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# NOTES ON SOUTHERN APPALACHIAN FUNGI, XI[1]

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In this paper, twenty-nine species and one variety of fungi are treated. Those marked with an asterisk (*) have been collected in the Great Smoky Mountains National Park. Color names in quotation marks are from Ridgway (1912).

I am especially indebted to the National Science Foundation for a grant of funds which has made these studies possible.

## AGARICACEAE

*CLITOCYBE CANDICANS Fr. *Pileus* 2-4 cm., convex, at times depressed, white, hygrophanous, glabrous but appearing hoary when dry, margin even. *Flesh* white, thin; *odor* and *taste* mild. *Lamellae* arcuate-decurrent or adnate-short-decurrent, rather close, thin, narrow, white. *Stipe* 3-4 cm. x 3-7 (10, when compressed) mm., glabrous, base white mycelioid, white above, dingy below, equal or tapering downward, hollow.

*Spores* 4-5 (6) x 3-3.2 microns, ellipsoidal, smooth.

On soil, among needles, in pine woods, Knox, Anderson, and Blount Counties, Tennessee, July-January. Our collection is well illustrated by Lange (1935-40).

*CLITOCYBE REGULARIS var. INSISTENS Kauff. *Pileus* 12-33 mm. broad, convex, expanding, hygrophanous, watery-grayish-brown when wet, white when dry, with a hoariness which shows only when dry, margin even (dry), obscurely striatulate (wet). *Flesh* thick on disk, thin on margin, pliant, white; *odor* and *taste* mild. *Lamellae* subdecurrent, medium broad, close, ventricose, "pinkish buff," moderately thin, many short, edges even. *Stipe* 2-5 cm. x 2-5 (8) mm., often compressed or fluted upward, tapering downward, base slightly enlarged and white-tomentose, often with matted pine needles, elsewhere glabrous, dingy below, pallid above, minutely striate (under lens), spongy within.

*Spores* 4-6 x 2.5-3.5 microns, ellipsoidal, smooth, white in mass. *Pleurocystidia* and *cheilocystidia* not differentiated.

On soil, among fallen needles, in pine woods, Sevier County, Tennessee, January.

*CORTINARIUS BRAENDLEI Pk. *Pileus* 3-7 cm., convex, umbonate, umbo becoming obsolete, tawny, with a violet tinge when young, covered with white silky fibrils, not viscid, margin even. *Flesh* thick on disk, thin on margin, whitish, with a violet tint when young; *odor* and *taste* mild. *Lamellae* rounded-adnate, violet when young, becoming brown, finally with a faint olive tint, medium broad, narrowed only slightly at ends, close, edges eroded. *Stipe* 4-8 cm. x 5-12 mm., apex violaceous, elsewhere whitish, fibrillose, dry, base with globose to ellipsoidal bulb (bulb slight or up to 2 cm. diam.), interior violaceous, becoming whitish, solid. *Cortina* copious, white, leaving a conspicuous ring which disappears, and more or less conspicuous, scattered bands.

*Spores* 10-12 x 6.5-8 microns, ellipsoidal, smooth, with one oil-drop, brown in mass.

On soil, under spruce, Swain County, North Carolina, September. Kauffman reports (1932:315) that it is known only from the type locality (Washington, D. C.). Dr. A. H. Smith compared our collection with the type and states (in letter) that there is a slight but insignificant difference in spore-size.

[1]Contributions from the Botanical Laboratory, The University of Tennessee, N. Ser. No. 159.

Fig. 1. *Cortinarius montanus* Kauffman x 1

*CORTINARIUS HUMICOLA (Quél.) Maire. *Pileus* 2.5-5 cm. broad, convex, obtusely umbonate, almost conic-campanulate, dry, at first "cinnamon-rufous," "hazel" to "Sanford's brown," finally fading somewhat to "ochraceous-orange" (except umbo), fibrillose-scaly throughout, margin even, incurved and remaining so. *Flesh* white tinged cinnamon, thick on disk, thin on margin; *odor* and *taste* of radish. *Lamellae* emarginate-adnexed, with a decurrent tooth, close, rather broad, near "marsh yellow" to "ochraceous tawny," or nearly "cinnamon rufous" (young gills not seen), edge even. *Stipe* 6-9 cm. x 7-10 mm., dry, nearly equal to clavate, slightly enlarged below, stained "cinnamon" without and within, fibrillose, solid. *Veil* not seen.

*Spores* broadly ellipsoidal, 8-10 x 6-7 microns, slightly rough.

In humus, mixed woods, Cades Cove, Sevier County, Tennessee, August; identified by Dr. A. H. Smith.

Our collection lacked the squarrose character of the stipe and disk (of pileus) illustrated by Lange (1935-40).

*CORTINARIUS MONTANUS Kauffman (Fig. 1). *Pileus* 4-7 cm. broad, at first hemispheric-convex, then convex-expanded, finally depressed, viscid, "brownish olive" in button stage, near "Dresden brown" to "sepia" with olivaceous hues especially on margin, at maturity rivulose (under lens), margin glabrous, incurved, even. *Flesh* thick on disk, abruptly thin on margin; dingy to olive brownish; *odor* and *taste* mild. *Lamellae* emarginate-uncinate, "grape green" to "yellowish citrine," finally "snuff brown," stained reddish-brown when bruised, medium broad, narrowed either way, crowded, many short, edges even or fimbriate. *Stipe* 4-6 cm. x 6-8 (12) mm., dry, fibrillose, tapering upward, dingy, at times faintly bluish or violaceous, base bulbous, bulb slightly marginate-depressed, bulb 2 cm. broad, stuffed then hollow, the pith brownish-violaceous. *Cortina* copious, white, tinged yellowish-green.

*Spores* ellipsoidal, somewhat inequilateral, rough, 8-12 (14.5) x 5-7 (8) microns. *Pleurocystidia* none; *cheilocystidia* pyriform-clavate, 24-38 x 6-10 microns.

On soil, under fir and spruce, atop Clingmans Dome, Swain County, North Carolina. The type was described from Oregon; also known from Washington, Michigan, and New York (Kauffman and Smith, 1933). In KOH: buttons show little or no color change; all parts of mature sporophores become dark-red.

*CORTINARIUS PHOENICEUS Bull. ex Maire. *Pileus* 1.5-5 cm. broad, conical, finally expanding-convex, obtusely umbonate, dry, "pecan brown," silky, margin even. *Flesh* firm, pallid, dark brownish under cuticle; *odor* and *taste* of radish. *Lamellae* adnexed to emarginate, "neutral red" to "madder brown," with a metallic luster, crowded, medium broad, edges eroded. *Stipe* 2.5-6 cm. x 6-9 mm., dry, fibrillose, apex mealy, "chamois," solid, becoming spongy, equal. *Cortina* yellowish-white, webby.

*Spores* 6.5-8 x 4.5-5 microns, ellipsoidal, smooth.

On soil, in pine woods, Cades Cove, Blount County, Tennessee, October; determined by Dr. A. H. Smith.

*ENTOLOMA MADIDUM Fr. (Fig. 2). *Pileus* 4.5-6 cm. broad, convex-conic, umbonate, umbo conic-acute, "Quaker drab," disk brownish, fading to fuscous, glabrous but appearing appressed-fibrillose, moist to somewhat viscid, margin even. *Flesh* firm, thick, white, dark under cuticle; *odor* and *taste* strongly farinaceous. *Lamellae* adnexed, white, then ivory, finally flesh color, edges eroded, crowded to close, rather broad. *Stipe* 6-9 cm. x 9-12 mm., dingy with a violaceous tint, base whitish, hard, equal or tapering slightly downward, fibrillose-striate, slightly rooting, solid.

*Spores* globose-angular, angles not always distinct, 6.5-8 microns diam., smooth. *Pleurocystidia* and *cheilocystidia* none.

On soil, in deciduous woods, Cades Cove, Blount County, Tennessee, September. Its occurrence elsewhere in North America seems not to have been reported.

The strong farinaceous odor and taste and the globose, indistinctly angular

spores distinguish it from *E. nitidum* Quél. Apparently *E. Bloxamii* Berk. is synonymous with *E. madidum* (Kühner et Romagnesi, 1953). Bresadola (1929) gives a good illustration of our collection (as *E. Bloxamii*).

*ENTOLOMA SCABRINELLUM (Pk.) Sacc. *Pileus* 3-4.5 cm. conic-convex, expending, at times mammiform, more or less acutely umbonate, hygrophanous, "hair brown," umbo scabrous-scaly, elsewhere more or less scaly-glabrescent, striate. *Flesh* thin, fragile, watery-brown; *odor* mild or slight, *taste* subfarinaceous to sweetish. *Lamellae* adnexed-emarginate, seceding, white, finally "drab," ventricose, broad, close, edges nearly even. *Stipe* 4-6 cm. x 3-5 mm., dingy, pallid below, scurfy-mealy at apex, fibrillose-striate, easily splitting, stuffed-hollow, equal or slightly clavate at base.

Fig. 2. *Entoloma madidum* Fr. x 1

*Spores* 8-10 x 5-6 microns, angular. (5) 6-sided, generally ellipsoidal. *Pleurocystidia* none; *cheilocystidia* capitate, bottle-shaped, 28-32 x 8-10 microns.

On humus, in mixed conifer-hardwood forest, Swain County, North Carolina, August. Reported also from New York and Ohio (Murrill, 1917b), and from Michigan (Kauffman, 1918).

*ENTOLOMA SERICELLUM Fr. *Pileus* 7-30 mm. broad, conic-convex, at times depressed on disk, not hygrophanous nor viscid, white becoming "pale pinkish buff," disk tinted tawny-olive, whitish fibrillose, micaceous-shining, margin striate; surface with more or less erect tangled hyphae (about 7-10 microns

diam.). *Flesh* thin, white; *odor* none, *taste* mild. *Lamellae* emarginate or uncinate, rather broad, subdistant, white at first, then "pale pinkish cinnamon," edges even or becoming eroded. *Stipe* 3-6 cm. x 1-4 mm., solid or stuffed, becoming hollow, soft and fragile, white, apex pruinose, elsewhere glabrous, equal or slightly enlarged downward.

*Spores* 9-12 x 6-7.5 microns, angular, at times nodulose-angled, apiculate, 5-6-sided, 1-guttulate. *Pleurocystidia*, none found; *cheilocystidia* clavate, 22-25 x 4-5 microns. *Gill trama* composed of undulating-parallel cells 7-14 microns diameter.

On soil and humus, deciduous woods, Sevier County, Tennessee (also reported by Kauffman, 1917), and Swain County, North Carolina, August. As stated by Kauffman (1918), the sporophores remind one of an *Eccilia*, and Lange (1935-40) attaches it to *Leptonia*.

HEBELOMA SINAPIZANS (Fr.) Gill. *Pileus* 4-8 cm., convex, expanding, viscid, "light cinnamon-drab," rivulose-reticulate under lens, disk floccose-matted. *Flesh* firm, white; *odor* and *taste* of radish. *Lamellae* deeply emarginate to adnexed, white at first, then "pale ochraceous buff," finally near "dresden brown", broad, close, edge fimbriate. *Stipe* 3-4 cm. x 12-15 mm., dry, white, floccose-scaly, subbulbous, solid. *Cortina* none.

*Spores* 9.5-12.5 x 7-8 microns, sublimoniform, minutely rough. *Pleurocystidia* none; *cheilocystidia* clustered, numerous, clavate, 38-43 x 7-8 microns.

On soil, in deciduous woods, Tennessee, October. We have found this species but once. The scaly stipe is an important field character. Our no. 20207 was identified by Dr. A. H. Smith.

*LACTARIUS ASPIDEUS Fr. (Fig. 3). *Pileus* 8-10 cm. broad, convex-depressed, viscid, viscidity thin, "cartridge buff," stained "cream buff," azonate, glabrous, even. *Flesh* white, thick on disk, thin on margin; *taste* acrid, *odor* mild. *Latex* copious, white then grayish, staining lamellae brownish lilac, promptly very acrid. *Lamellae* adnate, concolor to pileus, close to crowded, arcuate, rather narrow to medium broad, edges even. *Stipe* 5-7 cm. x 1.5-2 cm., concolor to pileus, not spotted, rivulose (under lens), stuffed then hollow, not viscid, equal, base curved.

*Spores* 8-10 microns, globose, echinulate.

In humus, deciduous woods, Swain County, North Carolina, August. Also reported from New York and Europe (Burlingham, 1910).

The buff color and globose spores distinguish it from *L. uvidus* Fr.

LEPIOTA NAUCINA Fr. (Fig. 4). *Pileus* 4-10 cm. broad, hemispheric then expanded-plane, white, dry, plush-like, glabrous, at times scaly. *Flesh* white, thick on disk, thin on margin; *odor* and *taste* mild or fungoid. *Lamellae* free, not remote, rounded, broadest behind, crowded, white, then with a pinkish to brownish tint, edges flocculose and often darker. *Stipe* 5-9 cm. x 8-12 mm., white, silky, dry, equal above a thickened or bulbous base, bulb up to 2.2 cm. diam., hollow-stuffed. *Annulus* white, superior, persistent, becoming somewhat movable.

*Spores* 8-9.5 x 5.5-6 microns, ellipsoidal to slightly ovoidal, nucelate, white in mass (in No. 20165, the spore-print was creamy white). *Pleurocystidia* none; *cheilocystidia* clustered, pyriform to wedge-shaped, 24-35 x 9-14 microns.

On lawns and pastures, Knox and Davidson Counties, Tennessee, September-November.

*LEPIOTA RUBROTINCTA Pk. (Fig. 5). *Pileus* 4-6 cm. broad, convex, expanding plane, umbonate, "vinaceous tawny," disk "pecan brown," dry, fibrillose, minutely appressed scaly, radiately rimose at least on marginal half, cuticle separable to disk, not striate. *Flesh* thin, soft, white; *odor* and *taste* fungoid. *Lamellae* free, white, tinged yellow, not broad (4-5 mm.), broadest in front, narrowed behind, close to crowded, many short, none forked, edges flocculose. *Stipe* 5-8 cm. x 4-8 mm. (8 mm. below), white, dry, shining, silky striate, glabrescent, somewhat clavate (enlarged downward), hollow. *Annulus* ample, nearly mediam or slightly apical, persistent, membranous, white with pinkish-brown margin.

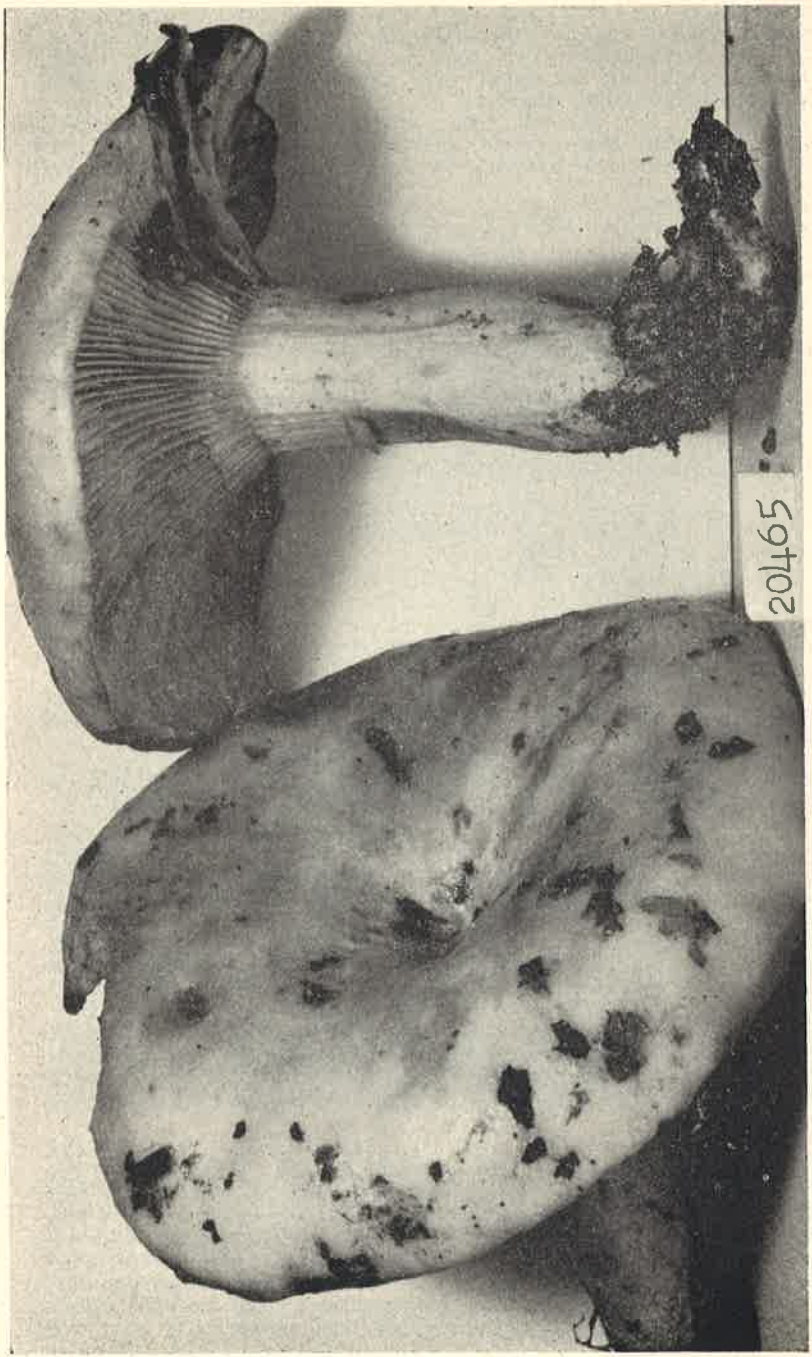


Fig. 3. *Lactarius aspideus* Fr. x 1

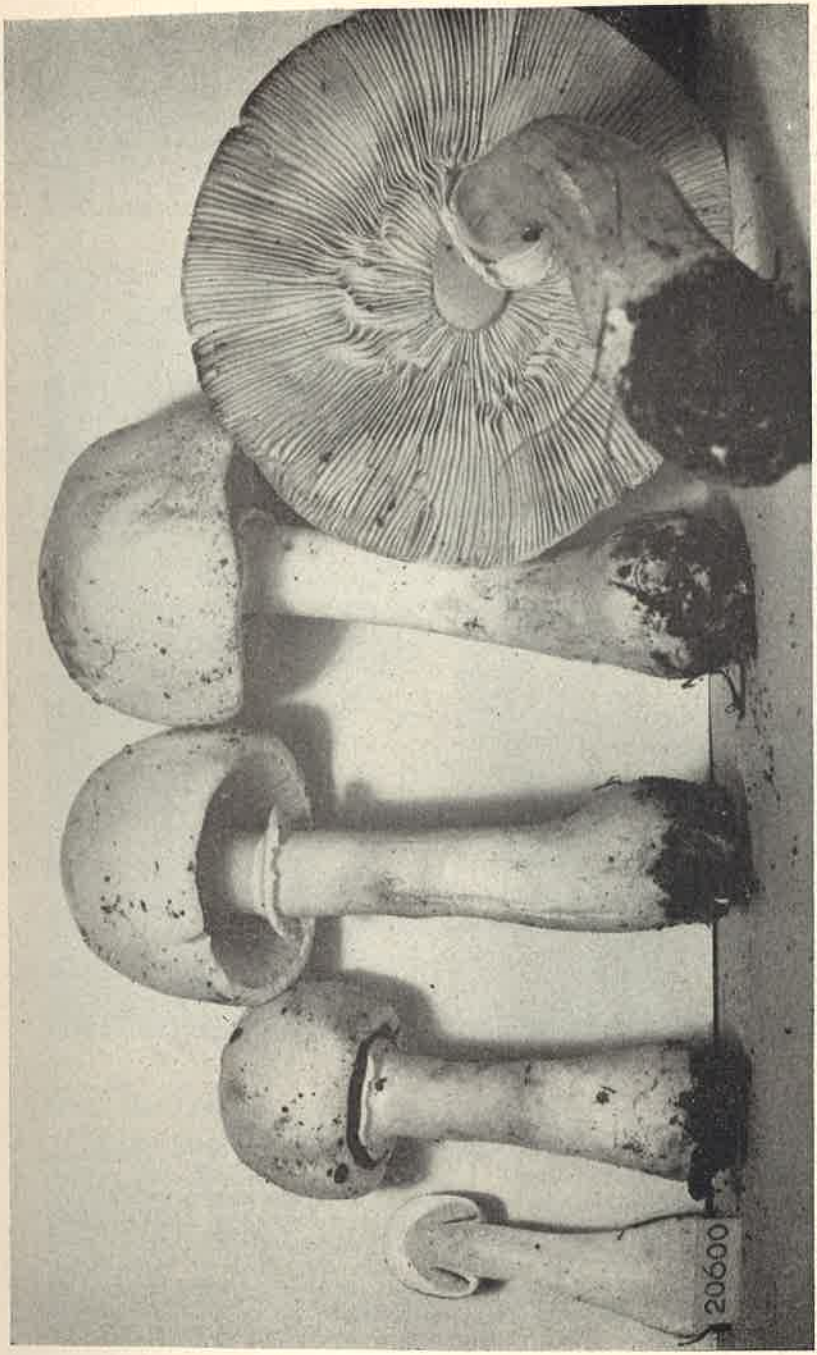


Fig. 3. *Lactarius aspideus* Fr. x 1

Fig. 4. *Lepiota naucina* Fr. x 5/6

*Spores* 7-9 (10) x 3.5-5 microns, ellipsoidal, smooth, white in mass. *Pleurocystidia* none; *cheilocystidia* clavate, 28-38 x 6-9 microns, not numerous. *Gill trama* notably loosely interwoven.

On soil and humus, mixed woods, Sevier County, Tennessee, June-August.

*LEPIOTA RUGULOSA Pk. *Pileus* 9-12 mm., conic, with a broad rounded umbo, white, unchanging, minutely and densely fibrillose-squamulose, somewhat rugulose, margin striate. *Flesh* thin, firm; *odor* mild. *Lamellae* free, white, close, narrow to medium broad, edges fimbriate. *Stipe* 4-5.5 cm. x 2-3 mm., white, glabrous below annulus, shining, hollow, equal. *Annulus* thin, membranous, subpersistent.

Fig. 5. *Lepiota rubrotincta* Pk. x 1

*Spores* 6-8 x 3.5-4 microns, smooth, ovoid. *Pleurocystidia* none; *cheilocystidia* clustered, cylindrical, 28-38 x 4-8 microns.

On humus, deciduous woods, Swain County, North Carolina, August.

LEPIOTA SUBASPERULA Murrill (Fig. 6). *Pileus* 5-8 (10) cm., convex, expanding, finally margin upturned-wavy, with or without an obtuse umbo, dry, matted-fibrillose, fibrils converged to form numerous erect, blackish warty scales, disk "sayal brown," margin paler ("cinnamon buff"), margin even. *Flesh* medium on disk, thin on margin, white; *odor* alkaline, *taste* slightly unpleasant. *Lamellae* free (but close to stipe), white, nally faintly cream-color, narrow, crowded, many forked, edges rough. *Stipe* 7-15 cm. x 7-12 mm., white, equal or tapering above slightly, base with a sub-emarginate slight bulb, dry,

with a pith. *Annulus* apical, membranous, smooth and white above, brownish and warty below, sometimes draped obliquely, rather persistent.

*Spores* (4.5) 5.5-7 x 2.5-3.2 microns, ellipsoidal to cuneate, smooth, *Pleurocystidia* none; *cheilocystidia* globose to pyriform, 12-17 x 12-14 microns, smooth, colorless.

On humus and soil, garbage pit, Knox County, Tennessee, October. The type was collected by Dr. W. A. Murrill, at Gainesville, Florida, August 22, 1944. Our No. 19487 was found by Dr. A. J. Sharp, and was compared with the type by Dr. Murrill.

*LEPTONIA SUBSERRULATA Pk. (Fig. 7). *Pileus* 2-4 cm. broad, convex-hemispheric, finally somewhat campanulate, umbilicate, grayish-white to near "pinkish buff," at times with a greenish tinge on being dried, somewhat hygrophanous, umbilicus blackish becoming paler and scaly, at times fibrillose (and fibrils yellow), margin even when dry, striate when wet. *Flesh* thin, pliant, white; *odor* and *taste* mild or slight. *Lamellae* adnate-decurrent to adnexed, somewhat seceding, close, medium-broad, arcuate, white, then flesh-tinted, finally "pale cinnamon pink," edges blue-black. denticulate. *Stipe* 4-8 cm. x 2-3 mm., dry, dingy to livid, apex glabrous, base white-mycelioid, tubular.

*Spores* 9-11 x 5-7 microns, angular, 5-angled, apiculate. *Pleurocystidia* none; *cheilocystidia* not always distinct, somewhat agglutinated, dark, clavate, 32-38 x 8-9 microns.

On soil, in pine and mixed woods, Cades Cove, Blount County, Tennessee, and Swain County, North Carolina, July-August. Reported from New York and Maine (Murrill, 1917a).

*MYCENA PELIANTHINA (Fr.) Quél. Several collections have been taken from Tennessee (Counties of Knox, Sevier, and Carter), and North Carolina (Counties of Swain, Haywood, and Macon), June-October. A full description and excellent illustrations are given by Smith (1947).

*OMPHALIA GRISEO-PALLIDA (Desm.) Fr. *sensu* Lange. *Pileus* 14-18 mm. broad, membranous, convex, umbilicate, hygrophanous, "chaetura drab" (wet), near "drab" but paler (dry), hoary, disk fibrillose-punctate, margin coarsely striate when wet, even when dry. *Flesh* thin, pliant, concolor to pileus; *odor* and *taste* slight. *Lamellae* arcuate-decurrent, sub-distant, near "drab" but paler, medium broad, edges even. *Stipe* 12-16 mm. x 1-1.5 mm., glabrous, equal, concolor to pileus, solid.

*Spores* 9-12 x 6-7 microns, ellipsoidal to ovoidal, smooth, apiculate. *Pleurocystidia* none; *cheilocystidia* basidiiform, 19-26 x 7-9 microns.

On grassy soil, Swain County, North Carolina, June. Lange's illustration (1935-40) represents our collection very well.

PANAEOLUS ACUMINATUS Fr. (Fig. 8). *Pileus* 10-18 mm. broad, caespitose, obtusely conic-campanulate, not expanding, dry, not hygrophanous, "pallid mouse gray," surface plush-like (under lens), smooth or rugulose, atomate, margin soon splitting half or almost to the disk (giving a deeply-plicate, crenate appearance). *Flesh* very thin but relatively firm, pallid; *odor* and *taste* mild. *Lamellae* almost free though narrowly attached, ascendent, rather broad, broadest toward front, close, black, edges white and fimbriate to floccose-tufted. *Stipe* 3-7 cm. x 1.0-1.5 (2.5) mm., granular-tomentose throughout, dingy brownish, paler above, tapering downward, cartilaginous, dry, tubular, base subbulbous. *Veil* none.

*Spores* 11-14 x (6.5) 7-8.5 microns, ellipsoidal to ovoid to sublimoniform, blackish in mass, smooth. *Pleurocystidia* none; *cheilocystidia* hair-shaped to slender-cravate, 20-25 x 4-7 microns.

*Surface of pileus* composed of subglobose to pyriform cells, about 28 x 16 microns. No color change in pileus or gills in KOH.

On cultivated soil, garden, Knox County, Tennessee, July; determined by Dr. A. H. Smith.

*PANAEOLUS SOLIDIPES Pk. (Fig. 9). *Pileus* 2-4 (8) cm. broad, up to 2.5 cm.

Fig. 6. *Lepiota subasperula* Murrill x 1.

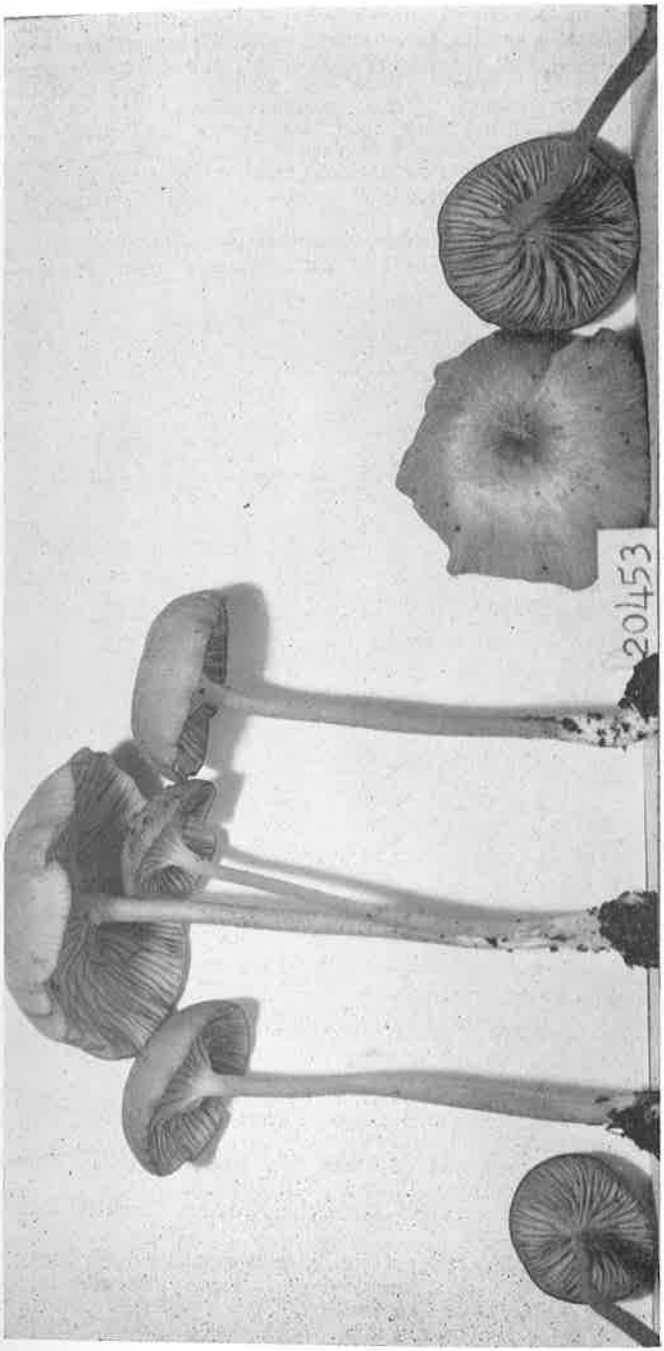


Fig. 7. *Lepiota subserrulata* Pk. x 1

Fig. 6. *Lepiota subasperula* Murrill x 1

high, semi-globose, then convex-campanulate, pallid-whitish, disk "pinkish buff" to "clay color," viscid, shining, at times more or less rugose, glabrous becoming rimose-scaly (scales flat and pale grayish-olive), cuticle entirely separable, margin even, not appendiculate. *Flesh* thin, white; *odor* and *taste* fungoid, pleasant. *Lamellae* narrowly adnate, ascending, broad (up to 8 mm.), ventricose, close to crowded, white, soon "deep mouse gray," finally blackish, variegated by spores, edges white-denticulate or floccose. *Stipe* 9-17 cm. x 3-5 mm., whitish, becoming dingy, cartilaginous, apex mealy, more or less striate throughout, strict or flexuous, base often curved, dry, solid. *Cortina* none, even in "buttons."

*Spores* (11) 15-20 x 9-12.8 microns, limoniform, smooth, black in mass. *Basidia* 4-spored, 33-40 x 14-16 microns; *sterigmata* stout. *Pleurocystidia*

Fig. 8. *Panaeolus acuminatus* Fr. (slightly enlarged)

scattered, bottle-shaped, appendiculate, 36-50 x 15-17 microns; *cheilocystidia* clustered, variable: pyriform, bottle-shaped, clavate, at times sub-capitate, 25-60 x 8-20 (41) microns.

*Cuticle of pileus* composed of about two layers of cells (globose to ellipsoidal, ovoid, or pyriform), 18-48 x 12-24 microns.

On horse and cow dung, Knox, Blount, and Marion Counties, Tennessee, July-September.

PLUTEUS SALICINUS Fr. *Pileus* 4 cm., convex-expanded, gray-brown (not matched), disk darker, cuticle composed of filaments (not globular cells), margin even. *Lamellae* white then flesh-color, free, moderately broad, edges concolor, close. *Stipe* 3.5 cm. x 4 mm., white, equal, somewhat fibrillose.

*Spores* short-ellipsoidal, 7-8.5 x 4.8-5.5 microns, smooth. *Pleurocystidia* bottle-shaped, numerous, apex 4-horned, 80-88 x 15-20 microns; *cheilocystidia* clavate, 41-50 x 15-20 microns.

On deciduous log, probably beech, Knox County, Tennessee, May. Only one sporophore was found. The stipe lacked the smoky-olive base described by Kauffman (1918). Lange's (1935-40) illustration represents our collection very well.

*PHOLIOTA ALBOCRENULATA Pk. No. 18040, on frondose log, Greenbrier, Sevier Co., Tenn., Oct., 1947; No. 20501, on decaying maple trunk, Indian Creek, Swain Co., N. C., Aug., 1952. *Pileus* 2-3 cm. broad, "sayal brown," viscid, appressed-scaly. *Lamellae* sinuate, rather close, grayish then brownish,


Fig. 9. *Panaeolus solidipes* Pk. (slightly reduced)

edges white-fimbriate. *Stipe* 4-7 cm. x 5-15 mm., somewhat scaly, white above, brownish below; *annulus* fugacious, at times appendiculate.

*Spores* 11-14 x 5-7 microns, ellipsoidal to fusoidal, smooth. *Pleurocystidia* not conspicuous, basidiiform-clavate, 36-42 x 7-9 microns; *cheilocystidia* clustered, slender-clavate, 25-40 x 4-5 microns.

On log, Sevier County, Tennessee, and Swain County, North Carolina, August-October. Previously reported from New Hampshire, New York, Pennsylvania, and Tennessee (Overholts, 1927).

## OTHER BASIDIOMYCETES

ARACHNION ALBUM Schw. Four collections from Knox County, Tennessee, June-September, rather common.

*BOLETUS PIPERATUS Fr. *Pileus* 2.5-4 cm. broad, convex, becoming plane, viscid when wet, tomentose-felted, "russet" to "clay color." *Flesh* thick, firm, yellowish with a rosy tint; *taste* peppery. *Tubes* adnate, deep reddish-cinnamon (not well matched), irregular in shape and size, radially elongated near stipe. *Stipe* 3-5 cm. x 4-6 mm., dark reddish-brown, tomentose, not reticulated, base bright yellow mycelioid, flesh yellow, solid.

*Spores* 6-9 x 2.7-3.2 microns, ellipsoidal-subfusoidal, smooth, "light brownish olive" in mass.

On soil, in mixed woods, Swain County, North Carolina, August.

*BOLETUS ROXANAE Frost. (Fig. 10). *Pileus* 4.5-8 cm. broad, "buckthorn brown" to "ochraceous tawny," slightly paler in age (with areas of "antimony

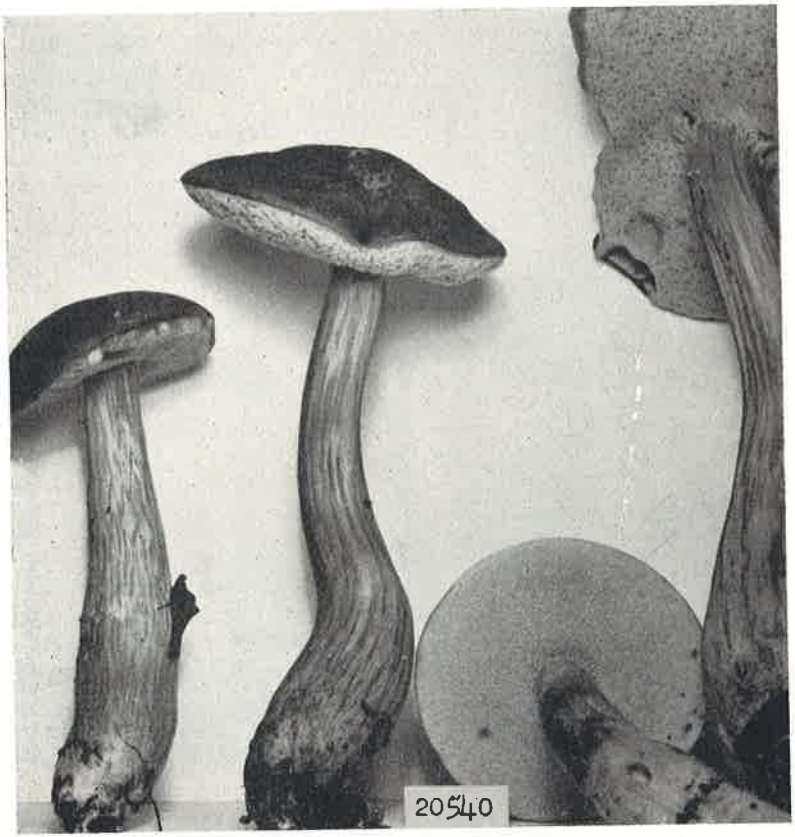


Fig. 10. *Boletus Roxanae* Frost x 5/6

yellow"), tomentose, usually minutely tufted, dry. *Flesh* thick on disk, thin on margin, pallid, tinged pink, not changing color; *odor* slightly alkaline; *taste* mild. *Tubes* adnate, with decurrent lines, soon depressed around stipe, rounded, 2 per mm., up to 7 mm. long, whitish when young, then "baryta yellow." *Stipe* 8-12 cm. x 6-12 mm., "primuline yellow" throughout, inconspicuously reticulated above, with conspicuous, brownish, longitudinal streaks, tapering above, base usually clavate-bulbous, base abruptly pinched.

*Spores* 9-13.5 x 3.5-4.8 microns, smooth; color in mass: "buffy olive".

On soil, in deciduous and mixed woods, Swain and Macon Counties, North Carolina, August.

PUCCINIA ANDROPOGONIS Schw. No. 20810, on *Comandra Richardsiana* Fernald, Fall Creek Falls State Park, Van Buren County, Tennessee; collected by Dr. A. J. Sharp, determined by Dr. G. B. Cummins, May 3, 1953. A new host record.

PUCCINIA OBSCURA Schroet. No. 20846 on *Luzula acuminata* var. *saltuensis* (S. Wats.) Fernald, Sullivan County, Tennessee, May 23, 1953. Collected by Dr. A. J. Sharp, determined by Dr. G. B. Cummins. A new host record.

*RHIZOPOGON ATLANTICUS Coker & Dodge. Five collections have been taken, from Knox and Blount Counties, Tennessee, October-December; determined by Dr. C. W. Dodge.

*TRAMETES VARIIFORMIS Pk. On fallen, dead, pine limbs, Blount County, Tennessee, November. Determination confirmed by Dr. J. A. Stevenson. This species has previously been found in the northern United States and southern Canada.

UROMYCES HYPERICI (Spreng.) Curt. No. 20476, on *Hypericum tubulosum* var. *Walteri* (Gmel.) Lott, Coffee County, Tennessee, August; No. 20477, same host, Henry County, Tennessee, June. Both collections by Dr. A. J. Sharp. A new host record.

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