

THE  
JOURNAL OF BOTANY

BRITISH AND FOREIGN.

EDITED BY

JAMES BRITTEN, K.S.G., F.L.S.

LATE SENIOR ASSISTANT, DEPARTMENT OF BOTANY, BRITISH MUSEUM.

---

LIBRARY  
NEW YORK  
BOTANICAL  
GARDEN

VOL. LII.

---

WITH PLATES AND TEXT ILLUSTRATIONS

---

LONDON  
WEST, NEWMAN & CO., 54, HATTON GARDEN.

1914.

of *Agathis Motleyi*; and this was strikingly shown when in 1868 Parlatore (in DC. Prodr. xvi. 2, 508) described fertile material, which he did not recognise as of the same plant—collected by Beccari (No. 2649) between 1865 and 1868 in Sarawak, Northwest Borneo—as *Podocarpus Beccarii*.

The following is a brief description of the plant, to which I have added its synonymy:—Current year's twigs short, subverticillate, distinctly pulvinate and narrowly ridged, terminated by narrow sharply acuminate buds, enclosed by 2-4 oval acuminately cuspidate denticulate-lacerate scales. Leaves opposite, ascending and hence overlapping, oval, acute, or shortly and sharply cuspidate, attenuate or rarely rounded basally, with a very short broad not twisted petiolar base; 1-1½ in. long,  $\frac{1}{2}$ - $\frac{3}{4}$  in. broad, coriaceous and rigid, doubtless dark lustrous green in the living state, indistinctly longitudinally striate when dried; margin not recurved. Male strobiles unknown. Females flowers disposed singly in the axils of the leaves, borne on a short, stout,  $\frac{3}{10}$  in. long peduncle. Receptacles thickly fleshy, cylindric, damson-coloured. Seed globose, smooth and brownish with a slight glaucescent sheen,  $\frac{3}{8}$  in. in diameter.

PODOCARPUS MOTLEYI, comb. nov.

*Dammara Motleyi* Parlatore, Index Sem. Hort. Bot. Florent. 26 (1862); in Seemann, *Journal of Botany*, i. 36 (1863); and in De Candolle, Prod. xvi. ii. 377 (1868).

*Agathis Motleyi* Warburg, Monsunia, i. 185 (1900).

*Podocarpus Beccarii* Parlatore, *op. cit.* 508; Pilger, Taxaceæ, 59 (1903).

*Podocarpus* sp., Seward & Ford, in Phil. Trans. cxviii. 317 (1906), with figure of leaf.

*Nageia Beccarii* Gordon, Pinetum, 186 (1875). //

## JOSEPH ANTHONY MARTINDALE.

(1837-1914.)

JOSEPH ANTHONY MARTINDALE, who passed away in his 77th year on April 3rd, was one of our ablest British Lichenologists, and was recognised as such on the Continent as well as in this country. He was born on July 19th, 1837, at Stanhope, in the Weardale Valley, Durham. His father moved soon afterwards to Durham, and became first mathematical master at Bede College, remaining there, however, only a short time, for when young Martindale was only eleven years old his father was conducting a private school at Sunderland, and lecturing and writing on agriculture and chemistry. Joseph, who was the eldest of seven children, at that age obtained a medal for chemistry, amongst youths of eighteen and nineteen, under the examination of a well-known professor, but his father, with a stern rectitude, forbade him to accept the medal, an act of probity which Martindale himself in later years used to refer to as rather hard upon him.

On his father's death, which occurred when Joseph was thirteen years old, he became a pupil teacher, was trained at the Battersea Training College, and was appointed to a school at Stanwix, near Carlisle, in 1857. On October 3rd, 1859, he came to Staveley as headmaster, an appointment which he held with great success until his retirement in 1902; after his retirement he continued to lecture under the County Education authorities. He was twice married; to Mary Ann Seed in 1861, and to Emily J. Ruthven in 1894, leaving six children by the first, and one by the second marriage. His eldest son, Mr. G. E. Martindale, inherits his father's botanical tastes.

Somewhat reserved with strangers, but of a kindly and unselfish disposition, Martindale took an active interest in politics and in the local management of the village, serving on the parish council and other bodies, acting as organist of the parish church, and joining in the Volunteer movement of 1878.

Physically he was active and vigorous, making all his journeys on foot when acting as inspector of religious instruction for the council schools of Westmoreland. Intellectually he was a man of considerable ability and determination, doing with the utmost thoroughness and precision everything he took in hand. His lichenological studies led him to acquire a mastery of the German language after he was forty years of age. French he knew well, and was thus able to correspond in their own languages with Arnold and Nylander.

Besides being a classical scholar, Martindale was familiar with Anglo-Saxon, and was versed in the Norwegian and Icelandic languages. He held strongly to Anglo-Saxon associations, and challenged the ultra-Norwegian theories held by some of the Westmoreland antiquaries, by material derived from local place-names. He was mainly instrumental in the discovery of an ancient British settlement at Millrigg, Kentmere, and in 1900 read a paper on the subject before the Cumberland and Westmoreland Archaeological and Antiquarian Society.

His interest extended to entomology, geology, and osteology, and he was an old and honoured member of the Kendal Literary and Scientific Society and a member of its Council from 1903-1913.

Although best known outside his adopted county as a lichenologist, Martindale was a good all-round botanist. When he first took up the study of the botany of Westmoreland, he, with his usual thoroughness, collected all the records of plants of the period before Linnæus, from 1597 to 1774, availing himself largely of Mr. Harry Arnold's rich library at Arnbarrow: these he found to number 153 species. He then followed up the labours of Thomas Lawson in 1638, the Quaker schoolmaster of Great Strickland and father of Lakeland botany, who sent to his contemporary, John Ray, a list of 150 local plants, and of the stations in which they grew; and brought the records up to date by consulting those of Wilson and Hudson in the 18th, and Gough in the 19th century. Of the total number of plants, 1858, enumerated in the *London Catalogue* (8th edition), Mr. Martindale

found records for 1023 in Westmoreland and Furness! But he was too conscientious to allow aliens and garden escapes to be recorded as natives, and thus reduced the number to 897 undoubted native species. In order to work out their distribution, he coloured the local map into six river basins, *viz.* the Leven and Duddon, the Kent, Lune, Eamont, Eden, and Tees, and the map



was published by Bartholomew. By the help of local botanists, he was able to give, besides his own list of 500 lichens and 138 fungi, a list of 360 mosses and 118 hepatics, besides algæ, diatoms and desmids, and brought the results before a local Natural History Society in 1888. His own herbarium contained about 2000 flowering and about 1000 flowerless plants.

Martindale appears to have begun the study of lichens about the year 1867, judging from a letter received from him February 25th, 1869, accompanying a series of north country flowering plants which he kindly sent for my herbarium, in which he says: "I have for the last two years done next to nothing among the phænogams, all of my spare time being fully taken up with the

study of lichens, and I find that I make but very little progress with them. On looking over my collection I am astonished at the great number which I have determined, to which the mark of 'doubtful' is attached. Those I am certain of are very few in comparison."

During the next twenty years he evidently continued the study of the group until he mastered them, publishing papers on the Reindeer Lichen, and on the lichens of the *Placodium murorum* group, which showed a masterly grasp of the subject; as well as a list of the lichens of Westmoreland, in the *Naturalist* for 1886-87: this included many rare species, and several new to Great Britain. Among these latter were:—*Ephebeia Martindalei* Cromb., *Collema isidioides* Nyl. (Warton Crag, Cumberland), *Collempsis oblongans* Nyl., *Calicium roscidum* Fkh., *Parmelia isidiotyla* Nyl., *Gyrophora spodochroa* Ach., *Lecanora flavocitrina* Nyl., *Lecidea acutula* Nyl., *L. declinascens* Nyl., *Platygrapha periclea* Nyl.

The progress of the list was arrested by the death of his first wife, which affected his own health; it will, it is hoped, appear in a complete form in the botanical section for the county (which, at my suggestion, Martindale was engaged to undertake) in the *Victoria History of the Counties of England*.

My first acquaintance with Martindale came through J. M. Barnes (1814-90) of Levens, Milnthorpe, a most genial and liberal correspondent, who in 1867 sent me Westmoreland mosses in exchange for those of Devon. This excellent bryologist told me that he, Martindale, and George Stabler (1839-1910) used to meet once a month at each other's houses, and then go out on exploring expeditions. This little group of botanists did much for the botany of the county, and their names are perpetuated in plants they discovered in the course of their work: Barnes, in *Bryum Barnesii* Wood; Stabler, in *Anthroceros Stableri* Steph., *Marsupella Stableri* Spruce, and *Plagiochila Stableri* Pearson; and Martindale in *Ephebeia Martindalei* Cromb.

Like the majority of practical lichenologists he was not a believer in the Schwendenerian theory. In a letter to me on February 20th, 1912, he writes: "The Schwendenerian theory creates more difficulties than it seems to solve. It is passing strange that lichen gonidia should so closely resemble algæ, but it would be much stranger that *Palmellaceæ* should remain for untold generations in an initial stage, without going on to complete their cycle or without dying away. This must be the case, if Schwendener is right, with many imprisoned 'algæ' in the thallus of lichens, that have never been known to fruit, and have therefore never imprisoned any algæ, since the original germination of the spores from which they came. There are several other things altogether independent of the question of gonidia, the chief of which is that the fertilisation is not effected as in the Ascomycetes, that is, if we accept as correct the statements of fungologists respecting them. I have myself microscopically examined thousands of apothecia, and scarcely ever limited my work to looking at and measuring the spores, but took in the

whole organ. I have examined them in their earliest beginnings and there is nothing resembling a pollinodium. The fungi themselves are degenerate plants descended from some chlorophyllous parentage, and my belief is that lichens and ascomycetes descend from some common ancestor, but have diverged just as man and the ape have diverged in different directions from a common earlier type."

The Kendal Museum, of which Martindale was honorary curator, owes a great deal to his loving care of the herbarium, much of his valuable time having been spent in the preservation and arrangement of the fine collection there of the flowering and flowerless plants of the county.

E. M. HOLMES.

### SPARTINA TOWNSENDII GROVES.

[The fifth volume of the *Proceedings of the Bournemouth Natural Science Society* contains a paper by Dr. Stapf on the above-named plant, originally delivered by him before the Society as a lecture in 1913. Dr. Stapf's previous paper on this interesting grass was reprinted in this *Journal* for 1908, pp. 76-81: the present contains much additional matter of interest as to the origin of the plant, some of which we here reproduce. The paper is illustrated by figures of *S. alterniflora*, *S. stricta*, and *S. Townsendii*.—ED. JOURN. BOT.]

VARIOUS theories have been advanced to explain the first appearance of the grass in the English Flora. The most plausible would seem to be that it was due to accidental introduction from a foreign country; but our present knowledge of the genus and its distribution does not support it. Another suggestion is that Townsend's grass arose as a sport or mutation from *Spartina stricta*, which formerly used to grow on the shores of Southampton Water. *Spartina stricta* is, however, a singularly uniform and conservative species throughout its area, rather receding than advancing, and slow in adapting itself to changed conditions. It is evidently not the material from which one might expect sports or mutations to spring, so distinct and vigorous as Townsend's grass.

There is, however, a third theory which is more plausible. According to it, Townsend's *Spartina* arose from a cross between *S. alterniflora* and *S. stricta*. *S. stricta* does not at present occur in the neighbourhood of Southampton or in Southampton Water; but we know for certain that it did so not very long ago. *S. alterniflora* is common in the Itchen River and also found in various places at the head and on both sides of Southampton Water. There was, no doubt, sufficient opportunity for the two species to hybridize. Unfortunately, it has not been possible so far to produce artificial hybrids of *S. alterniflora* and *S. stricta*. The evidence in favour of this theory is, therefore, necessarily circumstantial. It rests partly on the structure and the general behaviour of the grass, and partly on the occurrence of a natural