

ELEMENTS OF PLANT ANATOMY

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Elements of Plant Anatomy by Emily L. Gregory

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EMILY L. GREGORY

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PLANT ANATOMY**

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BY

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PREFACE.

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THIS book contains the substance of the lectures given to the classes in the last half of the second year's course in botany, at Barnard College. The method followed in this course differs somewhat from that generally adopted in either home or foreign colleges. The study of botany, as a science, is comparatively new in this country, and therefore we have the advantage of the experience of Europe, where the science of botany has long held a place equal in rank with that of its related subjects.

In these older institutions the various divisions of morphology and physiology are taught under a single head, General Botany; the special work coming after this falls naturally into two divisions, systematic and physiological botany. The preparation for these two special departments must naturally differ somewhat in character. For the former, one must have a thorough training in organography; for the latter, an equally thorough one in anatomy. Accordingly the more recent foreign text-books are arranged in two parts, morphology, or organography, including descriptive and developmental botany, and anatomy and physiology.

With us the tendency has been to recognize only the two general divisions, systematic and physiological botany, and to enter upon these departments with very little special training for either. Especially in this true of the study of physiology,

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a field in which we have made so little progress that very few people understand what is meant by the expression plant physiology.

As a knowledge of the inner structure of plants is necessary to successful work in physiology, it is believed that a brief course in the elements of anatomy should precede the study of physiology. There are few books written in English which are available to the student of plant anatomy. De Bary's "Comparative Anatomy of Phanerogams and Higher Cryptogams" is invaluable as a reference book, but almost useless to a beginner. The design of the present little volume is to furnish a brief outline of the elementary principles of anatomy in a form available to all students of botany who wish to use this science in any direction. For this purpose it is hoped it will meet the wants of several classes: those who expect to follow it with a more extended course in anatomy and physiology; those who will take up the other line of work, descriptive and systematic botany; and finally, students of pharmacy for whom the importance of a practical knowledge of the structure of roots, stems, and other parts of plants, can hardly be over-estimated.

Aside from this, there is only one other feature which serves as an excuse for the appearance of another text-book, that is, the effort to present the subject from the developmental point of view. The experience of several years has demonstrated the superiority of this method over that in common use. It is hoped that a longer experience will serve to improve the present plan, not only by the eradication of its faults, but also by the more complete development of the idea underlying it. It may also be found practicable, at a later date, to combine with the present volume an elementary treatise on plant physiology, and

possibly to supplement both by a more advanced work on each subject separately. However this may be, it is quite certain that the measure of our progress in any science may be found in our ability to adapt the thought and experience of other nations to our special needs and resources.

The plates used are taken mostly from the text-books of J. Wiesner and Th. Hartig to both of whom the author hereby expresses most hearty thanks, as well as to the numerous friends who have aided and assisted in the preparation of the work.

EMILY L. GREGORY.

NEW YORK, June, 1895.

1. The first part of the document discusses the importance of maintaining accurate records of all transactions and activities. It emphasizes that this is essential for ensuring transparency and accountability in the organization's operations.

2. The second part of the document outlines the various methods and tools used to collect and analyze data. It highlights the need for consistent and reliable data collection processes to support informed decision-making.

3. The third part of the document focuses on the role of technology in modern data management. It discusses how advanced software solutions can streamline data collection, storage, and analysis, leading to more efficient and accurate results.

4. The fourth part of the document addresses the challenges associated with data management, such as data quality, security, and privacy. It provides strategies to mitigate these risks and ensure that data is used responsibly and ethically.

5. The fifth part of the document concludes by summarizing the key findings and recommendations. It stresses the importance of ongoing monitoring and evaluation to ensure that data management practices remain effective and up-to-date.

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