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New Species of Fungi.

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(Plate XLIX.)

BOLETUS SPHEROSPORUS. (Figs. 1 and 2).—Pileus glabrous, viscid, reddish brown or chestnut-colored, 3 to 4 inches broad; tubes large, angular, adnate or slightly decurrent; stem short, about 1.5 in. long, bearing near the base a thick, well-developed, volva-like annulus; spores globose or broadly elliptical, generally uninucleate; .0003 to .00035 in. long.

Wisconsin. Prof. W. Trelease.

The specific characters here given are derived from a single dried specimen of the fungus. Prof. Trelease informs me that one of the students of the University collected two specimens of the plant, but no notes concerning it were preserved. Consequently its colors and some of its characters in the fresh state cannot now be accurately given. Ordinarily I should not feel justified in attempting to describe a species under such circumstances and from so scanty material, but this species is evidently so remarkable and so distinct in two of its characters that it seems worthy of some notice. The first and most notable character is found at the base of the stem. I have called it a volva-like annulus. It appears in the dried specimen very much as if it were a real volva, whose ruptured, spreading margin forms a cup-like annulus. Still, it may be only a thick peronate or sheathing veil, and as such I prefer to consider it, though it is unlike that of any other species of *Boletus* known to me. The other noticeable character is found in the spores. These are almost globular, while in other *Boleti* they are generally fusiform or oblong-fusiform. Such a departure from the usual form is the chief distinguishing character of the genus *Strobilomyces*, Berk., and it is also given as the most available means of distinguishing *Paxillus porosus* from species of *Boleti*. Fries did not consider such a variation in the spore-character a sufficient ground for the removal of a species from the genus *Boletus*, but, when combined with such an annulus as we have in this species, the two together seem to be of greater importance and may yet render the formation of another genus desirable. It is to be hoped that the young plant may be observed and the real nature of our supposed veil or annulus be ascertained. Should it prove to be a volva it would indicate a most interesting parallelism between the genera *Boletus* and *Agaricus*.

SEPTORIA ASTRAGALICOLA.—Spots indefinite or obsolete; perithecia hypophyllous, lenticular, .005 to .007 in. broad, black; spores

subcylindrical, straight or but slightly curved, obtuse, .0016 to .0025 in. long, .0002 to .00025 broad, sometimes plurinucleate, oozing out and forming whitish or faintly pinkish masses or tendrils.

On living or languishing leaves of *Astragalus*. Arizona. August. M. E. Jones.

The affected leaves turn yellowish. The spores are generally cylindrical, but sometimes they are slightly narrowed toward one end, and occasionally one appears to be obscurely septate in the inside. The species is distinct from *S. Astragali* both in the situation of the perithecia and in the character of the spots.

PUCCINIA TUMIDIPES. (Figs. 3 to 8).—I. Not seen.

II. Sori small, amphigenous, surrounded by the ruptured epidermis, reddish brown or rubiginous; stylospores ovate elliptical or oblong-ovate, rough at one end, .0014 to .0016 in. long, .001 to .0011 broad.

III. Spots none; sori amphigenous, unequal, obliterating the remains of the ruptured epidermis, black; teleutospores elliptical or oblong elliptical, not at all or but slightly constricted at the septum, .002 to .0025 in. long, .0011 to .0014 broad, supported on an inflated hyaline pedicel, which is generally a little longer and broader than the spore itself.

On living leaves of *Lycium Andersonii*. Arizona. September. M. E. Jones.

The two kinds of sori sometimes occur on separate leaves; sometimes they are intermingled on the same leaf and the stylospores and teleutospores are occasionally intermingled in the same sorus. The species is remarkable for the enlarged, membranous, hyaline pedicels. When the spores and their pedicels are moistened they fall over, the one upon the other, and lie side by side, thus appearing to possess a sort of hygrometric character.

PUCCINIA GLOBOSIPES. (Figs. 9 to 10).—Spots none; sori small, rotund, prominent, black; teleutospores broadly elliptical, rough, not constricted, opaque, .002 to .0027 in. long, .0016 to .002 broad; pedicel subglobose, inflated, hyaline, equal to or a little smaller than the spore itself.

On leaves of *Lycium Californicum*. California. M. E. Jones.

This species, by its inflated vesicle-like pedicel, is related to the preceding one, but is clearly distinct from it by its broader, rough or verrucose spores and their more globose pedicels. I have not seen the æcidial and uredo forms, and the sori of the teleutospores are very scarce in the specimens sent. *P. Lycii*, K., whose host-plant is *Lycium tubulosum*, has much smaller spores, and the description does not indicate that they possess an inflated pedicel.

PUCCINIA BRICKELLIÆ.—I. Not seen.

II. Spots none; sori clustered, often concentrically arranged, at first covered by the epidermis, then surrounded by its ruptured remains, reddish brown; stylospores subglobose, broadly ovate or oblong-ovate; generally uninucleate, .0012 to .0016 in. long, .0009 to .001 broad.

III. Sori as in the uredo-form; teleutospores intermingled with the stylospores, elliptical or oblong-elliptical, not at all or but slightly

constricted at the septum, .002 to .0025 in. long, .0014 to .0016 broad; pedicels equalling or exceeding the spores in length.

On living leaves of *Brickellia*. Arizona. September. M. E. Jones.

Puccinia Pentstemonis.—Spots none; sori amphigenous, unequal in size, prominent, black; teleutospores elliptical or oblong-elliptical, .0012 to .002 in. long, .0008 to .0011 broad; pedicel hyaline, generally much longer than the spore.

Living leaves of *Pentstemon linarioides*. Arizona. September. M. E. Jones.

Æcidial and *uredo*-forms not present. Whether *Æcidium Pentstemonis*, Schw., belongs to this *Puccinia* is uncertain.

Puccinia Malvastri.—Spots obliterated; sori clustered, confluent, amphigenous, dark reddish brown, compact, prominent; spores oblong-elliptical, scarcely constricted, even, obtuse or rarely obtusely pointed, .0019 to .0025 in. long, .0009 to .0012 broad; the pedicel longer than the spore, generally two to four times its length, hyaline.

On living leaves of *Malvastrum*. Arizona. September, M. E. Jones.

This differs from *P. Malvacearum*, of which I was at first inclined to believe it a variety, in its different habit, darker colored sori, comparatively broader spores and generally longer pedicels.

Puccinia Viguieræ.—Sori numerous, prominent, amphigenous, blackish brown; spores oval or broadly elliptical, obtuse, slightly constricted at the septum, .0016 to .002 in. long, .0011 to .0012 broad, with a hyaline pedicel longer than the spore.

Leaves of *Viguiera*. New Mexico. April. M. E. Jones.

The species is closely related to *P. Helianthi*, Schw., and *P. variolans*, Hark., from both of which it is distinguished by its broader spores.

Uromyces Sophoræ.—Sori numerous, small, amphigenous, reddish brown; spores subelliptical, nearly even, .0011 to .0014 in. long, .00065 to .0008 broad, the epispore thickened at the apex, the pedicel shorter than the spore.

Living leaves of *Sophora sericea*. New Mexico. October. M. E. Jones.

The sori are thickly scattered over both surfaces of the leaves. The species is closely related to *U. apiculatus*.

Ustilago Aristidæ.—Spores small, .0003 to .00035 in. in diameter, subglobose, more or less angular, even, black, occupying the whole interior of the seed.

Spikelets of *Aristida*. El Paso, Texas. September. M. E. Jones.

Every seed in the panicles sent me is affected by the fungus. The seeds do not appear to be much enlarged, but the whole interior is transformed to a dusty mass of spores enclosed by the thin external shell or membrane. The species is apparently related to the South American *U. Lorentziana*, Thum., and the African *U. Penniseti*, Rabh., but is easily distinguished from both of these by its more angular spores.

UREDIO JONESII.—Sori hypophyllous, numerous, orbicular, compact, bright orange, surrounded by the ruptured epidermis; spores subglobose, rough, .0009 to .00011 in. broad, orange yellow fading to whitish.

Living leaves of *Ribes*. New Mexico. October. M. E. Jones.

The sori occupy the whole lower surface of the leaf and by their bright color give it a beautiful appearance.

EXPLANATION OF PLATE, XLIX.—*Boletus sphaerosporus*, Peck. Fig. 1. Lateral view of a plant. Fig. 2. Six spores x 400. *Puccinia tumidipes*, Peck. Fig. 3. A leaf bearing five sori of the uredo-form. Fig. 4. A leaf bearing sori of the teleutospores. Fig. 5. Three uredo-spores x 400. Fig. 6. Two teleutospores in erect position x 400. Fig. 7. A teleutospore recumbent on its pedicel, the apex directed downward, x 400. Fig. 8. A teleutospore in similar position, but the apex directed upward x 400. *Puccinia globosipes*, Peck. Fig. 9. A leaf bearing two sori. Fig. 10. Three teleutospores x 400.

Contributions toward a List of the State and Local Floras of the United States.*

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