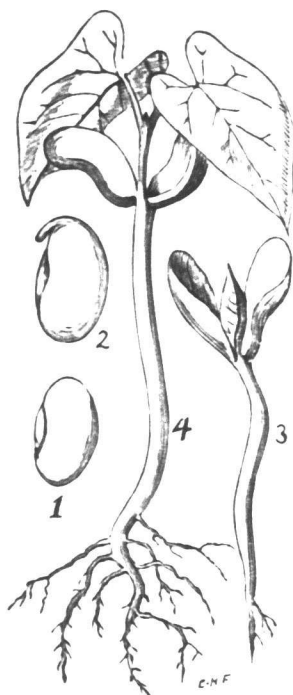


late Flowers." A number of other trees and shrubs have these kinds of flowers which come out early in spring. Get the pupils to search for them and bring them into the class-room.

Part IV. Two Great Divisions of Flowering Plants.

The seeds that were started a month ago, and those that have been planted at intervals since will now be ready for study. If your pupils have planted these and cared for them as directed in the last REVIEW, they have begun their work in plant study in the right way, and they will have an interest in the succeeding lessons that no mere study of a text-book could give.

Take the bean plants for the first lesson, and have, if possible, some in the pod, as well as two or three that have been placed in warm water a day or two



before. Drawings should be made of the different stages of growth, as represented in the annexed diagram. The cotyledons or seed-leaves, and their uses should be carefully explained and the pupils asked to write about them. It will take much ingenuity and some little time before they will understand the difference of structure and shape and the uses of the pairs of leaves that appear on No. 4 of the drawing. These, with other features were so fully explained in the April issue of the REVIEW, of last year, that we shall refer our readers to them.

The teacher, after two or more lessons on the bean plant, may tabulate the following characteristics:

- (1) It has two seed leaves.
- (2) It has netted-veined leaves, irregular in outline.

These characteristics, with the two following, which may be observed in other plants as the season advances, determine a great class of flowering plants—the DICOTYLEDONS.

- (3) These have exogenous stems (outside growing) with usually separate bark.
- (4) They have the flower usually on the plan of five, sometimes four, and less frequently three.

Let us take next the seed of corn that has been

planted. Unlike the seed of the bean it does not split open on being soaked in water. The seed remains in one piece. After soaking it in water for several days (longer than the bean), remove the seed covering. Growing from one side of the seed will be seen rudimentary leaves neatly folded round a short axis—the caulicle (from the leafy end grows the plumule or ascending axis). Growing from the other end of this caulicle, after it has broken through its sheath, is the descending axis or root. What nourishes the young plant in the early stages of its growth? Where is the food laid up?



Looking at the larger plant of several weeks' growth, we find the leaves have unfolded, the roots have grown longer, and sent rootlets in different directions. How does the

young plant now derive its nourishment? The leaves will now show distinctly the parallel veining. After drawings have been made, and all the parts of the young plant carefully studied, the following facts should be written out as the basis of future study of a second great class of flowering plants:

MONOCOTYLEDONOUS plants, such as Indian corn, oats, grasses, etc., have:

- (1) One seed-leaf to the embryo; (this seed-leaf is not easily found, but in Indian corn it may be detected after long soaking, closely surrounding the caulicle, and furnishing it with the food stored up in the kernel).
- (2) Have (usually) parallel-veined leaves, sheathing the stem.
- (3) Have the parts of the flower in threes, sometimes fours, but never fives.
- (4) Have endogenous (or inside growing) stems with inseparable bark.

To the Botanical Club.

The sylvan powers
Obey our summons; from their deepest dells
The Dryads come, and throw their garlands wild
And odorous branches at our feet; the Nymphs,
That press with nimble step the mountain thyme
And purple heath-flower come, not empty-handed,
But scatter round ten thousand forms minute
Of velvet moss or lichen, torn from rock
Or rifted oak or cavern deep; the Naiads too
Quit their loved native stream, from whose smooth face
They crop the lily, and each sedge and rush
That drinks the rippling tide; the frozen poles,
Where peril waits the bold adventurer's tread,
The burning sands of Borneo and Cayenne,
All, all to us unlock their secret stores
And pay their cheerful tribute.

J. NAYLOR, Norwich, 1818.