MOREL
MUSHROOMS

CEDAR APPLE
PARASITE

PUFFBALLS

BIRDNEST
FUNGI

PRACTICAL BOTANY

FLOWERLESS TRAIL

BRACKEN FERN

COMMON MUSHROOM

INTRODUCTION TO FLOWERLESS PLANT TRAIL

Since these plants have no flowers they must also bear no seeds, but they do reproduce rapidly by spores. Upon this trail the marker and visitor must watch for ferns, mosses, liverworts, lichens, fungi, and horse tail or scouring rushes.

Many fine leaved flowering plants are often called ferns, but any novice can distinguish ferns by knowing the following three characteristics:

1. Ferns never bear flowers
2. Ferns bear fruit dots or spore cases, generally on the back of their leaves
3. Now leaves or fronds of ferns are first coiled tightly as a clock spring

Mosses are tiny plants with small radiating leaves. From the top of the plant grows a stalked capsule containing spores.

Liverworts are generally flat leaf-like plants from which grow many shaped spore cases.

Lichens are the many colored crusty formations commonly found on rocks and trees. These crusty plates are formed by a weaving of fungous threads in among microscopic single celled algae. This is a wonderful illustration of mutual benefit to both members of this household, the fungi furnishing the home and the algae the food.

Fungi include organisms from single cells such as bacteria through many forms of mold, rusts, smuts, puff balls and mushrooms.

The horse tails are often misnamed rushes. The small cone at the apex of a stem is full of spore cases.

A lens or microscope reveals the spores of these flowerless plants very beautiful.

FLOWERLESS PLANT TRAIL

A general sign:

All of these flowerless plants reproduce by spore. How and where these spores are placed determine the kind of plant.

The common toadstool may have their spores on radiating gills, in pores or on teeth. These spores may be any color. The fungi may grow out of the humus soil or on decayed wood or live trees or other plants.

They have many shapes suggested by these names; saddle fungi, ear fungi, puff balls, stink horns, rusts, starry puff balls, smuts, mildew cup fungi, beef steak, bird nests, wooden shelves, hairy shelves and velvety shelves.

See how many kinds are in these woods.

Dr. Bessey's advice was: Eat no mushrooms found in the woods.

On woody shelf fungi, this question could be asked: How old is this fungous shelf?

Signs on Cedar Tree

(Containing both blue, silvery berris and brown knobs which in spring sent out thorns of sticky spores.)

1. Which is fruit of tree? The blue berry or the brown knobs?
2. The brown knob is winter stage of a cedar apple.
3. Watch in spring for its sticky horns.
4. These horns are spores which are blown to the apple tree causing rust spots on leaves and fruit.

The Horse Tail (or Equsetum sp.) or scouring rush.

a. Look for tall jointed, hollow rushes like Fig. XXIII or branched forms like Fig. XXIV.
b. Why called "Indian Sandpaper"?
c. Look for both kinds.
d. Is there any other use for these?

Fig. XXIII

Fig. XXIV

Ferns*

a. The fiddle heads, or crosiers, are good to eat if cooked as asparagus, but we had rather let ferns grow and eat real asparagus.
b. Look for Maiden Hair Ferns with dark purple stem.

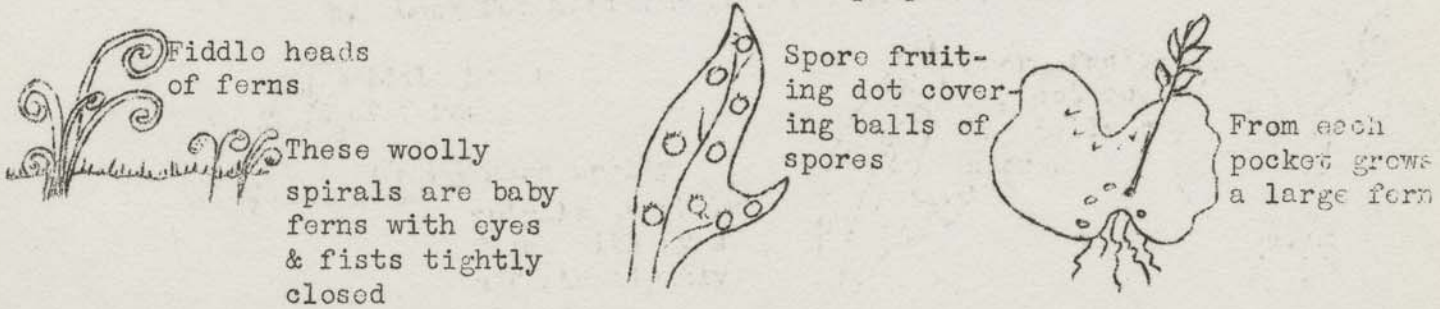

Fig. XXV

*Native Ferns of Iowa, Iowa State College, Ames, Iowa, Ext. Circ. #225

Mosses

a. Tiny plants with fine leaves, in the woods.

b. Look for "Peter Pan" caps, hair caps, etc. on their sporecases or capsules.

ACTIVITIES FOR THE FLOWERLESS PLANT SECTION OF THE TRAIL

1. Make fern leaf prints of all kinds (They are exceptionally beautiful in veining and form.)

2. Make a classified display of fruiting bodies of fungi.

3. Make a display of mosses and ferns.

4. The use of the microscope makes the collections on this trail very interesting.

5. Spore prints of toadstools are interesting. Lay underside down on paper (after cutting off stem). Use paper of contrasting color to that of underside of toadstool. Let remain overnight, then remove the toadstool and the spore print will be of the shape of the gills and of the color of the spores.

6. Small children will enjoy making necklace chain of moss capsules and pine needles as Fig. XXVI. One pine needle is pulled out, a bit of glue is put on end of stem or needle before inserting into the head of the capsule (moss) or the sheath of the pine needle. (The pine needle necklace is illustrated here because of its similarity to the moss capsule chain.)

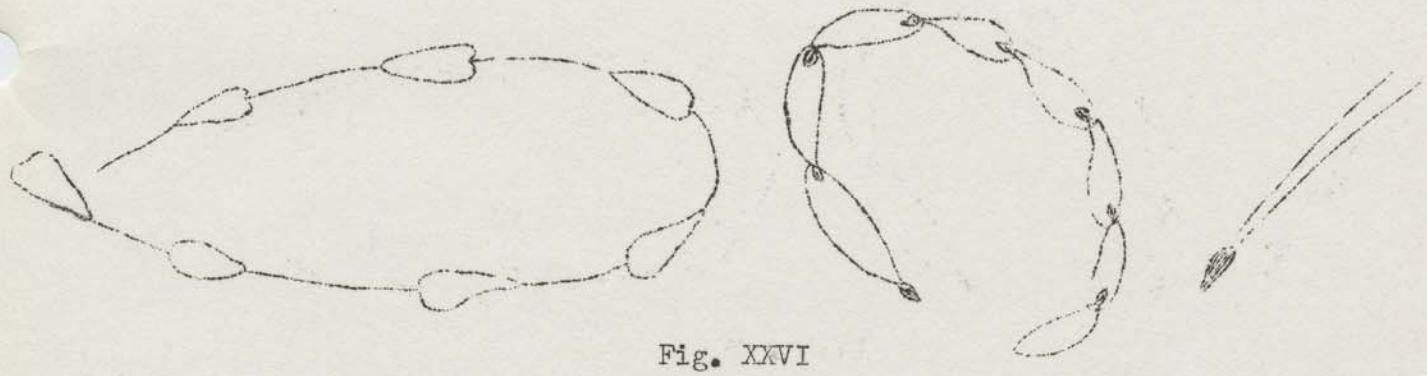

Fig. XXVI