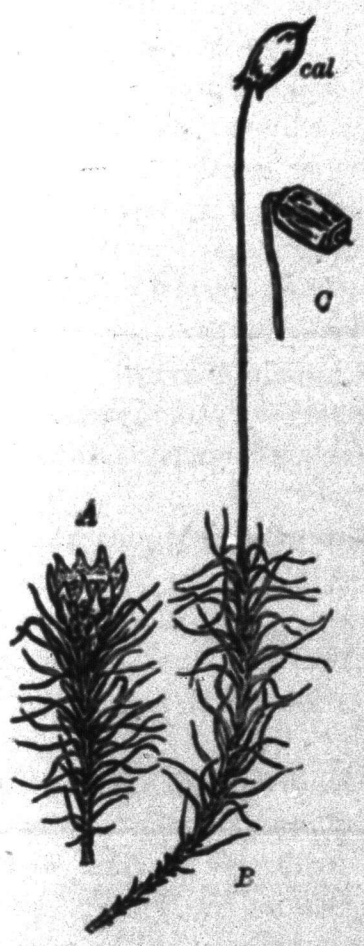
PLANT LIFE.

H. G. P.

Mosses.

The most widely known moss throughout Eastern Canada is without doubt the one given in the accompanying illustration, the Common Hair-cap Moss, known also as Bird Wheat and Pigeon Wheat This moss grows abundantly in dark green masses in old meadows and pasture lands, and in common with most mosses is subject to great extremes of moisture and dryness. When there is an abundance of moisture in the soil the leaves are spread out like those in the illustration, but during dry seasons they cling closely to the stem, and in this way diminish evaporation.



THE COMMON HAIR-CAP MOSS (Polytrichum commune).

A, plant with a rosette tip, bearing antheridia. B, plant with sporophyte. *Cal*, cap, calyptra, over the developing spore case. C, a mature spore case with calyptra removed.

Illustration copied from Principles of Botany, by permission of the publishers, Ginn & Co., Boston, Mass.

Search for this moss during spring and early summer. How are the leaves arranged? Keep it in mind and note its appearance during the dry spells of late summer.

The conspicuous part of the moss consists of the leafy upright stem. At this time of year many of the plants terminate in rosettes of modified or colored leaves, surrounding clusters of antheridia, elongated structures, that upon maturity produce great numbers of motile reproductive bodies called sperms.

The antheridia are very small, and can be made out only in thin sections under a microscope, and the sperms being much smaller require very high magnification.

Other plants with terminal upright leaves produce archegonia at the end, very similar to those of the fern, (See REVIEW, March, p. 202), but with much longer necks. About the time that the neck opens the egg is mature at the bottom of the archegonium; and fertilization takes place in the same way as in the fern, by the union of a spem with the egg. Growth begins at once, and, as in the fern, results in a new phase in the life cycle of the plant. It will be remembered that in the fern this new phase very early establishes root connection with the ground, and soon becomes an independent plant, but in our moss no root ever developes; the new plantlet receives its food by way of its foot embedded in the tissues of the leafy moss plant, already described — the gamete bearer, the gametophyte. The growing plantlet elongates rapidly and carries up the upper part of the archegonium as a hairy cap, called the calyptra; hence the name, Hair-cap Moss. This plantlet never produces leaves, but depends almost entirely upon the leafy moss plant for its food, *i. e.*, lives a parasitic life upon the gametophyte. At the upper end under the calyptra a capsule forms, which, upon maturity, opens by a lid-like cover at the top; and throws out a great number of very small spores, from which grow the leafy moss plants.

The phase that produces the capsule with its spores is the sporophyte. Compare this sporophyte with that of the fern.

The sporophyte is a conspicuous phase of the Common Hair-cap Moss during July and August. The old ones occasionally found during the spring are left overs from the preceding summer.

Diagram the life cycle of this plant on the blackboard. Note that the gametophyte is the strong vegetative phase in the life cycle, and for that reason might be designated the more important phase or generation.

Which is the chief vegetative phase among the ferns?

Other mosses are common everywhere, and many of them during May and June show both phases of plant life. You will find many interesting forms if you inspect closely the stone fences, mossy banks, etc., during your spring rambles.

The Peat Mosses or Sphagnum Mosses are found in wet situations, in bogs and by the borders of some lakes and ponds. They grow in dense masses, and are light green in color, with the exposed portion often tinged with red. "The plants (gametophytes) have long stems, with delicate, leafy branches, some of which grow