

**A READER IN
BOTANY. PART I.
FROM SEED TO LEAF**

Published @ 2017 Trieste Publishing Pty Ltd

ISBN 9780649061587

A Reader in Botany. Part I. From Seed to Leaf by Jane H. Newell

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JANE H. NEWELL

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Part I.
FROM SEED TO LEAF.

SELECTED AND ADAPTED FROM WELL-
KNOWN AUTHORS,

BY
JANE H. NEWELL.

BOSTON, U.S.A. :
GINN & COMPANY, PUBLISHERS.
1889.

PREFACE.

THE purpose of this book is to supply a course of reading calculated to awaken the interest of the pupil in the study of the life and habits of plants. It is not to be judged as a complete work in itself, but as a series of articles bearing on the subjects of the lessons described in "Outlines of Lessons in Botany."¹

Four of the articles, Nos. II., III., XIII., and XV., have been written especially for this Reader. Three articles are translated from "Pflanzenleben,"² and two others owe much of their matter to the same book, which is a very charming popular account of the most recent discoveries in the physiology of plants. The other chapters are from various sources.

Sachs' "Lectures on the Physiology of Plants"³ has supplied several interesting notes, and is an invaluable work to the teacher who wishes to become more acquainted with this fascinating new field of study.

¹ "Outlines of Lessons in Botany." By Jane H. Newell. Boston: Ginn & Co. 1889.

² "Pflanzenleben." By Anton Kerner von Marilaun. Leipzig. 1888.

³ "Lectures on the Physiology of Plants." By Julius von Sachs. Translated by H. Marshall Ward. Oxford. 1887.

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A READER IN BOTANY.



I.

ORIGIN OF CULTIVATED PLANTS.

ALL our food comes through plants. They are the link between the animal and mineral kingdoms. They are able to take from the earth and the air the inorganic substances they require, and to build them into organized material on which animals can live. Directly, through the use of the plants themselves, and indirectly, through animals which have been nourished by plants, we get all our food through the vegetable kingdom.

Many of our fine varieties of garden vegetables and flowers have been produced in the following way: —

The gardener sows seed of his best plants, and selects from the offspring those which best show the characters he wishes to increase. From the offspring of these he again selects the best, and so

on, through many generations, till the fine color, or sweet taste, or great size, he has been working towards, becomes perfected. Then these improved plants can be multiplied by grafts, buds, or cuttings, which usually transmit the exact qualities of the parent, until the variety is well established. The seedlings of a plant have a tendency to inherit the characteristics of the parents, and also to vary somewhat. By selecting, through a long series of generations, individuals tending towards a certain desired character, and allowing the less desirable to perish, distinct varieties are produced. In this, man has unconsciously followed the process of Nature herself, who through long ages has been improving her work by suffering her weaker and poorer children to perish, through their lack of power to compete with those better suited to their surroundings. The latter survive and hand down their qualities to their offspring, whose descendants in their turn, best adapted to take advantage of their opportunities, usurp the room, which is not wide enough for all.

With animals the process is the same. The wonderful speed of the trotter, the pointing of the hunting-dog, the direct flight of the carrier-pigeon towards home, are all instincts that have