

## SPECIES OF PHOLIOTA AND STROPHARIA IN THE REGION OF THE GREAT LAKES.

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Collections made on Neebish Island, Mich. in the autumn of 1911 have enabled us to add three plates to the photographs of species of *Pholiota* published in the Transactions of the Wisconsin Academy of Sciences, Arts and Letters, Vol. XVII, Part I, 470-502. We also give six plates of species of the closely related genus *Stropharia* found in this region with a synopsis of the genus and the species reported from the United States.

### PHOLIOTA

#### THE PHOLIOTA TOGULARIS GROUP.

##### *Pholiota blattaria* Fr. Plate LIX

Five plants of the *Pholiota togularis* group which seem to belong to this species were found growing by the side of driftwood in sandy soil on the shore of St. Mary's river and among chips near an old mill on Neebish Island, Mich., in October.

**PILEUS** thin, conic to broadly campanulate or subumbonate and expanded, smooth or slightly rugose, striatulate on the margin, dark watery ferruginous, becoming paler in drying. **LAMELLAE** close, ventricose, rounded behind and very slightly attached to the stem, whitish, becoming rusty with spores, edge whitish and minutely denticulate. **STEM** equal or slightly enlarged below, fistulose, silky fibrillose below and white prui-

nose above, pallid becoming brown toward the base. ANNULUS white, entire, striate with ridges on the upper surface, only slightly attached to the stem. SPORES ferruginous, elliptical 4—6x9—12 $\mu$ .

The plants differ from *Pholiota togularis* in the dark ferruginous, striatulate, hygrophanous pileus and the rounded lamellae only slightly attached to the stem. Fries' remark that *Pholiota blattaria* is "a *Galera* with a ring" fits our plants exactly.

The plants are also very close to *Pholiota rugosa* Pk which is reported from Michigan by Kauffman. Dr. Peck says *Pholiota rugosa* differs from *Pholiota blattaria* in the colors, the adnexed lamellae and the larger spores. In our plants the colors seem to agree with the descriptions of *Pholiota blattaria*, the gills are only slightly if at all adnexed and the spores are somewhat smaller than the measurements given for *Pholiota rugosa*, 6—7x10—12 $\frac{1}{2}$  $\mu$  and if we may judge from Cooke's illustration Pl. 1173 about the size of the spores of *Pholiota blattaria*. The striate annulus which is a striking feature of the plant and described by Peck is not mentioned in the descriptions of *Pholiota blattaria* which we have seen but *Pholiota togularis* is said to have a striate annulus and the small variety *Pholiota togularis* var. *filaris* is so figured by Fries. Saccardo's *Sylloge* contains the remark that while very distinct *Pholiota blattaria* is easily confused with the small form of *Pholiota togularis*. Peck suggests that *Pholiota rugosa*, *Pholiota filaris* and *Pholiota togularis* may all be forms of a single species.

*Pholiota blattaria* is reported from this country by Peck, Rep't 39, p. 40, but it is not included among the New York species in Bull. 122.

#### SECTION SQUAMOSAE.

#### *Pholiota fulvo-squamosa* Pk. Pl. LX

Beautiful plants of the squamose type of *Pholiota* were collected on Neebish Island, Michigan, in October. They grew on

the ground in mixed woods attached to the roots of rotten stumps.

**PILEUS** convex or lenticular with the margin incurved, becoming plane, obtuse, covered with a tawny fibrous coat, torn into fibrous tufted squarrose scales, the lighter straw colored background showing in the cracks, smoother and appressed scaly in wet weather, center darker and the fibrous coat less torn, margin ragged but not striate. **LAMELLAE** broad, narrower toward the stem, adnate, whitish, becoming dark cinnamon, with a whitish minutely ragged edge. **STEM** even, solid, becoming stuffed or hollow, covered below the ring with white fibrous, tawny tipped, erect or reflexed scales, slightly floccose above the ring. **ANNULUS** membranous, broad, well defined, covered on the under side with a scaly coat like that on the pileus and stem, ragged on the edge, the upper surface striate with ridges where the veil tore from the gills. **FLESH** solid, white. **SPORES** dark ferruginous brown 4—5x6—8 $\mu$ .

The plants agree very closely with the description of *Pholiota fulvo-squamosa* Pk. to which species we have referred them. We did not notice the radish odor nor the change to brown when the flesh was cut and there was only a slight collar, shown by the gills remaining attached to each other when separated from the stem, but the marked agreement in size, shape, the tawny, scaly coat covering the whole plant, including the broad under surface of the annulus, the size of the spores and the habitat leave little doubt of the identity of the plants. The type specimens of *Pholiota fulvo-squamosa* were collected about the base of oak trees at Lansing, Mich., by B. O. Longyear.

The identification was confirmed by Dr. Peck.

#### THE *PHOLIOTA* MARGINATA GROUP.

#### *Pholiota marginata* Batsch. Pl. LXI, A.

The plants illustrated in Plate LXI, A. were collected on dead alders in October. The margin of the pileus when expanded was deeply and coarsely striate. Otherwise they agreed exactly with the plants referred to *Pholiota marginata* in the Trans. Wis. Acad. Sci. XVII Plates LIV and LV.

**Pholiota discolor, Pk. Pl. LXI, B.**

The plants in Plate LXI B. grew on a poplar stump on Neebish Island, Mich., in October. They showed the characteristic feature of *Pholiota discolor*, Pk. Pileus dark tawny brown, watery and viscid when moist becoming bright ochraceous yellow when dry. In other respects the plants resembled *Pholiota marginata*.

Peck's description of *Pholiota discolor*, N. Y. state Mus. Bull. 122, p. 156, is as follows: "Pileus thin, convex, becoming nearly plane, or slightly depressed, glabrous, viscid, hygrophanous, cinnamon rufous and striatulate on the margin when moist, bright ochraceous yellow when dry. LAMELLAE narrow, close, pallid or whitish, becoming ferruginous. STEM equal, hollow, fibrillose, whitish or pallid, sometimes with a white myceloid tomentum at the base, the ANNULUS distinct, persistent, SPORES elliptic  $5 \times 7\frac{1}{2}$ ."

Pileus 8—16 lines broad, stem 1.5—3 inches long, about one line thick.

Single or caespitose, decaying wood and prostrate trunks of trees in woods, not rare, July to October."

Peck remarks that it is separated from *Pholiota autumnalis* by the viscid pileus. Our plants seem scarcely more than a form of *Pholiota marginata* or *Pholiota unicolor*.

**STROPHARIA**

The genus *Stropharia* is small. Less than twenty-five species have been reported from the United States. The plants of the group are characterized by purple brown spores, adnate lamellae, a well developed annulus and no volva. The genus corresponds to *Pholiota* in the rusty spored series, *Armillaria* in the series with white spores and *Anellaria* among the agarics with black spores. In the purple brown series it is distinguished from *Agaricus* by the adnate gills and from *Hypholoma* by the veil remaining as a well developed ring on the stem rather than clinging in fragments to the margin of the pileus. But the distinctions are not well marked in all the species. It is especially

difficult to draw the line between purple brown and rusty brown spores, and the method of tearing of the veil varies in different plants in the same species.

The genus falls naturally into two groups: plants growing on the ground or on rotten wood, *Mundae* (clean), and plants growing on dung, *Merdariae*. Of the species growing on the ground some have a viscid pileus, *Viscipelles*, and others have the pileus dry and more or less squamose, *Spintrigerae*. The species growing on dung closely resemble forms of *Panaeolus* and are separated by their spore color alone.

With the exception of *Stropharia semiglobata* the species of *Stropharia* are not common and have little value as food plants. Some like *Stropharia aeruginosa* are suspected of being poisonous. As they grow on the ground and rotten logs they do little damage to other plants or to timber and hence have little economic significance.

#### SYNOPSIS OF THE SPECIES.

A. Growing on the ground, *Mundae*.

I. With a viscid pileus, *Viscipelles*.

The *Stropharia depilata* group. Pileus brown or yellow covered with a thick glutinous pellicle and the stem usually covered with white, floccose, squarrose scales.

*Stropharia depilata* (Pers.) Pls. LXII, LXIII.

Related species: *Stropharia hardii*, Atk.

The *Stropharia aeruginosa* group. Pileus covered with green gluten. Stem scaly or smooth.

*Stropharia aeruginosa* (Curt.) Pl LXIV.

Related species: *Stropharia albo-cyanea*, Desmaz., *Stropharia micropoda*, Morg.

The *Stropharia coronilla* group. Pileus viscid but not glutinous, stem smooth. Plants resembling those of the *praecox-dura* group in the genus *Pholiota*.

*Stropharia coronilla*, Bull. Pl. LXV A.

*Stropharia obturata*, Fr. Pl. LXVI ABC.

Related species: *Stropharia bilamellata*, Pk. *Stropharia melasperma*, Bull. *Stropharia drymonia*, Morg. *Stropharia caesifolia*, Pk.

The *Stropharia squamosa* group. Pileus viscid when moist and scaly.

*Stropharia squamosa*, Fr. *Stropharia squamosa*, var. *aurantiaca* (Cke.) Pk.

II. Pileus not viscid, dry and squamose, *Spintrigerae*.

*Stropharia caput-medusae*, Fr., *Stropharia schraderi*, Pk., *Stropharia magnivelaris*, Pk., *Stropharia feildeni*, Berk.

B. Growing on dung, *Merdariae*.

The *Stropharia merdaria* group.

*Stropharia submerdaria*, Britz. Pl. LXVI GHI.

*Stropharia stercoraria*, Fr. Pl. LXVII.

*Stropharia semiglobata*, Batsch.

*Stropharia umbonatescens*, Pk. Pl. LXV B.

*Stropharia siccipes*, Karst. Pl. LXVI DEF.

Related species: *Stropharia merdaria*, Fr. *Stropharia siccipes* Karst., *Stropharia siccipes* var. *radicata* Pk. *Stropharia mammillata*, Kalch.

#### DESCRIPTION OF THE SPECIES.

A. Growing on the ground or on rotten wood.

I. Pileus viscid.

#### THE STROPHARIA DIPILATA GROUP.

#### *Stropharia depilata*, (Pers.) Pls. LXII and LXIII

Plants of this species are frequent in the northern woods in autumn. We have collected them near Lake Rosseau, Ontario, and on Neebish Island, Mich. They grow on the ground and on rotten logs and stumps. The plants are good size with the pileus very glutinous in wet weather and the stem covered with white curly floccose scales. The photographs show the average size but much larger plants occur.

PILEUS thick and solid, convex to plane or broadly umbonate, obtuse, smooth, even on the margin, very glutinous in wet weather, brown or yellow cinnamon, margin appendiculate with bits of the veil when young. LAMELLAE adnate with decurrent lines on the stem, broad, white, becoming purple black. FLESH whitish, solid. STEM solid, becoming hollow with age, equal, squarrose below the annulus with white floccose scales, floccose

scaly above the annulus, whitish or yellowish. ANNULUS membranaceous with a ragged margin, white floccose below and striate with even ridges on the upper surface. SPORES purple brown, 6—8x10—12 $\mu$ .

NOTE—*Stropharia hardii*, Atk. in *Hard's Mushrooms, Edible and Otherwise*, pp. 321-322, is based on plants similar to *Stropharia depilata* if we may judge from the description and photograph. The size, pale bright ochraceous pileus and transversely floccose stem suggest *Stropharia depilata* but the spores are only 3—5x5—9 $\mu$  and it is not said whether the pileus is viscid or dry though it appears viscid in the photograph.

### *Stropharia aeruginosa*, (Curt.) Pl. LXIV.

The plants photographed grew on the ground in a grassy place by a brush pile, Neebish Island, Mich., October, 1911. They are smaller than *Stropharia depilata* but have a similar thick glutinous pellicle on the pileus and curly white scales on the stem. The gluten is bright green as in some species of *Hygrophorus* but the plants become white or stained with red or yellow as the dry.

PILEUS convex to plane or umbonate, smooth or squamose, even on the margin, covered with a thick green gluten which stains reddish or yellowish or fades to white in drying. FLESH watery white. LAMELLAE close, ventricose, broadly notched and linear decurrent on the stem, whitish turning to pink and dark brown mottled, STEM even or slightly enlarged and white myceloid at the base, smooth or silky above the annulus, floccose scaly below, greenish or bluish becoming white or more or less cinereous at the base. ANNULUS fibrous, stained with the spores, SPORES dark brown with a rusty rather than a purple tinge 4—5x8—10 $\mu$ .

NOTE—*Stropharia albo-cyanea*, Desmaz occurs in our region. It is smaller than *Stropharia aeruginosa* with a green viscid pileus but a white dry stem. It agrees with *Stropharia aeruginosa* in habit and place of growth. The distinguishing marks are the small size and white dry stem. This is *Stropharia pseudocyanea* in Morgan's Revision of North American species of *Stropharia* Jour. Myc. April, 1908, p. 74.

*Stropharia micropoda*, Morg., Jour. Myc. April, 1908, p. 73, was described from plants growing subcaespitose on dead branches of oak and hickory at Preston, Ohio. The plants are about the size of *Stropharia albo-cyanea* and have the pileus covered with similar green

gluten, the spores also are of the same size but the stem is pale yellow above, livid below and fibrillose scaly. The species appears to be very close to *Stropharia aeruginosa*. W. G. Stover suggests that it is a form of *Flammula polychroa*.

THE STROPHARIA CORONILLA GROUP.

***Stropharia coronilla*, Bull. Pl. LXV A.**

The plants illustrated grew on the ground in the grass near a garden, Madison, Wis., June, 1911. The general appearance is like that of *Pholiota dura* and the place of growth is similar so that the plants might easily have been taken for that species, but there is no rusty tinge to the spores and the annulus has the ridges characteristic of *Stropharia coronilla*.

PILEUS fleshy, firm, hemispheric to convex and expanded, smooth and slightly viscid, even and white floccose on the margin, sometimes appendiculate with pieces of the veil, whitish or yellow ochraceous, darker in the center. LAMELLAE broad, rounded and adnexed or very slightly notched at the stem, whitish becoming violet and purple black. FLESH firm, solid, white. STEM even or tapering slightly upward and narrowed to a point below, solid or stuffed, smooth, white or with yellowish tints. ANNULUS thick easily separating from the stem, sometimes adhering to the margin of the pileus, floccose below, with radiating ragged ridges on the upper surface which are at first white then stained purple from the falling spores, SPORES purple brown or black 4—6x9—12 $\mu$ .

In N. Y. State Mus. Bull. 122, p. 140, Dr. Peck gives a comparison between *Stropharia bilamellata* and *Stropharia coronilla*. Our plants agree with *Stropharia bilamellata* in the white or yellowish rather than the tawny ochraceous pileus, but in the other points of the comparison, stem pointed at the base, annulus sulcate plicate rather than with broad white gills, and smaller spores, our plants agree with *Stropharia coronilla*, hence we do not hesitate to refer them to the European species. The species is distributed in N. A. F. 3511. My copy shows spores 5—6x8—11 $\mu$  and the peculiar annulus.



***Stropharia obturata*, Fr, Pl. LXVI ABC.**

I am indebted to Dr. W. S. Moffatt of Wheaton, Ills., for the photograph of this species. The plants grew on the ground among dead leaves in woods at Glen Ellyn, Ills., in September. Dr. Moffatt referred the plants with some doubt to *Stropharia obturata* but did not preserve the specimens. The plants agree well with the description of that species except that they are larger, often larger than the photograph and the stems do not taper downward. The spores are brown,  $5 \times 6 \mu$ .

*Stropharia obturata* is described as follows: PILEUS 1—2½ inches broad, fleshy, quite thick, convex to plane, obtuse, nearly dry, even on the margin, becoming rimosely squamulose, light yellow. FLESH compact, white. LAMELLAE adnate without a tooth, whitish becoming purple brown, never rusty. STEM. 1—1½ inches long, 3 lines and more thick, firm, stuffed, slightly attenuated downward, not scaly, white, ANNULUS thick, white, SPORES purple brown  $4 \times 7 \mu$  or  $6 \times 9 \mu$ .

We desire to include the photograph with our illustrations because it shows another form of a group of plants which need further observation. This plant, the one figured in Trans. Wis. Acad. Sciences Arts and Letters XVII Part I Pl. XXV, *Stropharia drymonia*, *Stropharia melasperma*, reported from New York by Peck, *Pholiota howeana*, Pk. and several others are closely related and the differences between them not well known. Sylloge furthermore expresses doubt whether *Stropharia obturata* is distinct from *Stropharia coronilla*.

NOTE—*Stropharia melasperma*, Bull., reported from New York by Peck, N. Y. State Mus. Bull. 105, p. 28, is a small plant with the pileus 1–2 inches broad and stem about 1 inch long growing in grassy places. The pileus is smooth, white or yellowish, viscid in wet weather, never rimose scaly, stem white or yellowish with a medial ring, Lamellae ventricose, rounded or emarginate. It appears to differ from *Stropharia obturata* in the pileus not being rimose scaly and the rounded gills.

*Stropharia drymonia*, Morg., Jour. Myc. April, 1908, p. 73, was based on plants growing on and near rotten wood at Preston, Ohio. They were large plants with the pileus 2½–4 inches broad and the stem 3–6 inches long, pileus smooth and viscid, pale ochraceous, flesh thick and white and a smooth white stem. The gills were close, narrow, white becoming brown with small brown spores 3–4x5–6μ.

*Stropharia caesifolia*, Pk. Torr. Bul. 1895, p. 489, is a plant which belongs to this group. Pileus one to two inches broad, convex, white with a brownish center. Lamellae rounded or emarginate blueish brown. Stem solid, white with a white annulus, spores 6—8x10—13 $\mu$ . The only characteristic mark of the plant was the color of the gills. The type specimens were collected by E. Bartholomew growing in sandy pastures in Kansas.

#### THE STROPHARIA SQUAMOSA GROUP.

NOTE—We have no photographs of *Stropharia squamosa*. The species seems to be a variable one. In N. Y. State Mus. Rep't 44, p. 36, Peck remarks "Specimens (of *Stropharia squamosa*) collected near Salamanca agree very closely with this species, but they differ in having the pileus of a beautiful orange red color. In this respect and indeed in many other respects they agree better with the description of *Stropharia thrausta*, but disagree in having the pileus neither hygrophanous nor glabrous. The plants are generally rather slender, though individuals occur having a stout stem and a pileus three or four inches broad. This is viscid and beautifully adorned with whitish superficial scales which are easily destroyed. The margin is often appendiculate. The lamellae are broad and subdistant and the stem is long, hollow, floccose squamose and annulate. The whole plant is fragile, but this may be due in a measure to the fact that it is apt to be infected by the larvae of insects. It is probably to be considered a variety of *S. squamosa* and is apparently equivalent to *Agaricus thraustus* var. *aurantiacus* of Cooke's Illustrations."

Massee in Eu. Fung. Fl. p. 210, gives *Stropharia squamosa*, Fr. with two varieties.

Var. *thrausta* (Ag. *thraustus* Kalch.) Slender, fragile, hygrophanous, not scaly. Spores 6x12—15 $\mu$ .

Var. *aurantiaca*, Cke. Pileus orange or brick red.

#### II. Pileus with no viscid pellicle, dry and squamose.

NOTE—As far as we know no plants belonging to this division have been collected in our region. *Stropharia caput-medusae*, Fr. is reported in Farlow's Index. *Stropharia schraderi*, Pk. is described from specimens collected near Washington, D. C. *Stropharia feildeni*, Berk. and *Stropharia magnivelaris*, Pk. are from the arctic regions.

#### B. Growing on dung.

#### THE STROPHARIA MERDARIA GROUP.

#### *Stropharia submerdaria*, Britz. Pl. LXVI GHI.

*Stropharia merdaria*, Fr. appears to have two forms a larger form with the pileus about two inches in diameter and a smaller form with the pileus half as broad. In Stevenson's British Fungi the large form is described and the small form mentioned while the reverse is the case in Sylloge, the small form is de-

scribed and the large form mentioned. Stevenson gives  $6 \times 9 \mu$  as the spores measurements and Sylloge  $5 \times 8 \mu$  noticing also the larger measurements  $6-8 \times 12-16 \mu$  of Karsten and Britzelmayr. The latter author has described what appears to be the small form with large spores as *Stropharia submerdaria*. Morgan has reported this species from Preston Ohio and considers it a form of *Stropharia merdaria*.

We have collected what appears to be the same plant growing on dung at River Forest, Ills. and Blue Mounds, Wis. The photograph is from the River Forest specimens. Dr. Moffatt has also collected the plant at Wheaton, Ills. The description of *Stropharia submerdaria* is given in Revis. Hymenomyce, III, p. 13. "PILEUS 3 cm. broad, hemispherical, umbonate or depressed, dull yellow, STIPE 6 cm long, 4 mm thick, base either attenuated or thickened, fibrous, white, annulus scanty, LAMELLAE not crowded, yellowish brown, often denticulate, SPORES brown with a violaceous tint, dark violaceous in mass, acute at one or both ends,  $6-8 \times 12-14 \mu$ ."

Our notes give the pileus as "cream color or yellow, lighter on the margin, deeper yellow on the umbo." Dr. Moffatt's notes read "dark watery brown when young and moist becoming pallid tan." The stem is minutely white floccose becoming glabrate, annulus scanty. The photographs show scarcely any remains of the annulus. The dark violaceous brown, almost vinous color of the spores is characteristic. The plants have much in common with *Psilocybe coprophila*, Bull. which also grows on dung, but has no trace of an annulus, the gills are slightly arcuate and the pileus is white and downy when young.

#### ***Stropharia stercoraria*, Fr. Pl. LXVII.**

This, like all the other plants of the group, grows on dung or well manured ground.

PILEUS hemispherical becoming expanded, smooth, viscid, the viscid pellicle cracking as the pileus dries, even on the

margin, whitish or various shades of cream color and yellow. LAMELLAE broad, adnate, sometimes with a broad shallow sinus, decurrent in lines on the stem, white becoming purple black. STEM stuffed with a pith, equal or enlarging and somewhat bulbous at the base, white or cream color, flocculose below the annulus, viscid with the pellicle cracking as on the pileus. ANNULUS slight and evanescent, near the middle of the stem. SPORES elliptical, dark purple,  $10 \times 16 \mu$ .

This species is not so common as the following *Stropharia semiglobata*. It is distinguished by the more expanded pileus, the stuffed and more floccose stem, the larger size, larger spores and plane not clouded gills. In our observation these distinctions do not always hold good. The plants photographed have all the marks of *Stropharia stercoraria* except that the gills are clouded. We have found *Stropharia semiglobata* with spores as large as any ascribed to *Stropharia stercoraria*. Lloyd's photograph of *Stropharia semiglobata* in Hard's, mushrooms fig. 260 resembles ours. We take Atkinson's illustration, fig. 30 to be more typical *Stropharia semiglobata*.

#### ***Stropharia semiglobata*, Batsch.**

This is the most common species of *Stropharia*. It is found everywhere on dung and manured ground. Illustrations are numerous. Atkinson, Mushrooms, fig. 30 is a good photograph of the species. It resembles *Stropharia umbonatescens*, Pl. LXV A. except that the pileus is exactly hemispherical.

PILEUS fleshy in the center, hemispherical, not expanding, smooth, even on the margin, viscid, light yellow. LAMELLAE, broad adnate, whitish and becoming mottled purple brown or black. STEM equal, smooth, fistulose, viscid, light yellow, sometimes slightly enlarging at the base. ANNULUS a fibrous ring stained with spores. SPORES elliptical  $8-9 \times 13-14 \mu$  or larger.

***Stropharia unbonatescens*, Pk. Pl. LXV B.**

The plants were collected on Neebish Island, Mich., in September. They agree well with Peck's description, N. Y. State Mus. Rep't 30 p. 41. The plants are very close to *Stropharia mammillata*, Kalch, and probably belong to that species but the pileus is rather umbonate than papillate and the spores are elliptical rather than ovate or pyramidal as in the description of *Stropharia mamillata*. Peck's description reads: "PILEUS at first conical, subacute, then expanded and umbonate, smooth, viscid, yellow, the umbo inclining to reddish. LAMELLAE, plane, broad, at length ventricose, blackish brown with a slight olivaceous tint. STEM equal, slender, hollow, generally a little paler than the pileus, SPORES purplish brown, almost black,  $10 \times 15 - 18 \frac{1}{2} \mu$ ."

Plant 3—4 inches high, pileus 6—12 lines broad, dung in pastures, September."

Peck remarks that the plant has probably been confounded with *Stropharia semiglobata* and *Stropharia stercoraria* but that he has separated it on account of the peculiar pileus.

***Stropharia siccipes*, Karst. Pl. LXVI DEF.**

The plants photographed grew on cow dung in a pasture at Blue Mounds, Wis., in June. The stems were dry and floccose and the whitish clay color of the caps was quite distinct from the yellow tints of *Stropharia semiglobata*. The species is described as intermediate between *Stropharia stercoraria* and *Stropharia semiglobata*, differing from the former in the shorter dry stem and the color and from the latter in the stuffed, dry, flocculose stipe as well as color. We have collected the species a number of times and also have specimens from New York state.

PILEUS slightly fleshy, from hemispherical to expanded, obtuse, naked, even, or pellucid striate on the margin, viscid, whitish clay color, yellowish when dry. LAMELLAE adnate or subdecurrent, clay color to fuscous. STEM stuffed, soon hollow, straight or flexuous, smooth, finely fibrillose, flocculose, subflocculose or pruinose above the distant, dry, incomplete an-

nulus, pale, dry. SPORES ellipsoid, fuscous and pellucid  
7—9x11—14 $\mu$ .

NOTE—*Stropharia siccipes radiata* Pk. N. Y. state Mus. Bull. 67 pp. 37—38 is a rooting form of *Stropharia siccipes*. Peck considers the roots due to the fact that the plant grew from manure buried in the earth.

Prof. A. P. Morgan, Journ. Myc. April, 1908, removes *Agaricus* (*Psilocybe*) *sullivantius* Mont and *Agaricus* (*Psalliota*) *foederatus*, B. & M. to the genus *Stropharia*. Both species were described from plants collected in Ohio by Sullivant. Until something more is known of such doubtful plants it seems best to leave them in the genera in which the author placed them.

*Stropharia epimyces* (Pk.) Atk. Plant World, June, 1907, has quite a history. It is probably the same as *Pilosace algeriensis*, Quel. as identified by Lanzi, Fungi mang. e nocini. Tav. LXII f. 3. See note in *Mycologia* May 1913.

*Geneseo, Ills., Feb. 1911.*

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<i>semiglobata</i> .....	1022	
<i>siccipes</i> .....	1023	LXVI D E F
var. <i>radicata</i> .....	1024	
<i>squamosa</i> .....	1020	
var. <i>aurantiaca</i> .....	1020	
var. <i>thrausta</i> .....	1020	
<i>stercoraria</i> .....	1021-22	LXVII
<i>submerdaria</i> .....	1020-21	LXVI G H I
<i>sullivantia</i> .....	1024	
<i>umbonatescens</i> .....	1023	LXV B

DESCRIPTION OF PLATES.

- Plates LIX. *Pholiota blattaria*, Fr. Plants in different stages of growth and part of a stem X4, showing the annulus.
- Plate LX. *Pholiota fulvo-squamosa*, Pk. Showing the stem, the upper and under surface of the pileus and part of a stem X4, showing the annulus.
- Plate LXI. A. *Pholiota marginata*, Batsch, showing the striate pileus, the gill surface and a young slender plant. B. *Pholiota discolor*, Pk., showing plants in different positions.
- Plate LXII. *Stropharia depilata* (Pers.) A. Cluster of three young plants. B. Part of a stem X4, showing the annulus with the striate upper surface.
- Plate LXIII. *Stropharia depilata*. A. Young plant showing the method of tearing of the veil. B. Older plant with expanded pileus, showing the stem with squarrose scales below the ring and lines decurrent from the gills at the top.
- Plate LXIV. *Stropharia aeruginosa* (Curt.) Fr. A. Two plants showing the scaly stems enlarged and myceloid below, fibrous ring stained with spores, floccose scales below the ring, gills with broad sinus and decurrent lines and umbonate pileus. B. Viscid surface of a pileus. C. Gill surface and hollow stem.
- Plate LXV. A. *Stropharia coronilla*, Bull., different views of plants and part of a stem X4, showing the enlarged annulus. B. *Stropharia umbonatescens*, Pk., showing plants in various positions.
- Plate LXVI. ABC. *Stropharia obturata*, Fr. Plant, upper surface of a pileus and section showing thick white flesh and stuffed stem. DEF. *Stropharia siccipes*, Karst., two plants and section showing the gills. GHI. *Stropharia submerdaria*, Britz. Showing two full grown plants and the gill surface.
- Plate LXVII. *Stropharia stercorearia*, Fr., A. Young plant showing the hemispherical pileus, the annulus with striate lines on the upper surface and the semibuinous base. B. Surface of a pileus with the viscid coat cracking into areas. C. Older plant with expanded pileus showing the stem and gill surface.



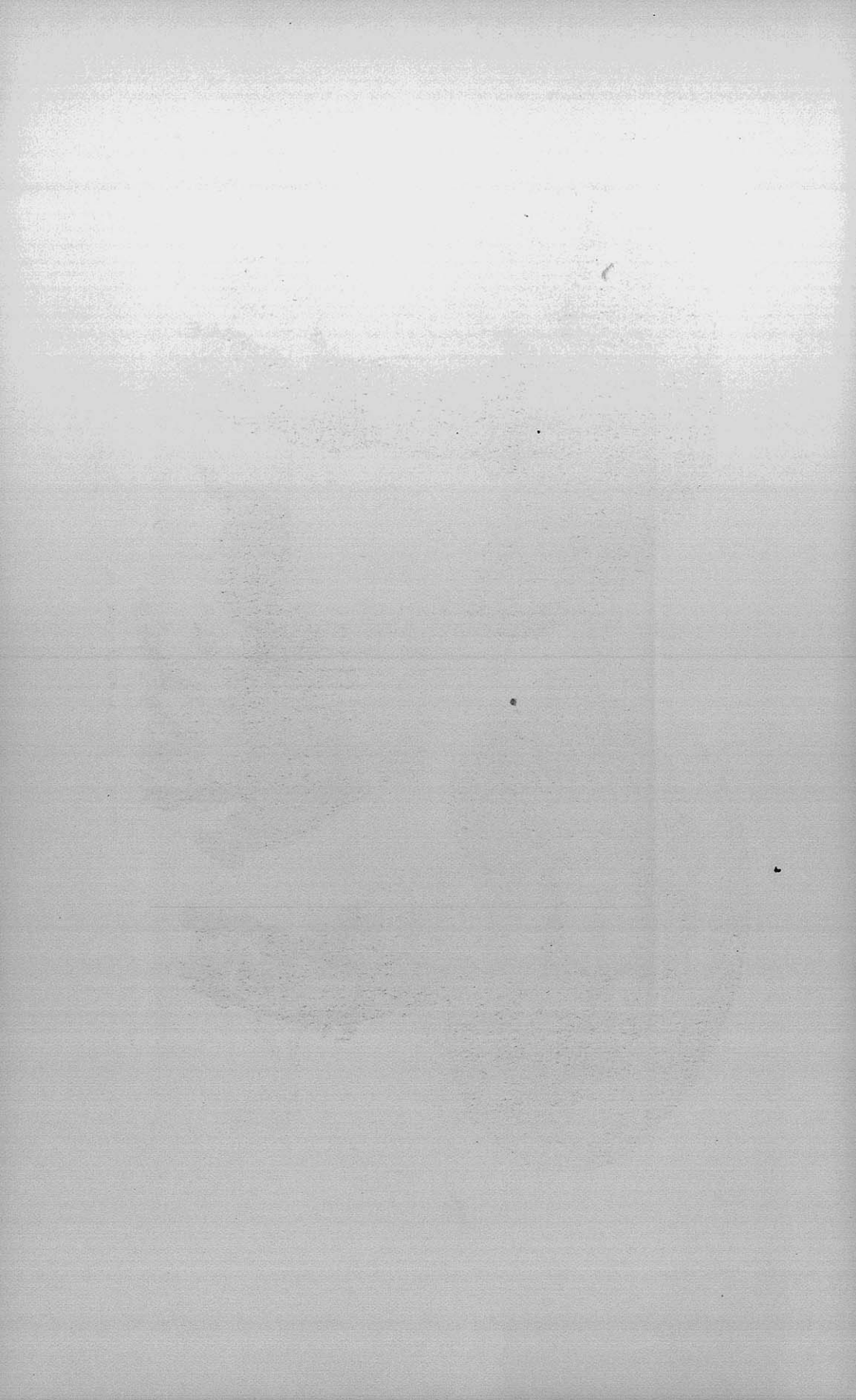


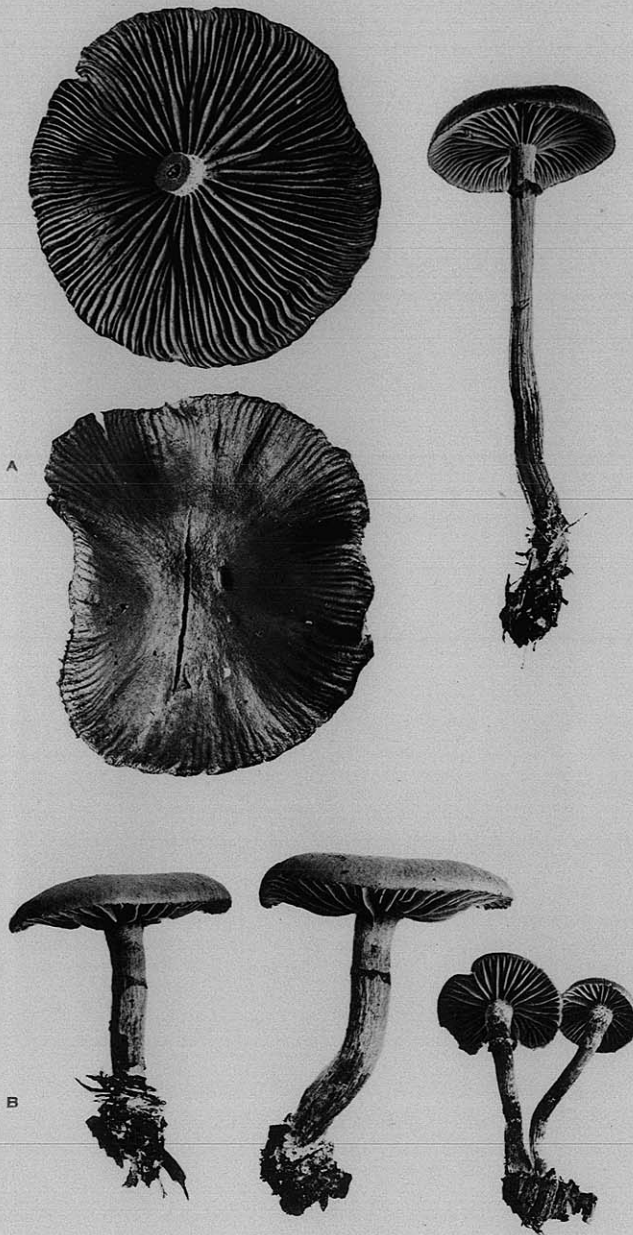
PHOLIOTA BLATTARIA, FR.





PHOLIOTA FULVA—SQUAMOSA, PK.





A. PHOLIOTA MARGINATA, BATSCH  
B. PHOLIOTA DISCOLOR, PK.





STROPHARIA DEPILATA (PERS.)







B

A

STROPHARIA DEPILATA (PERS.)

HARPER-STROPHARIA





*STROPHARIA AERUGINOSA* (CURT.)





STROPHARIA UMBONATESCENS, PK.

STROPHARIA CORONILLA, BULL.





A. B. C. STROPHARIA OBTURATA FR.  
D. E. F. STROPHARIA SICCIPES. KARST  
G. H. I. STROPHARIA SUBMERDARIA BRITZ

HARPER STROPHARIA







STROPHARIA STERCORARIA, FR.

HARPER-STROPHARIA

