



101
992
THS

THESIS

A Comparison Of The Scales
And Roodstostocks
Of Some Of The Mints

Marie Belliss

1899



THESIS.
ON
A COMPARISON OF THE SCALES AND ROOTSTOCKS
OF
SOME OF THE MINTS.

Marie Belliss.

Agricultural College, 1898.

THESIS.
ON
A COMPARISON OF THE SCALES AND ROOTSTOCKS
OF
SOME OF THE MINTS.

Marie Belliss.

Agricultural College, 1898.

THESIS

A Comparison of the Scales and Rootstocks
of Some of the Mints.

The purpose of this thesis is to compare the rootstocks and scales found upon them, and the roots of a number of species of mints found growing in the botanic garden, with a brief study of some of the tissues as seen with a compound microscope.

In plate I figures A and B, are shown specimens representing *Mentha piperita* (A) and *Mentha Viridis* (B). Upon examining them we find they are much alike. The nodes are about equally distant in each, however in the lower drawing of *Mentha piperita*, shorter nodes are present. The roots and rootlets are quite numerous and vary considerably in length. These rootstocks branch at the joints. Upon these branches bracts appear, ranging in size from quite small to well developed leaves as shown in (A). In (b) and (c) cross sections of the stem are shown giving a somewhat angular appearance. We should also add that the stem in *Mentha Viridis* is the larger of the two.

In fig. C. is found *Lycopus Virginicus*, the rootstock of which is quite fleshy and solid, creamy white and brittle. The drawing shows an average size rootstock with numerous roots coming from each node. These roots vary in length but are nearly uniform in size and are of a dark brown color. Some of the scars are light while others are brown and dead. The long, brown stem attached is the part of the rootstock which sprang from the original plant one year ago. At intervals of four or five inches rudimentary leaves are present.

In (d) several cells are given showing the contents of the same. No starch is found, yet this must contain considerable nourishment for the growth of a new plant.

Plate II. fig. A. represents *Nepeta Glechoma*. This has a long jointed stem above ground. At each joint leaves spring out and new branches start. At this node numerous roots start out and the plant acts much the same as strawberry runners, taking root wherever they touch the soil.

In B a much different rootstock may be seen. This is a sort of tuber much like a compound corm. It is commonly called stoneroot owing to the intense hardness of these tubers. The lower right hand corner of the drawing shows last year's growth as a dry, spongy, hard mass with scarcely any nourishment remaining. Near by is this year's growth, a little larger than natural size. (a) and (b) show cells taken from this rootstock. They contain very peculiar shaped grains of starch.

Plate III shows *Phlomis tuberosa* with large roots extending out to considerable length. At various distances these roots enlarge and form nearly triangular growths, which one would naturally expect to contain starch. None however, was found.

Plate IV, fig A, *Stachys palustris* is shown, having many joints with numerous roots and bracts of all gradations. (a) shows several cells with the protoplasmic matter contained therein. In some it appears to be collected in groups. *Stachys Betonica* as seen in (B) is very similiar to *Stachys palustris*. No starch was found in either.

Fig. C. shows *Teucrium*. This is a plant of very similiar growth, only having shorter joints. The cells and protoplasm are shown in (b). The dark spots represent some cell-contents which as yet, are unknown.

Fig. D. shows *Monardia didyma*. This plant spread~~s~~ very rapidly owing to the fact that ^{at} each node, young growths spring forth. No starch is present.

Plate V, fig. A. represents *Osimum basilicum*, a rather coarse growing plant with large, square stems. This too, spreads rapidly by means of branching stems. At the extreme right, numerous nematodes are found on the roots.

Fig. B. is another *Monardia* called *M. fistulosa*. This is quite similiar to the one already described. The stem may be a trifle smaller, but its general behavior resembles *M. didyma*.

Plate VI, fig. A, shows another *Lycopus* called *L. sinuatis*. Its general behavior is quite different from *Lycopus Virginicus* (a) shows the point of attachment to the old plant; at each node a bract appears and these vary in size as shown in (b).

Fig. B. shows *ajuga reptans*. This plant forms a complete mat on the ground if allowed to grow undisturbed. This. too, resembles the strawberry plant in that it sends out numerous runners which take root at the nodes very easily. (c) shows the cells which contain a considerable amount of protoplasm. There was no starch present.

Plate VII, fig. A. shows *Origenum vulgare*. This rootstock is rather smaller than most of the mints. otherwise it is very similiar. It might be mentioned however, that there is a little starch in the layer of wood.

Fig. B. shows *Physostegia Virginiana*. This has a strong, upright rootstock. having very short internodes. It is quite angular. and many roots spring from these ridges.

In (a) cells showing protoplasm are represented.

Fig. C. illustrates another peculiar plant called *Ballota Italica*. It should be noted how strangely the new growth has attached itself to the old.

In Plate VIII. fig. A. a much more singular plant is shown. The new branches shoot out and curve up from the main branch as shown. The scales or bracts are very numerous and arranged closely on the stem. No starch was found.

Fig. B. shows *Pycnanthemum linifolium*, another species having a slender stem and numerous branches with several roots at each node. No starch was found in this specimen.

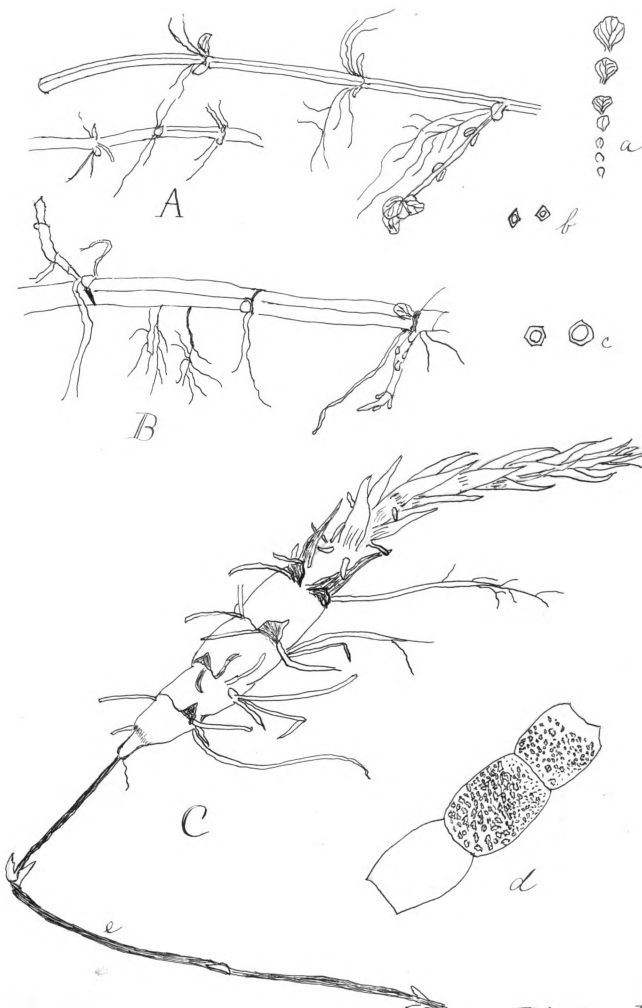
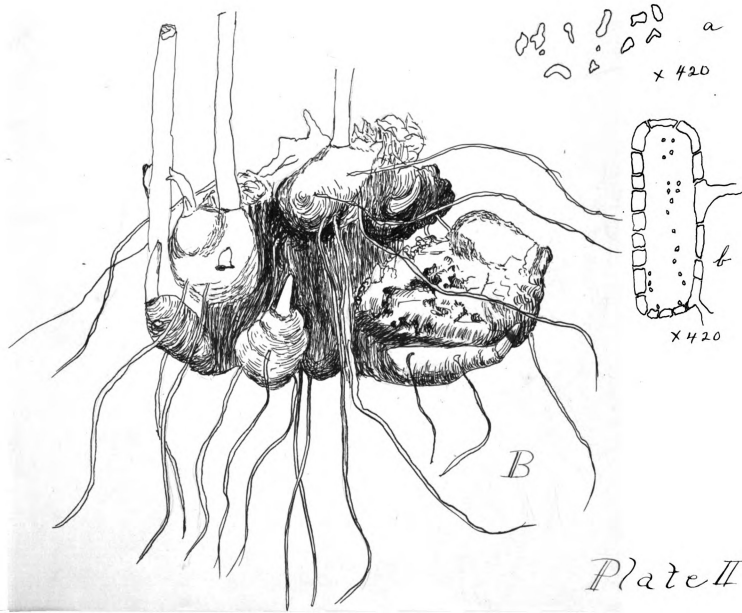
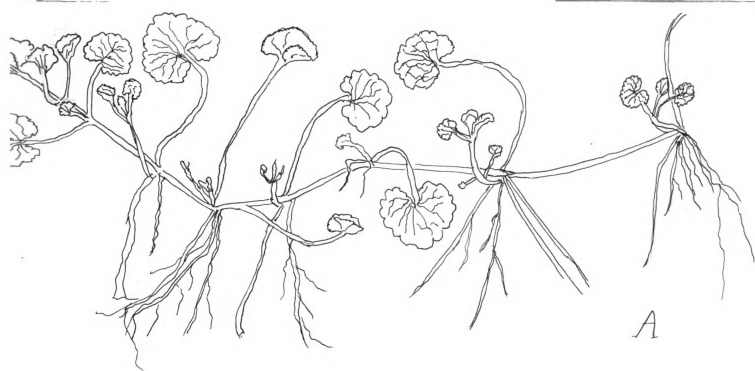
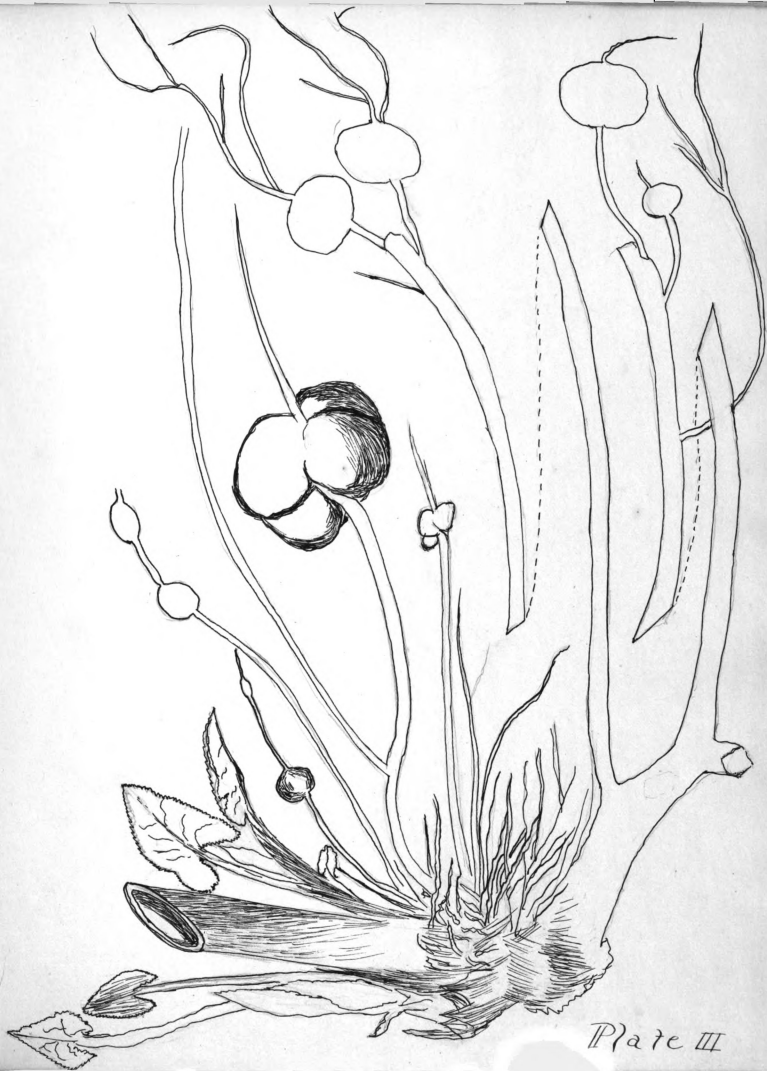
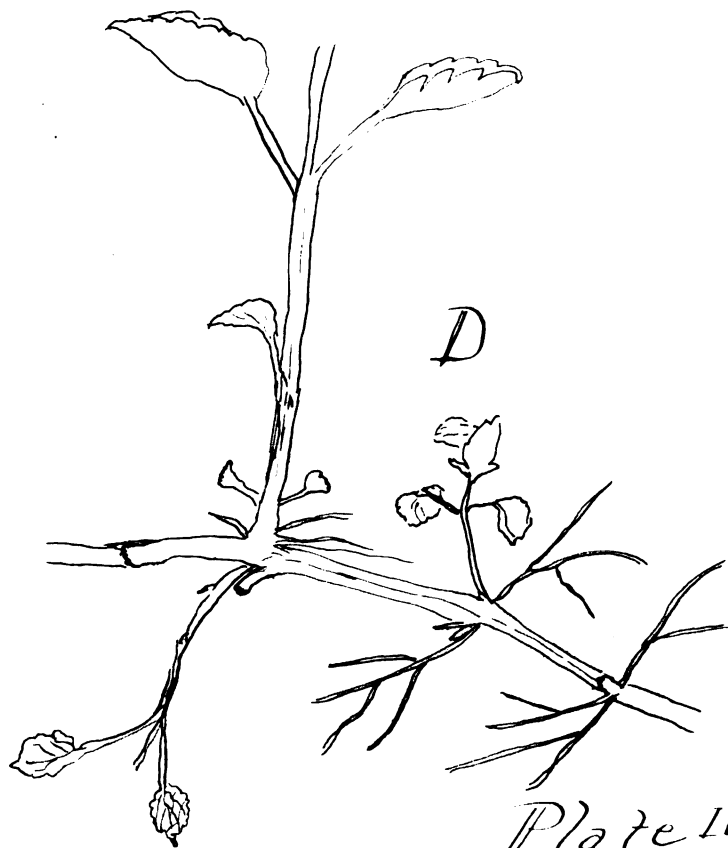
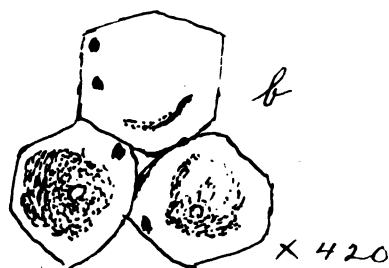
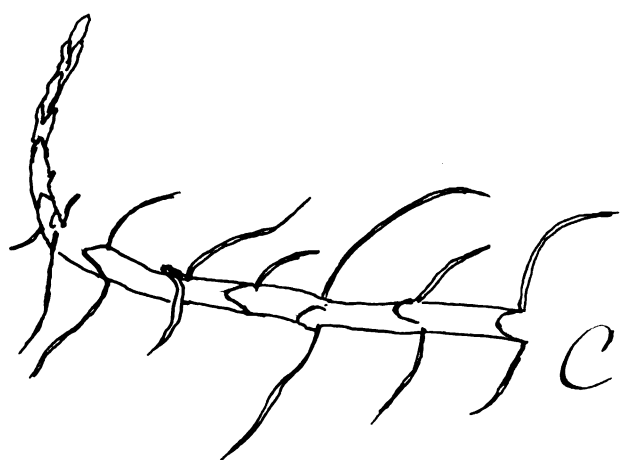
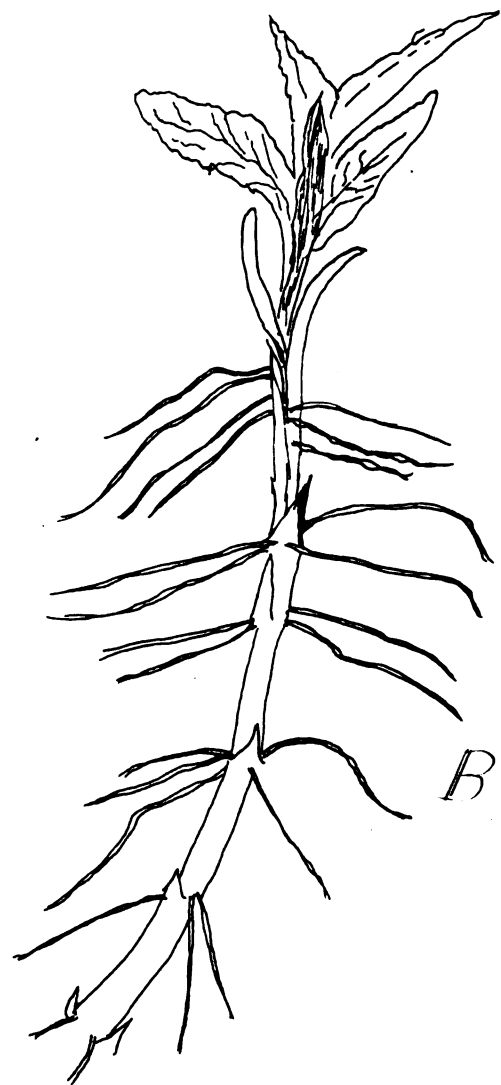
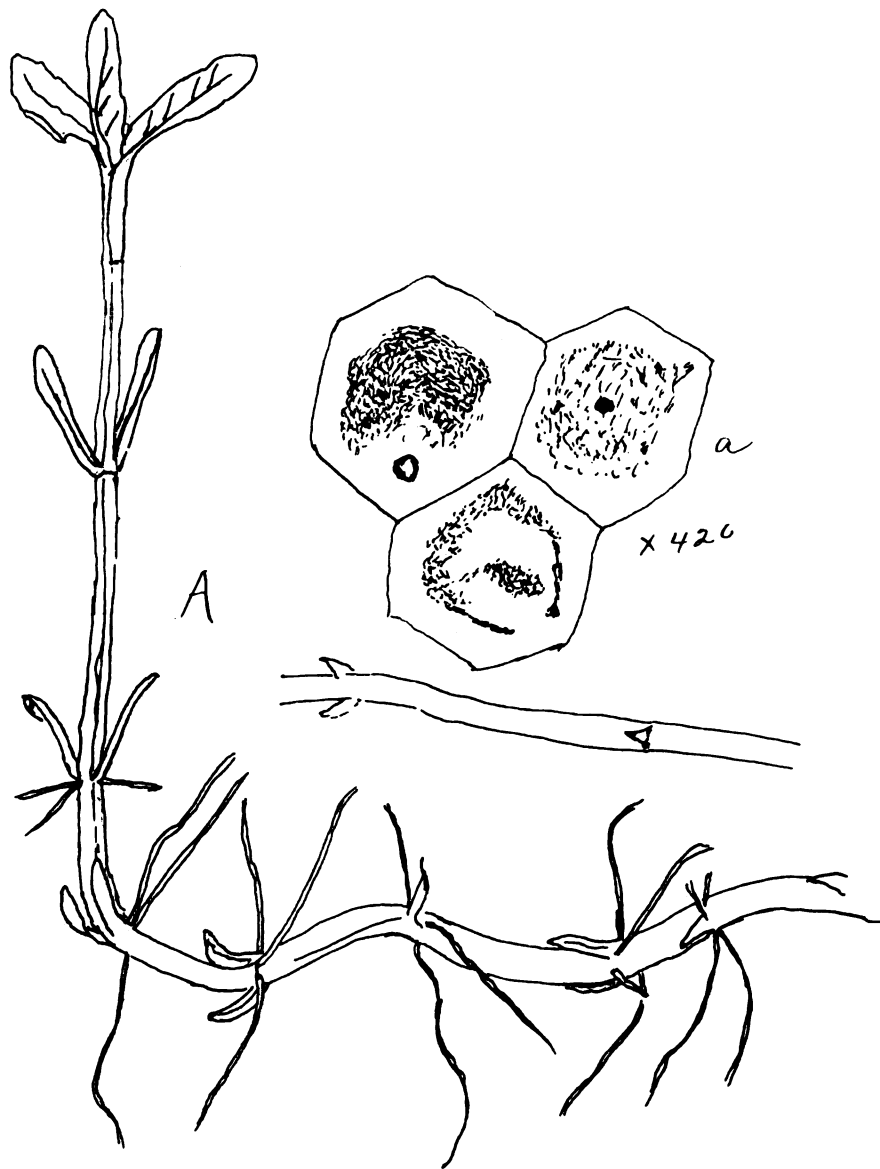


Plate I







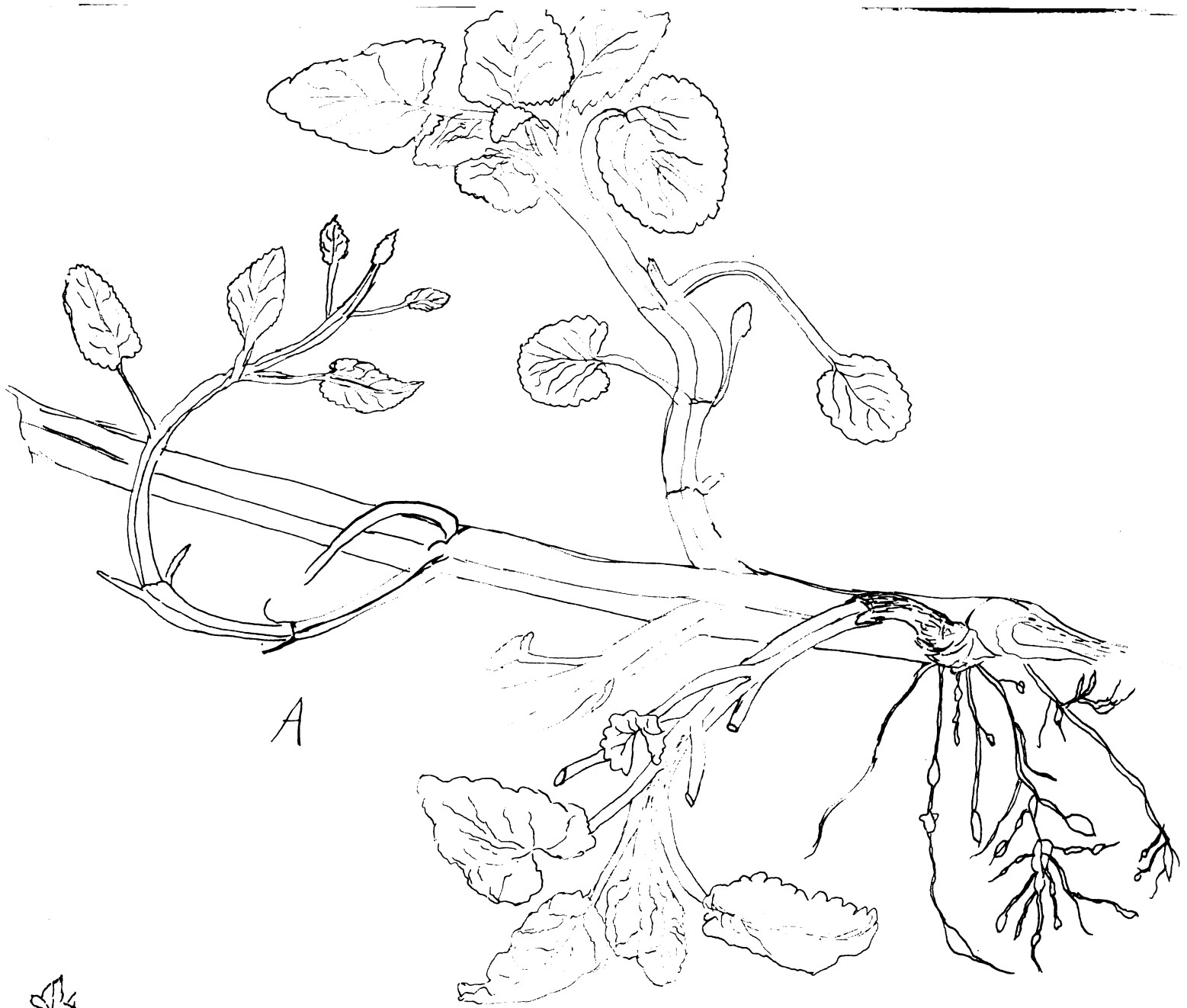


Plate V

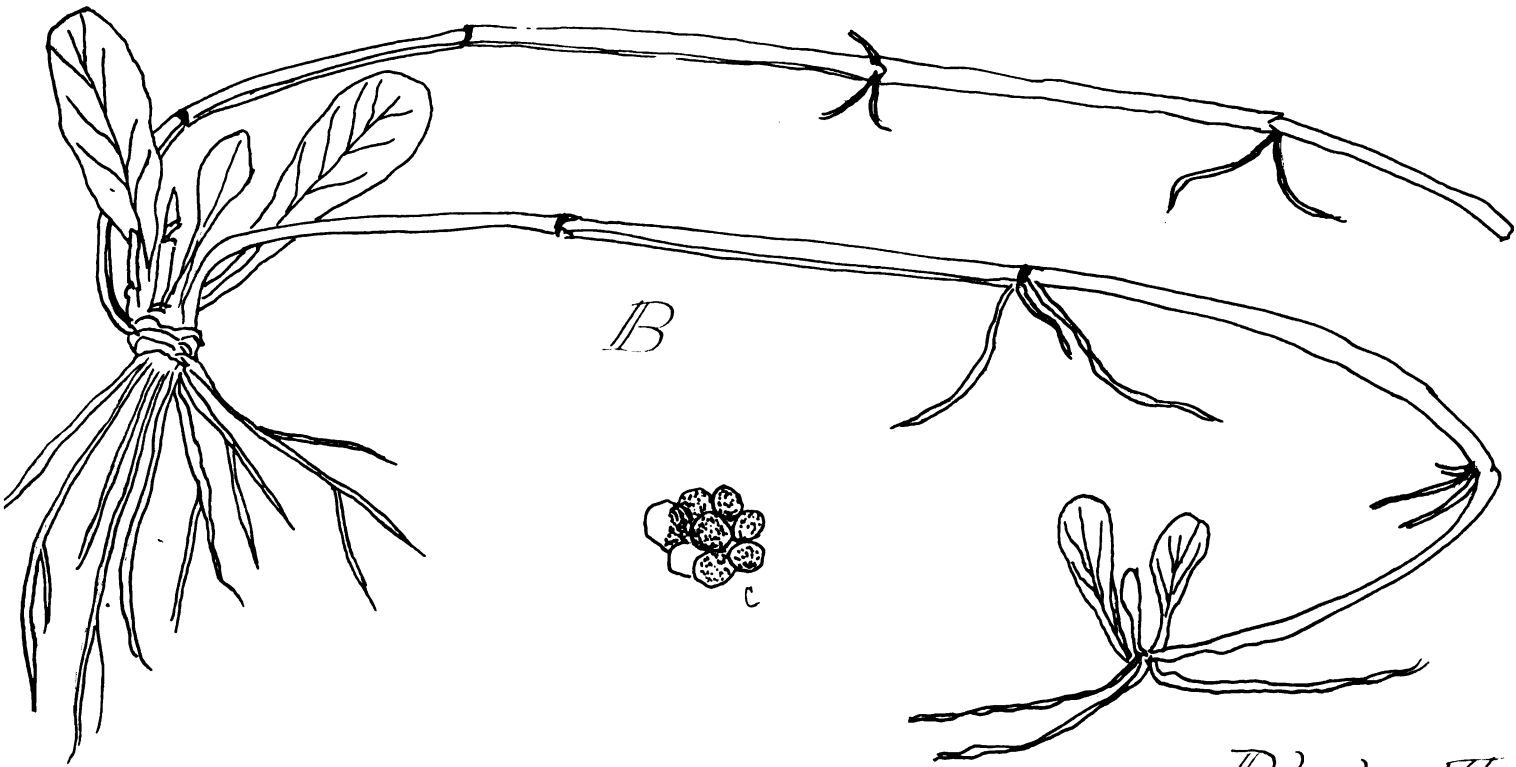
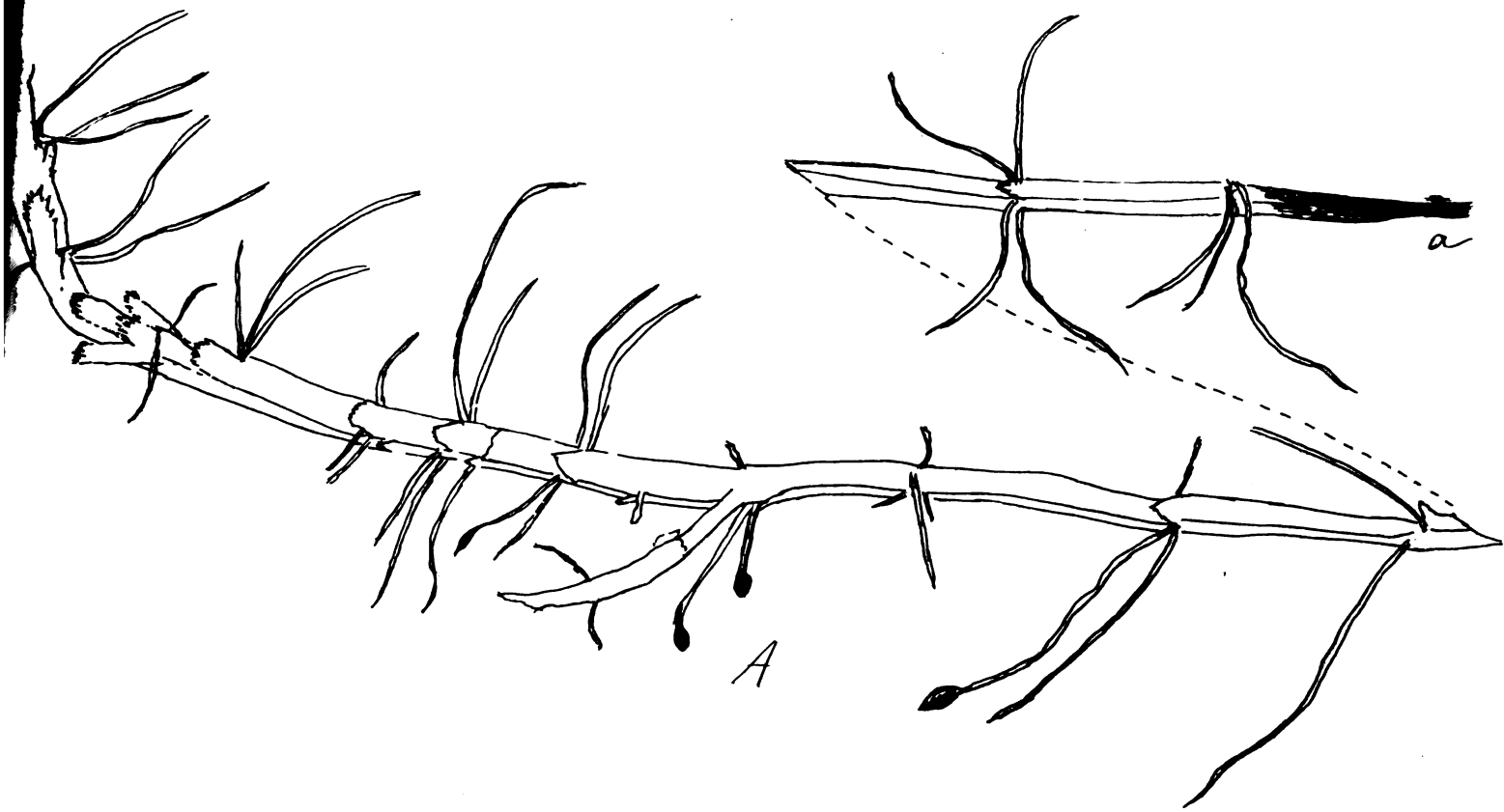
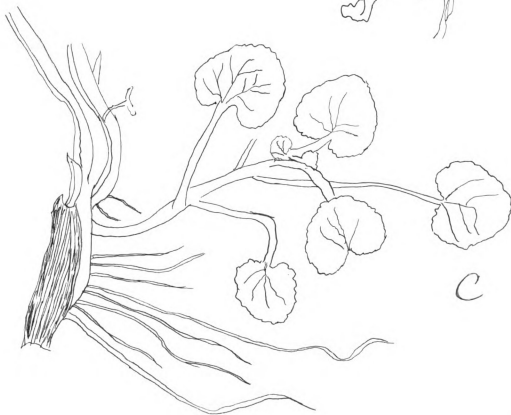
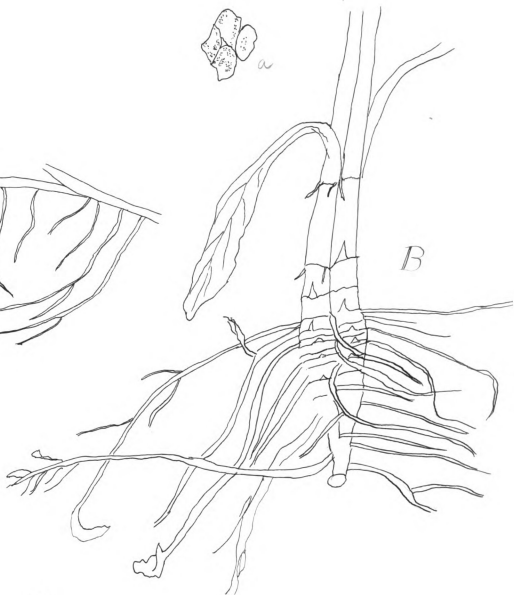
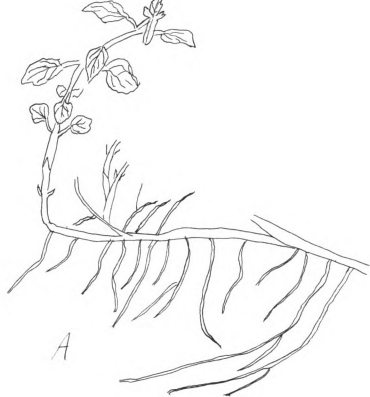
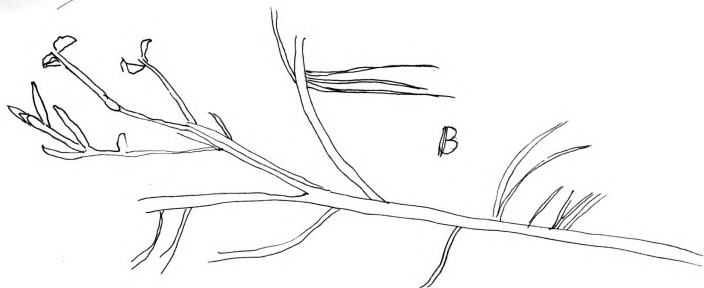
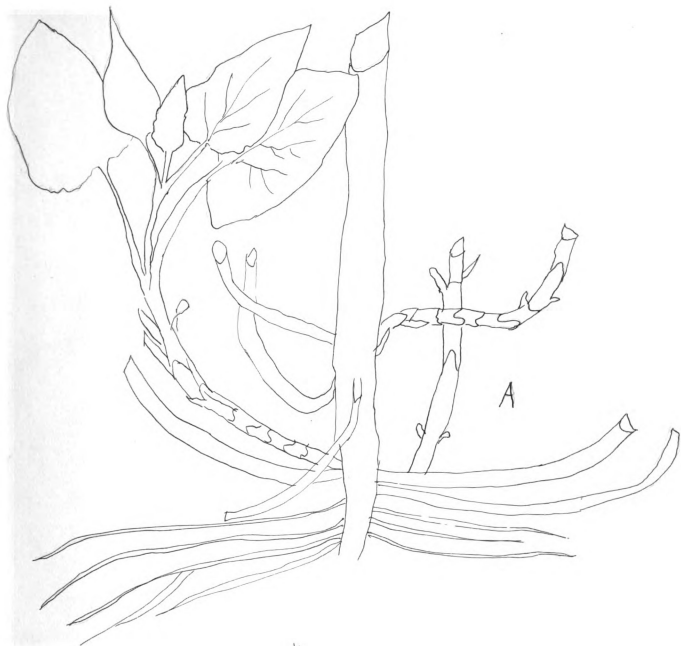


Plate VI

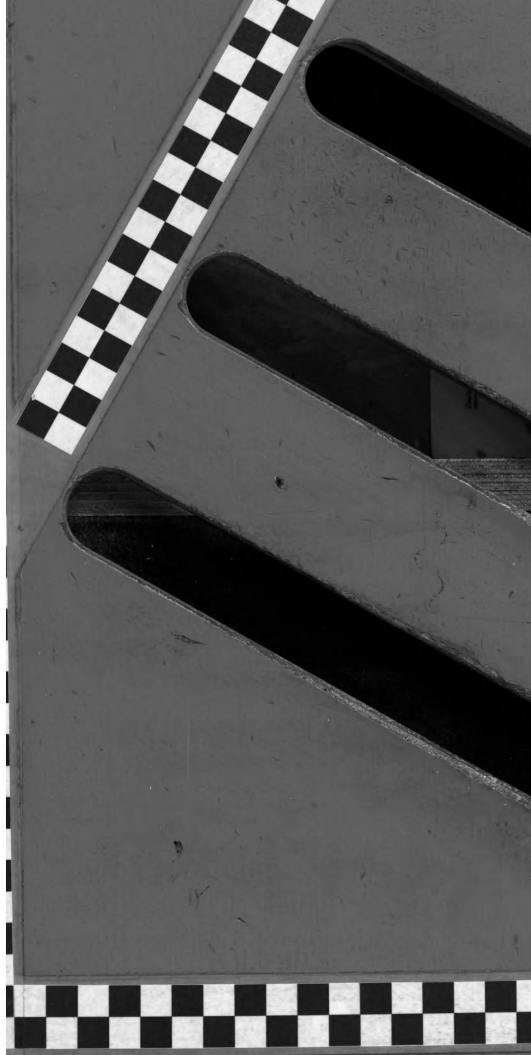




MICHIGAN STATE UNIVERSITY LIBRARIES



3 1293 02670 9752



MICHIGAN STATE UNIVERSITY LIBRARIES



3 1293 02670 9752



MICHIGAN STATE UNIVERSITY LIBRARIES



3 1293 02670 9752