. Pl. Jap. 2: 226 (1877).

*Diplazium otophorum* C. Chr. Ind. Fil. 236 (1925).

*Athyrium violaceum* Diels in Eng. Jahrb. 29: 196 (1902); C. Chr. Acta Hort. Gotob. 1: 76 (1926).

*Athyrium Wardii* Christ (non Makino, 1857), Bull. Soc. Bot. France 32: Mém. 1. 49 (1907).

*Athyrium striipes* Christ (non Moore, 1857), Bull. Acad. Géogr. Bot. (1909) 174; C. Chr. Acta Hort. Gotob. 1: 76 (1926).

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

Kweichow: Pin-fa, *Casuarie* 2605, 544; Kwei-yang, *Budnier* 2008; Ganchow, *Casuarie* 3759; Sanhon, *Y. Taiang* 6411, 6154; Chengsiang, *Y. Taiang* 4364; Tuiyam, *Y. Taiang* 5426. Hupeh: *Herry* 5263. Szechwan: Mt. Omei, *W. P. Fang* 3762, 3719; Nanchuan, *Rothlieh* 1732 (type of *A. violaceum*); *W. P. Fang* 3709; Kuan Heien, *W. P. Fang* 2161; *Harry Smith* 4368; Tchen-kou-lin, *Farges* 243. Anhwei: Hwang Shan, *S. S. Chien* 1835. Kwangtung: North River, *C. L. Tso* 26681.

Japan: *C. G. Motile* 241 (1905), *forma typica*.

Type from Japan, now found to be a common fern throughout the Yangtze valley. Authors on Chinese ferns have generally considered this identical with *Athyrium striipes* (Bl.) Moore of Malesia-Polynesia, with which our fern has, in fact, nothing to do at all. The present species constitutes the type for the group of about ten closely related members in West China and North-western India, and holds an intermediate position between *A. Mackenzii* (Hope) and *A. strychnos* Hieron. of the same region. The Japanese *A. rigescens* Makino appears hardly distinct from our fern (Cl. Ogata, Ic. Fil. Jap. 5: 1. 214).

Plate 109. Fig. 1. Habit sketch (natural size). 2. Pinnae ( $\times 75$ ). Scale from the base of stipe ( $\times 20$ ).

第一百零九圖  
光蹄蓋蕨(水龍骨科)

*ATHYRIUM OTOPHORUM* (Max.) Koidzumi

地下莖斜生，具暗褐色或深棕色之披針形鱗片；葉簇生，柄長二十五至三十粉，寬十二至二十五粉，呈淡紫色，基部具鱗片，葉體長三十至三十五粉，二回羽狀分裂，頂部呈狀漸尖頭，深裂，一回小葉約十對，具極短之柄，漸尖頭，基部截形，披針形，長約十餘粉，寬約二、三至四粉，中肋基部下面呈淡紫色且略具腺毛，上面具直刺；二回小葉呈三角形，長一、三至二、五粉，短尖頭，基部上方具耳形，下方斜形，葉緣具短鋸齒；葉脈明顯，三羽或在主葉部羽形分叉；葉紙質，兩面光滑；子囊果長形，斜出，基假實，性灰色。

分布：貴州，四川，陝北，雲南；日本亦產之。

本種為一美麗之品，吾人誤認爲 *Athyrium filix-femina* (L.) 實則此種不產於中國及日本，乃係烏蒙山種也。

圖註：1. 本種全部(自然大)； 2. 二回小葉(放大七倍)； 3. 葉柄基部鱗片(放大二十倍)。





**ATHYRIUM OTOPHORUM** (Miq.) Koidzumi  
文同差蕨

C. B. Fang Det. et Lith.

PDG

**ATHYRIUM GÖRINGIANUM** (Kunze) Moore

POLYPODIACEAE

**ATHYRIUM GÖRINGIANUM** (Kunze) Moore, Ind. Fil. 185 (1860), C. Chr. Ind. Fil. 143 (1905); Ogata, Ic. Fil. Jap. 2: t. 35 (1926).

*Athyrium Göringianum* Kunze, Bot. Zeit. 1849: 557.

*Leucina Göringiana* Moore, Ind. Fil. 95 (1858).

*Dryopteris Göringiana* Koidz. Bot. Mag. Tokio 43: 352 (1930); Acta Phytotax. et Geobot. 1: 233 f. 9-10 (1934).

*Athyrium filix-femina* Christ (non Roth, 1796) in Wartburg, Monasteria 1: 75 (1906).

*Athyrium crassum* Ros. in Fedde, Report. Sp. Nov. 11: 124 (1911); C. Chr. Ind. Fil. Suppl. II. 7 (1925).

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

Chekiang: Ningpo, Tien-tai Shan, *Hancock* 19 (1877); *C. Y. Chiao* 14437; *K. K. Tsoong* 3713. Szechwan: Mt. Omei, *W. P. Fang* 2672, 2800 in herb. West China Acad. Sci. Yunnan: *H. T. Tsai* 5259c. Fukien: Lin Fa Shan, *S. T. Dunn* 3844, June 6, 1904. Kiangsi: Kiu-kiang, Lu-shan, Incense Mill, *DePal*, Aug 5, 1933; Kiangsu: Wushih, Wei-shan, *R. C. Ching* 2427. Kwangtung: Lohtan Shan, *C. O. Levine & McClure* 6832, 6929; *Levine* 1518; *Merrill* 29344 (1916); *Gerlach* (without locality).

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

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

Plate 110. Fig. 1. Habit sketch (natural size). 2. Pinnalet, showing venation and type of indusium ( $\times 8$ ). 3. Scale from the base of stipe ( $\times 164$ ).



第 一 百 一 十 圖  
柯氏蹄蓋蕨(水龍骨科)

*ATHYRIUM GÖRINGIANUM* (Kno.) Moore

地下莖斜出，鱗片黃褐色。葉斜形；葉簇生，柄長十六至三十份，淡紅褐色，光滑，葉柄輪廓卵形，長二十至三十份，寬十二至十六份，漸尖頭，三回羽狀深裂；一回小葉十至十四對，互生，具柄，斜形，基部一對稍短，長七至十份，寬三至四份，基部心臟形，漸尖頭，二回小葉八至十一對，具短柄，長一。五至二份，橢圓形，切實頭或略尖頭，基部窄等邊，羽狀深裂達中肋，裂片四五六枚，鈍頭，具圓齒，每一葉脈伸入一脈齒；背質，淡綠色，一二各回中葉上面具圓刺；子囊羣長形或馬蹄形，蓋膜質，形大。

分布：浙江，江蘇，雲南，四川，廣東，福建；日本亦產之。

本種與本屬植物羽狀分裂之種，為我國東南各省常見之品，昔人誤認爲 *Athyrium nipponicum* (Bl.)，實則大謬不然也。

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





**ATHYRIUM CORINGIANUM** (Kze.) Moore

柯氏蹄盖蕨

## ASPLENIUM SARELIJ Hooker

## POLYPODIACEÆ

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

*Asplenium Sarelii* Baker in Hk. Syn. Fil. ed. 2. 216 (1874); Christ, Faruk. d. Erde 203 (1875);  
Dob. in Engl. u. Prantl: Nat. Pflanzenfam. 2: 4. 340 (1892); Ogata, Ic. Fil. Jap. 1: t. 8  
(1926).

*Asplenium Blakistoni* Baker in Hk. Syn. Fil. 226 (1867); Hk. Ic. Pl. t. 2015. 1076 (1867).

*Asplenium japonense* Makino (n. sp. Hance, 1867). Bot. Mag. Tokyo 3: 545 (1885).

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

Szechwan: *Blakistoni* (type), without exact locality; Mt. Omei, *K. Faber* 1007;  
*ibid.*, *E. H. Wilson* 5535, 5282 (ad f. *typica*). Hupeh: *Ping*, *A. Henry* 3749; I-  
chang, Nanto, *Henry* 219; On-pan Shan, *Silvestri* 3248, 3248 (1905); Nang Hsien,  
*Silvestri* 3029, 3030, 3031, 3032. Kiangsu: Nanking, *She Er Tung*, *R. C. Ching*  
2459 (1927); *DeFol* 62, August 13, 1933; *L. F. Zee* 11 in herb. Univ. Nanking; I-  
shing, *Y. L. Keng* 2630. Kiangsi: Fengcheng, *Y. Tsing* 3582. Kweichow: Sün-  
hua, *Y. Tsing* 6242; Pachi, *Y. Tsing* 6158; Tsunyi, *Y. Tsing* 2595.

Also Japan.

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

PLATE 111. Fig. 1. Habit sketch (natural size). 2. The same, ferns typical. 3. Pinnae of frond  
order (× 5). 4. Scales from rhizome (× 5).

第一百十一圖  
華中鐵角蕨(水龍骨科)  
*ASPLENIUM SARKLII* Hooker

地下莖有短直立，編有粉褐色披針形之葉鱗片；莖直立，柄長五至十粉，光滑或時具鱗片，葉體為三角卵形，長五至十三粉，寬二、五至五粉，或較寬，三回分裂，一回小葉約十對，基部一對最大，卵形，長一、五至三粉，寬一至二粉，基部不等，末回小葉為線形，二至三裂，端具尖齒齒；子囊單一至二葉，細長，甚瘦弱，全緣；葉為紙質，兩面光滑，深綠色。

分佈：四川、湖北、江蘇、江西、貴州；日本亦產之。

此為楊子江流域習見之種，形體優異甚大，與此種最相類者為 *Asplenium pekinense* Howe。然本種基部一回小葉較位於上部者較大，故得區別。

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







*ASPLENIUM SARELI* Hooker

華中鐵角蕨

PDG

## PLATE 112

## ASPLENIUM SAMPSONI Hance

## POLYPODIACEAE

ASPLENIUM SAMPSONI Hance, Ann. Sci. Nat. V. 5: 257 (1896); C. Chr. Ind. Fil. 130 (1905).

*Asplenium Bolanderi* Donn & Tuck. (non Kze. 1845) Fl. Kwang & Hongk. 344 (1927).

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

Kwangtung: Kai Kun Shek, F. Sampson 11165 (type), in herb. Hance, June, 1867; K. K. Wong 436 (1928). Kwangsi: Lungchow, Morse 11. Kweichow: Esquirid 3721 (without exact locality).

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

PLATE 112. Fig. 1. Habit sketch (natural size). 2. The same, a larger fern. 3. A middle pinna, showing venation and sorus ( $\times 16$ ). 4. Scale from rhizome ( $\times 50$ ). 5. The same from stipe ( $\times 70$ ). 6. Scales from rachis ( $\times 60$ ).

第一百十二圖  
嶺南鐵角蕨(水龍骨科)

*ASPLENIUM SAMPSONI* Hance

地下莖肥而直立，端具黑色披針形之鱗片；葉叢生，柄肉質，長三至六粉，略具黑色線文鱗片，葉體為倒披針形，長十三至二十五粉，寬二至四粉，漸尖頭，向基部漸狹，二回羽狀分裂，一回小葉十七至二十八對，狹圓，無柄柄，位於下部者為三角形，較上部者為小，中部小葉長一，五至二，五粉，寬約一分，卵圓形，鈍頭，基部不等，羽狀深裂，裂片五至八對，線形，具明顯，位於基部上方者通常二至三對；葉背，綠色；子囊單狀長，每裂片一數，蓋網狀，全緣，向上方開。

分布：廣東，廣西，貴州。

此為我國南部特有之種，其形體極似雲南熱帶產之 *Asplenium Delavayi* (Hay) 而葉體較小，且呈倒披針形，向下部漸狹，故易區別。

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





*ASPLENIUM SAMPSONI* Hance

嶺南鐵角蕨

## ASPLENIUM PROLONGATUM Hooker

## POLYPODIACEÆ

**ASPLENIUM PROLONGATUM** Hooker, 2nd. Cent. Ferns t. 42 (1860); Sp. Fil. 3: 209 (1866); Christ, Bull. Soc. Bot. France 52: Mém. 1. 54 (1860); C. Chr. Ind. Fil. Suppl. III. 36 (1934); Blot, Bull. Soc. Hist. Nat. Toulouse (1932) 50.

*Asplenium rotundifolium* Bl. et Bak. Syn. Fil. 222 (1869); Christ, Farist. d. Erde 208 (1869); Dieb. in Engl. u. Prantl, Nat. Pflanzenfam. 3: 4. 242 (1869), pro parte.

*Asplenium rotundifolium* Franch. et Sav. (non Kar. 1926) Essais. Pl. Jap. 2: 222 (1876); Christ in Warburg, Monasia 1: 72 (1902); Makino, Phan. et Perid. Jap. 1c. Illust. 1: 1. 55 (1899-1901).

*Asplenium achilleifolium* C. Chr. Ind. Fil. 39 (1905), pro parte.

*Asplenium leptanthum* var. *prolongatum* Bonap. Notes Florid. Pl. 46: 74 (1833).

*Asplenium elongatum* Christ, Bull. Acad. Géogr. Bot. (1906) 13.

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

Hongkong: *Forbes 571*; *Ford (1872)*; *Matthew 67 (1894)*, 358; *Gilks 1 (1928)*. Kwangtung: Lohlan Shan, *C. O. Lee 515*; *N. K. Chou 41537*; Swatow, Thai-yong, *Dolzied*, July, 1901; Lantau Shan, In Village, *To & Young 12253*; *Lohchong, N. K. Chou 42684, 42483*; Sunyi, *S. P. Ko 51259*; *Y. K. Wang 31146*; Yinglak, *H. Y. Liang 61562*; Yao Shan, *Lohchong, S. P. Ko 51349*; *N. K. Chou 43015*; *Gerlach* (without exact locality). Kwangsi: Lin-yin Hsien, *R. C. Ching 7084*; San Yang, Lu-chou, *R. C. Ching 6751, 5817*. Fukien: Kuliang, Foo-chow, *H. H. Chou 1281, 4363*; *Hancock 8* (Kew No.). Chekiang: Pin-yang, *H. H. Ho 162*; Wen-chow, *R. C. Ching 1855*. Hupeh: Ichang, *A. Henry 3297*; *Wilson 2655*. Szechwan: Mt. Omei, *W. P. Feag 2532*; Tchen-kou-tin, *Farges 1265*. Kweichow: Tsin-gay, *Bolander 2718*; Gan-chow, *Nichol 1028*; Po-tsen, *Caslerie 1563, 7692*; Cheng-feng, *F. Tsiang 4394, 4610*; Tanyi, *F. Tsiang 6399*; Tsyun, *F. Tsiang 5379*; Shih-taiou, *F. Tsiang 4116*; Van-ching Shan, *F. Tsiang 7785B*; Yunnan: Mengtze, *Hancock 37*; *Henry 3228, 3228B, 3228A*; south of Red River, *Henry 12659*; Shweli-Salwin, *Forrest 24192*.

Tsu-Sima: *Wilsford 838*.

Also Northern India, Tonkin, Japan and Corea.

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

Plate 113. Fig. 1. Habit sketch (natural size). 2. Pinna ( $\times 10$ ). 3. Scale from rhizome ( $\times 20$ ).

第一百十三圖

長生鐵角蕨(水龍骨科)

*ASPLENIUM PROLONGATUM* Hooker

塊上常短而直立，端具暗褐色之狹線形鱗片；葉簇生，柄長八至十五公分，淡綠，光滑，葉體長十五至二十公分或較長，寬達三公分，線狀針形，端呈尾狀，中肋延長至數輪而生葉，淡肉質，綠色，二回分叉，小葉多至十數，無柄，位於下部者略短，橢圓形，基部不等，葉片狀線形，略向上彎曲，銳頭，具一數葉脈，其位於基部下者，通常二至三葉；子囊梗狹長，每葉片一個，薄紙質，向上開。

分布：香港，廣東，廣西，福建，浙江，湖北，貴州，四川，雲南；印度北部，安南，雲南，日本及朝鮮南部均產之。

本種與亞細大陸溫帶帶產，實生於濕潤森林中之樹幹上或岩壁上，昔人誤認與舊洲產之 *Asplenium adnigratum* Less. 相同，實則二者大相逕庭。

圖註：1. 本種全形(自然大)， 2. 一個小葉(放大十倍)， 3. 塊上葉上之鱗片(放大二十七倍)。





*ASPLENIUM PROLONGATUM* Hooker

長生散角蕨

## ASPLENIUM CRINICAULE Hance

## POLYPODIACEAE

**ASPLENIUM CRINICAULE** Hance, Ann. Sci. Nat. V. 5: 254 (1866); Hk. et Bak. Syn. Fil. 208 (1867); Clarke, Trans. Linn. Soc. II. Bot. 1: 479 (1880); Bedd. Handb. Ferns, Brit. Ind. 150 (1883); Christ, Bull. Herb. Boiss. 6: 959 (1898); Diels in Engl. u. Prantl, Nat. Pflanzenfam. 1: 4: 230 (1899); C. Chr. Ind. Fil. 106 (1905); Wu, Bull. Dept. Biol. Sun Yat-sen Univ. No. 3: 190 t. 87 (1932).

*Asplenium Hancei* Baker in Hk. Syn. Fil. ed. 1. 208 (1867); Kuhn, Bot. Zeit. (1869) 179.

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

*Asplenium Indicum* Bedd. (non Lam., see Thib.) Ferns 5. Ind. t. 121 (1864).

*Asplenium polytrichum* Christ, Bull. Acad. Géogr. Bot. (1909), 366. XX. 172.

*Asplenium adiantoides* Wu, Bull. Dept. Biol. Sun Yat-sen Univ. No. 3: t. 85-90 (1932).

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

Kwangtung: Ting-wu Shan, *Sempass* 11293 (type) in herb. Hance, June 15, 1866; Whampoa, *Hance*; *Ferd* 228 in herb. Hongkong; Lokchong, C. L. *Tsu* 27227; Swatow, Thai-yung, *Dalziel*, July, 1899. Hongkong: *Dr. Harland* 91; *Hance* 7218 (1867); Tai-mo Shan, *Matthew*, Oct. 15, 1907. Fukien: Yengping, *H. H. Chong* 2992; Amoy, *De Grijs* 1158 in herb. Hance; *T. S. Doss* 777, May 15, 1906. Kwang-si: Yao Shan, *S. S. Sie* 321 (1928); Sei-long Dar Shan, *R. C. Ching* 8436; Lu-chen, *R. C. Ching* 5551. Yunnan: Mengtze, *Hance* 187; *Sacuum*, *Henry* 11939, 11939B, 11939C. Kweichow: Pin-fa, *Cavalerie* 2844 (type of *A. polytrichum*); Tsin-gay, *J. Lebride*, Jan. 14, 1898; Tu-shan, *Y. Tsing* 4954.

Also Northern India and Neigherias.

A very variable fern as to the size and shape of pinnae, as has been well illustrated by Wu by half dozen plates under different names. In type, the pinnae are 4-5 cm long. *A. Hancei* Baker from Kwangtung represents a small form, 15 cm long with lamina 2-3 cm broad, pinnae ovate-oblong with crenate margin. Haldé exactly similar to *A. planicaule* Wall., which differs in glabrous stipe and rachis. I have strongly suspected (Cf. Bot. Asplen. d. Tonkin p. 26) that the present species from mainland may after all prove to be a geographic form of *A. pellucidum* Lam. of Malasia-Polynesia and also frequent in Annam, which differs from our fern only in elongate lanceolate, acuminate pinnae, of which the lower ones are even more strongly reduced into an ovate outline.

Plate 114. Fig. 1. Habit sketch (natural size). 2. Pinna, showing venation and position of sori ( $\times 2$ ). 3. Scale from rhizome ( $\times 95$ ). 4. Scales from stipe and rachis ( $\times 10$ ). 5. A small form with short obtuse pinna (natural size).



第一百十四圖  
毛鐵角蕨(水龍骨科)

*ASPLENIUM CRINICAULE* Hance

地下莖如莖直立。葉具黑色披針形葉柄；葉叢生，柄長七至十餘，深褐色細長鱗片，着於葉基部，葉體圓披針形，長十至三十餘，寬四至七餘，一回羽狀分葉，小葉十至二十對，位於葉基無柄，中部者長二至四餘，卵形方形，葉面或極上面，葉緣不等，葉緣具不整齊之鈍鋸齒，厚紙質，乾則呈暗褐色，中肋鱗片簇生，久則脫落，葉脈扇形分叉，上下葉呈湧合形；子囊果長，斜出，蓋甚厚紙質，全緣，向上開，其位於下部者，常相對開。

分佈：廣東，香港，廣西，雲南，貴州；印度東部之。

本種最初於廣東發現，現則在該省各處之產之，極似馬來羣島產之 *Asplenium pellucidum* Lam. 或即為該種地理分佈之一變形耳。

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





**ASPENIUM CRINICAULE** Hance

毛蕨角蕨

## ASPLENIUM SAXICOLA Rosenstock

## POLYPODIACEÆ

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

*Asplenium complanatum* Hieron. *Ann. Sci. Nat. V.* 3: 355 (1866); Kuhn, *Bot. Zeit.* (1866) 335; C. Chr. *Ind. Fil.* 335 (1905); *Bot. Bull. Soc. Hist. Nat. Toulouse* (1912) 39 (non Kuhn, 1854).

*Asplenium dimidiatum* var. *complanatum* Baker in *Bk. Syn. Fil.* ed. 2. 486 (1874).

*Asplenium affine* var. *sinense* Christ, *Bull. Acad. Géogr. Bot.* (1902) 243.

*Asplenium dimidiatum* Christ, *Mon. Soc. Bot. Herb. Boiss.* 7: 9 (1895); *Bull. Acad. Géogr. Bot.* (1910) 13; *Boissap. Notes, Prodr. Fl. M.* 4: 117 (1891).

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

Kwangtung: Kai Kun Sheh, West River, *Sampson* 1190 in herb. Hance (type of *A. complanatum*); North River, C. Ford (1879); 225 (1888); Lien-chow, *Matthes*, Nov. 30, 1907; Yun Fou Heien, West River, K. K. Wang 434; K. K. Tsung 4293. Kwang-si: Wang-chia, Lu-chen, R. C. Chiang 5473; Lan-lou, R. C. Chiang 6298; Lung-chow, *Morre* 20; Lin Shan Hsien, *Sin & Wang* 51 (1927). Kweichow: Tschu-feng Hsien, *Casalieri* 2852 (type); Tien-sen Kou, *Casalieri* 2853 (type of *A. affine* var. *sinense*); Tsch-heng, Y. Tsung 9247; Kony-houa, *Casalieri* 1215; Kwei-yang, *Esquivel* 801; Gan-chow, *Michel* 592, 1950; Tchen-lin, *Michel* 1051. Yunnan: Mengtso, *Howey* 11542.

Tonkin: Dong Dang, *Balfours* 59; Lang-nae, *Calani* 2216, frequent.

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

Plate 115. Fig. 1. Habit sketch (natural size). 2. Pinna, showing venation and vein ( $\times 4$ ). 3. Scale from rhizome ( $\times 40$ ).

第一百十五圖  
粵嶺角蕨(水龍骨科)

*ASPLENIUM SAXICOLA* Rosenstock

地下莖短而直立或斜生，鱗片紅褐色狹披針形之鱗片；葉叢叢生，柄長十至二十公分，深暗褐色，鱗片疏生，達於中肋，葉柄長十二至二十八公分，寬七至十一公分，一回羽狀分裂，小葉五至十二對，頂上小葉形同倒葉，基部小葉較大，闊具二三裂片，向上漸小，斜方形，漸尖頭，葉部極長；葉質，兩面光滑；葉脈扇形分叉，兩面呈溝槽形；子囊葉狹長，斜出，披針形，淡褐色，質略厚，全緣，向上開，其位於下部者彼此相向開。

分佈：廣東，貴州，雲南；克羅亦述之。

本種其本區內村產，最初於廣東發現。Hance 氏名之曰 *Asplenium conyphum*，惟此名早為 Kuhn 氏所用，不能存在耳；此種極似美國佛羅里達之 *Asplenium dilatatum*，惟其小葉具較深之柄，葉緣深裂，故易分別。

圖註：1. 本種全形(自然大)，2. 小葉，表示其葉脈及子囊葉(放大二倍)，3. 地下莖上之鱗片(放大十倍)。

廣東省植物志



*ASPLENIUM SAXICOLA* Rosenstock

卷鐵角蕨

## PLATE III

## WOODWARDIA ORIENTALIS Swartz

## POLYPODIACEAE

**WOODWARDIA ORIENTALIS** Swartz in Schrad. Journ. Bot. 1800, 76 (1801); Syn. Fil. 117, 315 (1806); Willd. Sp. Pl. 5: 438 (1810); Kze, Pterid. Jap. in Bot. Zeit. (1868) 323; Ill. Sp. Fil. 3: 68 (1869); Syn. Fil. 188 (1867); Ching, Bull. Fan Mem. Inst. Biol. 2: 3 t. 1 (1931); C. Chr. Ind. Fil. Suppl. III. 196 (1934).

*Woodsia radicans* var. *radicans* Hook. Nat. Bot. 2: t. 47 f. 1 (1793).

*Woodsia radicans* var. *orientalis* Nakai, Journ. Bot. (1865) 265.

*Woodsia radicans* var. *orientalis* C. Chr. Ind. Fil. 698 (1905).

*Woodsia angustifolia* Hance, Journ. Bot. (1865) 178.

*Woodsia japonica* Hk. Journ. Bot. (1875) 341, 350 part.

*Woodsia radicans* Ching (non Sw., 1793) in Warburg, Monocot. 4: 56 (1904).

*Woodsia prolifera* Hk. et Arn. in Bot. Beech. Voy. 275 t. 50 (1795-96); Nakai, Bot. Mag. Tokio 28: 395 (1915).

*Woodsia exaltata* Nakai, Bot. Mag. Tokio 28: 395 (1915).

**Rhizome** thick, woody, erect, densely clothed at apex in very large, bright brown, lanceolate acuminate, membranaceous scales 2-4 cm long; stipe caespitose, thick, 30 cm long or longer, radio-stramineous, sparsely scaly throughout, lamina oblong-ovate, 30-50 cm long, 20 cm broad, bipinnatifid; pinnae 6-8-jugate under the deeply pinnatifid acuminate end-pinna with shortly decurrent base, subopposite, 10-15 cm long, 4-5 cm broad, broadly lanceolate, acuminate, base subequal or often strongly unequal, i.e. the lower basal 1-2 segments suppressed, leaving a wingless costa, the anterior basal segment more or less decurrent, segments oblong-lanceolate, shortly acuminate, sharply serrated; *exaltata* obscure, areole imperfectly 2-ranked along costa; *textura* rigidly coriaceous; *sovi* oblong-linear, immersed, uniseriate and close to costule, *indusium* brown, thick, vaulted.

**Fukien:** Foo-chow, Gregory (1857) in herb. Hance (type of *W. angustifolia*); **Warburg:** Santa Island, Matthes, Oct. 3, 1907; Dingloh Hsien, *H. H. Chung* 1244; **Nan-ching:** Schindler 597; **Yungping:** *H. H. Chung* 2935; **Chuan-chow:** *H. H. Chung* 3039; **Inghok:** *H. H. Chung* 2639. **Hongkong:** Victoria Peak, Tutchet 679. **Chekiang:** Ningpo, Hance 5 (1877). **Kwangtung:** Swatow, Thai-yong, Dalziel, July, 1899; Nam-yung, S. P. Ks 56759; Lokchong, N. K. Chao 19737, 22162.

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

Type from Japan (leg. Thunberg) and was first identified by Houttuyn under *Woodsia radicans* var. In the herbarium Thunberg, there are to be found four sheets of *Woodsia*, of which only one marked 5 is the true *W. japonica*, while the other three are representing the present species. The type in herb. Swartz matches Houttuyn's figure exactly. Our fern has generally been considered as identical with *W. radicans* (L.) Sm. of Europe and America, but the differences between the two closely related species have already been contrasted by me (Cl. Bull. Fan Mem. Inst. Biol. 2: 6-7, 108, 1-11).

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

*Woodsia prolifera* Hk. et Arn. in Bot. Beech. Voy. 275 t. 50.

*Woodsia exaltata* Nakai, Bot. Mag. Tokio 28: 395 (1915).

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

**Fukien:** Foo-chow, Fortans (1852); **Carles** (1852); **Min-chow:** *H. H. Chung* 1905, 2088; **Amoy:** *H. H. Chung* 705. **Kwangtung:** Jao-ping, Lokchong, N. K. Chao 43784. **Liu-ku:** Beechey (type); C. Wright. **Formosa:** Tamsoi, Oldham 20, 245.

Plate III. Fig. 1. Habit sketch (natural size), 2. Portion of segment, showing venation and *sovi* ( $\times 10$ ), 3. Scale from base of stipe ( $\times 30$ ), 4. Pinna of var. *prolifera* (natural size), 5. Young plant developed from a gemma ( $\times 40$ ).

SCONIS FILICUM SINGCAPUR

第一百十六圖  
東方狗脊(水龍骨科)

WOODWARDIA ORIENTALIS Swartz

地下莖木質肥大，直立，大型黃褐色之鱗片形鱗片表面，長達三四分；葉簇生，葉柄短，葉三十分或過之，下部鱗片密生，上部疏生，葉體呈橢圓形，長三十五至五十分，寬約二十分，二回羽狀深裂，羽片離式，深裂，小葉六至八對，亞對生，其羽柄，長十至十三分，寬四五至六分，圓錐形，漸尖，基部極不窄，羽狀深裂，裂片圓狀卵形，其疏遠端曲；葉脈不明顯，網狀，網眼二列，不具小脈；葉疏革質，兩面光滑；子囊羣長筒形，貼近裂片中肋，圍入葉質內，齒同形，厚紙質，隆起，密著。

分布：福建，廣東，香港；日本，台灣，琉球及羣列諸羣島均產之。

本種為東方特產，昔人誤認爲與歐亞產之 *Woodwardia radicans* Smith 種同。余曾於昔年訂正之，讀者可參閱華生生物調查報告第二卷六至七頁，知知兩種之異同矣。

圖註：1. 本種全形(自然大)，2. 葉片之一部，表示其葉脈及子囊羣(放大十倍)，3. 葉柄基部鱗片(放大六十倍)，4. 多子囊羣(自然大)，5. 自葉柄密生之幼植物(放大十六倍)。



Fig. 16. Woodwardia orientalis



WOODWARDIA ORIENTALIS Swartz

東方狗脊



## DICTYOCLINE GRIFFITHII Moore

## POLYPODIACEÆ

**DICTYOCLINE GRIFFITHII** Moore, Gard. Chron. (1855) 854; Ind. Fil. LIX (1857); J. Sm. Hist. Fil. 149 (1875); Bedd. Ferns Brit. Ind. t. 153 (1866); Cop. Univ. Calif. Publ. Bot. 14: 61 (1929); C. Chr. Ind. Fil. Suppl. III: 71 (1934).

*Hemionitis Griffithii* H. & A. Thoms., Hb. Sp. Fl. 3: 193 (1866); Syn. Fil. 399 (1867); Bedd. Handb. Ferns, Brit. Ind. ex. 415 (1867); Clarck, Farall. & Ende Is. (1867); Bull. Acad. Geogr. Bot. (1898) 177; Bull. Herb. Boiss. (1898) 872; in Warburg, Monodia I: 58 (1908).

*Dictyogramma Griffithii* Tovey, Ann. Bot. Vanice V. 2: 502 (1877).

*Cyrtogramma Griffithii* Hance, Journ. Bot. (1890) 14.

*Lophium Griffithii* Diels (non Bedd. 1876) in Engl. & Przew. Nat. Pflanzenz. 1: 4, 186 (1891); C. Chr. Ind. Fil. 76 (1905); Oakes, L. Fil. Jap. I. t. 6 (1907); Wu, Sull. Dept. Bot. Sun Yat-sen Univ. No. 2: 84 t. 83 (1921).

*Hemionitis Wilfordii* H. & A. East. t. 52 (1866).

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

*Hemionitis Griffithii* var. *Wilfordii* Hb. Syn. Fil. 399 (1867); Makino, Bot. Mag. Tokio 19: 286.

*Hemionitis Griffithii* var. *pusilla* Makino, Bot. Mag. Tokio 19: 286.

*Dictyocline Griffithii* var. *transannua* Chang, Bull. Fac. Med. Nat. Hist. 1: 146 t. 1 (1930).

**Rhizome** short, oblique, densely scaly and setose hairy; **scapes** lanceolate, rufous-brown, rigid, opaque, provided with gray, needle-like setose hairs on the margin; **fronds** caespitose, stipe 12-30 cm long, angular, stramineous, sparsely scaly at base, setose hairy throughout the rachis, lamina deltoid to oblong-ovate, 15-30 cm long, 12-18 cm broad, deeply pinnatifid to pinnate under the deltoid acuminate pinnatifid apex, base cordate, pinnae free, 1-4-jugate, sessile lanceolate, 8-10 cm long, 2-4 cm broad, entire or slightly wavy, acuminate, base rounded, densely setose hairy underneath, sparsely and shortly so above, **terrestri** harsh-herbaceous, opaque when drying; **setose** *acris* veins distinct to the edge, intervening veinlets anastomosing in 2 rows of hexagonal or quadri-angular and exappendiculate areoles; **vein** induplicate, reticulated, following the course of veinlets; **spores** globose, shortly stalked, provided with a few setose hairs near the top.

Kwangtung: Tai-mo Shan (opposite Hongkong), Mathew, Nov. 7, 1907; Lung-tai Shan, Lu Village, C. C. C. 10088, 10225; Swatow, Dalziel, July, 1901; Sam Koh Shan, Tsung-tai-lung-mo Hsiens, W. F. Tovey 25182, May 16, 1902; Yamia Hsien, S. P. Ko 50589; Loh-tai Shan, C. L. Tse 25923; Luk-chong, C. L. Tse 25922; N. K. Chao 25981; In-tak, H. F. Loo 51249; *Griseb.*, Fukien: Yung-tung, B. H. Chao 2948, August 9, 1924; Yung-chang, B. H. Chao 2753 in herb.; Hongkong, Kwang: Yeh Mar Shan, Lin-yin Hsien, R. C. Chao 7100 (1928); Yao Shan, S. S. Sze 114, May 25, 1928; Yunnan: Meng-tze, Henry 10222; Hsueh 211; H. F. Tse 2953 (without exact locality); Kweichow: Pin-fa, Canalis 2825; Pana, Cheng-feng, F. Tovey 1263, 4514; Chekiang: Pin-yung Yang-tang Shan, K. K. Tovey 2750, Oct. 19, 1920 (type of var. *transannua*).

Formosa: Keelung, Wilford 363 (type of *Hemionitis Wilfordii*).

Khasya: *Griseb.* (type).

Upper Burma: Hlaw-gaw, Forrest 25414.

Also Japan and Liu-ku.

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

PLATE 117. FIG. 1. Habit sketch (natural size). 2. The same, f. *Wilfordii* (Bl.). 3. Portion of pinna, showing venation and setae ( $\times 20$ ). 4. Scale from the base of stipe ( $\times 20$ ). 5. Sporangium ( $\times 140$ ). 6. Spores ( $\times 140$ ). 7. Hair from stipe ( $\times 140$ ). 8. Hair from rachis ( $\times 140$ ).

第一百十七圖

紫蕨 (水龍骨科)

*DICTYOCLINE GRIFFITHII* Moore

地下莖短，叢生，具鱗片與長剛毛；鱗片披針形，紅褐色，質硬，不透明，邊緣具長剛毛；葉叢生，柄長十二至三十公分，紅褐色，基部具鱗片，邊緣披長剛毛，葉體三角形或卵圓形，長十五至三十公分，寬十二至十八公分，羽狀深裂或分裂，羽脈漸尖而，深裂，基部心臟形；小葉一至六對或較多，無柄，圓披針形，長八至十公分，寬二、五至四公分，全緣或頂呈波形，漸尖而，基部圓形，下面密披長剛毛，上本羽剛毛叢生，細紙質，乾時呈暗褐色；葉脈明顯，小脈網狀，網脈三列，六角形或四角形；子葉沿網脈發生，不具基，圓錐形，近頂端具二三剛毛。

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

本屬僅有一種，產佈於亞洲大陸溫帶各地，吾人知之最早又最詳 (Tataria)，實則其產地近於 *Dalman* 與 *Stegogramm* 兩屬也。

圖註：1. 本種全形(自然大)，2. 同上，葉體深裂，3. 小葉一葉，表明葉脈及子葉分佈狀況(放大三倍)，4. 葉柄下部鱗片(放大二十倍)，5. 子囊(放大一百四十倍)，6. 剛毛(放大一百四十倍)，7. 葉柄上之剛毛(放大一百四十倍)，8. 中肋上之剛毛(放大一百四十倍)。





*DICTYOCLINE GRIFFITHII* Moore

聖 蕨

## QUERCIFILIX ZEYLANICA (Houtt.) Copeland

## POLYPODIACEÆ

- QUERCIFILIX ZEYLANICA** (Houtt.) Copeland, Phil. Journ. Sci. 37: 408 (1825); Univ. Calif. Publ. Bot. 16: 67 (1925); C. Chr. Ind. Fil. Suppl. III, 169 (1934).  
*Ophiodon zeylanicum* Houtt. Nat. Hist. 34: 43 (1775); Ph. Syst. 13: 47 t. 94 f. 1 (1786).  
*Leptochilus zeylanicus* C. Chr. Ind. Fil. 388 (1925); Merr. Ess. Fl. Hainan in Lingnan Sci. Journ. 9: 12 (1917); Ophiol. Fil. Jap. 1: t. 22 (1918).  
*Acrostichum quercifolium* Retz. Obs. Bot. 4: 39 (1760); Hb. Sp. Fil. 3: 279 (1864); Sc. Fl. 1: 90; Fil. Ess. 1: 50 (1875); Syn. Fil. 418 (1891); Dunn & Tutch. Fl. Kwant. & Hongk. 233 (1914).  
*Gymnosorus quercifolia* Berk. in Sched. Journ. Bot. 1880. 22 (1837); Prodr. Tent. Plant. 241 (1838); Edd. Ferns 5. Ind. t. 47 (1865); Benth. Ferns. Bot. Ind. etc. 403 (1882); J. Soc. Hist. Fil. 138 (1875); Christ. Faunsk. d. Ende 49 (1891); Dieck in Engl. u. Prachtl. Nat. Pflanzenw. 1: 4. 300 (1894).  
*Leptochilus quercifolius* Fée, Actes. 83 (1842).  
*Dendroglomus quercifolium* Fée, Gen. Fil. 80 t. 78. f. 1 (1850-51).

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

Hongkong: *Matthew*, Nov. 1907. Kwangtung: Lohfan Shan, *Pobson* 82 in herb. Hance (1871). Kwangsi: Lungchow, *Merrill* 5; Dar Wan, Yan-lan, *R. C. Ching* 6553 (1928). Yunnan: Szemeo, *Hemp* 13388. Hainan: *Nodos, F. A. McClure* 7860.

Also Formosa, Tenkin, Southern India, Ceylon and Malasia-Polynesia.

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

Plate 118. Fig. 1-3. Habit sketch (natural size). 4. Portion of sterile lamina, showing venation ( $\times 5$ ). 5. Fertile frond, showing axil at young state ( $\times 3$ ). 6. Scale from rhizome ( $\times 40$ ). 7. Cross section of rhizome ( $\times 15$ ). 8. Cross section of the basal part of stipe ( $\times 14$ ). 9. Spores ( $\times 200$ ). 10. Hairs from stipe ( $\times 80$ ).

第一百十八圖  
地耳蕨(水龍骨科)

QUERCIFILIX ZEYLANICA (Horn.) Copeland

地下莖絲狀，橫行，表面紅褐色之被剝形鱗片；葉叢生，二形，非子囊葉葉長三至五柞之柄，滿  
體被軟毛，葉體舌形，長六至九柞，寬二至三柞，葉部狀狀心臟形，具一對卵形裂片，葉緣呈深波狀，  
具披毛；側脈明顯，小脈網狀，網脈具分叉小脈，下面被軟毛，上面短毛疏生；子囊葉葉長十至十八  
之細品柄，葉體三裂，葉片狹長，深波狀或具二三小裂片，葉緣具網狀；子囊葉線形，一列，位於少幼  
與葉緣之間，不具蓋，開向兩面張散。

分布： 香港，廣東，廣西，臺灣島；台灣，交趾，印度南部及馬來羣島等地均產之。

本圖係此一種，昔人以之隸於 *Leptochloa* 屬，最近 Copeland 氏另闢一新屬，殊不為過當，其與又  
此種之關係最密。

圖註： 1-3 本種全形(自然大)， 4 非子囊葉之一部，表明其葉脈(放大五倍)， 5 子囊葉  
之一部，表明其子囊排列情形(放大三倍)， 6 地下莖上之鱗片(放大二十四倍)， 7 地下莖之橫  
切面(放大十五倍)， 8 葉柄基部橫切面(放大二十四倍)， 9 孢子(放大二百倍)， 10 葉柄上之毛  
(放大八十倍)。





*QUERCIFILIX ZEYLANICA* (Hout.) Copeland

地耳蕨

## BOLBITIS HETEROCLITA (Presl) Ching

## POLYPODIACEÆ

BOLBITIS HETEROCLITA (Presl) Ching in C. Chr. Ind. Fil. Suppl. III. 46 (1934).

*Arenschium heteroclitum* Presl, Bot. Henk. 3: 13 t. 4. f. 2 (1825).*Parcliptera heteroclitia* Presl, Tent. Presl. 242 (1826).*Heterosaurus heteroclitum* Fie, Annot. 92 (1845).*Cryptidium heteroclitum* Kuhn, Ann. Lugd. Bat. 4: 204 (1865).*Leptochloa heteroclitus* C. Chr. Ind. Fil. 375 (1905).*Campium heteroclitum* Cop. Phil. Journ. Sci. 27: 396 (1848).*Arenschium flagelliformum* Walp. ex HB. et Grav. Sc. Fil. t. 23 (1827); Hb. Sp. Fil. 5: 256 (1864).

Hb. et Bak. Syn. Fil. 468 (1867); Clarke, Trans. Linn. Soc. II. Bot. 3: 579 (1886).

*Bolbitis flagellifera* Schott, Gen. Fil. ad t. 84 (1854).*Gymnosperm flagellifera* Boidl. Ferns Brit. Ind. Suppl. 27 (1876); Christ. Farnkr. d. Erde 49 (1867).

Dich. in Engl. u. Prantl: Nat. Pflanzenfam. 4: 4: 202 (1893).

*Parcliptera flagellifera* Boidl. Ferns Brit. Ind. 1: 132 (1865); Handb. Ferns, Brit. Ind. etc. 433

(1893); J. Sm. Bot. Fil. 137 (1875).

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

Yunnan: Mongtze, *Henry 10885*, Bid River, *Hoscock 276*; Szechwan, *Henry 10907*, Kwangtung: North River, *Ford, Sepp.* 3579. Szechwan: Mt. Omei, *E. F. Fisher 1042*. Hainan: Heichow, *Hoscock 20*. Kweichow: Houang-tsan-pa, *Cronquist 7018*, 7059; Lo-fan, *Cronquist 7045*. Kwangsi: Tsin Lung Shan, Lin-yin Hsien, *R. C. Ching 6969* (1928).

Tonkin: Mt. Bana, *Balouse 1897* (1898).

Also India generally, Malasia-Polynesia and the Philippines.

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

A fern with leaf margin deeply crenate, var. *crenata* Ching, var. nov., is noted from Moulinin (leg. Parish, herb. Kew), Tenasserim (leg. Geo. Galbally 84, herb. Kew) and Christmas Island (leg. C. W. Andrews 126, herb. Mus. Brit.).

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

SCONEA FILICUM SINICARUM

第一百十九圖  
長葉寶蕨(水龍骨科)

*BOLBITIS HETEROCLITA* (Presl) Ching

地下莖肥厚，橫行，具深褐色卵形鱗片；葉叢散生，二形。孢子囊羣葉三裂或羽狀分裂，或具放射形之羣葉，小葉一至五對，邊緣小葉與個方小葉同形而較長，其頂部特長成變形，入土著根，全體或稍呈淺波狀，側脈明顯，小脈網狀，網脈三列，橫向葉緣則分裂，薄紙質，乾則呈淺棕色；子囊羣葉與孢子囊羣葉同形而較小，柄較長，小葉較軟，子囊羣初閉裂後分佈，繼向四面擴張，不具蓋。

分布：雲南，廣西，廣東，香港，貴州，四川，陝西及亞洲熱帶各地。

本種為本屬特種之一種，根葉形體異其大，由單葉至羽狀分裂，乾則呈黑褐色。

圖註：1. 本種全形(自然大)，2. 孢子囊羣葉之一部，表示其葉脈(放大四倍)，3. 子囊羣葉之一部(放大四倍)，4. 地下莖上之鱗片(放大二十倍)，5. 孢子(放大三百倍)。







*BOLBITIS HETEROCLITA* (Presl) Ching

長葉實蕨

## HOLBITIS SUBCOORDATA (Cop.) Ching

## POLYPODIACEÆ

**HOLBITIS SUBCOORDATA** (Cop.) Ching in C. Chr. Ind. Fil. Suppl. III. 50 (1934).

*Campium subcordatum* Cop. Phil. Journ. Sci. 27: 569 f. 23, t. 16 (1928).

*Leptochilus subcordatum* Wu. Bull. Dept. Biol. Sun Yat-sen Univ. No. 2: 32 t. 37 (1933).

*Arcellidium subcordatum* Burth. (non Bl. 1826) Fl. Hongk. 443 (1921).

*Nerisarcium pentherum* Bl. Florul. Hongk. in Journ. Bot. (1857) 339.

*Leptochilus cuspidatus* var. *crenata* Ros. Hedwigia 88: 245 (1925).

*Leptochilus* sp. Merr. Ecos. P. Raman in Lingnan Sci. Journ. 3: 10 (1927).

**Rhizome** thick, creeping, densely scaly; **scaler** fusco-brown, ovate-lanceolate, acuminate, pellately attached, clathrate, nearly entire; **frond** dimorphous, caespitose, stipe 30-60 cm long, terete underneath, bisulcate above, sparsely scaly, sterile lamina 20-50 cm long, 15-25 cm broad, oblong, impari-pinnate; **pinnae** 4-10-jugate under the free trifurcate terminal one, which often prolonged and rooting at apex, 9-20 cm long, 2.5-5 cm broad, broadly lanceolate, opposite, the upper ones smaller and alternate, acuminate, base roundish or rotundo-truncate, shortly petiolate, margin crenate throughout, the rounded lobes bluntly serrate with a prominent seta at the sinus, rachis roundish underneath, broadly bisulcate above, glabrous on both sides; **lateral axis veins** distinct, patent, 7 mm apart, intervening veinlets angularly anastomosing in 3 rows of areole between main veins and 2 rows from costa outwards, areole shortly appendiculate or not, veinlets free towards margin; **fertile frond** similar to the sterile one but much contracted, 7-10 cm broad; **pinnae** 6-8 cm long, about 1 cm broad; **vein** indefinite, following the course of veinlets, confluent all over the under surface at last; **spores** bilateral, ovoid, broadly winged all around.

Hainan: Five Finger Mt. F. A. McClure 8725, 8826, 8870, 8558 (type), Spring-May, 1922, shaded moist ravines; Tun Foo, Eryl Smith 2641, stream side, Jan. 14, 1923; Ling-shui Hsien, H. Fung 20125, May 3-20, 1932. Hongkong: *Hance 23*; Dr. Naumann 763 (1860); *Schottmuller*; *Lamont 989*; Dr. *Harland*; *Bowering 22*; *Matthew 577*; *Robinson 8* (1925); *Kotschyana 6592*, June, 1909. Chekiang: Pin-yang, H. H. Ma 155, Kwangtung: Swatow, Thai-yong, *Dalziel*, April, 1901; Lohfau Shan, N. K. Chou 46626, Yao Shan, Ku Koong, Y. F. Wong 31353; Shek Mang Tai Shan, C. L. Tsao 93591, August 7, 1933; Hu Lang Hsing, W. Y. Chou 7117, August 23, 1931. Fukien: Foo-chow, Ku-shan, *Metcalf 7260*, Dec. 5, 1927; *Alexander*. Kwangsi: Yao Shan, S. S. Siew 714.

Formosa: *Faurie 381* (*L. cuspidatus* var. *crenata*); Tamsui, *Hassold 12*; Kee-hang, C. W. Wilford 478.

Tonkin: *Pétilot*, Jan. 1922, a sterile frond.

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

Plate 120. Fig. 1-3. Habit sketch (natural size). 3. Sterile frond of a larger fern (natural size). 4. Portion of sterile pinna, showing venation ( $\times 5$ ). 5. Portion of fertile pinna ( $\times 5$ ). 6. Spores ( $\times 200$ ). 7. Scale from rhizome ( $\times 100$ ).

第一百二十圖  
海南實蕨(水龍骨科)

*BOLBITIS SUBCORDATA* (Cop.) Ching

地下莖短厚，橫行，具深棕色之螺旋狀形鱗片；葉簇生，二形，柄長三十至六十粉，略具鱗片，葉子囊葉葉長二十至五十粉，寬十五至二十八粉，橢圓形，一回羽狀分裂，小葉四至十對，披針形，長九至二十粉，寬二·五至五粉，頂端小葉較大，具尖形長其端，入土莖根，基部具圓截形，具短柄，脈實圓，葉緣呈深波形，具銳鋸齒，而於缺口處具一強大之短肉刺，厚紙質，淡綠色，葉面頗光滑；側脈明顯，小脈網狀，網眼三列，內具小短脈一至若，向葉緣分佈；子囊葉與非子囊葉葉同形，但葉柄長，小葉短狹，長六至八粉，寬約一粉，子囊葉和側網葉分佈，縱切葉緣全圓；孢子卵圓形，具圓點。

分佈： 檳榔嶼，廣東，廣西，香港，福建；台灣及琉球群島之。

本種在香港及澳洲與海濱普遍，生於林中深溪邊，其葉端常短反同向上中葉類。

圖註： 1-2. 本種全形(自然大)。 3. 大型之非子囊葉之一部(自然大)。 4. 同上，表明其葉脈(放大五倍)。 5. 子囊葉之一部(放大五倍)。 6. 孢子(放大二百倍)。 7. 地下莖上之鱗片(放大十六倍)。





*BOLBITIS SUBCORDATA* (Cop.) Ching

海山實蕨

## HYPODEMATIUM CRENATUM (Forsk.) Kuhn

## POLYPODIACEAE

## HYPODEMATIUM CRENATUM (Forsk.) Kuhn, v. Deck, Reis. Bot. 3: 37 (1878).

*Polypodium crenatum* Forsk. Fl. Arg.-Arab. 185 (1775).

*Aspidium crenatum* Kuhn, Fl. Abt. 129 (1868); Christ, Farner. d. Erde 360 (1867); Bull. Herb. Boiss. 6: 195 (1895); in Warburg, Monographia 1: 21 (1900); Bull. Soc. Bot. France 22: 360. 1: 35 (1905).

*Nephrodium crenatum* Baker, Fl. Mass. 497 (1877); Clarke, Trans. Linn. Soc. II, Bot. 1: 324 (1886); Diels in Engl. u. Prantl, Nat. Pflanzenfam. I 4: 125 (1896); Dunn & Tutch. Fl. Kwangsi & Hongk. 248 (1912); Handb. Nat. Synb. Sin. 6: 25 (1920).

*Lactuca crenata* Boid. Ferns Brit. Ind. Suppl. 15 (1876); Handb. Ferns, Brit. Ind. etc. 258 (1881).

*Dryopteris crenata* O. Kuhn, Rev. Gen. Pl. 2: 211 (1841); C. Chr. Ind. Fl. 258 (1893); Chemt. Bot. Gaz. 31: 348 (1911); Sim, Ferns of S. Afr. 101 t. 22 (1912); Ogata, Ic. Fil. Jap. 2: t. 173 (1920); C. Chr. Acta Hort. Gotob. 1: 63 (1924); Period. of Madag. 29 (1925).

*Hypodematium crenatum* Kie, Flora 1822: 69.

*Aspidium crenatum* Walp. List n. 331 (1828, nomen nudum); Mett. Farngatt. Flieg. u. Aquil. 60 (1827).

*Nephrodium crenatum* Dcne. Arch. Mus. 2: 185 (1841); Hb. Sp. Fil. 4: 148 (1862).

*Lactuca crenata* Presl, Tent. Period. 27 (1826); Boid. Ferns S. Ind. t. 95 (1864).

*Nephrodium crenatum* Baker in Hb. Syn. Fl. 480 (1867).

*Dryopteris Fauriei* Rolland in Matzner, Ic. Pl. Koid. 2: 11 t. 90 (1914). For further synonymy see C. Chr. Ind. Fl. p. 258.

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

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

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

PLATE 121. FIG. 1. Herb. whole (natural size). 2. Ultimate pinnae, showing venation and costae (x 6). 3. Indurice (x 20). 4-5. Scales from the base of stipe (x 10). 6. Hair from underside of lamina (x 20). 7. Spores (greatly enlarged).

第一百二十一圖  
 腫足蕨(水龍骨科)

HYPODEMATIUM CRENATUM (Forsk.) Kuhn

地下莖橫行於岩隙中，密被鮮明紅褐色葉基被針形之鱗片，長逾二三粉；葉叢生，柄長十至二十五粉，暗棕色，其基部為細狀膨大，為葉鱗片所覆，不之見也；葉體五角形，十至二十五粉或過之，四位羽狀深裂，硬質，兩面被剛毛，一回小葉五至十對，具柄，基部一對最大，橢圓三角形，急尖端，末回葉片橢圓形，鈍頭，具大鋸齒；葉脈明顯，羽緣，羽狀分叉；子囊葉圓形，着於葉脈上，五尖，闊腎形，其下方缺口着生，具剛毛。

分布：本種廣佈於亞洲溫熱帶各地，遠於非洲之東南部及南洋羣島；在我國之雲南，四川，貴州，湖北，廣東，廣西，福建，江蘇，浙江，安徽均產之。

本種之特徵或其好生於乾燥之形岩隙中，其葉柄之地位呈葉基被鮮紅色之鱗片所覆被，昔人以之隸於 *Dryopteris* 屬，最近經余之研究，應另屬以待之也。

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





**HYPODEMATIUM GRENATUM**(Forsk.) Kuhn.

C. H. Peng Det. et Lith.

燕尾蕨

## HYPODEMATIUM FORDII (Baker) Ching

## POLYPODIACEAE

## HYPODEMATIUM FORDII (Baker) Ching, comb. nov.

*Hypodemium Fordii* Baker, Journ. Bot. (1896) 177; Dunn & Tutch. Fl. Kwangt. & Hongk. 348 (1922).

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

*Dryopteris Fordii* Ching, Sincina 2: 230 (1922).

*Dryopteris ovata* var. *Fordii* C. Chr. Ind. Fil. Suppl. III, 86 (1914).

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

Kwangtung: North River, *C. Ford* 104 (type), Dec. 1888; Shihing, Tung-wu Shan, *S. P. Ko* 20537, June 12, 1930.

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

Plate 122. Fig. 1. Habit sketch (natural size). 2. The swollen basal part of stipe (natural size). 3. Ultimate pinnae, showing venation and sori ( $\times 7$ ). 4. Indusium ( $\times 30$ ). 5. Scale from the swollen base of stipe ( $\times 50$ ). 6, 7, 8. Cross sections of rhizome ( $\times 8$ ). 9. Cross section of the swollen base of stipe (enlarged). 10. Cross section of the upper part of stipe (enlarged). 11. Glandular hairs from the underside of lamina (enlarged). 12. Spores (enlarged).



第 一 百 二 十 二 圖  
福氏蕨足蕨(水龍骨科)

*HYPODEMATIUM FORDII* (Baker) Ching

本種形態與 $\beta$ 種相似，葉質較薄，柄長的二倍量，漏網不疏長剛毛，僅葉形之剛毛較生，子葉學區或喉質，形小，背及邊緣者具同位之剛毛，其末則小葉具較尖之鋸齒。

分布：廣東北部，海南州向來之見也。

圖註：1. 本種全形(自然大)； 2. 葉柄之幼狀膨大基部(自然大)； 3. 未開小葉，表示葉葉脈及子葉學(放大七倍)； 4. 子葉學區(放大三十倍)； 5. 着生於葉柄幼狀基部之鱗片(放大十倍)； 6. 7. 8. 地下莖之橫切面(放大八倍)； 9. 葉柄幼狀基部之橫切面(放大十倍)； 10. 葉柄上部橫切面(放大)； 11. 葉下面之腺狀毛(高倍放大)； 12. 孢子(高倍放大)。





**HYPODEMATIUM FORDII** (Baker) Ching

福氏隱足蕨

PLATE 123

HYPODEMATIUM CYSTOPTEROIDES Ching

POLYPODIACEAE

HYPODEMATIUM CYSTOPTEROIDES Ching, sp. nov.

*Aspidium cretatum* Christ. *Nouv. Genes. Bot. Soc. Ital. n.s. (1867) 96; Bull. Bot. Soc. Ital. (1901) 867.*

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

*Rhizome* slender, wide-creeping, densely scaly; *scales* rufo-brown, to 7 mm long, ovate-lanceolate, acuminate, entire, densely clothing the swollen base of stipe; *frond* approximate, long-stipitate, stipe 10-22 cm long, gracile, flexuose, pale-colored, naked through, lamina ovate-deltoid, 7-11 cm long and as broad, long-acuminate, tripinnate; *lateral pinnae* about 8-jugate under the pinnatifid acuminate apex, the basal ones much the largest, deltoid, opposite, to 10 cm long, 6 cm broad, basiscopically produced, long-petiolate, the upper pinnae gradually abbreviated, oblong-lanceolate or lanceolate, all shortly petiolate with equal, subcuneate base, rather wide apart from each other, the second pair of pinnae from the base to 6 cm long, 2 cm broad near the base, pinnate; *pinnalets* 7-jugate, rather far apart, oblong-lanceolate, to 1.2 cm long with subequal, cuneate, decurrent base and bluntly dentate apex, pinnatifid to the costule into 4-7 pairs of oblong or sparsely dentate segments; *neuras* forked, ending in blunt teeth; both sides sparsely glandular hairy; *texture* thin herbaceous, color green; *seri* 5-7 pairs to each segment, medium-sized, rounded, *indusium* whitish, membranaceous, cystopteroid, triangular-lanceolate or ovate-deltoid with broad and hardly cordate base, cucullately attached to the receptacle.

Shantung: Tsinan, *A. P. Jacob 21*; *ibid.*: Chien Fo Shan, specimens ex herb. Dept. Biol. Cheloo Univ. (without collector's name); Tai-shan, *A. P. Jacob 7*; Cheloo, *E. Faber 205* (herb. Kew, sub *Dryopteris cretata*). Shensi: Mt. Un-san-pin prope "Pagoda", *Giroldi*, July 16, 1894; See-kin-tzuen, *Giroldi*, Dec. 28, 1895; Tse-pan-shan, *Giroldi*, August, 1896.

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

Plate 123. Fig. 1. Habit sketch (natural size). 2. Ultimate pinnae, showing venation and setae ( $\times 14$ ). 3. Scale from the swollen base of stipe ( $\times 105$ ). 4. Indusium ( $\times 20$ ). 5. Spores (enlarged).

第一百二十三圖  
山東睡足蕨(水龍骨科)

HYPODEMATIUM CYSTOPTEROIDES Ching

本種形體頗類前種，惟其小葉及子囊葉之形體大異，其小葉爲狹披針形，或闊披針形，彼此不相聯之葉柄，沿葉長漸次而，基部呈淺度之楔形，其子囊葉蓋不呈圓形，但爲三角狀之披針形，或圓形，或爲卵狀三角形，總屬 *Cystopteris* 屬也。

分佈：山東之濟南，烟台，泰安，青島一帶及陝西中部，他處尚未之見者；此種爲本屬分佈極北之一種，昔人誤認爲前足蕨，實則大異；其標本藏於濟南齊魯大學生物系。

附註：1. 本種全形(自然大)， 2. 末回小葉，表示葉脈及子囊葉(放大十四倍)， 3. 着生於葉柄腋狀基部之鱗片(放大十倍)， 4. 子囊葉(放大二十倍)， 5. 孢子(高倍放大)。





*HYPODEMATIUM CYSTOPTEROIDES* Ching

山東種足蕨

## TECTARIA SUBTRIPHYLLA (Hk. et Arn.) Copeland

## POLYPODIACEAE

**TECTARIA SUBTRIPHYLLA** (Hk. et Arn.) Copeland, Phil. Journ. Sci. Bot. 2: 410 (1867);

Ching, Sinensia 2: 33 (1931); C. Chr. Ind. Fil. Suppl. III. 185 (1934).

*Polypodium subtriphyllum* Hk. et Arn. in Bot. Beech. Voy. 296 t. 30 (1836-40). Christ in Warburg, Monaria 1: 75 (1906).

*Aspidium subtriphyllum* Hk. Sp. Fl. 4: 52 (1862). Benth. Ferns Brit. Ind. Suppl. 14 (1876).

*Neptrodium subtriphyllum* Baker in Hk. Syn. Fl. 206 (1874).

*Sagema subtriphylla* Benth. Ferns 5. Ind. t. 222 (1863).

Rhizome thick, creeping, clothed at the growing tip in blackish, rigid entire, lanceolate scales; frond approximate, stipe 20-50 cm long, dark stramineous, scaly near the base, sparsely setose hairy throughout, lamina deltoid-pentagonous; *lesteral pinnae* 1-2-jugate under the distinct, petiolate, pinnatifid large terminal pinna with cuneate base, the basal ones much the largest, petiolate, trifoliate or trilobed with central lobe much the largest to 16 cm long, 12 cm broad, more or less lobed under the acuminate entire apex, base subrounded or cordate, the second pinnae (if there any) oblong-lanceolate, acuminate, lobato-sinuate, base oblique and slightly adnate; *terrestre* herbaceous, underside rather copiously setose hairy, upperside glabrous except costa and rachis clothed in short reddish hairs; *venation* distinct, anastomosing with or without included veinlets in areole; *sori* large, rounded, compital, scattered or uniseriate in the lobes, leaving a broad sterile space along costa, *indusium* rotundo-reniform, thick, fallen off at last.

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

Hainan: Hung Mo Mt., W. T. Young 15982; Tai Hung, Lin Hwa Shan, W. T. Young 15459; Top of Dome, Five Finger Mt., W. Y. Chua 6267 in herb. Univ. Nanking. Kwangtung: Lokchung, N. K. Chua 27769; C. L. Yeo 27229; Lohdas Shan, N. K. Chua 22508; C. O. Levis 1405; Honan Island, C. O. Levis 1858; Nanchai, S. P. Ke 59052; Ting-wu Shan, H. T. Ho 69981. Hongkong: Y. Tsiang 791. Fukien: Foo-chow, Warburg.

Formosa: Des. F. 4 C. Baker, Dec. 20, 1914.

Tonkin: Lang-Son, Balansa 49 (1885); Coloni 3745; Thai-Nguyen, Coloni 3401; Bao-Giang, Coloni 3598, 3747.

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

PLATE 124. Fig. 1. Habit (nearly natural size). 2. Portion of lamina, showing venation and position of sori ( $\times 5$ ). 3. Hairs from lamina ( $\times 100$ ). 4. Scale from the base of stipe ( $\times 20$ ). 5. Sorus with indusium ( $\times 30$ ).

第一百二十四圖

三叉蕨(水龍骨科)

*TECTARIA SUBTRIPHYLLO* (Hk. et Arn.) Copeland

地下莖肥厚，橫行，緣具暗褐色之硬質披針形鱗片；葉叢生，柄長二十至三十釐，深暗褐色，基部鱗片稠生，邊緣具剛毛。葉柄三角形或五角形，最寬處逾二十五釐，一回小葉一至二對，頂部小葉形亦相同，葉基部呈楔形，基部一對最大，具柄，三裂，中裂片最大，漸尖頭，廣為全緣，上部小葉或有或無，橢圓披針形，漸尖頭，基部呈斜形，邊緣呈深波狀；紙質，乾則呈暗褐色，下面具剛毛，上面僅多如中肋及主脈被深褐色之毛；葉脈羽狀，網脈成具小脈或羽；子囊單圓形，頗大，着生於數小脈之交點處，一列，略近葉緣，橢圓形，質厚。

分布：廣東，廣西，香港，澎湖島，福建；在印度及東亞亦廣之。

本種與南古智尼之品，而尤以香港為最多。

圖註：1. 本種全形(自然大)， 2. 葉柄之一部，表示葉脈及子囊着生之位置(放大五倍)， 3. 葉下面之剛毛(放大一百二十倍)， 4. 葉柄基部之鱗片(放大二十倍)， 5. 子囊單及長(放大五十倍)。



Plate 121  
三叉三叶蕨



**TECTARIA SUBTRIPHYLLA** (Blk. et Arn.) Copeland

三叉蕨



## TECTARIA MACRODONTA (Fée) C. Christensen

## POLYPODIACEÆ

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

*Segeria macrodonta* Fée, Gen. Fil. 313 (1858) t. 244 f. 1 (1854).

*Aspidium condanatum* Wal. (non Kunth, 1841) Cat. 337 (1825, nom. nud.); Bl. et Grev. Ic. Pl. t. 202 (1831); Bot. Fil. Lips. 94 t. 22 f. 3-4 (1856); Christ, Bull. Acad. Géogr. Bot. (1934) 23.

*Segeria condanata* Bedd. Fern. S. Ind. t. 81 (1833); Christ, Bull. Soc. Bot. France 52: Mém. 2: 54 (1905).

*Tectaria condanata* C. Chr. Contr. U. S. Nat. Herb. 26: 357 (1937); Ching, Siamia 2: 25 pl. 1-11 (1931).

*Aspidium circulare* var. *condanatum* C. Chr. Ind. Fil. 95 (1935).

*Nephrodium circulare* Hb. Sp. Fil. 4: 48 (1802); Baker in Hb. Syn. Fil. 209 (1897), pro parte.

*Nephrodium circulare* var. *condanatum* Clarke, Trans. Linn. Soc. II, Bot. 1: 549 (1880).

*Aspidium circulare* var. *innatum* Christ, Bull. Acad. Géogr. Bot. (1936) 237.

*Segeria apifolia* Christ (non J. Sm. 1845), Bull. Acad. Géogr. Bot. (1936) 220.

*Aspidium pin-jurum* Christ, Bull. Acad. Géogr. Bot. (1939) 169.

*Aspidium lucanense* Hayata, Ic. Pl. Fern. 8: 127 t. 61 (1918).

Rhizome thick, creeping, densely scaly; scales rufo-brown, ovate-acuminate; frond approximate, stipe 25-35 cm long, glossy, dark castaneous, lamina deltoid, bipinnatifid under the condanate pinnatifid terminal pinna; lateral pinnae 2-4-jugate, the basal ones much the largest, shortly petiolate, cordate, deltoid-lanceolate, 18-20 cm long, to 12 cm broad, pinnatifid to a narrow wing along costa, the upper pinnae more or less adnate, also deeply pinnatifid with entire, falcate segments, of which the lower ones broadly lanceolate, 5-7 cm long, about 2 cm broad, acuminate, lobato-incised; lobes falcate, rounded, entire; texture thin herbaceous, upper-side densely pubescent with short, clear, reddish hairs, underside sparsely so, margin ciliate, rachis and costa shining castaneous underneath; veins anastomosing, areole elongate, mostly without including veinlets; sori rounded, far apart, regularly uniseriate on each side of costule of segment, mostly apical on the including veinlets, indusium rotundo-reniform, large, brown, fallen off at last.

As previously cited, the species is known from Yunnan, Szechwan and Kweichow in China, besides Northern India, Siam and Peninsular India. Additional material recently examined are K. K. Yooey 2530 from Tali, Yunnan, and Espinal 10371 from Houang-tao-pa, Kweichow.

Plate 125. Fig. 1. Habit sketch (natural size). 2. Segment, showing venation and position of sori ( $\times 18$ ). 3. Sorus with indusium ( $\times 25$ ). 4. Hairs from lamina ( $\times 86$ ). 5. Scale from rhizome ( $\times 94$ ).

第一百二十五圖  
高山三叉蕨(水龍骨科)

*TECTARIA MACRODONTA* (Fée) C. Christensen

地下莖肥厚，橫行。具紅褐色之卵狀鉤形鱗片；葉叢生，柄長二十五至三十五粉，呈光亮深栗色，葉體三角形，二回羽狀深裂，頂部羽狀深裂；一回小葉二至四對，葉部一對最大，具短柄，葉部心臟形，三角狀卵形，長十至二十粉，寬達十二粉，羽狀深裂，上部小葉數片合生，間有羽狀深裂，裂片鐘形，全緣，位於基部者為圓狀卵形，長達六七粉，寬約二粉，歧頂深裂；邊緣置，上面被深褐色之短毛，下面有網脈之毛疏生，葉緣具短毛，各位中肋呈光亮之深栗色；葉脈網狀，網眼具小脈或否；子囊穗圓形，一列，位於裂片之中肋兩側，着生於網眼內之小脈端，扁圓錐形，褐色。

分布：雲南、四川、貴州；印度北部，交趾支那，錫蘭均產之。

本種形態頗似前種，惟其葉柄及各位中肋呈光亮之深栗色，葉體二回分裂，葉質較薄，上面及葉緣具深褐色之毛，子囊穗着生於網眼內之小脈端，故易區別。

圖註：1. 本種全形(自然大)， 2. 裂片，表示其葉脈及子囊穗之位置(放大十倍) 3. 子囊穗與葉(放大二十倍)， 4. 葉上面之毛(放大八十倍)， 5. 地下莖上之鱗片(放大二十四倍)。





**TECTARIA MACRODONTA** (Fée) C. Christensen  
高山三叉蕨

## CYRTOMIUM FORTUNEI J. Smith

## POLYPODIACEÆ

**CYRTOMIUM FORTUNEI** J. Smith, Ferns Brit. & For. 289 (1896); Hiss, Fil. 203 (1875); L. H. Bailey, Manu. Cult. Pl. 71 (1924); C. Chr. Amer. Fern Journ. 20: 49 (1930); Ind. Fil. Suppl. III. 66 (1934); Tagawa, Acta Phytotax. et Geobot. 3: 81 f. 5-9 (1934).

*Polydictyon Fortunei* Nakai, Bot. Mag. Tokio 20: 125 (1927).

*Polydictyon falcatum* var. *Fortunei* Nakai, Matsun. Ind. Pl. Jap. 1: 349 (1924); C. Chr. Ind. Fil. 58: (1925).

*Cyrtomium falcatum* (non Presl) C. Chr. Ind. Fil. Suppl. 1. 101 (1912); L. H. Bailey, Genes Herb. (1929) 9.

*Aspidium falcatum* Bl. (non Sw.) in Blakiston, Five Months on the Yangtze 36 (1862); Baker in Hk. Syn. Fil. 137 (1867); Franch. et Sav. Excurs. Pl. Jap. 2: 234 (1875), pro parte.

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

*Cyrtomium falcatum* var. *polypterum* Christ, Bull. Soc. Bot. France 52: Mém. 1. 33 (1905); Bull. Acad. Génér. Bot. (1904) 250.

*Aspidium falcatum* var. *caryophyllum* Christ, Nov. Génér. Bot. Soc. Ind. N.S. (1897) 55.

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

*Polydictyon hookerioides* Nakai (non Diels, 1900), Bot. Mag. Tokio 21: 77 (1914).

*Cyrtomium vitatum* Christ ex Léveillé, Bull. Acad. Génér. Bot. (1900, non 1905).

Rhizome short, oblique or erect, densely scaly; *scapes* large, 1 cm or longer, rufo-brown or atro-castaneous, glossy, ovate, acuminate; *fronds* crispitate, stipe 15-30 cm long, strong, densely clothed in the similar scales, which are mixed with others of linear outline, lamina oblong, 13-45 cm long, 10-17 cm broad, pinnate under the free hastate end-pinna; *pinnae* 10-20-jugate, alternate, lower ones hardly short-end, in typical form, up to 10 cm long, 2 cm broad, falcate, long-acuminate, shortly petiolate, base broadened, rounded or auricled above, margin finely serrate throughout; *texture* chartaceous, light green, not glossy in living state, rachis fibrillose-scaly throughout; *veins* distinct, copiously reticulated, areolae hexagonal, oblique, each with 1-2 excurrent included *scoriferous* veinlets; *neri* rounded, scattered over the underside, terminal or infra-apical on the veinlets, *indusium* large, coriaceous, grayish, rounded, peltately attached, depressed at centre, with wavy margin.

This is one of the most common ferns throughout the Yangtze valley and extends as far north as the southern part of Shensi and southwardly to the north of Canton (Lok-chong, W. Y. Tsang 26708). Also Japan and southern Corea, recently known from Tonkin.

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

Pl. 126. Fig. 1. Habit whole (natural size). 2. *Fronds* *polypterum* (natural size). 3. *Fronds* *polypterum* (Diels).

ICONES FRUCTUS SINGAPURUM

第一百二十六圖  
貫衆(水龍骨科)

CYRTOBIUM FORTUNEI J. Smith

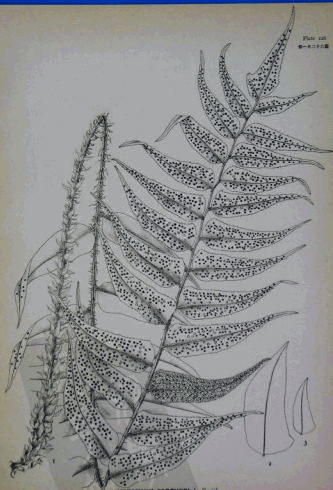
地下莖肥短，斜出或直立，其表皮紅褐色之卵形密鱗片，長線一肋；葉叢生，葉長十五至三十釐，且葉鱗片，並有披針形之狹鱗片覆生，葉體橢圓形，長十五至四十五釐，寬十至十七釐，一回奇數羽狀分裂，小葉十至二十對，互生，具短柄，位於基部者與葉上部者等長或略短，長可達十釐，寬二釐，橢圓形，長漸尖頭，基部特寬，圓形或上方呈耳形，葉緣具細波狀齒，達於極頂，厚紙質，淡綠色，上面無光澤，中肋及葉柄具纖維狀之鱗片；葉脈網狀，網脈斜出，內具一至二數道直斜引之小脈；子葉革質形，不規則排列，着生於網脈內之小脈上，長圓形，甚厚，灰色，網狀脈生。

分布： 種子江蘇皖各省均產之，北達陝西之南部，南及廣東北部之樂昌縣；日本及朝鮮南部亦甚普通，最近在雲南發現；歐美各國或從我國採得。

本種其根莖經各省習見之品，其葉叢生一歲，其形體變異甚大，小者高不及尺，小葉呈卵形，長僅二三釐耳。

圖說： 1. 本種全形(自然大)， 2. 圓葉變種(自然大)， 3. 小葉變種(自然大)。





CYRTONIUM FORTUNEI J. Smith

買家

CYRTOMIUM FALCATUM (L. fil.) Presl

POLYPODIACEAE

**CYRTOMIUM FALCATUM** (L. fil.) Presl, Tent. Pterid. 86 (1836); Link, Sp. Fil. Hort. Berol. 164 (1841); Fée, Gen. Fil. 286 (1850-52); Moore, Ind. Fil. 277 (1861); Hk. Florul. Hongk. in Journ. Bot. (1857) 340; J. Sm. Ferns Brit. & For. 142 (1860); Hist. Fil. 204 (1876); C. Chr. Ind. Fil. Suppl. I. 101 (1912); Amer. Fern Journ. 20: 48 (1930); Christ in Warburg, Monunia I: 74 (1909); Bull. Acad. Géogr. Bot. (1910) 5; Tagawa, Acta Phytotax. et Geobot. 3: 59 (1934).  
*Polypodium falcatum* L. S. Sp. Pl. Suppl. 445 (1793); Thunb. Fl. Jap. 339 (1794); Poir. Encyc. Bot. 3: 527 (1804).  
*Aspidium falcatum* Sw. in Schrad. Journ. Bot. 1808<sup>9</sup>: 31 (1808); Syn. Fil. 41 (1809); Hk. et Arn. in Bot. Beech. Voy. 474 (1836); Hk. Lond. Journ. Bot. 1: 494 (1842); Fil. East. 1: 62 (1847); Sp. Pl. 4: 40 (1862); Syn. Fil. 237 (1867); Berth. Fl. Hongk. 454 (1864); Lemo. Ferns 4: 1, 4 (1887); Fench. et Sav. Exon. Pl. Jap. 2: 236 (1873); Christ, Fench. et Sav. 232 (1897).  
*Dryopteris falcata* O. Kuhn, Rev. Gen. Pl. 1: 822 (1841).  
*Polypodium falcatum* Diels in Engl. u. Prantl, Nat. Pflanzenfam. I: 2: 704 (1889); C. Chr. Ind. Fil. 961 (1903); Matsum. et Hayata, Exon. Pl. Form. 973 (1906); Yabe, Bot. Mag. Tokio 17: 85 (1903); Nakai, Journ. Sci. Coll. Univ. Tokio 11: 209 (1911); Brause in Lemo. Prod. Fl. Tongkong in Bot. Centralbl. 21: 80 (1905).  
*Aspidium falcatum* var. *gambicum* Matsum. Bot. Mag. Tokio 18: 222 (1896).  
*Polypodium falcatum* var. *gambicum* Matsum. Ind. Pl. Jap. 1: 342 (1904).  
*Polypodium japonicum* Hook. f. Nat. Hist. 11: 317 t. 98 f. 3 (1813); Pl. Syst. 13: 317 t. 98 f. 3 (1793).

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

Kwangsi: Shanghai, on the way to Wensung, *Szechwan*: Tung King Hsien, L. C. De 7147, August 28, 1928; Hsiao-fu, Lin-shan Lodge, Jacob 25, Nanking, 10311 (1928, parv.), cultivated. Fukien: Fuchow, Dr. Gern 29 in herb. Hainan: Douchang, Chew Ping-er 1207, July 24, 1925. Szechwan: Tung-tu, Liu-shan, Kwoh 45, Chiao, *Nan-wei* 8, Chokiang; Nilsen, C. Y. Chew 12112, July 11, 1917; *Mary Matthews* 1027 in herb. Edinburgh Univ. Kwangtung: Swatow, Gieseler (Dahur), Sept. 1869; Yungku, Tai-shan, C. C. 14874.

Also Japan, Corea, Formosa and Liaokiu.  
 Type from Nagasaki, Japan, collected by Thunberg. In China, this fern is common across only occasionally. Its report as occurring in Africa, Madagascar and Southern India is a mistake for *C. micropterum* (Kuhn) Ching, sp. nov. (*Aspidium micropterum* var. *micropterum* Kuhn, *Linnæa* 28: 298, 1911).

Var. *derrensenioides* (Kuhn) (pro sp.) Tagawa, Acta Phytotax. et Geobot. 3: 66 (1934).  
 Kwangtung: Liu-hsun, S. P. Ko 15002, dist. Yang Shan, S. P. Ko 15021, dist. Chen Hong, S. P. Ko 15024. Kwangsi: Wang-shan, Lu-chou, R. C. Ching 2468, Kweichow: Yao Sun Shan, Szechou, Y. Tsiang 6326.

Also Japan.  
 Differs from the type in much longer and narrower pinnae of a lanceolate outline.  
 The second variety, *arundinum* (Christ, pro sp.) C. Chr. Amer. Ferns Journ. 20: 49 (1930), with laciniately serrate or lobed pinnae, is known only from Japan and Corea.

Plate 127, Fig. 1. Habit sketch (natural size). 2. Lower pinna, showing venation and sori (natural size). 3. Indusium (= 24). 4. Large scale from the base of stipe (= 100). 5. Small scale from rachis (= 100).

第一百二十七圖  
全緣貫衆(水龍骨科)

*CYRTOMIUM FALCATUM* (L. fil.) Presl

地下莖短肥，直立，具大卵形之紅褐色鱗片；葉簇生，柄長二十至三十份，暗綠色如前種，具二型葉鱗片；葉卵圓形或橢圓披針形，長十五至四十份，寬六至十三份，奇數羽裂分裂，小葉一至十對，互生，卵狀橢形，長漸尖或尾狀，基部闊形或上方呈闊耳形，具細柄，全緣，邊緣有無齒齒，葉背小葉長五至八份，寬三至四份，上部者漸小，革質，上面呈光綠色，中肋及葉柄具纖維狀之鱗片；葉脈網狀，網脈及子囊葉之右生一如前種，甚罕實，圓形，倒狀着生。

分布：江蘇，浙江，福建，香港，廣東，廣西，貴州均產之，但不如前種之普遍耳；日本，台灣，朝鮮及琉球亦多習見；歐美各國均栽培以供觀賞。

此外有變種二種：一為巨葉變種 *Var. deventiosipinae* Tagawa，產於日本及我國南部諸省，其小葉呈長披針形；一為裂片變種：*Var. acutidens* (Christ) C. Chr.，產於日本及朝鮮，小葉形體如前種，但邊緣具大鋸齒或披針形之裂片。

圖註：1. 本種全形(自然大)， 2. 下部小葉，表示葉脈及子囊葉(自然大)， 3. 子囊葉齒(放大二十四倍)， 4. 葉柄基部鱗片(放大十倍)， 5. 中肋上之鱗片(放大十倍)。







CYRTOMIUM FALCATUM (L. fil.) Presl

全線蕨類

PDG

## CYCLOPELTIS CRENATÁ (Fée) C. Christensen

## POLYPODIACEÆ

CYCLOPELTIS CRENATÁ (Fée) C. Christensen, Ind. Fil. Suppl. III. 44 (1934).

*Hemicardium crenatum* Fée, Gen. Fil. 283 t. 22A l. 1 (1859-60).*Hemicardium crenatum-crenatum* Fée, l. c. (non. nud.)*Cyclopetlis Pseudana* C. Chr. Ind. Fil. 150 (1935), pro parte; Bonap. Nova Pseud. Pl. 3: 99, 155 (1938); Merr. Exot. Hainan Pl. in Lingnan Sci. Journ. 8: 5 (1937), non Berkeley, 1857.

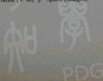
Rhizome, short, thick, oblique, scaly; *scapes* darkish brown, linear-subulate, 1.5-2 cm long, 1 mm broad, soft, with scarious margin; *fronds* copiose, stipe 30-40 cm long, 5 mm thick above base, angular, stramineous or brownish, fibrillose-scaly throughout the rachis, impari-pinnate; *lateral pinnæ*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

Hainan: Nodon, Sha Po Ling, F. A. McClure 8165, 8168, 8186, moist shaded ravines of water edge; Katswanata, in herb. Hongkong; Ling Shui Hsien, F. A. McClure 2068, May 4-20, 1932; Yai-chow, F. C. How 71124; C. Wang 35457, 35195; Eryl Smith 1620, 1633.

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

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

Plate 128: Fig. 1. Habit sketch (natural size). 2. Portion of pinnæ, showing venation and position of areolæ ( $\times 1$ ). 3. Scale from the base of stipe ( $\times 20$ ). 4. Basal part of pinnæ, showing articulation to rachis ( $\times 10$ ). 5. Spores (enlarged).



第 一 百 二 十 八 圖

擬 買 衆 (水 龍 骨 科)

*CYCLOPELTIS CRENATA* (Fée) C. Christensen

地下莖肥厚，刺出，具黃褐色之縱長葉鱗片，長達二份，寬僅一釐，質軟，遇水小軟縮；葉簇生，柄長三十五四十份，稍帶色或黃褐色，具黃色縱線狀之鱗片，葉體橢圓形，奇數羽狀分裂，小葉十至十五對，互生，且短柄，都簇着生於中肋，長八至十三份，寬達三份，披針形，漸尖頭，基部一對與頂上部者等長，基部不等，上方呈圓耳形，下方斜形，葉緣向上部呈波流狀，橫貫，綠色，中肋及主脈下面具繸緣狀葉鱗片；葉脈分佈，三至四次，典例；子囊學大圓形，着生於小脈上，三列，蓋大，圓形，革質，黃褐色，柄狀着生，耐久則脫落；孢子卵形，具圓蓋。

分佈： 琉球島及安南特產。

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

圖說： 1. 本種全形(自然大)， 2. 小葉之一部，表示其葉脈及子囊學之位置(放大三倍)， 3. 葉柄基部鱗片(放大十倍)， 4. 葉與中肋聯着生情形(放大十倍)， 5. 孢子(高倍放大)。





*CYCLOPeltis GRENATA* (Fée) C. Christensen

擬 蕨 菜

**POLYSTICHUM FIMBRIATUM** Christ

POLYPODIACEÆ

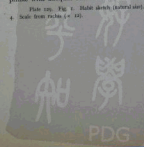
**POLYSTICHUM FIMBRIATUM** Christ, Bull. Acad. Géogr. Bot. (1906) 237; C. Chr. Ind. Fil. I. 44 (1912).

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

Kweichow: South of Tin-fun, *Cassierie and Fortesat 1842* (type), Oct. 1904; Pingchow, Y. *Tsiang 7125*, Sept. 14, 1930.

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

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



PDG

第一百二十九圖

瓦鱗耳蕨(水龍骨科)

POLYSTICHUM FIMBRIATUM Christ

地下莖肥厚，直立，具光亮黃褐色之線形葉鱗片，長二釐；葉叢生，葉長十五至十八釐，具大卵形之同型葉鱗片；葉體耳狀卵形，長達三十釐，寬五至六釐，基部截形，一回羽狀分裂，羽片長短不一，羽狀深裂；小葉二十五對至三十六對，互生，葉緣或瓦覆，長二、五至三釐，寬一、三釐，深楔形，鈍圓，基部具短柄，不等，上方呈尖耳形（有時分叉），下方羽形，葉緣具長刺狀之齒葉齒，中肋及主脈下面具繖緣狀之葉鱗片，革質，葉脈三叉或羽狀分叉；子囊單圓形，一列，位於葉緣，着生於每葉基部上方之一小脈之端，莖革質，圓形，黃褐色，柄狀着生。

分布：貴州南部特產，他處尚未之見。

本種爲本屬特種之一種，罕有與此相似之種，僅採得二次，蓋其珍品也。

圖註：1. 本種全形(自然大)，2. 小葉，表示其葉脈及子囊着生情形(放大二倍)，3. 葉柄上之鱗片(放六十倍)，4. 中肋之鱗片(放六十二倍)。





*POLYSTICHUM FIMBRIATUM* Christ

瓦鳞耳蕨

## POLYSTICHUM OTOPHORUM (Franch.) Beddome

## POLYPODIACEAE

**POLYSTICHUM OTOPHORUM** (Franch.) Beddome, *Handb. Ferns, Brit. Ind.* etc. Suppl. 42 (1892); Diels in Engl. u. Prantl, *Nat. Pflanzenfam.* 1: 4, 190 (1899); C. Chr. *Ind. Fil.* 585 (1905); *Acta Hort. Gothob.* 1: 68 (1924); *Christ, Bot. Gaz.* 31: 345 (1911).

*Aspidium otophorum* Franch. *Nouv. Arch. Mus. N.* 18: 116 (1867).

*Rhizome* thick, short, erect, densely scaly; *scales* large, dark brown, ovate-acuminate, imbricate; *fronds* caespitose, stipe 5-10 cm long, clothed in dense spongy, lanceolate blackish and fibrillose scales, lamina lanceolate, 15-22 cm long, 4-5 cm broad, pinnate under the short, pinnatifid, acuminate apex; *pinnae* 20-28-jugate, patent, shortly petiolate, the basal ones deflexed and as long as those above, 2-2.5 cm long, 7 mm broad above the base, which is provided above with a prominent auricle, either adnate or free, obliquely cuneate below, margin regularly serrate with long aristate teeth; *texture* rigidly coriaceous, rachis and underside of pinnae more or less fibrillose-scaly; *veins* pinnate in auricle, 3-forked upwards; *sori* small, nearer to the margin than to the costa, terminating the anterior basal veinlet of each group above the auricle, *indusium* coriaceous, rounded.

Szechwan: Moupin, *David* (type) (1890); Mt. Omei, *E. H. Wilson* 2024, 2536, 2598, 2563A; *Brown* 20, 136; Kuan Hsien, *F. T. Wang* 26122 (f. typica); Tang Ho, *Lependre* 1614; Yu-chi-kou, *Harry Smith* 2551; T. T. Yu 2611, 2742 (f. ad *P. xiphophyllum*).

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

Plate 130. Fig. 1. Habit sketch (natural size). 2. A pinna from a larger fern (natural size). 3. Ferns from the typical form ( $\times 2$ ). 4-5. Scales from stipe ( $\times 14$ ).



第一百三十圖  
高山耳蕨(水龍骨科)

*POLYSTICHUM OTOPHORUM* (Franch.) Beddome

地下莖肥短，直立，具丸形深褐色瓦形狀之葉鱗片；葉簇生，柄長五至十份，具二形或鱗片，葉體披針形，長十五至二十二份，寬四至五份，一回羽狀分裂，頂部漸尖而，一回深裂，小葉二十至三十對，密排，甚短柄，圓展，位於基部者下向，與上部者等長，長二至二·五份，寬約七份，披針形，漸尖而，基部不等，上方具尖耳形之深裂，合生成分枝，下方斜形，葉緣具粗狀鋸齒，硬革質，中肋及主脈下面具纖維形之鱗片；葉脈三叉，在耳形小葉者羽狀分叉；子囊單小圓形，近於葉緣，一列，着生於每葉基部上方之一小脈之端，圓錐形，革質，灰色。

分佈： 四川西部高山特產，他處尚未之見。

本種亦為我國西部特種產物，始引錄於此部之 *Polyst. lobatum* (Linn.)，然各部頗大異。

圖說： 1. 本種全形(自然大)， 2. 大型小葉(自然大)， 3. 複式標本之小葉(放大三倍)， 4-5. 葉柄上之鱗片(放大十四倍)。





**POLYSTICHUM OTOPHORUM** (Franchet) Beddome

高山耳蕨

## POLYSTICHUM OMEIENSE C. Christensen

## POLYPODIACEÆ

**POLYSTICHUM OMEIENSE** C. Christensen (nom. Christ., 1960), Ind. Fil. 67 (1955), 385 (1966); Acta Hort. Gothob. 1: 72 (1924).

*Aspidium carolinianum* Baker, Journ. Bot. (1885) 225; Christ, Bull. Bot. Soc. Ital. (1920) 295; Bull. Acad. Géogr. Bot. (1926) 314 (non Kunze, 251c).

*Polystichum carolinianum* Christ, Bull. Herb. Boiss. 4: 969 (1898); Diels in Engl. Jahrb. 28: 794 (1899).

*Polystichum Fabeli* Christ in Lecomte, Nat. Syst. 1: 37 (1895).

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

Szechwan: Mt. Omei, *E. Fabel* 1027 (1896); *E. Fabel* 11 in herb. Hance; *ibid* Soulie; *W. Wilson* 5287; *W. P. Fong* 2494, 3155; Nanchuan, *W. P. Fong* 5436, 6118, 7224 (without exact locality). Yunnan: Mongtze, *Henry* 9650; *Hancock* 23 (1893). Kweichow: Pin-fu, *Caslerie* 2426, 7094 (1907); Tou-shan, *Caslerie* 2536.

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

Plate 131. Fig. 1. Habit sketch (natural size). 2. Pinnaule ( $\times 14$ ). 3. Indusium ( $\times 45$ ). 4. Scale from rhizome ( $\times 40$ ).

第 一 百 三 十 一 圖

峨眉耳蕨 (水龍骨科)

POLYSTICHUM OMEIENSE C. Christensen

地下莖短而直立或斜生，極其褐色卵形小鱗片；葉多數簇生，柄長達十三公分，暗褐色，堅實，葉  
 體倒披針形，長十五至二十五公分，寬四至七公分，漸尖頭，細密三回羽狀分裂，一回小葉多數，交互  
 生，幾無柄，圓形，披針形，長二至三公分，基部者稍短且下向；二回小葉六至十二對，卵形或圓形，基部  
 漸尖，柄中肋甚長，末回小葉二至三對，通常深二裂，裂片短，線形，寬不及一毫米，線尖頭，全緣，具  
 一小葉，不達於頂，紙質，綠色，下面略具小鱗片；子囊果小圓形，每裂片一個，着生於葉脈之端，近  
 圓形，厚紙質，與葉等寬或較寬，不久脫落。

分布：四川峨嵋山，雲南之蒙自及貴州南部。

本種為我國西部高山特產，其葉體細密分裂成線形尖頭之小裂片，寬不及一毫米，具一小葉，而僅著  
 一孢子囊果。

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





*POLYSTICHUM OMEIENSE* C. Christensen

峨眉耳蕨

## PELLAEA SMITHII C. Christensen

## POLYPODIACEÆ

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

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

Szechwan box-ocid.: Hsu-ling, *Harry Smith* 4799 (type), on sunny rocks; *E. B. Wilson* 2564 (1908). Yunnan: east of Yung-ming, *Farret* 91258, 10163.

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

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

第 一 百 三 十 二 圖

史氏旱蕨(水龍骨科)

*PELLAEA SMITHII* C. Christensen

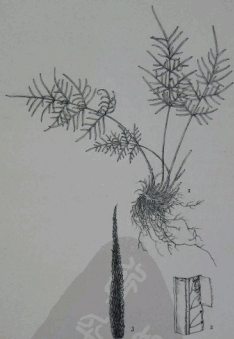
地下莖短而直立，節具膜形鱗葉殘色光亮小鱗片；葉多數簇生，柄長六至十吋，葉實，橫切面圓形，除其鱗片，葉鞘褐色，葉體卵形或三角形，長四至六吋，寬四吋，葉背，二回羽狀分裂，中肋上面具短剛毛及一淺槽，一回小葉三至四對，側生或上加者密對生，無柄，三角形，長寬達二吋，頂端小葉同形，羽狀深裂，裂片三至五對，線形，急尖頭，長一至一、五吋，寬一毫一、二釐，全緣，基部沿中肋延長，主脈上面呈淺槽，下面突起，側脈斜出，二又；子葉舉貼近葉緣，着生於小葉頂端，呈深褐色，葉質，線形，直達頂端，寬達於主脈，與其對面之齒相接。

分布：四川南碭及雲南西北部之高山，生於露出岩石上。

本種形體頗似 *Pellaea nitida* Baker，然後者之葉柄或深紫色或為木色，葉體分裂較密，中肋上面具較長較密之短剛毛，故易與本種區別。

圖註：1. 本種全形(自然大)，2. 裂片之一部，表示其葉脈及子囊葉之位置及其齒(放大六倍)，3. 地下莖上之鱗片(放大二十倍)。





*PELLAEA SMITHII* C. Christensen

史氏旱蕨



## CHEILANTHES DUCLOUXII (Christ) Ching

## POLYPODIACEAE

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

*Doryopteris Duclouxii* Christ, Bull. Acad. Géogr. Bot. (1902) 231; Bull. Soc. Bot. France 42: Mém. 1, 58 (1905); C. Chr. Ind. Fil. 244 (1930); Acta Hort. Gotob. 1: 86 (1924).

*Doryopteris murata* Christ, Bull. Acad. Géogr. Bot. (1904) 211; C. Chr. Ind. Fil. 244 (1930).  
*Doryopteris Mairii* Brause, Hedwigia 34: 206 t. 4 f. J. (1914).

Rhizome short, erect; scales at the apex blackish, lanceolate, rigid and opaque; fronds caespitose, stipe 14-25 cm long, glabrous, glossy, dark castaneous, terete throughout, lamina deltoid, semi-bipinnate, 8-12 cm each way, falcate, coriaceous, glabrous on both sides, rachis, costa and costules underneath shining castaneous; lateral pinnae 4-5-jugate under the lanceolate, entire or pinnatifid apical part, all connected by a narrow wing along rachis, or in full-grown plants the basal pair separated from those above by wingless rachis, basal pinnae much the largest, sub- or semi-deltoid, 5-7 cm long, 4-5 cm broad, semi-pinnatifid, i.e. only the lower side of costa with 3-5 lanceolate segments, of which the basal ones much the longest, 4-5 cm long, 5 mm broad above base, entire throughout, or sometimes with a few additional short segments on the lower side, while the upper side of costa is entire or irregularly pinnatifid with short segments; the upper lateral pinnae generally simple, entire, falcate, or sometimes the second pair also semi-pinnatifid; veins in segments free, dichotomously forked, hidden; sori terminating the veinlets, indusium gray, membranaceous, entire, continuous to the very apex of segment; spores spherical, echinose.

Yunnan: *Ducloux* (type), Dec. 23, 1896; Mengtze, *Hanceol* 31; Fasang (1897); *Maire* 2736, 2737; *Forrest* 298; *Ducloux* 1351 (1906); K. K. Tzeung; Makong; E. E. *Maire*, pro parte. Szechwan: Omei region, *H. D. Brown* 89 (1928). Kweichow: Pin-fa, *Cesaleria* 1228, 1218 (type of *Dory. murata*).

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

Var. *sulphurea* Ching, var. nov.

*Doryopteris Duclouxii* f. *argentea* Christ, Bull. Soc. Bot. France 42: Mém. 1, 58 (1905).  
*Doryopteris Mairii* Brause, Hedwigia 34: 206 t. 4 f. J (1914).

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

Szechwan: Niu-yuan Hsien, *Harry Smith* 1820; *Wilson* 5297; *Hendel-Mazzetti* 2790. Yunnan: Tali, *Forrest* 13,199; Ngyakko, *Ducloux* 6225 (1909); Tchang Shan, *Ducloux* 3265; Nsion Ko Shan, *Ducloux* 8965; Pin-tchouan, *Ducloux* 6930; Mt. Mao Kou Tchang, near Ta-pin-lao, Tali, *Doherty* 9 (1883).

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

FIGS 1-5. Fig. 1. Habit sketch (natural size). 2. The same, a simpler form (natural size). 3. The same, a young plant (natural size). 4. Portion of segment, showing venation ( $\times 16$ ). 5. Scale from the base of stipe ( $\times 12$ ).

第 一 百 三 十 三 圖  
杜 氏 粉 青 蕨 (水 龍 骨 科)

CHEILANTHES DUCLOUXII (Christ) Ching

地下莖短而直立，端具深褐色而極質不透明之軟針形鱗片；葉簇生，柄長十四至二十公分，葉片無  
 絨毛，深栗色，橫切面圓形，葉體卵三角形，葉二回羽狀分裂，長寬各九至十二公分，淡黃色，革質，兩  
 面光滑，下面無白粉，中肋及主脈下面呈光澤之栗色，一回小葉四五對，開展，基部為線狀針形全緣  
 或羽狀深裂，各小葉基部合生，葉基部一對分離，較大，下邊羽狀深裂，上邊全緣，二回小葉線狀針形  
 ，三五五數，位於基部者最長，長約四至五公分，寬五釐，其上者漸短，有時下部小葉再羽狀深裂，上部  
 一回小葉為線狀針形，全緣或有時第二對亦為半羽狀深裂，不具鋸齒；葉脈網，網眼對稱分叉，不顯明；  
 子囊單狀或雙輪，若生於小葉之端，呈圓錐，線形，連於葉片之極端。

分佈：雲南，四川總嶺山及貴州南部。

本種為我國西部特產，其形態頗同西邊常見之粉青蕨 (*Ch. septem-loba* Kze.)，所不同者為其羽體較  
 大，葉體分裂較少及其回葉之一回小葉，通常較為半羽狀分裂是也，此外另有一種： *Var. subpinnata*  
*Ching*，葉背面具深黃色粉。

圖註： 1. 本種全形(自然大)。 2. 同上，羽體較單蕨(自然大)。 3. 同上，根植物(自然大)。  
 4. 未開裂片之一部，表示其葉脈(放大六倍)。 5. 葉柄基部之鱗片(放大十五倍)。





**CHEILANTHES DUCLOUXII** (Christ) Ching  
杜氏粉青蕨

C. H. Yang Det. et Lith.

## CHEILANTHES HANCOCKII Baker

## POLYPODIACEAE

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

*Cheilanthes talienensis* Christ, Bull. Soc. Bot. France 52: Mém. 1. 58 (1905); C. Chr. Ind. Fil. 176 (1905); Acta Hort. Gothob. 1: 83 (1924); Contr. U. S. Nat. Herb. 28: 308 (1934).

*Cheilanthes Henryi* Christ, Bull. Acad. Géogr. Bot. 14: 135 (1906); C. Chr. Ind. Fil. Suppl. 1: 18 (1912).

*Cheilanthes Wilsoni* Christ, l.c. 132; C. Chr. Ind. Fil. Suppl. 1: 18 (1912).

*Cheilanthes Bonaventurae* Bonavent. Hedeigia 54: 203 t. 4 f. E (1914); C. Chr. Ind. Fil. Suppl. II. 8 (1936).

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

Yunnan: Mengtze, *Hancock* 63 (type) (1893); Saemo, *Henry* 19332 (type of *Ck. Henryi*); Shit Ping, *Henry* 22223; *Duckson* 1347; Siao-su-long, K. E. *Maire* (November); 2749, 1312; *Duckson* 1342 (pro parte); environs de Yunnan-sen, *Duckson* & *Bolander* 603 (1898); Tchang-shan, *Duckson* 2361 (1906); *Ceslerie* 2710 (1900-20); environs de Hay Tien, *Duckson* 2127 (1904); Lao-kong Shan, *Duckson* 2062; Tcheou Kin-tse-tang, *Maire* 1232 (type of *Ck. Bonaventurae*); Tai, *Delavay* 1187 (type of *Ck. talienensis*); Likiang Snow Range, J. F. *Roel* 6709, 6017. Szechwan occident: *Wilson* 2250 (type of *Ck. Wilsoni*); Nui-yuan Hsien, at Lu-shan, *Harry Smith* 1821.

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

PLATE 134. Fig. 1. Habit sketch, smaller form (natural size). 2. Segment showing venation and set ( $\times 100$ ). 3. Habit sketch from one type (natural size). 4. Scale from rhizome ( $\times 100$ ).

第 一 百 三 十 四 圖  
韓氏粉背蕨(水龍骨科)  
CHEILANTHES HANCOCKII Baker

地下莖短而直立，編有深褐色硬質披針形之鱗片；葉簇生，細長翠色，橫切片面呈圓形，長七至二十粉，基部略具鱗片，葉體五角形或三角形，長寬各七至十四粉，三回羽狀分裂成度裂，頂羽漸尖而，羽狀深裂，一回小葉五至七對，位於下部者具柄，基部一對最大，三角形，長五至十二粉，二回小葉五至七對，基部下方一對最大，長三至六粉，具短柄，輪生無柄，位於中肋上邊者均等大，各生；末回小葉橢圓形，鈍頭，淺為深波狀或深裂，裂片圓形，各位中肋上面具深溝槽，紙質；葉脈明顯，二至三次，成單一；子囊單貼近葉緣，着生於小脈之端，莖葉頂，橢圓形，呈波狀。

分佈：雲南，四川。

本種為我國川東特產，尤以在頂者為普通，其形態大小不一，故其名稱甚多。

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





*CHEILANTHES HANCOCKII* Baker

韓氏粉背蕨

## CHEILANTHES CHUSANA Hooker

## POLYPODIACEAE

**CHEILANTHES CHUSANA** Hooker, Sp. Fil. 2: 65 t. 104B (1822); Ching, Bull. Dept. Biol. Sun Yatsen Univ. No. 6: 26 (1933); C. Chr. Ind. Fil. Suppl. III. 54 (1934).

*Cheilanthes myrsinensis* var. *chusana* Christ, Bull. Bot. Soc. Ind. (1907) 275; Bull. Acad. Géogr. Bot. (1907) 149; C. Chr. Acta Hort. Gotob. 1: 92 (1934).

*Cheilanthes myrsinensis* Hk. et Bak. Syn. Fil. 125 (1867); C. Chr. Ind. Fil. 175 (1907), pro parte; Christ, Bull. Acad. Géogr. Bot. (1906) 257; Fed. (1910) 13; Opusc. In. Fil. Jap. 2: 1. 60 (1920); Wu, Bull. Dept. Biol. Sun Yatsen Univ. No. 2: t. 68 (1923), non Wall. 1825.

*Cheilanthes Fiedli* Baker, Journ. Bot. (1879) 204; Dunn & Tutch. Fl. Kwangt. & Hongk. 339 (1912).

*Adiantum Fiedli* C. Chr. Ind. Fil. 22 (1905).

*Cheilanthes Fiedli* Diels in Engl. Jahrb. 29: 399 (1900); C. Chr. Ind. Fil. 172 (1905); Acta Hort. Gotob. 1: 91 (1934).

*Cheilanthes myrsinensis* var. *Gouldii* Christ in Lecomte, Not. Syst. 1: 52 (1906).

*Cheilanthes tenuifolia* Hk. (non Sw.) in Blakiston, Five Months on the Yangtze 362 (1860).

*Cheilanthes Bolleani* Cop. in Perkins, Fragm. Fl. Phil. 186 (1905); C. Chr. Ind. Fil. 665 (1906).

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

Numerous specimens have been seen from Chekiang (including type, leg. Alexander in Chusan Island), Kwangtung (including type of *CA. Fiedli*), Fukien, Kwangsi, Kiangsi, Hupeh, Kweichow, Szechwan (including type of *CA. Fiedli*), leg. Rothemann 3706 in Nanchuan) and Kiangsu. A complete enumeration of the specimens from the above localities will be given later in my "Studies of Chinese Ferns."

Specimens from Japan (Nagasaki, leg. Maximowicz 25), Tonkin (Balansa 1259), Formosa and Luzon are also examined.

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

PLATE 135. Fig. 1. Habit sketch (natural size). 2. The same, a larger fern (natural size). 3. Pinna ( $\times 2$ ). 4. Segment, showing venation and position of seti ( $\times 8$ ). 5. Scales from the base of stipe ( $\times 20$ ). 6. Scales from rachis ( $\times 12$ ). 7. Spore (enlarged).

第一百三十五圖  
舟山粉背蕨(水龍骨科)

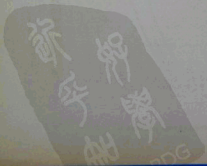
CHEILANTHES CHUSANA Hooker

地下莖短而直立，鱗片紅棕色披針形之厚膜鱗片；莖叢生，柄長二至五粉，深栗色，光亮，上面具淺溝槽，鱗片小鱗片，葉體披針形，長八至二十粉或過之，寬一，五至六粉，基部闊楔形，二側斜狀深裂，一回小葉十五至二十五對，幾無柄，橢圓三角形或圓形，長一至二粉，位於下部者漸短，邊緣波形，紙質，兩面光滑，無白粉，中脈及主脈下面均為栗色，葉脈二至三次，子囊葉圓錐形，彼此不連續，位於每一小葉片之端，呈橢圓形，或半圓形，不連續。

分佈：浙江，廣東，福建，廣西，江西，湖北，貴州，四川，江蘇；日本，朝鮮，菲律賓及安南亦產之。

本種為本區域內習見之種，形體大小不一，吾人最近與印度產之 *Ch. repens* Wallich 相異，實則大相逕庭。

圖註：1. 本種全形(自然大)， 2. 同上，大形(自然大)， 3. 小葉(放大三倍)， 4. 裂片，表示葉脈及子囊葉之位置(放大六倍)， 5. 葉柄基部之鱗片(放大十六倍)， 6. 葉上鱗片(放大十三倍)， 7. 孢子(高倍放大)。







CHEILANTHES CHUSANA Hooker  
舟山粉背蕨

## CHEILANTHES TRICHOPHYLLA Baker

## POLYPODIACEAE

**CHEILANTHES TRICHOPHYLLA** Baker, Ann. Bot. 5: 211 (1891); Diels in Engl. u. Prantl: Nat. Pflanzenfam. 1: 4: 274 (1899); C. Chr. Ind. Fil. 180 (1905); Acta Hort. Gothob. 1: 91 (1924); Christ, Bull. Soc. Bot. France 52: Mém. 1, 29 (1945); Bull. Acad. Géogr. Bot. (1906) 123; Hand-Mat. Symb. Sin. 6: 40 (1929).  
*Cheilanthes undulata* Hege et C. H. Wright, Gard. Chron. III. 34: 292 (1902)

*Rhizome* short, oblique, densely radiceous; *scapes* at the apex dense, narrowly lanceolate, black, rigid; *fronds* subscapitose, stipe 20-30 cm long, ebeneous or dark castaneous, terete, except a narrow groove above, densely clothed from the base upward and throughout the flexuose rachis in fine, reddish-brown, appressed articulated hairs, which also cover the both sides of leaves, lamina elongate-deltoid, 20-25 cm long, 7-15 cm broad at base, tripinnatifid; *pinnae* 6-10-jugate under the deltoid, pinnatifid apex, alternate, horizontally patent, or the lower ones more or less deflexed, all petiolate, the basal ones much the largest, 8-10 cm long, 5 cm broad, elongate-deltoid, on petiole 1 cm long; *pinnalets* 4-5-jugate, alternate, broadly deltoid, shortly petiolulate, 2.5 cm long, 2 cm broad, base truncate, horizontally patent, pinnatifid to a short distance from costule into 2-4 pairs of oblong-lanceolate, blunt segments, of which the basal ones 1 cm long, 2-2.5 mm broad; *texturae* herbaceous, brownish underneath, greenish above; *veins* flabellately forked, very oblique to the flexuose costule of segment; *indusium* narrow, brown, continuous, crenate, ciliate.

Yunnan: Lan Kong, *Delavay* (type); Ta-pin-tzu, near Tali, *Delavay* 31, 1200, 1201; Yan-in-shan, *Delavay* 1165, 1174; Chomang-cho-foon, *Delavay* 1165 (1883); Salwin, *G. Forrest* 18321 (1917-19); 1934; *Rendel-Mazzetti* 6303 (1914-18); Pinchow, *Duclos* 6396, 7942; environs de Yunnan-sen, *Duclos* 6278; *A. Henry* 12220 (type of *C. undulata*). Szechwan: *E. H. Wilson* 5289 (1916). Tibet border: *Capt. Kingdon Ward* 235.

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

Plate 136. Fig. 1. Habit sketch (natural size). 2. Segment, showing venation and position of vein ( $\times 40$ ). 3. Scale from rhizome ( $\times 27$ ). 4. Hair from leaf surface ( $\times 40$ ).

第 一 百 三 十 六 圖

毛 粉 青 蕨 (水 龍 骨 科)

*CHEILANTHES TRICHOPHYLLA* Baker

地下莖短而斜生，鱗片黑色厚背披針形之寬鱗片；葉叢簇生，柄長二十至三十粉，烏木色或深紫色，上面具一淺溝槽，滿佈紅褐色之短毛，葉體為長三角形，長二十五至三十五粉，寬七至十五粉，三回羽狀深裂，葉面被同類之密毛，紙質，下面呈淡綠色，各段中肋呈微曲折，一回小葉六至十對，互生，具柄，水平開展，或多少下向，頂部三角形，羽狀深裂，基部一對最大，長八至十粉，寬五粉，呈三角形，柄長達一粉，二回小葉四至二對，互生，長三角形，長達三粉，寬約二粉，基部截形，水平開展，羽狀深裂，裂片二至四對，橢圓狀卵形，鈍頭，位於基部者長達一粉，寬約三粉；葉脈呈羽狀三叉，斜向上出；子囊穗着生于葉邊小葉之端，多果實，線形，通直，連呈波狀，具短毛。

分布：雲南，四川，及西藏南部。

本種為我國西部高山特產，極為奇特，與此相類者如 *Ch. Dehroyi* Baker，然其各段中肋不是微曲折，葉兩面都光滑，一回小葉之基部呈心臟形，故易與本種區別。

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





CHEILANTHES TRICHOPHYLLA Baker

毛粉青蕨

## ADIANTUM REFRACTUM Christ

## POLYPODIACEÆ

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

*Adiantum capillus-venere* Desh. (non L.) in Engl. Jahrb. 20: 202 (1900).

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

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

Szechwan occid.: *Wilson* 5359 (type); Nanchuan, *Rostkorn* 254; *ibid.* *W. P. Fang* 5708; between Haling and Ping-yi-pu, *Harry Smith* 1752, 1972; Tchen-kou-tin, *Farges* 720; Kuan Hsien, *W. P. Fang* 2357. Kweichow: Gan-pin, *Casler* 3723; *Bodinier* 1810. Yunnan: environs de Yunnan-sen, *Ducoux*.

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

Plate 137. Fig. 1. Habit sketch (natural size). 2. Pinnales ( $\times 4$ ). 2-4. Scales from rhizome ( $\times 16$ ).



PDG

第一百三十七圖  
寫鐵線蕨(水龍骨科)

*ADIANTUM REFRACTUM* Christ

地下莖如根狀，備具紅褐色之伸平鱗大而鱗片；葉簇生，柄長十至二十五粉，光亮，為木色，光滑，葉線狀三角形，長二十至三十粉，寬視之，三四羽狀分裂，一回小葉五至八對，互生，具柄，各位中肋呈線度曲折，基部一對最大，橢圓形，長十至十五粉，寬四至六粉，二回小葉六至七對，具柄，互生，位於下部者，羽狀分裂，上部者二至三裂，最上者不分裂；一回小葉長寬約各一至一·五粉，略呈扇形，邊緣呈波形成二至三淺裂，具短柄，裂片側葉面，向下凹，葉薄紙質或厚膜質，光綠色，葉脈扇狀分叉；子囊羣長達八個，每裂片一個，蓋圓形，向上彎曲，褐色，宿存。

分布：四川，貴州及雲南。

本種為我國所自產，極其多觀，其異於普通常見之鐵線蕨(*A. capillare* Vent. Lib.)者，為其葉生之葉，葉片曲折之各位中肋，一回小葉僅具二至三個淺裂片與其較長之子囊羣是也。

圖註：1. 本種全形(自然大) 2. 一回小葉(放大四倍) 3-4. 地下莖鱗之鱗片(放大十四倍)。





*ADIANTUM REFRACTUM* Christ

葛德蕨類

## PLATE 138

## ADIANTUM DAVIDI Franchet

## POLYPODIACEÆ

**ADIANTUM DAVIDI** Franchet, *Nouv. Arch. Mus.* II, 10: 112 (1887); Diels in Engl. u. Prantl, *Nat. Pflanzenfam.* I: 4, 284 (1899); Christ, *Bull. Soc. Bot. France* 52: Mém. I, 62 (1905); *Bull. Acad. Géogr. Bot.* (1906) 136; C. Chr. *Ind. Fl.* 25 (1906); *Acta Hort. Gothob.* 1: 94 (1924); *Contr. U. S. Nat. Herb.* 20: 310 (1931).

*Adiantum aristatum* Christ, *Bot. Gaz.* 34: 345 (1921); C. Chr. *Ind. Fl. Suppl.* I, 4 (1922); *Bot. Gaz.* 36: 232 (1923).

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

*Adiantum monochlamys* var. *latidoloboides* Christ, *Nouv. Giorn. Bot. Soc. Ind.* n.s. 4: 88 (1897).

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

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

*Adiantum monochlamys* C. Chr. *Bot. Gaz.* 34: 231 (1921).

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

Szechwan: Meupin, *David* [type] (1870); Tchen-kou-tin, *Farges* 609; Yunguen, *Humboldt-Mazzetti* 2789; *Wils* 2254 (type of *A. aristatum*); Mo Tien Ling, *F. Y. Wang* 22153; Teng-hsiang-ying, *Harry Smith* 1918; Deoqochi, *Harry Smith* 2548. Yunnan: The Red River, Mo-so-yu, *Delavay* 1639; Hsikin, *Delavay* 1239; Loukong, Yen-tao-hay, *Delavay* 1678, 2687; Teng Kou valley, *Forrest* 12182; Yung-poh Mt., *Forrest* 17019; *Duclos* 2268. Shensi: Lun-san Hsü, *Giroldi*, Oct. 1892; Miao-nan Shan, *Giroldi*, Jan. 1899; Thai-pei Shan, *Giroldi* August, 1893; August 10-20, 1894 & 1895; *Pearson* 79 78; *ibid.*, Ho-pingzai, K. S. *Hoo* 2272, Sept. 12, 1922. Tibet Border: *Capt. Kingston Ward* 479 (1913).

Burma: Simila, *Burke* 28 (1867).

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

Plate 138. Fig. 1. Habit sketch (natural size), 4. Pinnalet ( $\times 8$ ), 5, 4. Scales from rhizome ( $\times 4$ ).



第一百三十八圖  
白背鐵線蕨(水龍骨科)

*ADIANTUM DAVIDI* Franchet

地下莖細長叢生，橫行，具深褐色光亮之節，披針形鱗片；莖叢生，稍細長而堅實，橫切面圓形，具光澤，呈栗色，長十至二十節，莖基部略具鱗片，鱗片光滑，葉輪生三角形，甚薄而硬，較細短，三四羽狀分裂，一回小葉三五對，均具柄，基部一對最大，三角披針形，長達七絲，寬三至四絲，二回小葉橢圓形，具短柄，鈍形，羽狀分裂，末回小葉密排，扇形，長寬各四至七絲，上部葉緣具深裂似鋸齒，葉面扇形分叉，各裂中肋呈光亮之栗色，葉上面綠色，下面呈灰白或灰綠色，子囊葉中大，通常每一小葉具一脈，呈耳圓形，黃色，厚紙質，長二至三絲，兩側葉緣具軟狀波齒。

分布：四川，雲南，陝西商州及西康定都；緬甸亦產之，性極罕見者。

本種為本屬特殊之一種，其末回小葉與此屬其他多小葉種，背極灰白色，尤為美觀。

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





**ADIANTUM DAVIDI** Franchet  
白背鐵線蕨

## ADIANTUM EDGEWORTHII Hooker

## POLYPODIACEÆ

- ADIANTUM EDGEWORTHII** Hooker, Sp. Fil. 2: 14 t. 81B (1851); Syn. Fil. 472 (1867);  
*Vie*, Gen. Fil. 114 (1852); Moore, Ind. Fil. 25 (1857); Bedd. Ferns Brit. Ind.  
 1: 17 (1865); J. Sm. Elist. Fil. 274 (1875); Christ, Bull. Soc. Bot. France 32:  
 Mém. 1: 61 (1865); Bull. Acad. Géogr. Bot. (1896) 126; *ibid.* (1910) 12; C.  
 Chr. Ind. Fil. 26 (1905); Suppl. III. 19 (1934); Acta Hort. Gothob. 1: 47  
 (1924); Contr. U. S. Nat. Herb. 26: 310 (1931).  
*Adiantum cuspidatum* var. *Edgeworthii* Fock. Handb. Ferns, Bot. Ind. ex. 34 (1921).  
*Adiantum cuspidatum* var. *shioh-pylianum* (Wall.) Clarke, Trans. Linn. Soc. II. Bot. 1: 433 (1886).  
 non *A. shioh-pylianum* Sw.  
*Adiantum Gulesii* Hance, Journ. Bot. 8: 961 (1867).  
*Adiantum Spencervianum* Cop. Phil. Journ. Sci. 1: Suppl. II. 124 t. 11 (1906); C. Chr. Ind. Fil.  
 Suppl. 1: 4 (1912).

*Rhizome* short, erect, sparsely scaly at apex; *scales* black, lanceolate, subulate towards tip, rigid; *fronds* fasciculate, several together, stipe terete, glossy, castaneous, 10-15 cm long, wiry but firm, glabrous above scaly base, lamina linear-lanceolate, 10-25 cm long, 2-2.5 cm broad; *pinnae* 10-40-jugate, patent, basal ones somewhat smaller, deflexed, uppermost ones gradually diminished towards apex, which is sometimes elongate and rooting, all shortly petiolate, dimidiate, variable in size, apex rounded, anterior inner base truncate, margin more or less lobate-incised, in sterile ones cut nearly half way down into 3-5 oblong, roundish or bilobed segments on the outer margin; *textura* thin herbaceous, glabrous in all parts; *veins* fine, flabellately forked; *sorts* several to each pinna, *indusium* laterally oblong or subreniform, brown, glabrous.

**YUNNAN:** San-tchang-kiao, Hekia, *Delavay* 7714; Chosany-che-tou near Tai-pin-tou, *Delavay* 7; Ma-eh-shan, *Delavay* 7789; Mekong, *Havel-Nazotti* 5068 (1914-18); *Hance* 1280, 3726; *Forrest* 10787; Mengtze, *Hance*, *Saxena*, *Henry* 12821; Tali, Mo-che-tchin, *Delavay* 1200; *Schneider* 2791; *Decloux* 13, 171 1886; *Cavalerie* 1918, 1903, 1879, 5715, 7070; environs de Yunnan-sen, *Duclos* 5; environs de Tengyueh, *J. F. Rock* 7870. **Szechwan:** *Wilson* 526, 6258; Mi. Ying Shan-lan, *H. Ferns* (1910); Yien-pien Hsien, *T. T. Yu* 1648; Nin-yuan Hsien, Lu-shan, *Harry Smith* 1787. **Kweichow:** Kiang-long, *Nichol* 391. **Shantung:** Tai-shan, *Clemens* 1307 (1912); *Jones* 20. **Hopei:** Peiping mountains, *Hance*, *Sept.* 28, 1875; S. W. *Walden* 12583 in herb. **Hance;** *Bushell*, *Bretschneider* 77; *W. R. Carles* 235; *C. L. 996* in herb. **Tsin-Hua Univ.:** Changli, *Mex. Clemens* 6022, 6020 E, June 25, 1915; Mia Fan Shan, *C. T. Li* 32178, July 17, 1932; Hsing-long Shan, *T. N. Lios*, *Sept.* 15, 1930.

**Formosa:** *Hance* 113.

**Indo-China:** *Hemera*, *F. Neston* 1085.

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

Also the Philippines.

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

Plate 159, Fig. 1. Habit sketch (natural size). 2. The same, a smaller fern (natural size). 3. Pinna (x 2). 4. Scales from rhizome (x 24).

第一百三十九圖  
愛氏鐵線蕨(水龍骨科)

*ADIANTUM EDGEWORTHII* Hooker

地下莖短而直立，節部具黑色硬殼形之膜鱗片；葉簇生，柄細長，圓形，光亮，紅褐色，長十至十八  
粉，葉基部略具鱗片，葉體線狀針形，長十至二十三粉，寬二至二·五粉，一回羽狀分裂，其端常極長  
入土莖中；小葉十至四十對，卵圓，橢圓三角形，基部不等，長一至二粉，基部對角較小，下向，均具  
短柄，外緣呈多少淺裂，兩面光滑，紙質；葉脈扇形分叉；子囊群每小葉數個，呈橢圓形，或近腎形，  
黃色，光滑。

分布：雲南，四川，貴州，廣東，河北；台灣，暹羅，印度北部及蘇門答臘之。

本種形體極似我國南部所產之 *A. caudatum* Linn. 種不同者，其葉體不具剛毛，小葉外緣僅呈淺  
裂是也。

圖註：1. 本種葉形(自然大)， 2. 同上，小形(自然大)， 3. 小葉(放大五倍)， 4. 地下莖上之  
鱗片(放大二十四倍)。





ADIANTUM EDGEWORTHII Hooker

愛氏鐵線蕨

## PTERIS FAURIEI Hieronymus

## POLYPODIACEÆ

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

*Pteris quadrilobata* Bl. Sp. Fil. 7: 275 (1852); Syn. Fil. 758 (1866); *Blbs* in Engl. n. *Passifl.* Nat. Pflanzenfam. I: 4, 292 (1895), *pro parte*.

*Pteris quadrilobata* Franch. et Sav. (non Retz.) *Evans*, Fl. Jap. 7: 212 (1877); *Christ* in *Wurzburg. Monatsbl.* 6: 69 (1900); *Bull. Herb. Boiss.* IV. 2: 512 (1904); *Journ. d. Bot. France* 19: 14 (1905); *Bull. Acad. Géogr. Bot.* (1905) 15; C. Chr. *Acta Hort. Gotob.* 1: 97 (1914).

*Pteris stuebeli* C. Chr. Ind. Fil. 50 (1905), *pro parte*.

*Pteris longipinnata* *Christ* (non Wal. 1858), *Bull. Acad. Géogr. Bot.* (1908) 120, 166., (1909) 98.

*Rhizome* short, oblique, densely scaly; *scaly* dark brown, lanceolate, rigid, appressed; *fronds* subsessile, stipe 20-60 cm long, rufo-stramineous on the lower part, lighter-colored upwards, glabrous above the base, lamina broadly ovate-deltoid, 20-45 cm long, nearly as broad; *pinnae* 4-7-jugate under the free end-pinna, generally larger than those immediately below, the basal ones much the largest, deltoid, with 1-3 additional pinnules on the lower side of costa, all subsessile with shortly decurrent base, the middle ones 15-20 cm long, 4.5-6 cm broad, pinnatifid nearly down to costa into 20-30 pairs of linear-subfalcate, obtuse segments under the caudate, entire apex 2-4 cm long; *segments* 2.5-4 cm long, less than 1 cm broad at base with 13-17 pairs of bifurked and very prominent veins, of which the posterior basal one springing from costa and 2-3-4-furked, the anterior basal one, from the costule of segment, bifurked, with veinlets running to the margin some distance above the sharp, callous sinus; *texture* chartaceous, clear light green, glabrous on both sides, except a few brownish, thick, articulated hairs underneath, costa pale-colored, terete below, deeply sulcate and with one stout spine at the base of costule of segment above; *axils* continuous from near the sinus up to a short way from the sterile entire apex of segment, *indusium* membranaceous, gray, entire.

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

The present species has previously been generally considered the same as *Pteris quadrilobata* Retz. from Ceylon, the type of which, I had a chance to examine some years ago, is very different from our form in general habit, but perfectly identical with *Pteris stuebeli* Boed. *Ferns S. Ind.* 1. 41, 219. Our plate is based upon a specimen from Kwangtung (leg. Y. K. Wang No. 31633) and represents what Hieronymus has considered var. *rigida*, L. c. p. 345., a form, common in South China, which differs, according to its author, from the Formosan type (leg. Faurie No. 628) in clear light green leaves and more prominently raised veinlets on both sides; but ample material from the region has convinced me that a varietal name is hardly justified. It is possible, however, that some specimens from Szechwan and Kweichow which have more pairs of lateral pinnae with much longer, linear-ovate apices, may prove specifically distinct from the form from South China.

Plate 140. Fig. 1. Habit sketch (partial view). 2. Two segments, showing venation and root (x 4). 3. A portion of pinna, showing the stout spine at the base of costule above (x 2).

第一百四十圖  
傅氏鳳尾蕨(水龍骨科)

*PTERIS FAURIEI* Hieronymus

地下莖短而斜出，端具深褐色厚質披針形之葉鱗片；葉叢叢生，柄長三十至四十粉，下部呈紅褐色，上部黃褐色，光滑，葉體圓形三角形，長三十五至四十五粉，寬亦如之，二歧奇數羽狀分裂，小葉四五對，無柄，基部一對最大，中葉下面具一至三對小葉，中部一回小葉長十五至二十粉，寬四、五至六粉，中葉上面具向網，綠色，厚紙質，光滑，羽狀深裂達於中肋，前端呈尾形；裂片二十至三十對，長二、五至四粉，寬不及一粉，線狀亞線形，全緣，鈍圓，葉脈十三至十七對，顯明，二次，其基部下方之脈着生於一回小葉之中肋，三至四叉；子囊單線形，略近基緣，幾達葉頂，蓋線形，寬約一粉，膜質，灰白色，全緣。

分布：廣東，香港，廈門島，福建，浙江，湖北，雲南，四川，廣西；日本，台灣及安南亦產之。

本種與本區內常見之品，吾人誤認爲與臨朐所產之 *P. quadriloba* Retz. 同種，實則二者大相逕庭。

圖說：1. 本種全形(自然大)，2. 葉裂片，表示及葉脈及子囊單之位置(放大四倍)，3. 小葉之一部，表示其中肋上面之向網(放大二倍)。





**PTERIS FAURIEI** Hieronimus

傅氏鳳尾蕨



## PTERIS DACTYLINA Hooker

## POLYPODIACEÆ

**PTERIS DACTYLINA** Hooker, Sp. Fil. 2: 160 t. 120A (1858); Syn. Fil. 135 (1867); Baker, Journ. Bot. (1888) 226; Diels in Engl. u. Prantl's Nat. Pflanzenfam. 1: 4. 292 (1899); Christ, Bull. Acad. Géogr. Bot. (1908) 120; C. Chr. Ind. Fil. 268 (1905); Acta Hort. Gotthob. 1: 96 (1924); Contr. U. S. Nat. Herb. 23: 311 (1931); Hand-Mat. Symb. Sin. 4: 40 (1929); Clarke, Trans. Linn. Soc. II. Bot. 1: 463 (1886); Bedd. Ferns Brit. Ind. t. 23 (1865); Handb. Ferns, Brit. Ind. etc. 107 (1883).

*Rhizome* short-creeping, matted, glabrous except a few subulate, rufo-brown scales at growing tips; *fronds* numerous, tufted, stipe 15-30 cm long, slender, wiry, glossy, pale stramineous, perfect glabrous throughout, shaded dark brown in the lower part, lamina digitate, consisting of 5-7, or rarely 3 linear elongate pinnae 5-10 cm long, 5-7 mm broad with deeply sulcate costa above, the barren ones sharply serrate towards apices; *veins* widely apart, distinct, simple or bifurcate, veinlets rather patent, ended in a distinct clavate hydathode some distance below the base of tooth; *inducium* gray, broad, continuous, subsistent, persistent.

Yunnan: Schilongba, *Hance-Mazzetti* 275; *Ferriss* 287, 2382, 12415, 29549, Likiang, *Schneider* 2963; *Dobsony* 1729, August, 7, 1883; *J. F. Rock* 2551. Kansu: *F. N. Meyer* 25106. Szechwan: *M. Omei*, *Faber* 1010; *Wilson* 5372; Teng-hsiang-ying, *Harry Smith* 1882; between Hai-tang and Ping-yi-pu, *Harry Smith* 1922. Tibet: Muti, *Capt. Kinross Ward* 4772.

Also Sikkim-Himalayas, common.

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

Plate 141. Fig. 1. Habit sketch (partial stipe). 2. Portion of fertile pinna ( $\times 8$ ). 3. Portion of sterile pinna ( $\times 20$ ).

第 一 百 四 十 一 號  
掌 鳳 尾 蕨 (水 龍 骨 科)

*PTERIS DACTYLINA* Hooker

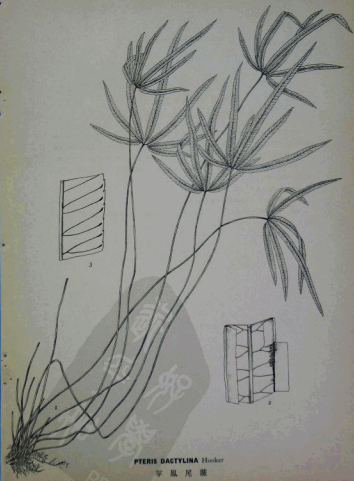
地下莖心葉生，交錯，光滑，邊緣具紅褐色倒針形之疏鱗片；葉多數叢生，柄長十五至三十吋，細長而質軟，淡粉紅色，有光澤，全體光滑，基部呈深褐色，葉體闊卵形，掌狀分裂，小葉五至七數，間隔三數，線形，長五至十吋，寬五至七釐，幾無柄，光綠色，中脈上面具淺溝，側脈疏生，單一流二歧，達於葉緣或微曲之基部，孢子囊葉小葉及不生孢子囊之部分之葉緣具刺齒；孢子囊葉較寬，灰白色至全綠，通直，質硬。

分布：雲南，四川，西康，及印度北部之高山。

本種具秀雅之形態，至為美觀，本屬特異品種之一也。

圖版：1. 本種全形(自然大)，2. 孢子囊葉之一部(放大八倍)，3. 非孢子囊葉之一部(放大十倍)。





*PTERIS DACTYLINA* Hooker

掌 鳳 尾 蕨

SCHIZOLOMA ENSIFOLIUM (Sw.) J. Smith

POLYPODIACEÆ

**SCHIZOLOMA ENSIFOLIUM** (Sw.) J. Smith, Journ. Bot. 3: 414 (1841); Ferns Brit. 4: Fore. 231 (1846); Hist. Fil. 271 (1872); Fée, Gen. Fil. 108 (1830-32); Bedd. Ferns 8. Ind. t. 25 (1843); Handb. Ferns, Brit. Ind. etc. 80 (1882); Isels in Engl. u. Prantl, Nat. Pflanzenfam. 1: 4. 219 (1896); C. Chr. Ind. Fil. 615 (1905); v.A.v.R. Handb. Mal. Ferns 289 (1906).

*Lindsaya ensifolia* Sw. in Schrad. Journ. Bot. 3: 414 (1841); Syn. Fil. 118 (1841); Willd. Sp. Pl. 3: 420 (1810); Hb. et Grav. Ic. F. 1. 3 (1847); Hb. Sp. Fil. 1: 200 (1846); Gard. Ferns 1. 40 (1841); Journ. Bot. (1857) 35; Sp. Fil. 112 (1867); Chod. Farnk. d. Erde 397 (1877); Berth. Pl. Hongk. 448 (1861); Clarke, Trans. Linn. Soc. II. Bot. 1: 452 (1886).

*Lindsaya lanceolata* LeBl. Pl. Nov. Holl. 1: 95 t. 248 f. 1 (1861); *folia simplex*.

*Lindsaya pentaphylla* Bl. Sp. Fil. 1: 219 t. 67 (1841).

*Lindsaya Griffithiana* Bl. Sp. Fil. 1: 219 t. 68 (1841); Bedd. Ferns Brit. Ind. t. 29 (1867); *folia simplex*.

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

Hongkong; Fortune 7. 27 (1845); Faure 15772 (1895); C. Wright (1853-54); Boissier 387; Lavin (1856), pro parte; Harland 63; Gouss. 2 (1896); Matthew 204 (1904); Kooibang, C. F. Yang 291 in herb. Yün-Hua Univ.; Gardner, Bull. Kwangtung: Swatow, Dolocet, Sept. 1901; Lehhou Shan, C. Ford (1883); N. K. Chun 40990. Hainan: Hoichow, Hancock 1 (1875); Tung Ko to Win Fa Shi, C. L. Tse & N. K. Chun 43728.

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

Plate 142. Fig. 1. Habit sketch (natural size). 2. Portion of pinna ( $\times 4$ ). 3. The same, with open indusium ( $\times 6$ ). 4. Spore ( $\times 200$ ). 5. Scale from rhizome ( $\times 16$ ).

第一百四十二圖

擬鳳尾蕨 (水龍骨科)

*SCHIZOLOMA ENSIFOLIUM* (Sw.) J. Smith

地下莖蔓生，具褐色披針形之葉鱗片；葉叢生，柄長六至二十粉，淡栗色，鞘具光澤，光滑，葉片長十五至二十五粉，橢圓形，多數一回羽狀分裂，羽片線狀披針形之單葉；小葉一至十二對，且每羽或幾羽柄，互生，長六至十二粉，寬一至二粉或較寬，線狀披針形，基部楔形，兩面光滑，紙質，全緣（ younger 葉具細齒）；主脈明顯，側脈細，小脈網狀，網眼一至二列，斜生，內不具小脈，向葉邊分佈；子囊葉近葉緣，線形，甚兩層，隔質，全緣，蓬起，向外開。

分佈： 廣佈於亞洲熱帶及澳洲，我國之香港，廣東，廣西及雲南等處之。

本種類似 *Sch. heterophyllum* (Dey.) 但不顯著，其小葉成奇數，向葉端不漸縮小是也。

圖說： 1. 本種全形（自然大）， 2. 小葉之一部（放大六倍）， 3. 同上，具翼之雙子囊葉（放大六倍）， 4. 孢子（放大五百倍）， 5. 地下莖上之鱗片（放大十倍）。





**SCHIZOLOMA ENSIFOLIUM** (Sw.) J. Smith

擬鼠尾蕨

C. H. Ding Det. et Lib.



第一一四十三圖  
蕁風了蕨(水龍骨科)

CONIOGRAMME INTERMEDIA Hieronymus

地下莖叢生，橫行，具棕色披針形之鱗片；葉叢生，柄長二十五至四十份，光滑，淡棕褐色，上部具圓錐穗，葉體伸三角形，長四十至六十份，寬三十至四十五份，奇數二回羽狀分裂，一回小葉三至十對，互生，具柄，基部一對最大，對生，柄長達二份，此葉二十份，通常具小葉或為羽狀分裂，二回小葉披針形，長三十至十五份，寬四至三份，頂端尾形或長漸尖形，上部一回小葉不分裂，或第二對第三型，葉緣具密尖鋸齒，兩面光滑或下面被短柔毛，葉柄質，淡綠色；葉脈明顯，斜形，自葉部分二分，平行，達於側脈之基部或深入，子囊單淡黃色，線形，隨葉脈分佈，疏達至葉邊近處，無蓋。

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

本種為本區城內普通之種，因其葉體下面有短柔毛可分為光葉(Var. glabra)與毛葉(Var. villosa)兩變種。

圖註：1. 本種全形(自然大)，2. 小葉之一部，表示其葉緣及葉脈(放大十二倍)，入地下莖上之鱗片(放大十二倍)。







*CONIOGRAMME INTERMEDIA* Hieronymus

幸福了藤

## VITTARIA FORRESTIANA Ching

## POLYPODIACEÆ

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

*Vittaria Douiana* C. Chr. (non Hieron. 1925). *Contr. U. S. Nat. Herb.* 26: 313 (1921).

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

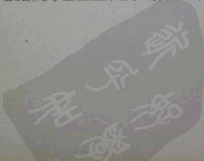
Yunnan: Salwin divide, *G. Forrest* 28247, 25206, Sept. 1924; Northern Maikha-Salwin divide, *G. Forrest* 27052, July, 1923, on tree of dry rocks in mixed forest, 1,0100 ft. alt.

Burma: Between Sadon and the Yunnan border, *J. F. Rock* 7283, 7286, 7322.

Tonkin: Chapa, *Pétolet* 1598, 3903.

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

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



第一百四十四圖  
寬書帶蕨(水龍骨科)

*VITTARIA FORRESTIANA* Ching

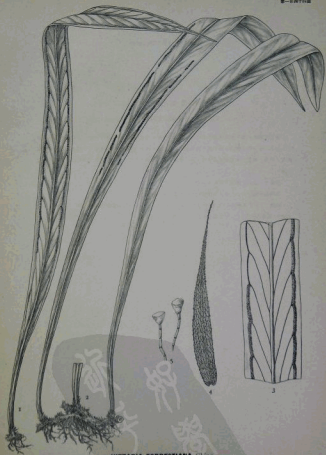
地下莖細短，蔓生，具兩維色且富油性的淡黃嫩針形大鱗片；葉類陸生，長三十至三十五釐，寬一·五至二·五釐，披針形，漸尖頭，無柄，薄肉質，向葉基漸狹，薄而光滑，中肋上面明顯，倒懸有光下可見，羽片，並葉腋並脈強其連續；子葉單線形，類近葉邊，線形感葉生，鱗片狀之葉大鱗片一個。

分佈：雲南，緬甸及暹羅。

本種為本區域內之特產，葉體寬薄，為本屬特異之種。

圖註：1-2 本種全形(自然大)，3 葉體之一部，表示葉脈及子葉單(放大二倍)，4 地下莖上之鱗片(放大十二倍)，5 子葉單中之線形鱗(放大一百倍)。





*VITTARIA FORRESTIANA* Ching

真青苔蕨

## ANTROPHYUM FORMOSANUM Hieronymus

## POLYPODIACEAE

**ANTROPHYUM FORMOSANUM** Hieronymus, Hedwigia 57: 216 (1915); C. Chr. Ind. Fil. Suppl. II. 4 (1916).

*Antrophyum platyneuron* Ching (non Kuhn), Bot. Herb. Boiss. II. 4: 60 (1924).

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

Kwangtung: Lohfau Shan, N. K. Chou 11289, July 2, 1930. Kwangsi: Yao Mar Shan, Lin-yin Hsien, R. C. Ching 7982 (1928).

Formosa: Kushaku, *Faerie* 675 (type), June, 1903; *Hance* 2; *Steere*; Takao, A. Henry; *Swinhoe* (1876); *Playfair* (1869).

From other species of the genus known in the region, our fern can be easily distinguished by its very broad and ribbon-like paraphyses in the seori and much thinner fronds. Our plate is based upon a specimen from Kwangtung (leg. N. K. Chou 41486), which matches the type from Formosa very well.

Plate 143. Fig. 1. Habit sketch (natural size). 2. Portion of frond, showing venation and set (x 2). 3. Scale from rhizome (x 20). 4. Paraphyses from seori (x 80).

第 一 百 四 十 五 圖

草 蓊 蕨 (水 龍 骨 科)

**ANTROPHYUM FORMOSANUM** Hieronymus

地下莖短而直立，端具暗褐色膜質且富齒光性之葉針形鱗片；葉簇生，無柄，寬線形，長八至十五公分，寬一·二至一·八公分，漸尖頭，向基部最廣，紙質，兩面光滑，無中肋，小脈網狀，網脈垂直，不具小脈；子囊單線形，隨網脈分佈而凹入葉背內，線狀體具寬帶狀。

分布：廣東，廣西及台灣。

本種為本區域內之特產，異於本屬其他之種者，其具寬帶形之線狀體是也。

圖說：1. 本種全形(自然大)，2. 葉體之一部，表示葉脈及子囊帶(放大三倍)，3. 地下莖上之鱗片(放大三十倍)，4. 線狀體(放大八十倍)。





**ANTROPHYUM FORMOSANUM** Hieronymus

車前蕨

## SAXIGLOSSUM TAENIOIDES (C. Chr.) Ching

## POLYPODIACEAE

**SAXIGLOSSUM TAENIOIDES** (C. Chr.) Ching, Contr. Inst. Bot. Nat. Acad. Peiping 2: 21, 2 (1933); C. Chr. Ind. Fil. Suppl. III, 179 (1934).

*Cyclophorus taenioides* C. Chr. Ind. Fil. 201 (1925); Acta Hort. Gotob. 1: 206 (1924).

*Polydium angustissimum* Baker (non Fée, 1867), Ann. Bot. 9: 472 (1891); Christ, Nov. Gen. Bot. Soc. Ind. n. s. 4: 97 t. 3, f. 1. (1887).

*Nipholobos angustissimus* Diels in Engl. n. Pracht. Nat. Pflanzenfam. 1: 4, 376 (1891); Engl. Jahrb. 20: 207 (1900); Giesb. Farnepfl. Nipol. 151 (1902); Christ, Bull. Acad. Géogr. Bot. (1902) 220 c. fig.

*Nipholobos Cavaleriana* Christ, Bull. Acad. Géogr. Bot. (1904) 207.

*Cyclophorus Cavaleriana* C. Chr. Ind. Fil. 195 (1925).

*Cyclophorus Saaihi* Hayata, Ic. Pl. Form. 6: 128 (1916); Opsta. Ic. Fil. Jap. 4: t. 128 (1917).

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

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

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



第 一 百 四 十 六 圖

擬石葦(水龍骨科)

*SAXIGLOSSUM TAENIOIDES* (C. Chr.) Ching

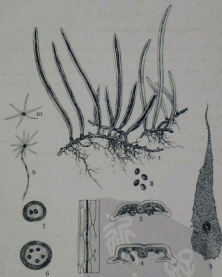
地上莖細長，匍生，垂直立之岩壁橫行，具卵狀菱形之紅褐色鱗片；葉散生，一列，長三至九釐，寬一·五至三·五釐，線形，無柄或具短柄，始狀着生於莖上，硬革質，葉緣向下而緣度反捲，上面切具星芒狀之短毛，久則脫落，中肋上面呈溝狀，下面凸出，葉被黃色星芒狀毛，小葉不見，成二列網狀，網眼垂直，成其小葉或否；子囊單輪形，位於中肋與葉邊之間，幼時全為反捲之葉邊所蓋，嗣則由一葉緣露出。

分布： 湖北，四川，陝西，廣東，廣西，浙江及台灣。

此為本屬僅有之種，昔人目之隸於石葦屬，據余最近之研究，覺其實與石葦不類，故特圖一標圖以誌之。

圖註： 1. 本種全形(自然大)， 2. 葉體一部，表示其葉脈及子囊單之位置， 3. 假囊葉之橫切面， 4. 假葉之橫切面， 5. 地上莖之鱗片， 6. 地上莖之橫切面， 7. 葉柄之橫切面， 8. 孢子， 9. 葉下面之星芒毛， 10. 葉上面之星芒狀毛(2—10均放大)。





*SAXIGLOSSUM TAENIOIDES* (C. Chr.) Ching

海石草

## PYRROSIA SHEARERI (Baker) Ching

## POLYPODIACEAE

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

*Polypodium Shearei* Baker, Journ. Bot. (1872) 207.*Niphobolus Shearei* Diels in Edlg. u. Franzl: Nat. Pflanzenam. 1: 4, 325 (1899).*Cyclophorus Shearei* C. Chr. Ind. Fil. 202 (1905); Acta Hort. Gotob. 1: 105 (1904); pro parte.*Polypodium Divalcanum* Charit. Bull. Herb. Boiss. 6: 871 (1895), quoted pl. Baker.*Cyclophorus Divalcanum* (non C. Chr. 1905), L. H. Bailey, Genes. Herb. (1928) 9.*Cyclophorus Divalcanum* 1. maxima Wu, Bull. Dept. Biol. Sun Yat-sen Univ. No. 2: 138 f. 136 (1934).*Cyclophorus Shearei* 1. maxima C. Chr. Bull. Dept. Biol. Sun Yat-sen Univ. No. 6: 18 (1933).

Rhizome thick, short-creeping, densely scaly; scales ferruginous, lanceolate, serrate; *fronds* subscaespitose, stipe 18-30 cm long, thick, stout, articulated at base, dark olive-green, when young densely clothed in long-stipitate stellate hairs, lamina 13-30 cm long, 3-6 cm broad, broadly lanceolate, acuminate, somewhat broadened towards unequally subarticulated cordate or rounded base; *texture* rigidly coriaceous, green, densely pitted and also sparsely stellately hairy above when young, densely clothed underneath in thick, reddish-brown persistent indumentum consisting of appressed stellate uniform hairs with short broad arms on the same plan, midrib prominent on both sides, green underneath, dark olive-green above; *lateral veins* visible on both sides, oblique, veinlets completely hidden, copiously anastomosing with numerous included clavate veinlets; *ori* punctate, dorsal or subsapical on included veinlets, distinct at first, finally subconfluent.

Kiangsi: Kiukiang, Lu-shan, *Dr. Shearer* (type) (1873); *Maire* (1880); *K. Fabel* 10 (1887); *Miss Reid* (1890); *ibid.*, Paradise Pool, *DeVol* 19, 51, July 15, 1893; *N. K. Upp* 1778; *A. Y. Steward* 3639; *R. C. Ching* 36655 (1934); *Fen-cheng*, Tain Shan, *Y. Tsing* 30250 (1931). Hunan: Singning Hsien, *H. F. Chow* 41; *Tun-chaoing*, *Ingeoid Olfstad* 7327 in herb. Univ. Nanking. Anhwei: Chui Hua Shan, *R. C. Ching* 7583 in herb. Univ. Nanking; Wu Yuan Hsien, *R. C. Ching* 8812; Huang Shan, *R. C. Ching* 8910. Chekiang: Ching Yuan Hsien, *R. C. Ching* 2354; Tien Tan Shan, Ningpo, *C. Y. Chiao* 11597; *Sir E. Howe* in herb. Hance; *Hance* 47 (1877); *C. W. Keenard*, Kweichow: Pin-fa, *Cauleris* 1809; *Tung-tao*, *Y. Tsing* 5019; *Esquivel* 633; *Tsin-gay*, *Bodiner* 1712; *Gan-pin*, *Perry* (1858); *Kwei-yang*, *Cauleris* 7025. Hupeh: Putung, *Henry* 5028, 1128, 2589, 2612, *Wilson* 309. Szechwan: Nanchuan, *W. P. Fang* 5850; *Wilson* 309. Yunnan: Mengtiao, *Henry* 8118; *Hance* 49; Lan Kang, *Delavay* 4954; *Maire*; Sun Shan, *Bevier* 1102; *H. T. Tsai* 51291, 52538. Fukien: Kuliang, *H. H. Ching* 4294. Kwangtung: North River, *Taitang*, *Lokchong*, *S. P. Ko* 51689; *ibid.*; *Kan Fung*, *W. T. Tseng* 20908, *Yinyuan*, *S. P. How* 55747, 53911. Kwangsi: Min Shan, Lu-chen, *R. C. Ching* 6129; Yao Shan, *S. S. Slin* 438 (*f. maxima* Wu).

Also Formosa and Tonkin.

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

Plate 147: Fig. 1. Habit (natural size). 2. Portion of lamina, showing venation ( $\times 4$ ). 3. Scale from rhizome ( $\times 25$ ). 4. Stellate hairs from the underside of lamina ( $\times 60$ ). 5. The same from stipe ( $\times 60$ ). 6. The same from the opposite of lamina ( $\times 60$ ). 7. Spores ( $\times 300$ ).

第 一 百 四 十 七 圖  
廬 山 石 葦 (水 龍 骨 科)

*PYRROSIA SHEARERII* (Baker) Ching

地下莖肥厚，亞橫行，具深黃色之斜形鱗片；葉叢叢生，株高十八至三十公分，葉線形，葉面暗綠色，幼時具星芒狀之長星剛毛，葉散生，葉線形，長十五至三十公分，寬三至六份，漸尖頭，向基部漸圓，呈不等基形，厚革質，綠色，上面具小孔，初被星芒狀毛，漸變光滑，下面具淡黃色散生之厚星芒狀毛，芒形圓錐，在同一平面；葉脈上下可見，側出，小脈網狀，不見，網脈具小脈；子囊橢圓形，着生於小囊之緣或端下，初甚明顯，後呈融合生。

分布：江西，贛南，浙江，貴州，湖北，四川，福建，雲南，廣東，廣西；台灣及琉球群島之。

本種為本屬特異之種，在遠自島嶼香港，其形態頗似後種，惟葉下面之毛較厚而長，色鮮黃，其芒頗長如針，且不在同一平面，故與本種區別。

附註：1. 本種全形(自然大)，2. 葉之一部，表示其葉脈(放大四倍)，3. 地下莖上之鱗片(放大十五倍)，4. 葉下面之星芒狀毛(放大六十倍)，5. 葉上之星芒狀毛(放大六十倍)，6. 葉上面之星芒狀毛(放大六十倍)，7. 孢子(放大三百倍)。





*PYRROSIA SHEARERII* (Laker) Ching

廬山石蕨

## PYROSIA DRAKEANA (Franch.) Ching

## POLYPODIACEAE

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

*Polypodium Drakeana* Franch. Nouv. Arch. Mus. II. 7: 615 (1895); Christ, Bull. Herb. Boiss. 4: 871 (1895).

*Niphobolus Drakeana* Diels in Engl. Jahrb. 29: 265 (1896); Gieson, Farquh. Niph. 117 (1907); Christ, Bull. Soc. Bot. France 32: Mss. t. 24 (1905).

*Cyclophora Drakeana* C. Chr. Ind. Fil. 298 (1905); Gottf. U. S. Nat. Herb. 28: 326 (1905).

*Polypodium Sheareri* Christ (non Baker), Nov. Gen. Bot. Soc. Ind. n.s. 4: 35 (1895).

*Cyclophora Shearer* C. Chr. Acta Hort. Gotob. 1: 125 (1904, non 1905), pro parte.

*Niphobolus Shearer* Christ (non Diels), Bull. Soc. Bot. France 32: Mss. t. 26 (1905).

*Niphobolus isaequalis* Christ, Bull. Soc. Bot. France 32: Mss. t. 25 (1905); Bull. Acad. Géogr. Bot. (1906) 239.

*Cyclophora isaequalis* C. Chr. Ind. Fil. 190 (1905).

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

Shensi merid.: David (type), March, 1873; Chui-kio-suen, Giraldi, Sept. 29, 1897; *Purdum* 37; Thai-pai Shan, Giraldi; Kansu: Kus-ka, Meier 1818, Nov. 5, 1914; *Licent* 4934 (1916). Hupeh: Putung, Henry 2684; Wilson 1309, 1727, 2629; Henry 1428 (type of *Niph. isaequalis*); Shih-shan Hsien, S. S. China 8322 in herb. Univ. Nanking; Ichang, Henry 2569. Kweichow: Gan-pin, Bonnier 1747; Pin-fa, Canalis 517; Esquivel 635, 693; Canalis 1897, 1809 (without exact locality). Szechwan: Mt. Omei, Wilson 3223; Faber 1078; Brown; W. P. Fang 2716, on tree; Nanchuan: Bosh & Rostkorn 1712, 1659, 3223; Tu-chien-ka, Harry Smith 4930; Prince Henri d'Orléans; Y. Ches; Pin-yi-pu, Harry Smith 1884, 2830, 4625; Moupin, David (1870); T. Tang 787 (1882). Yunnan: Tsukou, Mosberg 275 (1898); Soudi (1898); Mengtse, Henry 9111, 9116; Hancock 57 (Kew No.); Salween, Forrest 16195, 28949; Mekong, Forrest 13119 (1914), 19412, 19827; Kiang Yu Shan near Lan-pou, Delavay 1734; Tu-pin-tse, Delavay 3250, 4518; Pe-yen-tsin, Simon Yoo; Daclois 2884; In-on, Maire, Tibet orient.: Soudi 588.

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

Plate 165. 1. Habit sketch (natural size). 2. Portion of lamina, showing venation ( $\times 3$ ). 3. Stellate hairs from the underside of lamina ( $\times 20$ ). 4. The same from stipe ( $\times 20$ ). 5. Scale from rhizome ( $\times 16$ ).

第一百四十八圖  
鹿毛石蕨(水龍骨科)

*PYRROSIA DRAKEANA* (Franch.) Ching

本種形體頗奇特，所著者為葉體較寬而葉柄較葉體為長，固有二倍之者，為其葉下面之脈有較厚而短，且其心線長如針，不在同一平面，故得易於識別。其本種之分佈限於中國西南西北部之高山，與前者之限於中部及南部者顯然有別。

分佈： 陝西，湖北，四川，西康，雲南，西藏東部。

圖註： 1. 本種全形(自然大)。 2. 葉體之一部，表示其葉脈(放大三倍)。 3. 葉體下面之星芒狀毛(放大二十倍)。 4. 葉柄上之星芒狀毛(放大二十倍)。 5. 地下莖上之鱗片(放大十倍)。





**PYRROSIA DRAKEANA** (Franch.) Ching

銀毛石蕨



## ARTHROMERIS HIMALAYENSIS (Hk.) Ching

## POLYPODIACEAE

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

*Polypodium himalayense* Hk. Sp. Fil. 3: 42 (1831); Syn. Fil. 369 (1837); Dict. in Engl. n. Præd.: Nat. Pflanzenfam. I. 4: 345 (1893); Christ, Farber, d. Erde 214 (1837); Bot. Soc. Bot. France 87: Mém. 1. 19 (1903); 900 parts; C. Chr. Ind. Fil. 533 (1905).

*Pleopeltis himalayensis* Boidl. Ferns Brit. Ind. 1: 345 (1896); Hasook, Ferns, Brit. Ind. etc. 272 (1883).

*Polypodium venustum* Wall. Cat. n. 395 (1828; nom. nud.); Clarke, Trans. Linn. Soc. II. Bot. 1: 366 (1886); nom. Inscr. 1871.

*Pleurothallis venustum* J. Sm. Cat. Cult. Ferns 10 (1837).

*Arthromeris venusta* J. Sm. Bot. Fil. 111 (1835).

*Polypodium venustum* var. *epheboloboides* Clarke, l.c. 99.

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

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

Yunnan: South of Red River, Mahmei, *Henry* 9717; Tso-tehou-pa, *Maize*; Song-san, *Dobsony* 2618.

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

Var. *furcata* Ching, l.c. p. 109.

Habit of *Cyrtosium carpatifolium* Presl, with irregularly lacinate-forked pinnae.

Known only from Sikkim (leg. Duthie 3177).

Plate 149. Fig. 1. Habit sketch (natural size). 2. The same (natural size). 3. Portion of pinna, showing venation and seti ( $\times 25$ ). 4. Scale from rhizome ( $\times 20$ ). 5. Hairs from costa ( $\times 80$ ). 6. Glandular hairs from underside of lamina ( $\times 80$ ). 7. Rachis with articulated base of the lateral pinna ( $\times 10$ ).

第一百四十九圖  
琉璃節蕨蕨(水龍骨科)

*ARTHROMERIS HIMALAYENSIS* (Hk.) Ching

地下莖肉質，肥厚，壘生，灰白色；鱗片疏生，線形，具半圓形之基部，黃色；葉疏生，柄長達十五公分，堅實，深暗綠色，有光澤，葉鞘長二十至四十五公分，寬十五至二十公分，奇數羽狀分裂，小葉一至五對，線狀着生於中葉，對生，無柄，長十二至十六公分，寬三至四公分，闊披針形，尾狀，基部圓形或亞心臟形，全緣，具一極寬之葉柄質，兩面疏毛叢生，無明顯脈，斜上，下面具長剛毛，小葉網狀，厚紙質；子囊拳圓形，呈不規則之二列，無蓋。

分布：雲南，緬甸及印度北部。

本種為本屬特殊之種，在我國經雲南區見之；此外尚有一種變種，產於緬甸，其小葉四輪深裂。

圖註：1. 本種全形(自然大)； 2. 同上； 3. 小葉之一部，表示其葉脈及子囊拳(放大五倍)；  
4. 地下莖上之鱗片(放大二十倍)； 5. 側面下面之剛毛(放大八十倍)； 6. 葉下面之剛毛(放大八十倍)； 7. 基部葉形小葉着生於中葉情形(放大十倍)。





*ARTHROMERIS HIMALAYENSIS* (Hk.) Ching

地 瑣 節 蕨 類

## PLATE 130

## ARTHROMERIS LUNGTAEUENSIS Ching

## POLYPODIACEÆ

ARTHROMERIS LUNGTAEUENSIS Ching, Contr. Inst. Bot. Nat. Acad. Peiping 2: 95 (1935).

*Polypodium longipes* Ching in C. Chr. Ind. Få. Suppl. III. 152 (1934).

*Rhizome* wide-creeeping, 4-5 mm thick, terete, striatous; *scales* dense, ovate, acuminate, grayish-brown with scarious margin; *frond* far apart, stipe 3-10 cm long, dark stramineous, terete, slender, naked, lamina oblong or deltoid, 7-30 cm long, impari-pinnate; *pinnae* 1.3-8-jugate, the terminal pinna similar to the lateral ones, which are patent, sessile, 6-10-16 cm long, 2-3 cm broad in the middle, gradually acuminate, base equal, cordate, subplexicaulous, margin entire with a cartilaginous line all around; *lateral veins* prominent, 4 mm apart, obliquely patent, transversal veinlets 4-6 between costa and margin, intervening veinlets anastomosing with included veinlets; *axillary* chartaceous, brownish when dried, both sides moderately villous; *stipe* rather small, rounded, dark brown, bi-seriate, of 3-4 each between main veins, glabrous, with a few protruding hairs from veinlets underneath.

Kwangtung: Lungtau Shan, In village, *To Keng Ping* 12130 ex herb. Lingnan Univ., June 7, 1924; Tsungta-Lungmoon Districts, *Tsang Wei Tak* 20508, May 18, 1932; Yünnan, *S. P. Ko* 53074, July 13, 1933; Lohshan Shan, *C. Ford* 14 (1883); *C. O. Levine & McClure* 6859; *Levine* 1545; *B. C. Henry* 22910 in herb. Hance, May, 1862.

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

Plate 130. Fig. 1. Habit sketch (natural size). 2-3. The same (natural size). 4. Portion of pinna, showing venation and net ( $\times 5$ ). 5. Scale from rhizome ( $\times 24$ ). 6. Hair from lamina ( $\times 50$ ).

ICOSIS FELICUM SENSICARUM

第一百五十圖  
卷節肢蕨(水龍骨科)

*ARTHROMERIS LUNGTAUENSIS* Ching

本種形態極新穎，體極小，小葉係具線狀骨質葉柄，兩面僅剛毛疏生，故特屬於蕨類。

分布：廣州北部山中。

圖版：1. 本種全形(自然大)， 2-3. 同上， 4. 小葉之一部份，表示葉脈及子囊羣(放大五倍)，  
5. 葉下葉上之鱗片(放大二十倍)， 6. 葉面上之剛毛(放大六十倍)。





**ARTHROMERIS LUNGTAUENSIS** Ching

粵南莪蕨