

**THE EUSPORANGIATAE: THE  
COMPARATIVE MORPHOLOGY  
OF THE OPHIOGLOSSACEAE  
AND MARATTIACEAE**

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The Eusporangiatea: The Comparative Morphology of the Ophioglossaceae and Marattiaceae by  
Douglas Houghton Campbell

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**DOUGLAS HOUGHTON CAMPBELL**

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AND MARATTIACEAE

BY

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## PREFACE.

The great importance of the eusporangiate ferns as the nearest existing relatives of the Paleozoic ancestors of the higher types of flowering plants invests them with an especial interest for the student of plant evolution; and no apology is necessary for presenting at length a summary of our present knowledge of the structure and development of these important plants.

For more than twenty years the writer has been much interested in the study of the Eusporangiate and during this time has published a number of works dealing with them. He has had rather unusual opportunities for collecting these forms, and an extensive and representative collection of materials comprising a good many species has been accumulated, so that the time seemed ripe for a comparative study of the group, for the purpose of determining, as far as might be, the relationships existing between the different genera, as well as for throwing some light upon the question of their position in the great series of ferns.

The present memoir is an attempt to present the results of these studies, based mainly upon the writer's own materials, but supplemented by a careful study of the work of other investigators who have described the structure and development of the Eusporangiate.

The writer's grateful acknowledgments are due to a number of colleagues who have rendered assistance in various ways. Especially is he indebted to Prof. E. C. Jeffrey, through whose kindness a large number of admirably preserved prothallia and young plants of *Botrychium virginianum* were sent the writer, and in addition a number of valuable slides of the same. Without this material the work on *Botrychium* would have been very incomplete.

To my colleague in Stanford University, Prof. L. L. Burlingame, thanks are due for valuable assistance in the preparation of the photographic plates, as well as for the use of a number of important slides of *Ophioglossum* and *Helminthostachys*.

To Prof. J. C. Willis, of the Botanic Gardens at Peradeniya, the writer would express his appreciation of many kindnesses and assistance in collecting during his stay in Ceylon.

It was the good fortune of the writer to enjoy the unequalled facilities for collecting material offered by the great gardens at Buitenzorg and Tjibodas in Java, where, through the interest and courtesy of the distinguished director, Professor M. Treub, whose recent death was such an irreparable loss to science, means were afforded for securing the most valuable materials used in the preparation of the present work.

DOUGLAS HOUGHTON CAMPBELL.

STANFORD UNIVERSITY, April, 1910.





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