

**AN ENUMERATION OF THE
PLANTS OF THE
GALAPAGOS
ARCHIPELAGO; PP. 163-233**

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J. D. HOOKER

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IX. *An Enumeration of the Plants of the Galapagos Archipelago; with Descriptions of those which are new.* By JOSEPH DALTON HOOKER, Esq., M.D., F.L.S. &c. &c.

Read March 4th, May 6th, and December 16th, 1845.

FOR the materials upon which the following Flora of the Galapagos Islands has been constructed I am mainly indebted to Charles Darwin, Esq., who formed a collection of plants in that group during the voyage of H. M. Ship 'Beagle.' On my return from the Antarctic expedition, I expressed to that gentleman a wish to examine the botanical results of Captain Fitzroy's voyage, and to incorporate the plants with my own 'Flora Antarctica,' and through his kindness the collections in question were liberally given over to me by Professor Henslow of Cambridge, in whose charge they had been placed for the University. Mr. Darwin drew my attention to the striking peculiarities which mark the Flora of the Galapagos group, and to the fact that the plants composing it not only differ from those of any other country, but that each of these islands has some particular productions of its own, often representatives of the species which are found in the others of the group.

My first attempt to give any clear exposition of these features in the vegetation was frustrated by the novelty of the species themselves, forbidding any direct comparison of the Flora with that of adjacent countries. A clear determination of the plants themselves was indispensable; and I have now the honour of laying before the Society the names of the species, with descriptions of what have proved to be new, and some notices as to the ranges of others previously known. I must here beg to acknowledge the assistance I received from Professor Henslow, by whom the investigation of the species was commenced. These, together with some others collected by various voyagers, though perhaps composing but a small proportion of the Flora of the

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Galapagos, afford materials for making some general remarks upon the botany of these islands and its relation to that of other countries.

FUNGI.

1. SCHIZOPHYLLUM COMMUNE, Fries.

Hab. Charles Island, Charles Darwin, Esq.

LICHENES.

2. USNEA PLICATA, Ach. Syn. Meth. p. 305.

Hab. James Island, "hanging from the boughs of the trees in the upper damp region, where it forms a considerable proportion of the food of the large tortoise." (Charles Darwin, Esq.)

Cladonia rangiferina is one of the few parallel instances of lichens constituting the main subsistence of any animal among the higher orders. This species is abundant in all temperate and tropical countries.

3. BORRERA LEUCOMBLAS, Ach. Lichenogr. Univ. p. 499, var. *filiformis*.

Hab. James Island, Charles Darwin, Esq.

The same slender variety is common on the Peruvian coast. The species is a very rare English, though a common tropical plant.

4. STICTA AURATA, Ach. Syn. Meth. p. 231.

Hab. James Island, Charles Darwin, Esq.

Also an exceedingly scarce English lichen, much more common in the warmer latitudes.

HEPATICÆ*.

5. JUNGERMANNIA VAGINATA, Sw.

Hab. James Island and Charles Island, Charles Darwin, Esq. A West Indian plant.

6. J. TAMARISCI, Hook.

Hab. Charles Island, Charles Darwin, Esq. A British and very widely diffused species.

* For the determination of the *Musci* and *Hepaticæ* I am indebted to the kindness of William Wilson, Esq. of Warrington.—J. D. H.

7. *J. FILIFORMIS*, var. β . *laxa*, Sw.

Hab. Charles Island, *Charles Darwin, Esq.* Also found in several tropical localities.

8. *J. FILICINA*, *Hook.*; et var. β . *tenuis*.

Hab. James Island. β . James and Charley Islands, *Charles Darwin, Esq.* Also a native of the West Indies and South America.

9. *J. ATRATA*, *Sw.*?

Hab. Charles Island, *Charles Darwin, Esq.* Found also on the American continent.

10. *J. PUNGENS*, *Wils. MSS.*; caule bipinnato, ramis attenuatis, foliis patulis remotis e basi cordatâ longe acuminatis apicibus siccitate porrectis, stipulis oblongis profundè bifidis basi cordatis amplexicaulibus (dorso nec prominulo) cruribus attenuatis.—*Wils. MSS.*

Hab. Charles Island, *Charles Darwin, Esq.*

The *J. atrata* of Swartz, to which this is allied, has the stipules spurred at the back, and the apices of the leaves bent inwards and concealed when dry.

MUSCI.

11. *MACROMITRIUM SCABRISSETUM*, *Wils. MSS.*; repens, surculis brevibus erectis, foliis subpatentibus lineari-lanceolatis acutis plicato-carinatis (nervo subexcurrente), setâ scabrâ, calyptrâ glabrâ (capsulâ sulcatâ?); operculo longirostro.—*Wils. MSS.*

Hab. Charles Island, *Charles Darwin, Esq.* Probably on trunks of trees in the higher regions of the island.

Very closely allied to an undescribed species from Columbia in *Herb. Hook.*, as also to the *Schlotheimia longifolia*, *Hook.* The seta being rough, this moss should perhaps be referred to the genus *Trachypus*, *R.* and *Hornsch.*

12. *NECKERA* vel *PILOTRICHUM* sp.? (barren).

Hab. James Island, *Charles Darwin, Esq.*

FILICES.

13. *POLYPODIUM PARADISEÆ*, *Langsd. & Fischer.*

Hab. James Island, *Charles Darwin, Esq.* Abundant in all the warm parts of South America and the West Indies.

- # 14. *P. PLEIOSOROS*, *Hook. fil.*; fronde ovatâ bipinnatâ, pinnis linearibus elongatis acuminatis; pinnulis lineari-oblongis approximatis apicibus rotundatis inferioribus grossè crenato-dentatis suprâ pilis sparsis hirtis subtùs molliter pubescentibus, soris 10-14, rachibus costisque pubescentibus paleaceisque.

Hab. James Island, *Charles Darwin, Esq.*

Rachis paleacea pilisque brevibus albidis obsita, paleis elongatis brunneis. Pinnæ 6 unc. longæ, ad medium lineares deinde ad acumen gradatim attenuatæ, 1 unc. latæ. Pinnulæ sub-50, $\frac{1}{2}$ - $\frac{2}{3}$ unc. longæ, $\frac{1}{2}$ latæ, sessiles, membranacæ v. subcoriaceæ, superne confluentes, suprâ pubescentes, subtùs pilosæ, pilis sparsis elongatis, marginibus superne crenatæ. Sori plurimi, medio venulæ inter costam marginemque siti.

Only the upper portion, about half a foot long, of an apparently very large frond exists in Mr. Darwin's collection, and it does not accord with any described species nor with any in the Hookerian herbarium. The veins are twice or thrice forked, and the sori are situated on the middle of the first superior branch.

- # 15. *P. PALEACEUM*, *Hook. fil.*; fronde latè ovatâ bi- vel tripinnatâ, pinnis primariis alternis remotis elongato-ovatis curvatis secundariis profundè pinnatifidis linearibus suprâ pilis rufis densè vestitis subtùs glabriusculis; segmentis oblongis obtusis infimis crenato-dentatis, soris 6-8 parvis, rachi densè subappressèque paleacæ.

Hab. Charles and James Islands, *Charles Darwin, Esq.*

Rachis gracilis, pallida, paleis elongatis subulatis fuscis aperta, pubescens, tuberculis minimis asperula. Pinnæ remotæ, 8-10 unc. longæ, 3-4 latæ, ultra medium in acumen elongatum gradatim attenuatæ. Pinnulæ 30-40, superiores decurrentes, inferiores 2-3 unc. longæ, $\frac{1}{2}$ - $\frac{3}{4}$ late, profundè pinnatifidæ, basi subpinnatæ, membranacæ. Sori parvi, ut in *P. pleiosoro* siti. Venæ bis furcatæ, ramo superiore apicem segmenti attingente.

Only a portion of a frond was collected, which is about two feet long.

- # 16. *MARGINARIA INCANA*, *Presl* (*Polypodium, Sw.*), var. frondibus plerumque pinnatis, pinnis inferioribus 2-3 furcatis.

Hab. Charles Island, *Charles Darwin, Esq.* Albemarle Island, *Macrae.*

Though a most abundant plant in all the tropical and warm parts of Ame-

rica, and even found so far north as Boston, U.S., the only specimens which have come under my observation with the lower pinnae forked, are the above, and Mr. Purdie's from Jamaica.

- o # 17. *M. ENSIFOLIA*, *Presl* (*Polypodium*, *Sw.*).
Hab. James Island. Common to all the warm regions of South America and the West Indies.
- o # 18. *PLEOPELTIS LEPIDOTA*, *Willd.*
Hab. Charles Island, *Charles Darwin, Esq.* Abundant throughout the tropics, and probably not distinct from the following species.
- e # 19. *P. MACROCARPA*, *Kaulf.*
Hab. James Island, *Charles Darwin, Esq.*
 The fronds in these specimens are strictly fancoelate and attenuate at both ends; exactly according with individuals from Peru.
- o # 20. *P. AURRA*, *Presl* (*Polypodium*, *L.*).
Hab. James Island, *Charles Darwin, Esq.* Also a frequent plant in South America.
 Fronds generally pinnatifid, but in one (probably monstrous) specimen, there are four digitate spreading pinnae.
- e # 21. *CAMPYLONEURUM PHYLLITIDIS*, *Presl* (*Polypodium*, *Sw.*).
Hab. James Island, *Charles Darwin, Esq.* Common all over tropical South America.
- o # 22. *OLPERSIA LANGSDORFFII*, *Presl* (*Acrostichum*, *H. & G.*).
Hab. James Island, *Charles Darwin, Esq.*
- o # 23. *O. VISCIDA*, *Presl* (*Acrostichum*, *Auct.*).
Hab. James Island, *Charles Darwin, Esq.* West Indies, abundant.
- o # 24. *HEMIONITIS PINNATA*, *Hook. fil.*; frondibus biformibus (ex eadem radice) supra nudis subtus dense rufo-paleaceis, sterilibus sessilibus elongato-spathulatis obtusis, fertilibus sublongè stipitatis pinnatis, pinnis linearibus elongatis obtusis integerrimis subtus undique soriferis, soris paleaceis.
Hab. Charles Island, *Charles Darwin, Esq.*
 Radices caespitosi, fibrosi; fibris atris repentibus. Frondes steriles 10-12, undique patentés.

sessiles, 4-5 unc. longæ, 1 latæ, firmæ sed teneræ, supernè glaberrimæ, medio obscurè sulcatæ, siccitate pallidè flavo-virides, subtùs paleis elongatis sericeis rufo-fulvis densè vestitæ, apicibus rotundatis, marginibus siccitate subundulatis lente recurvis, venis reticulatis obscuris, arceolas elongatas efformantibus intra marginem anastomosantes. Frondes fertiles 2-3, 3 unc. longæ, suberectæ, supernè in laminam pinnatifidam expansæ, stipite rachique politis paleis elongatis obtusis. Pinnæ 5-7, superiores confluentes, omnes patentés, coriaceæ, obtusæ, $\frac{3}{4}$ unc. longæ, $\frac{1}{2}$ latæ, suprâ nude, margine angustè revolutò subindusiiformi. Sori luridè rufo-brunnei, paginam inferiorem frondis omninò tegentes, paleis subsericeis aperti.

The venation of the barren frond is that of a true *Pacilopteris*, but in the (occasional) presence of a free venule it approaches *Acrostichum*. The fertile fronds resemble those of *Notochlæna*, though the sori are decidedly spread over the entire under-surface of the frond.

25. *PTERIS LUTEA*, Cav., *Spr. Sp. Pl.* vol. iv. p. 74.

Hab. James Island, *Dr. Scouler*. Galapagos, *Mr. Cuming*.

Our specimens agree with the very imperfect description of Sprengel, except that the pinnæ are nearly opposite. The same plant is also an inhabitant of Peru, in the specimens from which country the lower pinna is generally forked.

26. *GYMNOGRAMMA CHEROPHYLLA*, Desv.

Hab. Charles Island, *Charles Darwin, Esq.* Brazil, Paraguay, Jamaica.

27. *LITOBROCHIA PEDATA*, Presl (*Pteris*, L.).

Hab. Charles and James Islands, *Charles Darwin, Esq.*, *Douglas & Cuming*. Also found in the West Indies, Brazil, &c.

28. *ADIANTUM CUNEATUM*, Willd.

Hab. James Island, *Charles Darwin, Esq.*, & *Dr. Scouler*. A West Indian plant.

29. *A. PARVULUM*, *Hook. fil.*; glaberrimum, fronde tenerrimâ tripartitâ, ramis pinnatis, pinnis patentibus breviter petiolatis subrhombæ-oblongis apicibus rotundatis margine inferiore recto superiore denticulato ad soros emarginato basi truncato, stipite glaberrimo, rachi vix pilosâ.

Hab. Charles Island, *Charles Darwin, Esq.*

Stipes 3-uncialis, filiformis, glaberrima. Rami 3, laterales, horizontaliter patentes, breviusculi. Rachis supernè præsertim parcè pubescens. Pinnæ sub-10, membranacæ, $\frac{1}{2}$ unc. longæ, $\frac{1}{2}$ latæ, breviter petiolatæ, lineis radiantibus subrugosæ, margine superiore siccitate subcripsato integro; basi truncatâ, rachi parallelâ. Sori pauci, parvuli, quâvis pinnulâ fundo sinûs solitarii.

A small species, most nearly allied to a native of New Zealand, in which the upper margins of the pinnæ are crenate.

30. *A. HENSLOVIANUM*, *Hook. fil.*; frondibus bi- v. rarius tripinnatis elongato-ovatis, pinnis primariis attenuatis; secundariis raris; pinnulis laxis divaricatis breviter petiolatis rhombeo-lunulatis membranaceis supernè crenato-lobatis, soris in fundo loborum majusculis, rachi puberulâ, stipite rufo-brunneo.

Hab. James and Charles Islands, *Charles Darwin, Esq.*

Species pulcherrima, elata, sub-3-pedalis. Stipes gracilis, nitida, canaliculata, fundo sulci pubescens, $\frac{1}{2}$ ped. longa. Pinnæ primariæ alternæ, remotæ, lineares, gradatim acuminatæ, 6 unc. longæ, $\frac{1}{2}$ latæ, scabridæ, ut et rachis pilis rigidis sparæ. Pinnæ secundariæ (dum adsunt) irregulariter insertæ, cum pinnulâ sæpe alternantes, hinc rami quasi proliferi evadunt. Pinnule 30-40, alternæ, horizontales, margine inferiori lunatæ, ad apices rotundatæ, superiores basi truncatæ v. in auriculam productæ, 4-fidæ, segmentis quadratis emarginatis ad apices soriferis. Sori plurimi. *Indusia majuscula.*

31. *BLECHNUM OCCIDENTALE*, *Sw.*

Hab. James Island, *Charles Darwin, Esq.*

32. *ASPLENIUM SUBULATUM*, *Hook. & Arn. in Bot. Beechey Voy.* p. 317. t. 77.

Hab. Charles Island, *Charles Darwin, Esq.* Also found in Jamaica, Mexico and Columbia.

33. *A. FURCATUM*, *L.*

Hab. James Island, *Charles Darwin, Esq.* Found in all warm latitudes, and as far north as in Madeira.

34. *A. MACREI*, *Hook. & Grev. Ic. Fil.* t. 217.

Hab. James Island, *Charles Darwin, Esq.*

Probably a very common West Indian species, of which, or its varieties, many others have been made.