

"Sweet Scented Fern" threatens to become more abundant than desirable. In some localities in the southern part of this state, in patches, it appears to be the principal growth. It delights in broken ground and rich, sandy soil, but its accommodative powers appear to be great. I have observed it growing, uncultivated, in the counties of Wabash, Lawrence, Edwards and White, and I am informed by good authority that in the counties farther south it is becoming quite common. It being an annual will probably prevent it from becoming a very serious injury or annoyance to agriculture.

As this species is not described in any of our text books I will give the following description and notes on it, based on those given in the old German work referred to in the article on *Chenopodium album* and *viride* (BOT. GAZ., Vol. VI, p. 225): From three to six feet high, branching, ends of the branches and branchlets drooping, outline of whole plant pyramidal, clusters of flowers roundish and pendant, peduncles one-fourth inch long. Leaves tripinnately dissected, ovate lanceolate in outline, two to six inches long; whole plant smooth or very minutely pubescent. The whole plant gives off a strong, but not unpleasant odor, which partakes of that of *Artemisia Absinthium* and camphor. Root annual and yellow. This species is a native of Siberia. According to J. G. Gmelin the inhabitants of Jenisea boil this annual *Artemisia* with their mead to give it a pleasant odor (flavor?). S. G. Gmelin also reports, in his "Voyage through Russia," that this species of *Artemisia* is used in the tanning of the well known *Saffian* leather (Turkish morocco). He further remarks that a coloring matter is obtained from this plant named *Tschagan*, four pounds of which will color twenty-five goat skins. In this dye the skins are steeped, by the addition of one pound of finely pulverized cochineal, some honey and salt, the red color is obtained. To produce the yellow *Saffian* leather, another dye, called *Kuk* is added; in this latter case however, the honey and salt are omitted.—J. SCHNECK, *Mt. Carmel, Ill.*

**New Species of Fungi**, by Chas. H. Peck.—*UROMYCES PSORALEÆ*.—Spots none or indistinct; sori epiphyllous, scattered or crowded, sometimes occupying the whole upper surface of the leaf, blackish-brown; spores elliptical, obovate or pyriform, obtuse, granular within, .0008–.0012 of an inch long, .0008–.0009 of an inch broad, the pedicel short, colorless.

Living leaves of *Psoralea lanceolata* Utah. August. Jones.

The lower surface of the leaves in the specimens before me is occupied by *Æcidium Psoraleæ* which is probably the hymeniferous form of this fungus.

*UROMYCES ZYGADENI*.—Spots pale or yellowish, sometimes confluent; *hymeniferous fungus* with the peridia amphigenous, short, scattered or crowded, the spores subglobose, orange. .0008–.00095 of an inch broad, with a thin hyaline epispore; *teleutosporous fungus* with the sori amphigenous, clustered, small, blackish-brown, sometimes intermingled with the *Æcidium*; spores obovate or subpyriform,



obtuse. .0011-.0013 of an inch long, .0008-.0009 of an inch broad, the pedicel shorter than the spore.

Living leaves of *Zygadenus paniculatus*. Utah. June. Jones.

Professor Jones observes that this fungus destroys the leaves it attacks.

*ÆCIDIUM SARCOBATI*.—Spots merely a thickened portion of the matrix; peridia elongated, cylindrical, crenate lacerate at the apex, orange colored; spores subglobose, .0008-.0009 of an inch in diameter.

Living leaves of *Sarcobatus vermiculatus*. Utah. June. Jones.

The bright orange-colored elongated peridia make this a showy species. The cells of the peridia are pentangular or occasionally hexangular and contain highly colored oil globules. The spores in the dried specimens are whitish, but they may have been more highly colored in the fresh state.

*SYNCHYTRIUM JONESII*. T—ubercles rather large, unequal, prominent or somewhat depressed, hypophyllous, reddish-brown, the epidermis at length rupturing irregularly; spores globose, smooth, reddish brown, .0003-.0004 of an inch in diameter.

Living leaves of *Zauschneria Californica*. Bingham. Utah. Also on leaves of *Vicia Americana* in company with *Æcidium porosum*. Near Ogden, Utah. July.

In the color of the spores this species does not strictly agree with the generic character, but in other respects it is so good a *Synchytrium* that I have thought it best to refer the fungus to that genus. The species is dedicated to its discoverer, *Prof. M. E. Jones*.

NOTE.—Since the publication, in THE BOTANICAL GAZETTE, Vol. IV, p. 170, of the description of *Bovista spinulosa*, I have received, from Dr. J. J. Brown of Wisconsin, a mature specimen which shows that the peridium ruptures in a stellate manner and that therefore the fungus should be referred to the genus *Mycenastrum*. The description needs the following revision:

*MYCENASTRUM SPINULOSUM*.—Peridium globose, sessile, two to four inches in diameter, thick, firm, whitish, becoming tinged above with yellow and brown and externally cracking into rather large areas, the whole brown when mature and stellately splitting from above into six or seven unequal spreading or reflexed rays; capillitium and spores in the mass dark-brown with a slight purplish tinge; flocci rather short, pale, usually branched, armed with scattered unequal aculei which are more numerous near the acuminate extremities; spores globose; colored, minutely warted, .0004-.0005 of an inch in diameter.

The species may be distinguished from *M. Chilense*, to which it is allied, by its paler and globose peridium and by its larger and globose spores.

I have also received from Mr. C. G. Pringle of Vermont, fresh specimens of the fungus described in Vol. V, p. 35, under the name *Peziza spongiosa*. These show by their texture that the fungus should be referred to the genus *Bulgaria*, with the following description:



**BULGARIA SPONGIOSA.**—Cups large, one inch or more broad, concave or infundibuliform, becoming nearly plane, thin, soft, subgelatinous, externally blackish, hymenium blackish-brown, often becoming porous when old; stem one-half to one inch long, slender, black, rugose or longitudinally wrinkled; asci cylindrical; spores uniseriate, globose, smooth, granular within and sometimes uninucleate, .0005 of an inch in diameter; paraphyses filiform, colored, circinate or uncinately-curved at the tips.

Buried sticks under fir trees.

**The Evolution of the Cryptogams.**—Upon this subject the latest writing is from the pens of MM. Saprota and Marion. In two numbers of *Nature* the work is reviewed by J. Starkie Gardner. A second volume is to follow dealing with the evolution of Phanerogams. Of course the group Cryptogams has long been recognized to be a purely artificial one, but not quite so meaningless as its old subdivisions. The origin of all animals and plants is protoplasm and when we find this in an amorphous condition and yet possessing the attributes of life we cannot be far wrong in thinking that such forms are most nearly like the primordial ones. In certain other organisms this protoplasm secretes about itself a wall and presently chlorophyll is differentiated and we have all the essentials of a vegetative life. Thus are we led from the *Protista* to *Protophytes* and particularly to the *Algæ*. *Fungi* and *Lichens* are considered as groups whose development has been arrested by a parasitic habit and to *Algæ* must we look for an explanation of the manner in which aquatic vegetation became terrestrial. The more highly organized forms have always retained their aquatic habit, and it is from the lower *Algæ* that terrestrial forms have originated. The authors think that "some, with flat cellular fronds, such as *Ulva*, crept, as it is supposed, face to the ground and became ancestors of the *Hepaticæ*. Others, more coniferoid, produced a thallus whose growth, necessarily apical, became complex by simple vegetative multiplication. Foliar appendices were given off, and a sort of plantlet with rootlets, stem, and leaves, all strictly cellular, came into existence, capable, like the Mosses at the present day, of agamous reproduction. In the earliest stage of growth of the *Equisetacæ*, of Ferns, and of *Ophioglossæ*, we see a similar primordial cellular plant, called a Prothallus, develop from the spore, and resembling in every respect the lower *Algæ*."

The authors lay a great deal of stress upon the effect of the reproductive act upon the differentiation of primordial plants. Two widely different groups would be developed by "tardy" reproduction and by "precocious" reproduction. In low forms reproduction arrests nutritive life. Hence forms like the Mosses and *Hepaticæ* in which the reproduction is tardy, would have a long period of vegetative life in which to adapt themselves to new conditions. In fact some mosses seem very little dependent upon sexual reproduction but can propagate themselves rapidly by their radicles. The "fruit" of the moss is really a distinct plantlet which in an asexual way gives



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