

THE FERNS OF GREAT BRITAIN

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The ferns of Great Britain by John E. Sowerby & Charles Johnson

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JOHN E. SOWERBY & CHARLES JOHNSON

**THE FERNS OF
GREAT BRITAIN**

Spottiswoode &
1855.

THE

FERNS OF GREAT BRITAIN:

ILLUSTRATED

BY

JOHN E. SOWERBY,

PROPRIETOR OF SOWERBY'S ENGLISH BOTANY.

THE DESCRIPTIONS, SYNONYMS, &c.

BY

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BOTANICAL LECTURER AT GUY'S HOSPITAL.

LONDON:

JOHN E. SOWERBY, 3 MEAD PLACE, LAMBETH.

1855.

TO
THE PRESIDENT AND FELLOWS
OF
THE LINNEAN SOCIETY,

THIS WORK

IS

WITH THEIR PERMISSION

MOST RESPECTFULLY DEDICATED

BY

THEIR OBLIGED AND OBEIENT SERVANT,

THE PROPRIETOR.

THE
FERNS OF GREAT BRITAIN.

INTRODUCTION.

FERNS constitute a series of vegetable productions of considerable extent, amounting to upwards of two thousand known species, the greater proportion of which is found in tropical climates, but very unequally distributed; the general habit of the fern leading it to develop most freely under the joint influence of shelter from the sun and wind, and an atmosphere replete with moisture. Hence the open prairie, the pampa, and the steppe offer conditions most unfavourable to their growth; while the land covered with dense forests, or the mountain with its rocky clefts and caverns, affords the requirements upon which it depends, especially where such occur in association with a warm and vaporious climate. The proportion that ferns bear to the aggregate vegetation of different countries, though in some measure dependent upon such circumstances, conveys no definite idea of their real numbers: thus, when we learn that in the British Islands they compose $\frac{1}{5}$ th of the conspicuous vegetation of the land, and in tropical America $\frac{1}{3}$ th, we are not to conclude that the numbers in the two countries at all approximate, but that amidst the exuberant development of the torrid zone the ferns maintain an equal proportion to that which

they have in our less productive region. The actual amount of species, indeed, almost constantly diminishes with the increase of latitude beyond the tropics.

In a work intended as an aid to the less scientific observers and admirers of natural productions, it is not considered desirable to enter into those minutiae of organic composition, by which the physiologist is guided in his studies of the relative structures and affinities of the various groups composing the vegetable kingdom; but, as certain general characters appertain to that before us, and as, in describing families and species, it is convenient to employ a few conventional terms, expressive of features and conditions not belonging to other plants, a concise view of the peculiarities by which ferns are collectively distinguished, becomes a necessary introduction to their examination in detail.

With much of the aspect belonging to the higher orders of vegetation, and occasionally rivaling in port and habit the more majestic of their forms, ferns have a structure indicative of a much lower grade in organization, and may be regarded as occupying an intermediate position, or rather as representing the most complicated type of that class characterized by the absence of flowers. They are, with slight exception, perennial plants, but vary much in habit, and especially in the development of the stem; this is generally either procumbent or it extends itself below the surface of the soil, and from its root-like appearance is denominated a *rhizoma*, though some writers designate it as the *caudex*. Rarely, and almost exclusively in very warm and humid climates, ferns are arborescent, the stem growing erect like the trunk of a tree, when it is called the *stipes*, and in some species attaining a height of forty or fifty feet: it is cylindrical, of equal diameter throughout, and bears leaves only at the summit, like a palm, the necessary result of its growth being only from the termination of the axis. Occasionally a tendency to upright elongation of the *rhizoma* is observed in some of the larger species of the British Ferns. The leaves, usually

termed *fronds*, are generally more or less divided in a wing-like manner, rarely simple or entire: when the divisions extend to the *rachis* or continuation of the leaf-stalk or its branches, the fronds are described as pinnate, bipinnate, or tripinnate (once, twice, or thrice winged), the first or primary divisions being called *pinnæ*, the subsequent ones *pinnules*; when they are only partial, the fronds are said to be *pinnatifid* or wing-cleft, and the divisions are denominated lobes or segments. The disposition of the leaves of plants in the bud, generally regarded by botanists as an important feature, is called their *vernation*, and in the ferns is *circinate* (except in one small group), the divisions as well as the entire frond being coiled inwards previous to expansion like the spring of a watch, a disposition beautifully exhibited by those of some of the larger species.

The reproductive germs of the flowerless plants are very minute, indeed generally microscopic, and, notwithstanding the gigantic size of some members of the Fern tribe, no exception occurs in this respect; their production apparently taking place under different laws to those which regulate the fructifying function in flowering plants: they are not called seeds, but *spores* or *sporules*, and are enclosed in little cases denominated *theceæ*; which, in the ferns, are mostly aggregated in small clusters of different size and shape, termed *sori*, and arise from the veins on the under surface of the frond, or from their extremities upon its margins: in some instances the *theceæ*, instead of forming *sori*, are associated in spikes or clusters called panicles, formed by the depauperation of the fructifying frond or of its lobes. The primary development of the *theceæ* takes place in immediate contact with the vein, and beneath the epidermis or outer covering of the leaf, which is forced up by their enlargement in the form of a whitish membrane, constituting the *indusium* or protecting cover of the *sori*. During the advance of the fructification towards maturity, the *indusium* separates partly or wholly from the surrounding epidermis, and subsequently either