

On a Collection of Ferns made in North Borneo by the Bishop of Singapore and Sarawak. By J. G. BAKER, F.R.S., F.L.S.

[Read 4th March, 1886.]

(PLATES XI. & XII.)

DR. G. F. HOSE, Bishop of Singapore and Sarawak, has just sent home a beautifully dried and carefully annotated series of Ferns from the north of Borneo, collected principally in the neighbourhood of Sarawak. The following is a complete enumeration of the species, with descriptions of the novelties. Besides scattered notices, three papers have been published on the Ferns of the island, viz.:—1. Cesati's memoir in vol. vii. of the 'Atti della R. Accademia delle Scienze Fisiche e Matematiche di Napoli,' founded mainly on the material collected by Dr. Beccari; 2, my own report in vol. viii. p. 37 (1870) of the 'Journal of Botany,' on the collection of Mr. F. W. Burbidge; and 3, Burck's paper in vol. iv. of the 'Annals of the Botanic Garden of Buitenzorg,' p. 88 (1884). Of the numbers used, those given for every species are Dr. Hose's collecting-numbers; and those given for the novelties within brackets indicate the position they occupy in the series followed in our 'Synopsis Filicum.'

2. GLEICHENIA FLAGELLARIS, *Spreng.*

1. G. VESTITA, *Blume*. Matang, 3000 feet. Seems conspecific with *G. hirta*, *Blume*.

4. CYATHEA BRUNONIS, *Wall.* Caudex 2 feet long.

5. HEMITELIA ALTERNANS, *Hook.* As Dr. Hose points out, and as his specimens clearly show, this has a rudimentary involucre. I believe now that *Cyathea Lobbiana*, *Hook.*, is the same species.

6. ALSOPHILA LATEBROSA, *Hook.* Caudex 8–10 feet long. Stipe unarmed.

7. A. BURBIDGEI, *Baker.*

9. A. RAMISPINA, *Hook.* Matang, 3000 feet. Only gathered before by Lobb long ago.

10. A. CONTAMINANS, *Wall.* Caudex 12 feet or more long. Stipe muricated.

14. HYMENOPHYLLUM DILATATUM, *Sw.* Matang, 2000 feet.

15. H. NEESII, *Hook.*

22. II. JAVANICUM, *Spreng.*

17. *TRICHOMANES SAXIFRAGOIDES*, *Presl.* Cannot, I think, be separated specifically from *T. parvulum*.

16. (61*) *T. HOSEI*, *Baker*, n. sp.; rhizomate filiformi late repente, stipite brevi nudo haud alato, frondibus parvis ovato-rhomboides tripinnatis, pinnis inferioribus maximis deltoideis basi postice cuneato-truncatis, segmentis ultimis linearibus uninnerviis integris ascendentibus, soris terminalibus solitariis, involucre infundibulari angusto alato labiis 2 parvis semiorbicularibus prædito, receptaculo breviter exserto. (Plate XII.)

A small finely-cut species allied to the Philippine *T. brevipes*, *Baker*, and *T. Smithii*, *Hook.*, and Polynesian *T. tenue*, *Brock.* Fronds about 2 inches long, $\frac{1}{2}$ inch stipe included, erect, spaced out upon the long filiform rhizome. Final one-nerved entire segments about $\frac{1}{3}$ of a line broad, not more than $\frac{1}{8}$ – $\frac{1}{6}$ in. long. Involucre $\frac{1}{8}$ in. long, narrowly winged on both sides nearly or quite to the top of the tube.

25. *T. MAXIMUM*, *Blume.*23. *T. FENICULACEUM*, *Bory.* Matang.

12. (18*) *DICKSONIA* (§ *PATANIA*) *AMPLA*, *Baker*, n. sp.; rhizomate repente paleaceo, frondibus amplis deltoideis glabris tripinnatis, pinnis oblongo-lanceolatis, pinnulis lanceolatis multijugis acuminatis ad costam vel alam angustam pinnatipartitis, segmentis ultimis adnatis oblongis parallelis contiguis, venis copiose pinnatis venulis 6–8-jugis erecto-patentibus, soris parvis globosis marginalibus incurvatis, involucri valva exteriori majori glabra semiorbiculari.

A very distinct species, allied to the Tropical-American *D. adiantoides*, *H. B. K.* Rhizome epigæous, creeping, as thick as a man's finger, clothed with dark paleæ. Fronds 4 feet or more long, moderately firm in texture. Rhachis brown, unarmed, pubescent only down the channelled face. Lower pinnae the largest, 2–3 feet long, nearly a foot broad. Tertiary segments $\frac{1}{2}$ in. broad. Sori placed on the edge of the tertiary segments, principally near the base. Veins 7–8 on a side in the tertiary segments, the lower forked, the upper simple.

11. (23*) *D.* (§ *PATANIA*) *GOMPHOPHYLLA*, *Baker*, n. sp.; frondibus amplis glabris deltoideis decompositis, rachibus infermibus, pinnis infimis maximis deltoideis inæquilateralibus,

pinnulis oblongo-lanceolatis, segmentis tertiariis multijugis oblongis, quaternariis multijugis subsessilibus inæqualiter cuneatis parvis obtusis profunde pinnatifidis, venis subflabellatis, soris parvis globosis incurvatis, involucri valva exteriori majori semi-orbiculari.

Matang, Sarawak, 2000 feet.

A very large decomposed species with the habit of *D. moluccana*, Blumè, and *D. scandens*, Blume, but the rhachises unarmed. Primary rhachis half an inch thick at the base of the lamina. Lower pinnæ $1\frac{1}{2}$ -2 feet long, a foot broad. Quaternary segments not more than $\frac{1}{4}$ inch long, parallel with the rhachis on the upper side at the base, cut away on the lower side. Sori small, placed at the base of the sinuses of the quaternary segments.

28. *DAVALLIA PARALLELA*, Wall.

29. *D. ALPINA*, Blume.

35. *D. PINNATA*, Cav., var. *LUZONICA*, Hook. Matang, Sarawak, 3000 feet.

32. *D. SOLIDA*, Smith.

39. *LINDSAYA CULTRATA*, Sw.

40. *L. CULTRATA*, var. *LOBBIANA*, Hook.

41. *L. SCANDENS*, Hook. Known previously only as a simply pinnate type; but Dr. Hose's specimens are bipinnate, with a habit like *L. trapeziformis*.

46. *L. LANUGINOSA*, Wall.

47. *L. DIVERGENS*, Wall.

51. *ADIANTUM CAPILLUS-VENERIS*, L. Kudat.

53. *PTERIS LONGIFOLIA*, L.

54. *P. ENSIFORMIS*, Burm.

56. *P. QUADRIAURITA*, Retz.

57. *P. QUADRIAURITA*, var. *DIGITATA*, Baker.

59. *P. INCISA*, Thunb., var. *AURITA*, Blume.

61. *BLECHNUM ORIENTALE*, Linn. The type and a copiously bipinnate form, gathered also by Burbidge.

62. *B. FINLAYSONIANUM*, Wall.

64. *ASPLENium MACROPHYLLUM*, Sw. A very dwarf slightly compound form.

66. *A. HIRTUM*, Kaulf.

67. *ASPLENIUM NITIDUM*, Sw. "Stipe and rhachis always black in Borneo."

68. *A. SUBAQUATILE*, Cesati. Discovered by Beccari, and also collected by Burbidge.

69. *A. PORPHYRORACHIS*, Baker. Sarawak and Perak.

72. (205*) *A. (§ DIPLAZIUM) ÆQUIBASALE*, Baker, n. sp.; caudice erecto, stipitibus cæspitosis basi paleaceis, frondibus oblongis glabris simpliciter pinnatis, pinnis 9-11 adnatis lanceolatis acuminatis crenulatis ad basin integram æquilateraliter attenuatis, venis perspicuis erecto-patentibus simplicibus vel furcatis, soris medialibus parallelis, involucro angusto glabro persistente.

River-banks at Sarawak.

Allied to *A. pallidum*, Blume, and *A. porrectum*, Wall. Texture rather thin. Both surfaces bright green, and free from hairs and paleæ. Stipe 3-4 in. long, with a few black lanceolate spreading paleæ near the base. Lamina 6-8 in. long, 4-5 in. broad. Pinnæ alternate, distant, $\frac{1}{2}$ inch broad at the middle. Sori just falling short of the midrib and margin.

76. *A. POLYPODIODES*, Mett.

74, 75, 77, 78. Forms of the very variable *ASPLENIUM MAXIMUM*, Don.

79, 80. *A. CORDIFOLIUM*, Mett. Type and a form connecting it with var. *integrifolium*.

81, 82, 83. *A. LINEOLATUM*, Mett.

84. *DIDYMOCHLÆNA POLYCARPA*, Baker.

85. *ASPIDIUM SEMICORDATUM*, Sw.

87, 88. *A. ABISTATUM*, Sw.

89. *A. PLATANIFOLIUM*, Mett.

90. *NEPHRODIUM IMMERSUM*, Hook.

91. *N. CALCARATUM*, Hook., var. *FALCULOBUM*, Hook.

94. *N. CRASSIFOLIUM*, Hook.

95. (131*) *N. (§ LASTREA) SARAWAKENSE*, Baker, n. sp.; caudice erecto, stipitibus cæspitosis semipedalibus ad apicem paleis setosis squarrosis præditis, frondibus submembranaceis ovato-lanceolatis subpedalibus tripinnatis dorso ad costas parce paleaceis, pinnis infimis maximis inæquilateraliter deltoideis postice

productis breviter petiolatis, pinnulis multijugis oblongo-lanceolatis infimis solum pinnatis, segmentis tertiariis adnatis contiguis integris, venis pinnatis, venulis paucijugis erecto-patentibus infimis furcatis, soris parvis medialibus, indusio parvo deciduo.

Sarawak.

Allied to the South-Indian *N. scabrosum* and *pulvinuliferum*. Stipes and main rhachis clothed throughout with small squarrose rigid dark-brown paleæ. Frond thin in texture, green on both sides, obscurely pubescent on the rhachises and main veins, about a foot long, $3\frac{1}{2}$ –4 inches broad at the base. Only the lowest pinnæ opposite and deltoid, the others alternate, sessile, and oblong-lanceolate, with divisions of pinnules not reaching down far. Largest tertiary segments $\frac{1}{4}$ inch long, $\frac{1}{8}$ inch broad, with about 4 veins on each side.

86. (131*) *NEPHRODIUM* (§ *LASTREA*) *ACICULATUM*, *Baker*, n. sp.; stipitibus elongatis ubique cum rhachibus paleis brunneis subulatis patulis vel squarrosis dense vestitis, frondibus magnis oblongo-deltoides firmulis glabris tripinnatis, pinnis infimis maximis inæquilateraliter deltoides postice productis, pinnulis multijugis lanceolatis profunde pinnatifidis vel basi pinnatis, segmentis tertiariis oblongis obtusis integris contiguis, venis pinnatis, venulis 6–8-jugis erecto-patentibus immersis obscuris, soris parvis subcostularibus, indusio parvo membranaceo deciduo.

Matang, Sarawak, 2000 feet.

Allied to the Indian *N. scabrosum* and *intermedium*. Stipes 1–1½ foot long, densely beset throughout, like the rhachises, with squarrose or spreading subulate brown paleæ. Lamina moderately firm in texture, about 2 feet long by a foot broad. Lower pinnæ much the largest, and the pinnules of the lower side much the longest. Ultimate segments $\frac{1}{8}$ inch broad, reaching $\frac{3}{4}$ –1 inch long. Sori many to a final segment, placed near the midrib on the base of the obscure veinlets.

97. *N. SETIGERUM*, *Baker*.

98. (139*) *N.* (§ *LASTREA*) *MULTISETUM*, *Baker*, n. sp.; stipitibus cæspitosis elongatis pallidis cum rhachibus ubique paleis subulatis rigidulis castaneis patulis vel squarrosis dense vestitis, frondibus magnis deltoides decompositis dorso setis hyalinis sparsis præditis, pinnis oblongo-lanceolatis pedalibus vel sesquipedalibus, pinnulis multijugis lanceolatis copiose pinnatis, seg-

mentis tertiariis adnatis lineari-oblongis profunde pinnatifidis, segmentis ultimis parvis deltoideis, soris minutis medialibus, indusio membranaceo deciduo.

Matang, Sarawak, 2000 feet.

Habit of *Nephrodium setigerum* and *Polypodium ornatum*, Wall., but the stipes and rhachises everywhere densely beset with spreading or squarrose bristly paleæ. Frond 4 feet long. Pinnæ patent, the lower $1\frac{1}{2}$ foot long, 4-6 inches broad. Pinnules patent, $\frac{1}{2}$ - $\frac{3}{4}$ inch broad, the largest with 12-15 adnate distinct deeply pinnatifid segments on a side below the pinnatifid apex. Tertiary segments $\frac{1}{12}$ inch broad. Veins forked in the largest final segments. Sori minute, not more than 1-2 in a final segment.

96. (141*) NEPHRODIUM (§ LASTREA) MEGAPHYLLUM, *Baker*, n. sp.; caudice decumbente, stipitibus elongatis basi paleis castaneis dense vestitis, frondibus magnis deltoideis glabris tripinnatis, pinnis infimis maximis inæquilateraliter oblongo-lanceolatis postice productis, pinnulis oblongo-lanceolatis acutis basi pinnatis, segmentis tertiariis oblongis obtusis infimis leviter pinnatifidis, venis in segmentis quaternariis pinnatis venulis paucijugis simplicibus erecto-patentibus, soris parvis medialibus, indusio membranaceo deciduo.

Sarawak.

A huge species, most resembling in habit the glabrous forms of the Tropical-American *N. villosum*. Lower pinnæ $1\frac{1}{2}$ -2 feet long, 7-8 inches broad. Largest tertiary segments $\frac{1}{2}$ - $\frac{3}{4}$ inch long by half as broad, crenate or shallowly pinnatifid. Veins pinnate opposite the quaternary lobes, with not more than two veinlets on a side. Sori 10-12 to a pinnule, one to each final lobe.

105, 120, 176. *N. LEUZEANUM*, *Hook.*

100. *N. PROCURRENS*, *Baker.*

104. *N. TRUNCATUM*, *Presl.*

103. *N. FEROX*, *Moore.*

107. *N.* (§ SAGENIA) *TERNATUM*, *Baker.* The type and a 5-lobed form.

110. (219*) *N.* (§ SAGENIA) *STENOPHYLLUM*, *Baker*, n. sp.; stipitibus gracilibus cæspitosis nudis castaneis, frondibus parvis deltoideis glabris bis tripartitis, segmentis linearibus integris acuminatis, venis in areolas hexagonas copiose anastomosantibus,

soris in segmentis subbiseriatis, indusio magno glabro persistente. (Plate XI.)

River-banks, Sarawak.

A remarkable plant, like nothing else that is known except *N. nudum*, Baker in Journ. Bot. 1879, p. 41, one of Burbidge's discoveries. Stipes 4-5 inches long. Frond 4-5 inches long and broad, consisting of three subequal thirds, each made up of three linear segments, which are each 2-3 inches long, $\frac{1}{4}$ inch broad at the middle, and taper gradually to the base and acuminate apex. Veins all faint and indistinct. Sori in a single irregular row between the midrib and edge of the segments.

111. *NEPHRODium ACUTA*, Presl.

113. *OLEANDRA NERIIFOLIA*, Cav.

112. *O. NERIIFOLIA*, var. *PHYLLARTHON*, Kunze.

119. *POLYPODIUM DIFFORME*, Blume.

115. *P. MINIMUM*, Baker. Matang, Sarawak. One of Burbidge's discoveries.

114. *P. FLABELLINERVium*, Baker. Lingga mountain, Sarawak, 4000 feet. A very distinct species, gathered before only by Dr. Beccari.

116. *P. ALTERNIDENS*, Cesati.

117. *P. REPANDULUM*, Mett. Matang, Sarawak, 2000 feet.

124. *P. NUMMULARIFOLIUM*, Mett.

126. *P. SORIDENS*, Hook. Matang, 3000 feet.

125. (311*) *P. (§ PHYMATODES) SARAWAKENSE*, Baker, n. sp.; rhizomate gracili longe repente ramoso calvato, frondibus parvis simplicibus subcoriaceis glabris oblongo-lanceolatis acuminatis basi cuneatis, venis omnibus subtilibus immersis occultis in areolas hexagonas anastomosantibus, soris magnis sparsis globosis leviter immersis.

Matang, Sarawak. Gathered previously by Lobb, but never described.

Allied to *P. superficiale*, Blume, and *P. normale* var. *sumatranum*, Baker. Rhizome, in Dr. Hose's specimen, nearly a foot long, less than a line in diameter, bearing 4 distant erect fronds, on stipes $1\frac{1}{2}$ -3 inches long. Frond 4-6 inches long, $1\frac{1}{4}$ - $1\frac{1}{2}$ inch broad at the middle, narrowed gradually to the base and acumi-

nate apex. Sori $\frac{1}{2}$ inch diam., scattered irregularly all over the under surface of the frond except the apex.

127. (331*) *POLYPODIUM* (§ *PLEURIDIUM*) *CAMPYLONEUROIDES*, *Baker*, n. sp.; rhizomate gracili, epigæo late repente paleis parvis lanceolatis adpressis vestito, stipitibus brevibus erectis, frondibus simplicibus membranaceis glabris parvis oblanceolatis obtusis e medio ad basin sensim attenuatis, venis primariis subtilibus erecto-patentibus parallelis, intermediis transversalibus areolas subquadratas formantibus, soris 3-4 inter costam et marginem dispositis inter venas primarias uniseriatis.

Matang, Sarawak, 2000 feet.

Allied to *P. Melleri* and the New-Caledonian *P. selliqueoides*. Rhizome cylindrical, dark green, about $\frac{1}{2}$ inch diameter. Stipes erect, naked, $\frac{1}{2}$ -1 $\frac{1}{2}$ inch long. Frond 4-6 inches long, $\frac{1}{2}$ - $\frac{3}{4}$ inch broad, narrowed gradually from the middle to the base. Main veins fine and indistinct, the cross ones almost as regular as in the American *Campyloneurons*.

130. *P. RUPESTRE*, *Blume*. I do not think this and *P. triquetrum* can safely be kept up as distinct species.

129. (334*) *P.* (§ *PLEURIDIUM*) *LEUCOPHORUM*, *Baker*, n. sp.; rhizomate gracili glauco, epigæo longe repente paleis filiformibus brunneis subpatulis deciduis instructo, stipitibus brevissimis erectis, frondibus simplicibus rigide coriaceis oblongo-lanceolatis acuminatis facie glabris lucidulis viridibus punctis albis cretaceis minutis præditis, margine recurvato crebre cretaceo-punctato, dorso obscure viridibus impunctatis tenuiter pilosis, venis primariis subtilibus rectis erecto-patentibus parallelis, venulis intermediis irregulariter anastomosantibus, soris minutis superficialibus inter venas primarias irregulariter biseriatis.

Matang, Sarawak.

A very distinct and well-marked species, remarkable for the white cretaceous dots scattered over the upper surface and forming a close row on the incurved margin of the frond. Rhizome creeping to a length of a foot or more, the shining filiform paleæ $\frac{1}{4}$ inch long. Stipes not more than $\frac{1}{2}$ - $\frac{3}{4}$ inch long. Frond 6-9 inches long, 1-1 $\frac{1}{4}$ inch broad at the middle.

131. *P. TRIOIDES*, *Lam.*

132. *P. MUSÆFOLIUM*, *Blume.*

135. *POLYPODIUM INCURVATUM*, *Blume*. Matang, 3000 feet.

137. *P. DILATATUM*, *Wall.*, var. *GRANDIDENTATUM*, *Cesati*. Differs from the type by its repand pinnæ; and may be a distinct species.

144. *GYMNOGRAMME QUINATA*, *Hook*.

142. *G. LOBBIANA*, *Hook*.

141. *G. BORNEENSIS*, *Hook*.

140. *G. BORNEENSIS*, var. *MAJOR*, *Baker*.

148. *MENISCIUM TRIPHYLLUM*, *Sw*.

160. (4*) *M. HOSEI*, *Baker*, n. sp.; rhizomate breviter repente, stipitibus contiguis gracilibus stramineis cum rhachibus obscure pubescentibus sterilibus brevibus fertilibus elongatis, frondibus oblongo-lanceolatis glabris simpliciter pinnatis, pinnis lateralibus 7-8-jugis lanceolatis sessilibus basi auriculatis, venulis 2-3-jugis valde ascendentibus, soris demum confluentibus.

River-banks, Sarawak.

Closely allied to the Ceylonese *M. Thwaitesii*. Stipe of sterile fronds 2-6 inches long, of the fertile much longer. Fronds about $\frac{1}{2}$ foot long, $2\frac{1}{2}$ -3 inches broad. Pinnæ $\frac{1}{4}$ - $\frac{1}{3}$ inch broad, entire or obscurely crenulate, auricled on one or both sides at the truncate base. Pinnæ of the fertile frond at most about an inch long, $\frac{1}{3}$ inch broad.

153. *VITTARIA SULCATA*, *Kuhn*.

150. *ANTROPHYUM PARVULUM*, *Blume*.

157. *DRYMOGLOSSUM PILOSELLOIDES*, *Presl*.

158. (71*) *ACROSTICHUM* (§ *POLYBOTRYA*) *STENOSEMIODES*, *Baker*, n. sp.; stipitibus elongatis castaneis deorsum paleis paucis lanceolatis præditis, frondibus sterilibus oblongo-lanceolatis bipinnatifidis submembranaceis glabris margine paleis paucis hyalinis deciduis instructis, pinnis sessilibus lanceolatis multi-jugis ad costam late alatum pinnatifidis, segmentis secundariis oblongis obtusis, venis liberis in segmentis secundariis pinnatis, venulis 6-8-jugis inferioribus furcatis superioribus simplicibus, frondibus fertilibus consimilibus stipitibus longioribus pinnis laxioribus minoribus.

Matang, Sarawak, 2000 feet.

A very distinct species, most like *A. repandum*, var. *Quoyanum* in habit, but the veins entirely free. Stipe of the barren frond a

foot long, of the fertile nearly 2 feet. Barren frond 1-1½ foot long, 7-8 inches broad. Lower pinnæ 4-4½ inches long, 1-1½ inch broad. Secondary segments ⅓-⅓ inch broad.

159. (108*) *ACROSTICHUM* (§ *CHRYSODIUM*) *MODESTUM*, *Baker*, n. sp.; rhizomate gracili late repente paleis parvis lanceolatis apice prædito, stipitibus gracillimis elongatis, frondibus sterilibus simplicibus linearibus integris acuminatis glabris, venis omnibus in areolis hexagonis anastomosantibus, frondibus fertilibus consimilibus sed minoribus.

River-banks, Sarawak.

A small inconspicuous plant, most like the Ceylonese *A. Wallii*, *Baker*. Rhizome trailing to a length of half a foot, the fronds spaced out upon it. Stipe of sterile frond 2-3 inches long. Lamina 4-6 inches long, ¼-⅓ inch broad at the middle, tapering gradually to the base and acuminate apex. Fertile frond 2-3 inches long, ⅓ inch broad.

162. (110*) *A.* (§ *CHRYSODIUM*) *ANTROPHYOIDES*, *Baker*, n. sp.; rhizomate breviter repente, frondibus sterilibus subcoriaceis glabris sessilibus oblanceolatis acutis basi rotundatis, venis immersis occultis omnibus in areolis parvis anastomosantibus, frondibus fertilibus linearibus rigidis dimidio superiori soriferis deorsum ad alam angustam costularem nudam attenuatis.

Matang, Sarawak.

A very distinct species, with sterile fronds most resembling those of *Antrophyum subsessile*. Barren fronds 6-8 inches long, ¾-1 inch broad; fertile 8-9 inches long, ⅓-⅓ inch broad.

161. *A. QUERCIFOLIUM*, *Retz.*

163. *A. BICUSPE*, *Hook.*, type and var. *integrifolium*. Sarawak, mountains at 4000 feet. "Only a few of the barren fronds forked."

164. *A. AUREUM*, *L.*

165. *A. SPICATUM*, *L.*

171. *LYGODIUM SCANDENS*, *Sw.*

172. *ANGIOPTERIS EVECTA*, *Hoffm.*

173. *OPHIOGLOSSUM RETICULATUM*, *L.*

175. *HELMINTHOSTACHYS ZEYLANICA*, *Hook.*

DESCRIPTION OF THE PLATES.

PLATE XI.

Nephrodium (§ *Sagenia*) *stenophyllum*, Baker, n. sp.—Fig. 1. Frond. Fig. 2. Enlarged portion, showing sori.

PLATE XII.

Trichomanes Hosei, Baker, n. sp.—Fig. 1. Frond. Fig. 2. Enlargement of theca.

On the Freshwater Hydrocharideæ of Africa and its Islands.

By H. N. RIDLEY, M.A., F.L.S.

[Read 1st April, 1886.]

(PLATES XIII. & XIV.)

OF the eleven genera of Hydrocharideæ inhabiting fresh water, seven occur in Africa and the adjacent archipelago. The section Hydrilleæ is represented by the genus *Hydrilla* and *Lagarosiphon*. The former genus consists of a single polymorphic species, very widely distributed and common throughout Tropical Asia, and occurring also in Australasia; it is found in Africa, but is apparently not so abundant. *Lagarosiphon* is a genus very characteristic of Africa, all the species known being natives of that region or of Madagascar, with the single exception of *L. Roxburghii*, an Indian plant of very different habit, which has, however, been found in Socotra, but there it is possibly an introduction. The species are all very closely allied, and not easy to study from dry specimens, as the flowers are exceedingly delicate and the male flowers are comparatively rarely met with. One of the chief distinctions between *Hydrilla* and *Lagarosiphon* is that the leaves in the former are in whorls, in the latter scattered; in some species of *Lagarosiphon*, however, there is a great tendency for the leaves to become opposite, especially towards the apex of the stems. This is notably the case in *L. rubella*, mihi. In the 'Genera Plantarum' it is stated that there are no staminodia in the female flower; this is usually the case, but they do occur in at least one species in the form of slender short filaments.

The Vallisneriæ consist of three small genera, two of which occur within the area. One, *Vallisneria*, comprises a single species widely spread over the whole world. *Blyxa* contains the common Indian plant, *B. Roxburghii*, Rich., which is found also



Fig. 1.

Fig. 2.

Fig. 1.



Fig. 2.