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Some of the Available Hepatics and Their Location in the Vicinity of Iowa State College

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SOME OF THE AVAILABLE HEPATICS AND THEIR LOCATION IN THE VICINITY OF IOWA STATE COLLEGE

JOHN N. MARTIN

Within easy reach of practically all colleges and high schools of Iowa and all prairie states there is a wealth of little used biological material for botany and other biological courses. This situation is especially true with respect to the simpler plants as the algae, fungi, lichens, hepatics, or liverworts, mosses, the ferns, and the fern allies. For this neighborhood growing material, commonly if not generally, there is substituted preserved material from the laboratory shelf and bearing the label of some company foreign to the state.

This regrettable situation is in a large measure due to the fact that the botany and other instructors in the plant sciences are not sufficiently acquainted with the resources of the teaching material of the vicinity. It is hoped that articles of the nature of this one, a number of which by other authors have previously appeared, may do much to rectify the situation. Unlike many of the seed plants, the lichens, hepatics, and mosses are year-around plants. They do not disappear when frost comes but can be obtained in the dead of winter.

The hepatics described in this article are only some of the most common ones of the vicinity of Iowa State College, but illustrate fairly well the characteristics of the major subdivisions of the hepatics. Neither are these hepatics local. They are well distributed, not only throughout the United States, but are practically world-wide in distribution.

The hepatics are of two general types—the thallose forms, those having flat prostrate plant bodies that are usually lobed but leafless, and the scale or leafy liverworts, those having plant bodies with small scale-like leaves. The *Marchantia*, *Conocephalum*, *Reboulia*, *Riccia*, and *Anthoceros* described are thallose types while the *Porella* and *Lophocolea* are leafy types.

Marchantia polymorpha, the liverwort most commonly used in botany classes, is found abundantly on wet soil in the vicinity of Iowa State College. There are excellent growths of this liverwort about four miles northeast of the college on the hillsides and illuvial valley along the Skunk river. It is especially abundant in the woods known as the Allen woods, and for its limestone areas. One area of a number of square rods, located on a slope kept constantly moist by seepage, has been a source of material for botany classes for more than a quarter of a century. Through the summer and fall gemmae cups are abundant (Fig. 1. pl. I) and in May and June the gametophores appear (Fig. 2 pl. I). In late summer sporophytes are usually abundant.

Conocephalum conicum is one of the most common of the liverworts, being found chiefly upon faces of moist ledges, cliffs, and sometimes on moist banks. It is especially abundant in Ledges State Park. It is

DESCRIPTION OF ILLUSTRATIONS

PLATE I

- Fig. 1. *Marchantia polymorpha* in vegetative stage with the thalli bearing gemmae. This is the general condition during summer and fall.
- Fig. 2. The male and female gametophores of *Marchantia polymorpha*. They appear in late May and June.
- Fig. 3. The thalli of *Conocephalum conicum* spreading over the face of a cliff. About natural size.
- Fig. 4. A portion of the surface of *Conocephalum conicum* magnified to show more plainly the diamond-shaped areas and their central spores.
- Fig. 5. *Reboulia hemisphaerica* on the face of a cliff at the Ledges State Park. Half or less natural size.
- Fig. 6. Thallus of *Reboulia hemisphaerica* somewhat enlarged.
- Fig. 7. *Reboulia hemisphaerica* with gametophores bearing sporophytes, the black bodies protruding beneath the umbrella-shaped tops. About twice natural size.

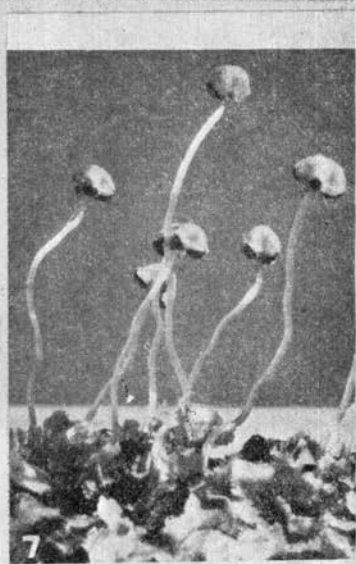
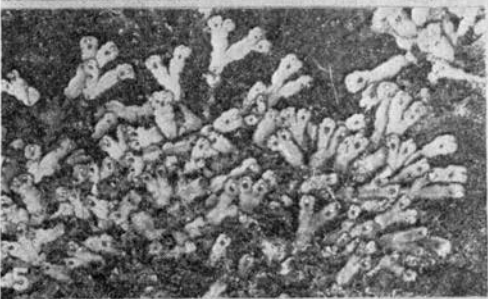
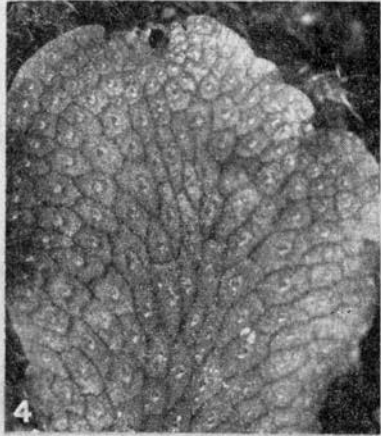
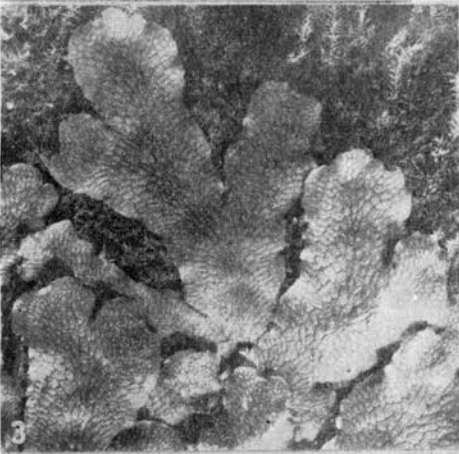
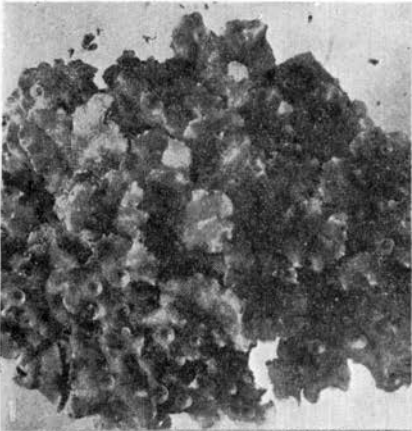
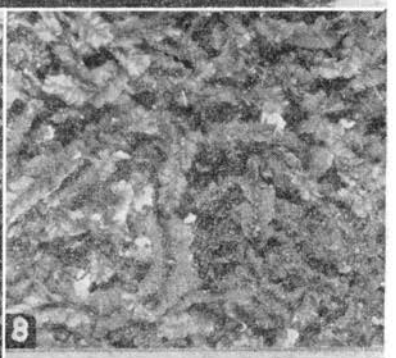
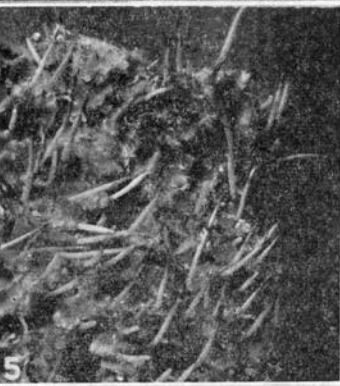
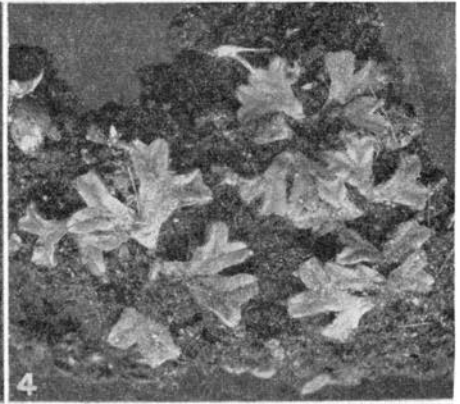
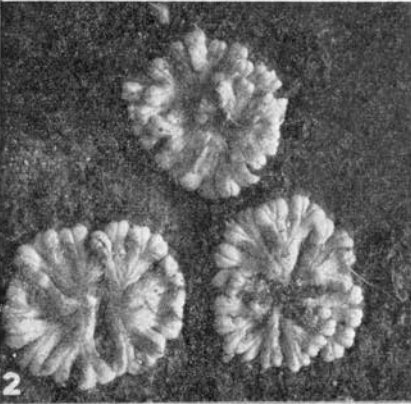


PLATE II

- Fig. 1. *Ricciocarpus natans* floating in the lake west of Huxley, Iowa.
- Fig. 2. *Ricciocarpus natans* growing on moist soil and differing considerable from the water form. Twice or more natural size.
- Fig. 3. *Riccia fluitans* from the lake west of Huxley, Iowa. About twice natural size.
- Fig. 4. A *Riccia* not identified, but probably *Riccia beyrichiana*. Often found spreading over acres in moist corn fields. Slightly enlarged.
- Fig. 5. A horned liverwort, *Anthoceros laevis*, from Ledges State Park. The horn-like sporophytes are about natural size.
- Fig. 6. A clump of *Anthoceros laevis* with mature sporophytes.
- Fig. 7. *Porella platyphylloidea*, growing on stone in Ledges State Park. About natural size.
- Fig. 8. *Lophocolea heterophylla* from Ledges State Park, growing on a sandstone cliff. Twice or more enlarged.

Martin: Some of the Available Hepatics and Their Location in the Vicinity



rather easily identified by its large lobed thalli which are visibly marked into diamond shaped areas centrally dotted by an air pore (Figs. 3 and 4 pl.I). The gametophores appear mostly in early spring, April, May and early June.

Reboulia hemispherica, another very common thallose liverwort of the Iowa State College vicinity, occurs along with *Conocephalum* on moist ledges and banks, but its thallus is very much smaller than those of *Marchantia* and *Conocephalum* and is usually marked by a small scale near the tip of the thallus (Figs. 5 and 6, pl. 1). It is also common on banks and even on dry hill crests. At the Ledges State park and on the hill crests and banks along the streams of Onion and Squaw Creeks near the college this liverwort is abundant. Its gametophores also appear in the spring and an abundance of black sporophytes can be found in the summer and fall (Fig. 7, pl. I).

Two Riccias, *Ricciocarpus natans* and *Ricci fluitans*, are abundant in a small lake one half mile west of Huxley (Figs. 1 and 3, pl. II). The land form of the *Ricciocarpus natans* is often found in moist places in the corn fields in the fall (Fig. 2, pl. II).

Another Riccia, probably *Riccia beyrichiana*, is sometimes found spreading over acres of cornfields in the fall and early spring. This Riccia probably adds considerable fertility to the soil (Fig. 4, pl. II). The fruiting period of these Riccias has not been determined for the Iowa State College vicinity. *Anthoceros laevis*, a representative of the horned liverworts, is found in Ledges State Park, occurring at several places on the face of the cliff at the foot of the north side of reindeer ridge. The thalli are small, ranging around one half inch in length and less in width. The horn-like sporophytes, so characteristic of this group of liverworts, are most abundant in late summer and fall (Figs. 5 and 6, pl. II).

Two of the larger leafy hepatics, *Porella platyphylloidea*, and *Lophocolea heterophylla* are found in Ledges State Park, both occurring on the north slope of reindeer ridge, the *Porella* on the surface of the larger isolated stones on the hillside and the *Lophocolea* on the face of the cliff at or near the foot of the ridge. *Porella* also covers the surface of some of the stones in the south Ledges of the Ledges State Park. It is among the largest of the leafy hepatics and commonly forms cushion like mats two or more inches thick. The period of its sporophyte stage at the Ledges State Park has not been observed, but is generally reported to occur in the spring. *Lophocolea heterophylla* produces sporophytes in the spring, May and June.

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