

**SCIENCE  
PRIMERS. BOTANY**

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Science Primers. Botany by J. D. Hooker

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**J. D. HOOKER**

**SCIENCE  
PRIMERS. BOTANY**



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*PROFESSORS HUXLEY, ROSCOE, and*  
BALFOUR STEWART.

VIII

*BOTANY.*

Science Primers.

CALIFORNIA

# BOTANY.

BY

J. D. HOOKER, C.B., P.R.S.

WITH ILLUSTRATIONS.

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## PREFACE.

THE object of this Primer is to supply an elementary knowledge of the principal facts of plant-life, together with the means of training beginners in the way to observe plants methodically and accurately; and in the way to apply the knowledge thus obtained to the methodical study of Botany.

It is hoped that by its means the teacher may convey a sound elementary knowledge of the number, nature, relative positions and uses of the principal organs of plants, of the order and way in which they grow, and in which plants multiply, and of those resemblances which exist amongst them, by a comparison of which their true relationships are known and themselves classified.

In using this Primer the plants indicated are, whenever possible, to be put into each pupil's hand. Hence, to facilitate its use, I have placed at the end an Index of the plants referred to in it. These may be procured in the country, or from any intelligent nurseryman. Many of them should be grown in every school-garden, and arranged in it systematically, so that the teacher may have the same means of displaying to his pupils the principles of classification that the great founder of the natural classification of plants, Bernard de Jussieu, had after he had thus

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arranged the Garden of the Palace of Trianon after its establishment by Louis XV.

The teacher should further have a copious supply of dried flowers, and other parts of these plants so preserved as that the pupil can, after moistening them in warm water, separate their organs. Much may thus be learnt when fresh plants cannot be obtained, and a rehearsal of the summer's lessons upon such dried specimens is a most improving exercise. He should also have a supply of preserved fruits, seeds, sections of stems, and of mounted preparations of the tissues and minute parts of plants adapted for exhibition under the microscope.

Each pupil should have a pocket-lens magnifying three or four times, a sharp pen-knife, and a pair of forceps; and he should be taught to preserve between sheets of paper the specimens he has examined, with a descriptive ticket attached; and also be exercised in the habitual use of the schedules described at pp. 112, 113.

In using the Primer the pupil should be taught first, the contents of sections I. and II.; after which he may either take the other sections in order, or go on to section VI., taking sections III. to V. afterwards. Sections XIX. and XXV. are too difficult for beginners.

After mastering its contents the pupil may proceed to the use of Professor Oliver's "*Lessons in Elementary Botany*," which goes over the same ground in more detail.



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4.	Spiral-vessels with cellular tissue on each side . . . . .	12
5.	Growing point of stem of Stonewort showing formation of new cells by division . . . . .	13
6.	Starches . . . . .	17
7, 8, 9.	Crystals of oxalate of lime, as found in cells . . . . .	19
10.	Pea . . . . .	24
11.	Germination of Mustard . . . . .	25
12.	Wheat germinating . . . . .	26
13.	Vertical section of tip of root-fibre of Hyacinth . . . . .	29
14.	Root-hairs . . . . .	30
15.	Tubercles and root-fibres of Orchis . . . . .	31
16.	Creeping stems and roots of Couch-grass . . . . .	32
17.	Transverse section of vascular bundle from stem of a Dicotyledon . . . . .	35
18.	Transverse section of stem of a Dicotyledon . . . . .	35
19.	Transverse section of stem of a Monocotyledon . . . . .	37
20.	Leaf-buds and vertical section of ditto . . . . .	38
21.	Fragment of epidermis with a stomate . . . . .	43
22.	Vertical section of Buttercup flower . . . . .	51
23.	Vertical section of Bramble flower . . . . .	52
24.	Vertical section of Wall-flower . . . . .	52
25.	Stamens of Wall-flower . . . . .	52
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27.	Section of flower of Pea . . . . .	54
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30.	Vertical section of Dead-nettle flower . . . . .	55
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