

# **ELEMENTARY BOTANY**

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Elementary Botany by Percy Groom

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**PERCY GROOM**

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BOTANY**



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# ELEMENTARY BOTANY

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WITH 275 ILLUSTRATIONS



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## PREFACE

IN writing the present volume, I have endeavoured to place the subject before elementary students in such a way as to exercise to the full their powers of observation, and to enable them to make accurate deductions for themselves from the facts which they observe. To attempt the study of Botany without the practical examination of plants is futile. Students of plant-life *must* look at plants, and this book is specially designed for use during the process. Considerable experience as examiner in Botany as taught in schools has convinced me that comparatively few learners have the advantage of seeing specimens with the aid of a compound microscope, although the treatises usually employed should involve the frequent use of such an instrument. Under these circumstances, I have in the following pages assumed that a compound microscope is not employed, and for their proper understanding such an instrument is quite unnecessary. An ordinary inexpensive lens should be used to aid the naked eye; but, on the other hand, in commencing the study of Botany a compound microscope is absolutely needless, and, in the case of young beginners, does more harm than good. The section on Physiology has been so written that no knowledge of the histology of plants is assumed—a feature which is, I believe, here introduced for the first time. Though by no means a “cram-book” for elementary examinations, a thorough knowledge of the contents of this book will enable a candidate to pass with distinction.

In order to lay more emphasis on the observation of facts, and with a view to simplify the whole matter, I have inserted no unnecessary technical terms, but, for the convenience of students who afterward use “Floras,” I have added an appendix for use as a dictionary, but not for the purpose of elementary study.

Some words of explanation may be required in reference to the definitions of *flowers* and *fruits*. In more advanced works we are told that a flower is a collection of sporophylls inserted on a simple axis. This definition seems to me imperfect. That the young carpels and stamens are homologous with leaves, and particularly with sporophylls, is proved beyond a doubt. But the mature carpel with the ripe ovules is no longer homologous with a sporophyll; it is a sporophyll containing parasitic and symbiotic gametophytes. The symbiosis of the gametophytes and the sporophylls before, during, and subsequent to fertilisation constitutes a phenomenon which is unique in the vegetable kingdom. Consequently, it appears that, when judged by the facts of the case and on historical grounds, it is at least incomplete and inexpedient to employ to the cone of *Equisetum* the same term as to the flower of a Buttercup. A single flower of a Buttercup is no more a mere collection of sporophylls than a frog is a fish because it passes through the tadpole stage. In reference to the definition of a fruit, I have followed that given in the "Lehrbuch der Botanik" written by Professors Strasburger, Noll, Schenck, and Schimper. The definition of a fruit is thus brought closer to the popular usage of the term, while we are extricated from any dilemma in reference to distinguishing between an inferior and a false fruit.

In conclusion, it should be stated that for the most part the illustrations have, after careful consideration, been specially executed by my friend Mr A. H. Church of Jesus College, Oxford, to whose skill and care I am much indebted. To him, also, I owe a careful revision of the proofs of this book. Further assistance in the matter of illustrations has been rendered by Mr A. Robinson of the University Museum, Oxford. Students who desire a simple introduction to the study of Microscopical Botany are recommended to procure Dr D. H. Scott's "Structural Botany"; while those who wish for a comprehensive work, dealing with the science as a whole, will find all they require in "The Student's Text-book of Botany," by Professor S. H. Vines. Finally, such students as desire to identify wild British plants, and to do field-work, will find Hayward's "Botanist's Pocket Book" an excellent little work which contains all the necessary information.

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