

**GRAY'S BOTANICAL TEXT-BOOK ,
VOL. II: PHYSIOLOGICAL BOTANY,
I. OUTLINES OF THE HISTOLOGY
OF PHAENOGAMOUS PLANTS, PP.
1-193**

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GEORGE LINCOLN GOODALE

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PHYSIOLOGICAL BOTANY.

GRAY'S BOTANICAL TEXT-BOOK

CONSISTS OF

- VOL. I. STRUCTURAL BOTANY. By ASA GRAY.
- II. PHYSIOLOGICAL BOTANY. By GEORGE L. GOODALE.
- III. INTRODUCTION TO CRYPTOGAMIC BOTANY, BOTH STRUCTURAL AND SYSTEMATIC. By WILLIAM G. FARLOW. (*In preparation.*)
- IV. SKETCH OF THE NATURAL ORDERS OF PHENOGAMOUS PLANTS; their Special Morphology, Useful Products, &c.

GRAY'S BOTANICAL TEXT-BOOK.

(SIXTH EDITION.)

VOL. II.

PHYSIOLOGICAL BOTANY.

I.

OUTLINES OF THE HISTOLOGY OF
PHÆNOGAMOUS PLANTS.

BY

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PROFESSOR OF BOTANY IN HARVARD UNIVERSITY.



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PREFACE.

THE first edition of this treatise was published in the year 1842, the fifth in 1857. Each edition has been in good part rewritten, — the present one entirely so, — and the compass of the work is now extended. More elementary works than this, such as the author's First Lessons in Botany (which contains all that is necessary to the practical study of systematic Phænogamous Botany by means of Manuals and local Floras), are best adapted to the needs of the young beginner, and of those who do not intend to study Botany comprehensively and thoroughly. The present treatise is intended to serve as a text-book for the higher and completer instruction. To secure the requisite fulness of treatment of the whole range of subjects, it has been decided to divide the work into distinct volumes, each a treatise by itself, which may be independently used, while the whole will compose a comprehensive botanical course. The volume on the Structural and Morphological Botany of Phænogamous Plants properly comes first. It should thoroughly equip a botanist for the scientific prosecution of Systematic Botany, and furnish needful preparation to those who proceed to the study of Vegetable Physiology and Anatomy, and to the wide and varied department of Cryptogamic Botany.

M.P. 3: 16-39

The preparation of the volume upon Physiological Botany (Vegetable Histology and Physiology) is assigned to the author's colleague, Professor GOODALE.

The Introduction to Cryptogamous Botany, both structural and systematic, is assigned to his colleague, Professor FARLOW.

A fourth volume, a sketch of the Natural Orders of Phænogamous Plants, and of their special Morphology, Classification, Distribution, Products, &c., will be needed to complete the series: this the present author may rather hope than expect himself to draw up.

ASA GRAY.

HERBARIUM OF HARVARD UNIVERSITY,
CAMBRIDGE.

For convenience, volume second, devoted to Physiological Botany, is divided into two parts. Part First comprises the Outlines of Vegetable Histology; Part Second, soon to appear, deals with Vegetable Physiology.

Part Second will be furnished with a complete Glossary of the terms employed in Physiological Botany, and will contain a full Index to the present volume.

CAMBRIDGE, January, 1885.

CONTENTS.

PART I.

INTRODUCTION.

HISTOLOGICAL APPLIANCES.

	PAGE
Microscopes	1
Dissecting Instruments	2
Media and Reagents	4
Staining Agents	15
Mounting-media	20

CHAPTER I.

THE VEGETABLE CELL IN GENERAL: ITS STRUCTURE, COMPOSITION, AND PRINCIPAL CONTENTS.

Protoplasm	26
The Cell-wall	29
Cellulose	31
Modifications of the Cell-wall	34
Plastids	40
Protein Granules	44
Starch	47
Inulin	60
Cell-sap	61
Crystals	62

CHAPTER II.

CELLS IN THEIR MODIFICATIONS AND KINDS, AND THE TISSUES THEY COMPOSE.

Typical and Transformed Cells	56
PARENCHYMA	60
Parenchyma proper	60
Epidermis	64
Epidermal Cells	65
Trichomes	68
Stomata	70
Cork	74