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BRITISH FERNS AT ONE VIEW

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# THE BRITISH FERNS AT ONE VIEW,

By **BERTHOLD SEEMANN, Ph.D., F.L.S.,**

AUTHOR OF 'THE BOTANY OF H.M.S. HERALD,' 'POPULAR HISTORY OF THE PALMS,' ETC.

THE ILLUSTRATIONS BY **WALTER FITCH, F.L.S.**

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THE object of the present Publication is to serve as a key to the writings of Newman, Moore, and others, by exhibiting at one glance all the genera and species of British Ferns. The idea originated with my friend Mr. Scheer, of Northfleet; and the arrangement followed is that of Smith's 'Cultivated Ferns.' Magnified Figures of the Generic Characters are placed at the foot of each column; and when the Genus contains more than one Species these Figures have been drawn from the most typical member of the Genus.

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**FERNS** are flowerless plants, chiefly inhabiting the tropical and temperate zones, growing epiphytically or terrestrially. They have an erect or creeping caudex, and leafy fronds, generally unfolding spirally, and traversed by veins, which produce cases (sporangia) containing reproductive spores. The sporangia are solitary, or more generally collected in crowded masses termed sori, the sori being either naked or furnished with a membranaceous covering (indusium). All the British Ferns may be classed under the following Natural Orders, Tribes and Genera:—

Order I. **POLYPODIACEÆ**.—Fronds unfolding spirally. Sporangia globose or oval, unilocular, pediculate or sessile, furnished with a vertical or transverse, rarely oblique, articulated ring.

TRIBE I. **Polypodiææ**.—Sori round, oblong or linear, destitute of a special indusium.

1. *Polypodium*, J. Smith, Linn. in part.—Fronds pinnatifid or bipinnatifid. Veins forked, free, the lower exterior venule bearing the sporangia on its apex. Sori round or oblong, transversely uniserial.

2. *Phegopteris*, Fée, J. Smith.—Fronds varying from pinnate to decompose-multifid. Veins forked or pinnate; venules free. Sporangia terminal, medial or basal. Sori round, rarely oblong, naked.

3. *Gymnogramme*, Desv.—Fronds simple, pinnate, pinnatifid or multifid, smooth, villose or farinose. Veins forked; venules free, sporangiferous nearly their whole length. Sori linear, simple or forked, often becoming confluent.

Tribe II. **Pterideææ**.—Sori round or linear, marginal, intramarginal or costal, furnished with a special or universal lateral indusium, which is produced on the exterior side of the sporangiferous receptacle, sometimes undefined or obsolete.

4. *Cryptogramme*, R. Br.—Fronds bi-tripinnate, the fertile contracted; segments oblong, linear; margins membranous, revolute, oppositely conniving, forming a universal indusium. Veins forked, free, the upper portion sporangiferous. Sori defined, oblong, becoming laterally confluent, forming a compound, broad, intramarginal, linear sorus, included under the universal indusium.

5. *Adiantum*, Linn.—Fronds simple-reniform, pinnate or bipinnate; pinnæ and pinnules articulated with the petiole; costa excentric or obsolete. Veins unilateral or radiating, forked; venules free, terminating in the axis of a reflexed orbicular or elongated portion of the margin (indusium), which is altered in texture, venose and sporangiferous on its outer side, and ultimately becomes replicate.

6. *Pteris*, Linn. in part.—Fronds pinnate, bi-tri-quadrupinnate, rarely simple; the ultimate pinnæ entire, sinuose, lobed or pinnatifid. Veins forked; sterile venules free, the apices of the fertile transversely combined by the sporangiferous receptacle, constituting a linear, continuous or interrupted sorus. Indusium linear, marginal.



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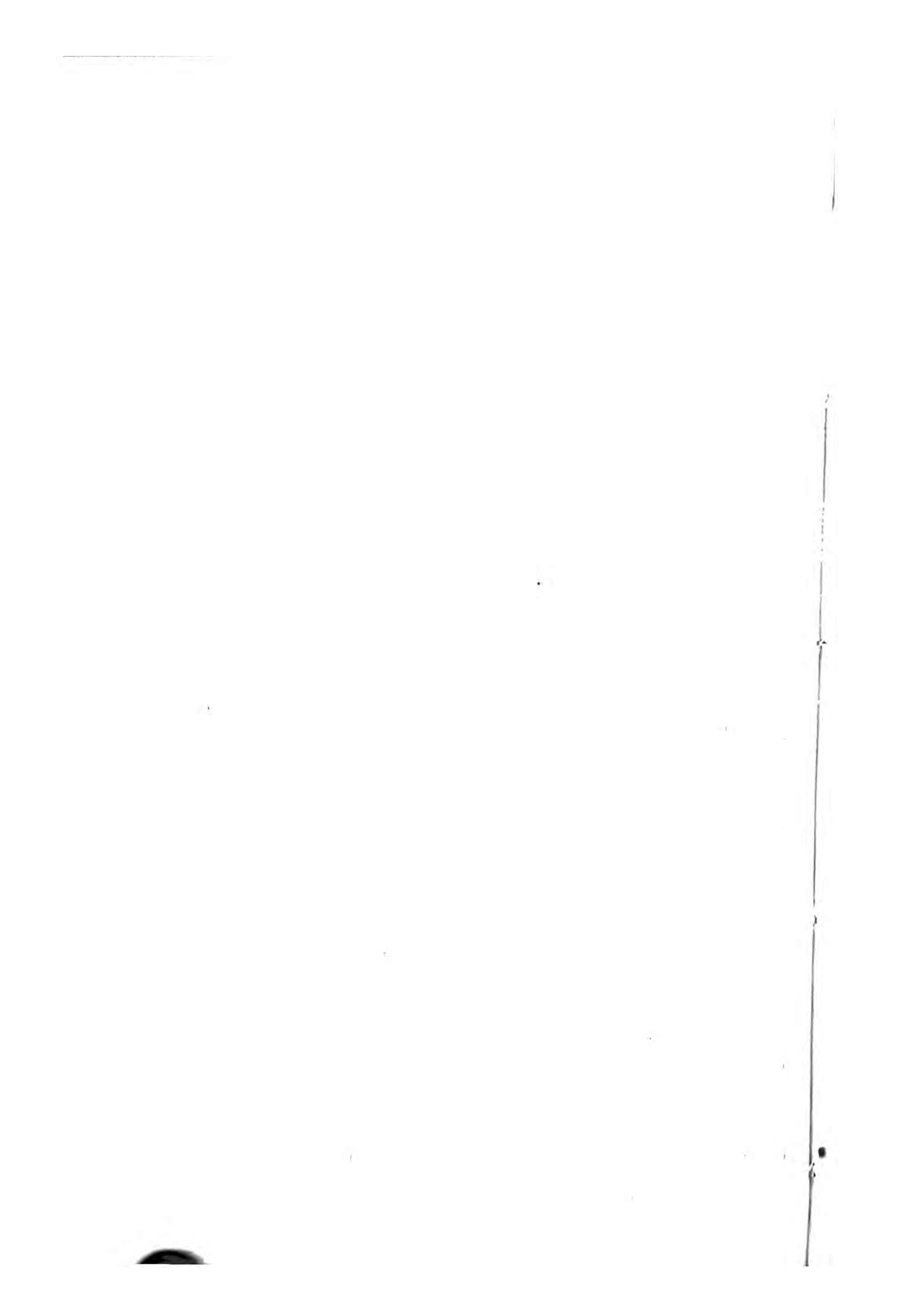


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7. *Lomaria*, Willd.—Fronds simple, pinnatifid or pinnate, rarely bipinnatifid, the fertile always contracted. Veins (of the sterile frond) forked; venules free, their apices usually clavate; fertile segments rachiform. Veins obsolete, or more or less evident by their contiguity, forming a broad, transverse, continuous, sporangiferous receptacle, the sporangia becoming confluent over the whole disk of the segment. Indusium linear, subintramarginal, vaulted and revolute.

Tribe III. **Asplenieæ**.—Sporangia produced on one or both sides of the venules, forming oblong or linear sori, oblique to the midrib or axis of venation, furnished with a plane or vaulted lateral indusium.

8. *Asplenium*, Linn.—Fronds varying from simple-entire to decomposed, generally smooth. Veins rayed, forked or pinnate; venules free, sporangiferous on the superior side. Sori simple, oblong or linear. Indusium plain or vaulted.

9. *Scolopendrium*, Smith.—Fronds simple, entire, lobed or pinnate, frequently abnormal and plane, undulate, or with a comose, crested apex. Veins forked; venules free, the superior and inferior branch of each fascicle contiguous, parallel, and sporangiferous on their proximate sides, constituting two linear, confluent sori, each furnished with a linear indusium, the free margins of which connive.

10. *Ceterach*, Willd., J. Smith.—Fronds sinuose-pinnatifid or pinnate, the under side densely squamose. Veins forked, anastomosing. Sporangia unilateral, protruding through the dense squamæ, forming oblong sori. Indusium obsolete.

Tribe IV. **Aspidieæ**.—Sori round, rarely oblong, intramarginal, furnished with an orbicular, reniform, cuculate or calyciform indusium.

11. *Woodsia*, R. Br.—Fronds bipinnatifid, smooth or squamiferous. Veins single or forked, free, the lower exterior branch sporangiferous on or below its apex. Sori round. Indusium calyciform, nearly entire or deeply lacinated, the lacinose usually terminating in long hairs, which involve the sporangia.

12. *Cystopteris*, Bernh.—Fronds slender, bipinnatifid. Veins forked; venules free. Sporangiferous receptacle punctiform, medial. Sori round. Indusium lateral, oblong or reniform, cucullate, dentate or fimbriate.

13. *Lastrea*, Presl, J. Smith.—Fronds varying from bipinnatifid to decomposed-multifid. Veins simple or once or several times forked; venules free. Sporangia terminal or medial. Sori round. Indusium reniform.

14. *Polystichum*, Roth in part, Schott, Presl.—Fronds pinnate, bi-tripinnate or decomposed; pinnæ and pinnules auriculated and lobed, dentate, rigid, spinulose, mucronate. Veins simply or pinnately forked; venules free, the lower exterior branch or more (of each fascicle) sporangiferous on or generally below its apex. Sori round. Indusium orbicular or subreniform.

Tribe V. **Dicksonieæ**.—Sporangiferous receptacle terminal, marginal, punctiform, or by combination linear-elongated. Indusium lateral, interiorly attached, its exterior margin free, generally conniving with the opposite portion of the margin (which is changed in texture), forming a bivalved or tubular cyst or groove, containing the sporangia.

15. *Trichomanes*, Linn.—Fronds varying from simple to decomposed-multifid, membranaceous and pellucid, smooth, or bearing simple, forked or stellate hairs. Veins simple or forked, free. Sori terminal, often subpedicellate. Indusium urceolate or tubular; receptacle continued beyond the sporangia and mouth of the indusium, often elongated and filiform.

16. *Hymenophyllum*, Smith.—Fronds varying from simple to decomposed-multifid, membranaceous and pellucid, smooth, or bearing simple, forked or stellate hairs. Veins simple or forked, free. Sori terminal. Indusium short, urceolate, bilabiate or bivalved; receptacle short, included within the indusium.

Tribe VI. **Osmundeæ**.—Sporangia globose, reticulated, short, pedicellate; apex oblique, gibbous; ring incomplete or obsolete.

17. *Osmunda*, Linn.—Fronds pinnate or bipinnate; pinnæ articulated with the rachis. Veins forked, free; fertile wholly, or the upper or middle portion only, contracted, forming simple or compound sporangiferous panicles.

Order II. **OPHIOGLOSSACEÆ**.—Fronds not unfolding spirally. Sporangia subglobose, exanulate, homogeneous, coriaceous, opaque, sessile, unilocular, opening by a vertical or transverse slit, bivalved, produced on rachiform, simple or paniculate spikes.

18. *Ophioglossum*, Linn.—Veins reticulated. Fertile spike simple, pedunculate. Sporangia connate, in two unilateral rows, transversely bivalved.

19. *Botrychium*, Sw.—Veins free. Fertile spikes compound-paniculate. Sporangia distinct, in two lateral rows, transversely bivalved.

