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November 2013

### Agaricus Notebook 1

L. R. Hesler

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Should be

*A. argenteus* Braendle in

Peck

Bull. Torrey Bot. Club 26: 68 1899

A.H.F.

*A. subalacumanus* & *A. alacumanus*  
two good spp.

*A. alacumanus* — J.E. Hitch. Soc. 54: 440

*A. subalacumanus* — Lloydia 5: ~~151~~ 151  
1942

# KEY TO SECTIONS AND SUBSECTIONS OF GENUS AGARICUS

Kühner and Romagnesi

- A) In the typical species of this section, the pileus does not stain yellow when fresh and reacts only faintly with concentrated sulfuric acid (often rose to purple), concentrated nitric acid and a concentrated solution of KOH. Aniline oil browns it slightly or yellows it only weakly, and if one crosses the pileus with a line of aniline then a line nitric acid it does not rapidly appear fire red (Schaeffer reaction). In the rare forms where the fresh pileus yellows, the annulus is thin, simple, and not areolate-squamulose on the lower surface; the edges of the gills do not have differentiated sterile elements, or only scattered ones in the form of hyphae. No odor of anise, taste of bitter almonds, of phenol. In a number of species, the flesh becomes more or less red with exposure. When this reddening is not distinct, it is a species with a thickset stipe, subglobose spores at least 4-5  $\mu$  in width, and 6-8-10  $\mu$  long.  
RUBESCENTES
- B) Species with a whitish or yellowish pileus, thick stipe, an ascendent-inferior annulus or two annuli the lower one being ascendent. Spores more or less short often subglobose, attaining a width of at least 4-5  $\mu$ . Basidia 4-spored. Edges of the gills bearing sterile elements, certain of which are obviously wider than the basidia.  
group BITORQUES
- B) When there are two annuli or and single inferior-ascendent annulus, the cap is brown or gray, the stipe stuffed or hollow, or basidia 2-spored.
- C) Occurring under trees, annulus of mature specimens pendant; gills possessing marginal sterile elements wider than the basidia (at least 6-12  $\mu$  whereas basidia are scarcely 6-8  $\mu$ ); basidia 4-spored, more or less oblong. Species often more or less slender, pileus frequently marked with scales or brown fibrils, flesh with an acid odor, often reddening strongly.....  
group SANGUINOLENTAE
- C) Occurring under trees but with a different type of annulus, or gill edges fertile without differentiated sterile elements. In general, width of spores exceeding 4-5  $\mu$ ; it is less than 3-4,7  $\mu$  only in Ps. porphyrea, of the prairies.  
group RUFESCENTES
- A) In the typical species of this section, the cuticle of the pileus more or less yellows when fresh; in general it becomes citrus yellow to chrome yellow or orange either in concentrated sulfuric or nitric acid, concentrated KOH solution, or aniline oil. However, in the larger species, it is not rare (one species of two) for the context of the pileus and the outer layer of the stipe to redden with age. In many species of the group Augustae, the flesh reddens with exposure. The flesh of all these species reddens differently than in the section Rubescentes by the odor of bitter almonds, anis, phenol or ink and by the presence of short, inflated marginal cystidia, often globular, oval or ballooned, at most short and widely clavated; these cystidia are scarcely more than twice as long as wide and their width exceeds--at least for certain among them--that of the basidia. Annulus volviform. Basidia 4-spored. Spores subglobose.

FLAVESCENTES

- B) Pileus at least 4-6 cm. wide. If covered with fibrils or scales these are yellowish, grayish, brownish or blackish, but not reddish, purplish, violet, with age of the carpophore.
- C) Mushrooms having small spores (at most 6-7 x 4-5,5  $\mu$ ; often only 4-6 x 3-4  $\mu$ ) and no odor of anise. When fresh, the odor is more or less disagreeable (phenol or ink); sometimes difficult to perceive, but often accentuated with cooking, which renders these mushrooms inedible (certain ones have provoked indigestion, though not serious). Schaeffer reaction negative. Species rare or less common, appearing oftentimes under leaves. group XANTHODERMAE
- C) Odor of phenol. Spores 5-9  $\mu$  or larger. Schaeffer Rxn. often positive.
- D) Species whose spores never exceed 8-10  $\mu$ , pileus white or staining more or less yellow, deprived of scales, or only white or yellow scales (but not brown). Schaeffer Rxn. positive. group SILVICOLAE
- D) Not as above. Species particularly large, cap 10-15 cm. in width or more, more or less floccose, fibrillose or scaly, at least at a given moment, stipe 20-30 mm thick, covered with white scales or patches below the annulus, the lower surface of which is more or less cracked into scales. The flesh always colors more or less reddish, at least ~~in~~ with age. group AUGUSTAE
- B) Species with small spores (maximum 5,5-6 x 3,5-4  $\mu$ ), cap not exceeding, in most cases, 3-5 cm.; the pileus only attaining 6-8 cm. in one species provided with scales and fibrils more or less purple or vinaceous in coloration. Annulus thin and simple not scaly below. Flesh not reddening. No disagreeable odor of phenol or ink, but often with the odor of bitter almonds. group MINORES



Murrill, W. A. *Agaricus* at Gainesville, Florida.  
*Elisla Mich. Sci. Soc. Jour.* 54: 139-141. 1938.

————. Dark-spored agarics — III. *Agaricus*.  
*Mycologia* 14: 200-221. 1922. (Key to species.) 1918  
————. The agaricaceae of tropical North America — VIII. *Mycol* 10: 62-85. 1918

Holton, J. W. and D. E. Stuntz. The genus *Agaricus*  
in Western Washington. *Mycologia* 30:  
204-234. 1938.

Plat, Albert. The Bohemian species of the genus  
*Agaricus*. *Sbornik Narodního Muzea v Praze*  
7: 3-142. Text figs. 1-74, pls. 1-17. 1951.

Smith, Alexander H. Studies in the genus *Agaricus*.  
*Michigan Acad. Sci., Arts, & Letters Papers* 25:  
107-138. 1940.

AGARICUS ALACHUANUS Murrill

Elisha Mitchell Sci. Soc. Jour. 54:140. 1938

*A. novus nudum*  
3rd

"Pileus convex to slightly depressed, gregarious, about 3-4 cm. broad; surface dry, isabelline, with purple scales arranged in an imbricate pattern as in A. placomyces, not becoming darker on drying, purplish-brown on the disk; context white; lamellae as usual for the genus, almost black with age; spores subellipsoid, smooth, dark-brown,  $6 \times 3.5 \mu$ ; stipe white, smooth, rather thick, bulbous, not exceeding 4 cm. in length; annulus ample, persistent, white, becoming yellow on drying.

"Type collected by W. A. Murrill in a low spot under a laurel oak in Gainesville, Florida, August 17, 1937 (No. 15917). From our other small species, A. contulus and A. diminutivus, this one differs decidedly in its shorter, thicker stipe and conspicuous purple scales. From small forms of A. micromegethus, the ample, persistent annulus would at once distinguish it. Some of my readers might like to know that Gainesville is situated in Alachua County, an Indian word more difficult to pronounce properly than to spell correctly."



AGARICUS ALLIGATOR Murrill

Florida Acad. Sci. Jour. 8:192. 1945

*A. floridanus* Pk.  
Q52

"Pileus convex to expanded, gregarious, 6-10 cm. broad; surface white, distinctly imbricate-scaly, especially at the center, margin silky, widely projecting, fimbriate; context 1 cm. thick, white, unchanging, very sweet and nutty, not amygdaline; lamellae just free, close, inserted, 1 cm. broad, pale a long time, entire; spores ellipsoid, smooth, dark, opaque, 5-6 x 4  $\mu$ ; stipe equal, solid, glabrous, white, about 7 x 1.7 cm.; annulus ample, simple, white, fixed, median.

"Type collected by W. A. Murrill in open manured cultivated ground at Gainesville, Fla., Oct. 17, 1941 (F 19577). Suggesting A. floridanus Pk. but rough-scaly on the disk. Both cap and stem become yellow or brownish-yellow where bruised and golden-yellow when dried. As I have described A. crocodilinus from the West I thought an appropriate Florida name might be appreciated."

AGARICUS ARGENTATUS Pk.

*A. campestris* Sp. 8.

Pileus 4-8 cm. broad, convex, finally almost plane, at first whitish, then "pale vinaceous-fawn," appressed fibrillose, fibrils disposed into appressed scales (or squamules), disk becoming cracked, margin even. Flesh dingy white, thick on disk, thin on margin; odor and taste pleasant (nutty). Lamellae almost attached to free, close, broad, ventricose, rounded both ends, not quite reaching margin of pileus, pink, then "natal brown" to "bone brown," finally "deep brownish drab," edges even. Stipe 2.5-5 cm. x 7-13 mm., tapering downward, white-shining, fibrillose, solid. Annulus median or slightly apical, fibrillose, evanescent.

Spores 7.5-10 x 5-6  $\mu$ , ellipsoid, color in mass: "bister."

Habitat and Distribution. - On lawns, Tennessee, May and December.

Observations. - Smith (March 28, 1942) says close to A. campestris but spores broader.



14211

AGARICUS ARGENTATUS Pk.

On lawn, Park Headquarters, GSMNP, coll. L.R. Hesler, det.  
A.H. Smith, May 24, 1942.

Pileus 4-5 cm broad, convex, finally nearly plane, at first whitish, finally smoky gray-brown (not matched), shining, matted-fibrillose, many fibrils arranged in flat scales. Context white, firm, medium-thick; odor and taste mild (pleasant).

Lamellae free, rounded both ends, medium-broad, crowded, pink, then "light drab," finally "deep brownish drab," edge eroded.

Stipe 4-5 cm long, 7-12 mm thick, whitish or dingy, tapering downward, somewhat fibrillose, solid. Annulus white, fibrillose, not persistent.

Spores 8-9.5 x 5-6  $\mu$ , elliptical.

AGARICUS ARVENSIS Fr.

Epicr. Myc., p. , 1836

Illustration:

Coker, Elisha Mitch. Sci. Soc. Jour. 43, pl. 44. 1928

"Pileus 4-15 cm. broad, convex to subplane, buttons ovoid to subcylindric, surface dry, innately white-fibrillose, the fibrils sometimes converging to form appressed scales, with a narrow sterile margin frequently decorated with veil remnants, color white or tinged creamy to yellowish on the disc; flesh up to 1 cm. thick, firm, white, staining yellow near the cuticle when bruised, odor none, taste mild or very slightly of almonds; lamellae remote, rather broad (8-12 mm.), close, nearly equal, white or faintly grayish at first, slowly changing to dull vinaceous brown with a pinkish tint, finally dark blackish brown (typically "avellaneous" in late stages of immaturity); stipe 6-12 cm. long, 1-2 cm. thick, equal above a slightly clavate base, stuffed, becoming hollow, white, changing to yellowish in age, glabrous and silky above and below the superior annulus; annulus double, smooth and silky on upper side, with areolate cottony patches beneath, white or tinged yellowish with age; basidia four-spored; spores 7-9 (10) x 5-6  $\mu$ , ellipsoid, fuscous brown under the microscope.

"Gregarious on dung and sod in or along the edges of pastures."

AGARICUS AURICOLOR Krieger

Mycologia 19:308. 1927

= *A. comptuliformis* *duRoi*

Illustration:

Coker, Elisha Mitch. Sci. Soc. Jour. 43, pl. 43. 1928

Pileus 3-5 cm. broad, obtusely umbonate, dry, "warm buff" to whitish, with "amber yellow" streaks or tints on disk, entirely "amber yellow" in button-stage, fibrillose to scaly, disk finally minutely scaly, margin appendiculate-crenate. Flesh white, firm, medium thick on disk, abruptly thin on margin; odor and taste pleasant. Lamellae free, narrow, crowded, white then grayish pink, "pale pinkish cinnamon," to "fuscous," finally near "blackish brown (2)," edges even or rough. Stipe 3-4 cm. x 6-11 mm., apex white, striate, pruinose, white to yellow floccose-squamulose downward, tapering upward, hollow-stuffed, dry. Annulus ample but thin, apical to nearly median, flaring, somewhat persistent, fibrillose-membranous, white above, yellow below.

Spores ellipsoidal, variable, 6-8 x 3.2-4.8  $\mu$ .

Habitat and Distribution. - On soil, lawns and roadside, Tennessee, June.

16375

AGARICUS AURICOLOR Krieger

On lawn, Gatlinburg, Tenn., GSMNP, coll. L. R. Hesler,  
det. A. H. Smith, June 21, 1944.

Pileus 3 cm broad, convex, obtusely umbonate, dry,  
"warm buff," with numerous tawny-yellowish fibrillose  
scales. Context moderately thin; odor pleasant.

Lamellae free, crowded, dark purplish-brown, edge  
even.

Stipe 3 cm long, 7 mm thick, apex white, striate,  
pruinose, elsewhere with scales similar to those of pileus,  
dry. Annulus ample, nearly median, flaring, rather per-  
sistent.

Spores variable in size, 6-8 x 3.2-4.8  $\mu$ , ellipsoidal.



*Psalliota subrutilescens* (Kauff.) Hotson & Stuntz  
ACARICUS SUBRUTILESCENS (Kauff.) Hotson & Stuntz

Mycologia 30:219. 1938

Psalliota subrutilescens Kauffman, Mich. Acad. Sci., Arts, &  
Letters Papers 5:141. 1926

Pileus 6-10 cm. broad, hemispheric then convex, white to pinkish, with "sorghum brown" to "walnut brown" fibrillose scales, margin even. Flesh medium thick, thin on margin, soft, white, unchanging; odor and taste mild. Lamellae free, rounded behind, white then pink, finally "natal brown," crowded, narrowed in front, edges entire. Stipe 8-10 (15) cm. x 6-8 mm., pallid, with a vinaceous tinge, stuffed, fibrillose, base bulbous. Annulus apical, white, ample, median to superior, with vinaceous patches near edge.

Spores ellipsoid, 5-5.5 x 3.5  $\mu$ , smooth. Pleurocystidia none; cheilocystidia rare, saccate to clavate, 10-20 x 8-15  $\mu$ .

Habitat and Distribution. - In humus, conifer-deciduous woods, Tennessee, July.

13852

AGARICUS BAMBUSIGENUS B. & C.

In humus, mixed woods, near Mt. LeConte, GSMNP, coll.

L. R. Hesler, det. B. F. Isaacs, July 20, 1941.

Pileus 6-10 cm broad, convex, white to pinkish, with Sorghum Brown to Walnut Brown scales, margin even. Flesh medium thick, thin on margin, white, unchanging; odor and taste mild.

Lamellae free, rounded behind, white, then pink, finally "natal brown," crowded, narrowed in front.

Stipe 8-10(15) cm long, 6-8 mm thick, pallid, with a vinaceous tinge, stuffed, fibrillose, base bulbous. Annulus apical, white, ample.

Spores 5-5.5 x 3.5  $\mu$ , elliptical.

Agaricus bambusigenus Berk. + Curt.  
Jour. Linn. Soc. 10: 291. 1868

*A. subbrutilescentis*  
is a synonym too.  
BFD

Agaricus Rhoadsii Murr., Torrey Bot. Club Bul. 66: 29. 1939  
Agaricus subbrutilescentis

Hab & Distr. — <sup>in deciduous woods,</sup> On soil, Florida. (Reported on  
bamboo roots in Cuba.)

Obs. — Singer compared the types of the two species.  
(A. Rhoadsii + A. bambusigenus).



17898 - *Agaricus bambusigenus* B. & C.



21474

AGARICUS BAMBUSIGENUS B. & C.

PHOTO

In deciduous woods, Mt. LeConte, GSMNP, coll. & det. by  
L.R. Hesler, August 8, 1954

Pileus 4-8 cm broad, hemispheric, then convex, whitish, with brownish ("Prout's brown") fibrillose-squamulose scales, scales more dense on central portion, scattered outward. Flesh thick on disc, thin on margin, white, unchanging; odor mild, taste fungoid, sweetish.

Lamellae free, not remote, rounded behind, white, soon bright pink, then "deep brownish drab," not broad, crowded, edges even.

Stipe 9-13 cm long, 7-12 mm thick, pallid, dingy below, shining, fibrillose, abruptly bulbous. Annulus superior, membranous, scarcely persistent, whitish.

Spores 5.5-6.6 x 3.5-4.5  $\mu$ , smooth, ellipsoid.



21474 - *Agaricus bambusigenus* B. & C.

22157

AGARICUS BAMBUSIGENUS B. & C.

PHOTO

In deciduous woods, Nail's Creek, Sevier Co., October 15, 1955

Pileus 5-9 cm broad, convex, finally plane, basically whitish with numerous, more or less concentric, brownish, fibrillose scales which are more dense at center, disc dark brown, margin even. Flesh soft, whitish, unchanging.

Lamellae free, crowded, medium broad, "brownish drab" to "mummy brown" (young not seen).

Stipe 5-9 cm long, 6-9 mm thick, dingy, apex often tinged reddish, fibrillose-silky, tapering slightly upward from the clavate-bulbous base, solid. Annulus superior, single, collapsing.

Spores 5-7(8) x 3.5-4  $\mu$ , ellipsoid, smooth, in mass: "mummy brown."



22157 - *Agaricus ~~silvaticus~~ ?*  
*bambusigenus* B. + C.



28373

AGARICUS BAMBUSTIGENUS B.& C.

Smokemont, Petersen, September 11, 1965

Pileus white, center with avellaneous fibrillose  
flat scales of decreasing density outward. Flesh and  
stipe white; no yellow.

AGARICUS BLAZEI Murrill

Florida Acad. Sci. Jour. 8:193. 1945

= *A. alabamensis* Murr.  
BFD

"Pileus subcylindric to subexpanded, scattered or gregarious, 7-9 cm. broad; surface finely scaly, cremeous to ochraceous, margin glabrous, white, even, entire, projecting 5 mm.; context white, unchanging, 1-1.5 cm. thick, not amygdaline; lamellae free, inserted, close, 5 mm. broad, entire, pale; spores ellipsoid or ovoid, smooth, dark, opaque, about  $5 \times 4 \mu$ ; sterile cells on edges of gills scarce, hyaline, irregularly clavate; stipe equal, solid, white, ochraceous when bruised, 5-6 x 1.5-2 cm.; annulus large, white, median, simple.

"Type collected by R. W. Blaze on his open lawn in Gainesville, Fla., Apr. 24, 1944 (F 32911). Collected once by the author in the vicinity. Suggesting *A. xanthodermoides* Murr. and *A. floridanus* Pk. but distinct from both."

AGARICUS BLOCKII Murrill

Mycologia 46:112. 1954

"Pileus conic to truncate-convex, gregarious, 4.5-7 cm. broad; surface white with small white fibrillose scales, disk isabelline and scaly, margin undulate, white, not projecting; context white, unchanging, 6 mm. thick, nutty, not amygdaline; lamellae just free, tapering at both ends, crowded, narrow, 3-5 mm., white, bright-pink when wounded, blackish at maturity; spores broadly ellipsoid, smooth, about  $5 \times 4 \mu$ ; stipe solid, white, about 5x1-1.5 cm., apex smooth and glabrous, below the annulus obese, with conspicuous tawny fibrillose scales pointed upward, reddish-brown when bruised; annulus median, narrow, white, unchanging.

"Type collected by Dr. S. S. Block on a rich open lawn in Gainesville, Fla., July 6, 1950 (F 21533). Rare in the vicinity. The scales on the stipe resemble those on Psalliota perrara Schulz., as figured by Bresadola (Icon. Myc. Tab. 832). - W. A. MURRILL."

AGARICUS CAMPESTRIS Fr.

Syst. Myc. 1:281. 1821

Psalliota campestris Qué!., Champ. Jura et Vosges, p. 140. 1872.

Pileus 3-7 (9) cm. broad, ovoid-globose, soon hemispheric-convex, finally expanding-convex, white to dingy whitish to brownish, sub-shining, disk "bister," or concolor at times with scattered pale brownish fibrils or densely white-fibrillose, at times fibrils loosening and disposed as appressed squamules (buttons with white, silky fibrils), dry, margin at first incurved and appendiculate from veil, finally even or nearly so, not striate. Flesh firm, thick, abruptly thin on margin, white; odor and taste pleasant. Lamellae free, not remote, rounded behind, crowded, narrow to broad, pallid whitish in buttons, then "light grayish vinaceous," "light russet-vinaceous," to "light cinnamon-drab," finally "benzo brown," "Hay's brown," to "fuscous," edges even. Stipe 2-8 cm. x (8) 12-24 mm., dingy white, dry, white-fibrillose, equal or tapering downward, at times sub-bulbous at base, solid-stuffed, easily separating from pileus. Veil ample, floccose-membranous, breaking to leave an evanescent, simple annulus, and an appendiculate evanescent fringe on margin of pileus.

Spores 5-7.5 (8) x 3.5-5.5  $\mu$ , ellipsoidal, smooth, color in mass: "mummy brown." Pleurocystidia none; cheilocystidia clavate (Smith).

Habitat and Distribution. - On soil, lawns, golf-courses, pastures, rarely in woods, Tennessee, North Carolina, Alabama, and Florida, March-November.

14059

AGARICUS CAMPESTRIS L. ex Fr.

On lawn, Knoxville, coll. L. R. Hesler, det. A. H. Smith,  
November 11, 1941.

Pileus 3-6 cm broad, convex, finally expanded, obtusely umbonate, dingy whitish, finally tinged wine-colored, with rusty-brownish scales on disc, appressed-fibrillose. Context white, medium thick on disc; odor and taste pleasant, slightly nutty.

Lamellae free (barely so), whitish, then pinkish, Cinnamon Drab, finally Deep Brownish Drab, crowded, moderately narrow, linear, edge even.

Stipe 2-5 cm long, 8-12 mm thick, dingy whitish, fibrillose, stuffed, tapering downward. Veil fibrillose; ring apical, evanescent.

Spores 5-6 x 3.5-4  $\mu$ , elliptical; Mummy Brown in mass.

19483

AGARICUS CAMPESTRIS L. ex Fr.

On municipal golf course, Knoxville, coll. L. R. Hesler,  
October 26, 1949.

Pileus 5-7 cm broad, at first dingy brownish from  
dense fibrils, finally disc "bister," surface appressed-  
scaly, the scales "bister."

Lamellae white, then pinkish, finally "benzo brown,"  
edge black.

19484

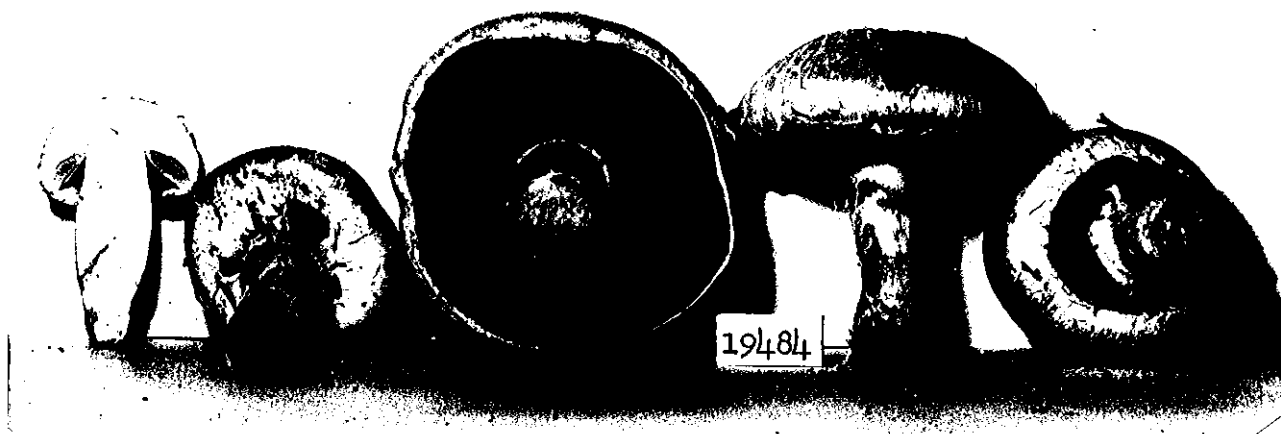
AGARICUS CAMPESTRIS L. ex Fr.

PHOTO

On municipal golf course, Knoxville, Tenn., coll. L.R.  
Hesler, det. LRH (cf. W.A. Murrill; B.W. Isaacs,  
October 26, 1949.

Pileus 4-7 cm broad, white (at first snow white),  
white silky-appressed, fibrils becoming yellowish, cuticle  
finally cracking somewhat.

Lamellae white, then pink, finally purple-brown.



19484 - *Agaricus campestris* Fr.



20173

AGARICUS CAMPESTRIS L. ex Fr.  
(Form with brown scales)

On lawn, Boarts' place, Knoxville, coll. R. M. Boarts,  
det. A. H. Smith (cf. Isaacs), Sept. 13, 1951.

Pileus 3.5-7(9) cm broad, fibrillose, with upturned scale-like tips or fibrillose-scaly or even squamulose, squamules and scales "russet," more dense on disc, less outward. Context rather thick, white, unchanging;; odor pleasant.

Lamellae free, rather narrow to medium broad, crowded, "light grayish vinaceous" to "light russet-vinaceous," finally "fuscous."

Stipe 2.5-8 cm long, 8-15 mm thick, equal, white, silky, spongy. Veil floccose-membranous, white; annulus apical, evanescent.

Spores 6-7 x 4-4.5  $\mu$ , inequilateral, ellipsoid to narrowly oval, no germ pore.

20179

AGARICUS CAMPESTRIS L. ex Fr.

On lawn, Boarts' place, Knoxville, coll. R. M. Boarts,  
det. A.H. Smith (cf. B. F. Isaacs), Sept. 14, 1951

Pileus 4-7 cm broad, "pale vinaceous pink," white-fibrillose, tips at times recurved. Context white, in age pink, thick.

Lamellae free, crowded, "light grayish vinaceous," finally "Hay's brown," broad.

Stipe 4-7 cm long, 10-13 mm thick, equal, base curved, fibrillose, solid. Veil membranous, leaving an evanescent, apical annulus.

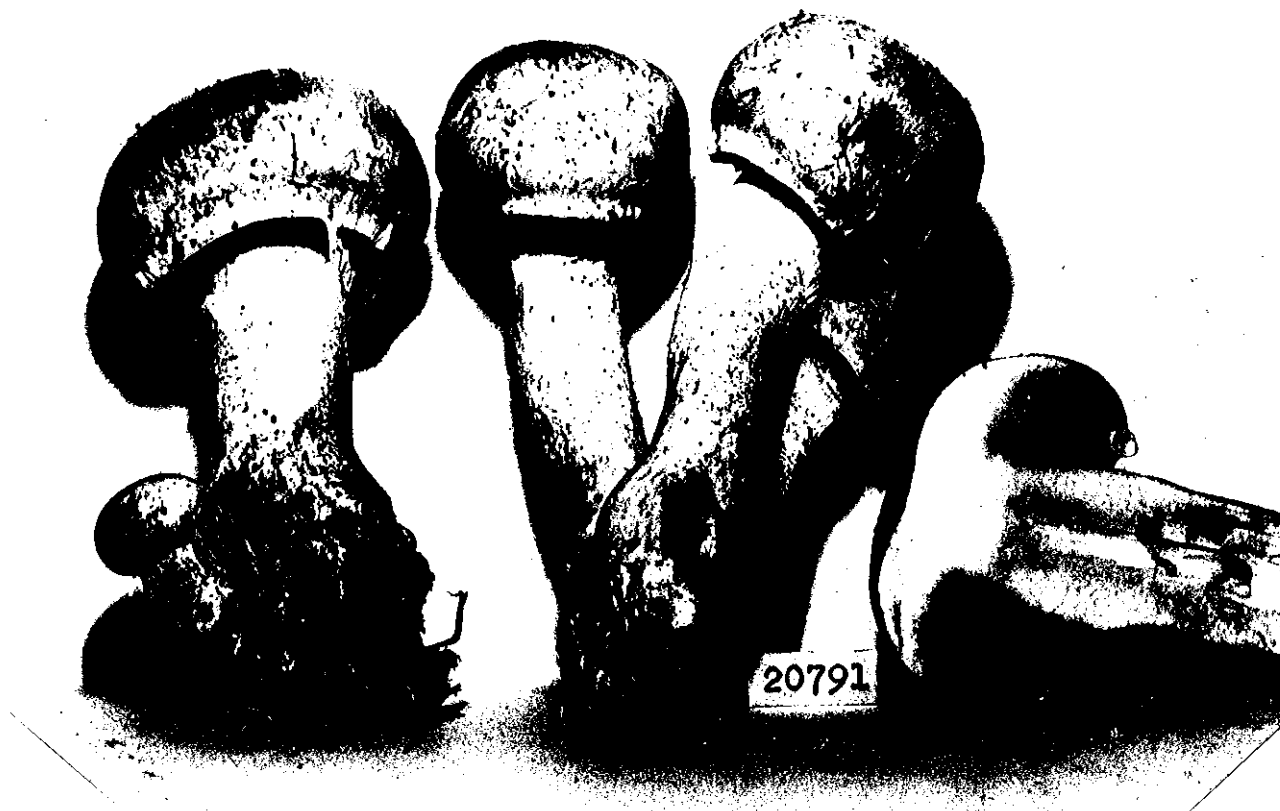
S. W.  
AGARICUS CAMPESTRIS Fr.

(white form, No. 22314)

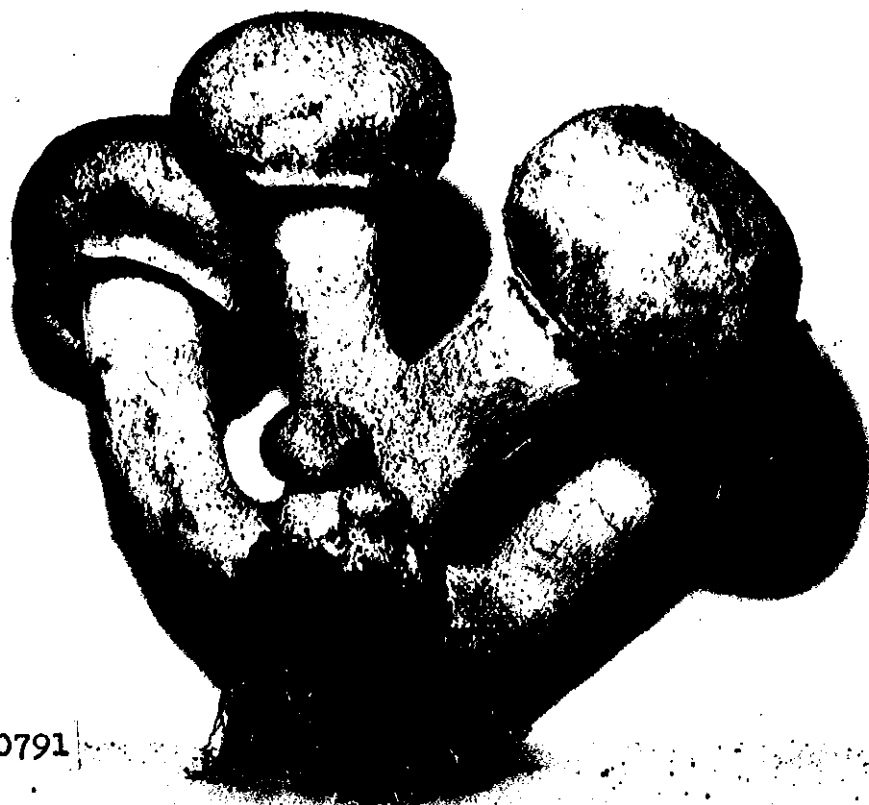
Pileus 4-6 cm. broad, white, appressed-fibrillose, finally fibrillose-scaly, hemispheric-convex, finally convex-expanded, obtuse, margin appendiculate for a time. Flesh white, unchanging, firm, thick; odor and taste pleasant. Lamellae free, not remote, not reaching edge of pileus, close, broad, at first "chatenay pink," finally "deep brownish drab," edges even. Stipe 4-6 cm. x 10-13 mm., white, equal, appressed-fibrillose, solid. Veil white, forming a temporary annulus, and appendiculate on pileus margin.

Spores 6-7.5 x 4-5  $\mu$ , ellipsoid, smooth, color in mass: "fuscous black."

Habitat and Distribution. - On lawn, Tennessee, July.



20791 - *Agaricus campestris* Fr. (cultivated)



20791

20791 - *Agaricus campestris* Fr. (cultivated)

22983

AGARICUS *Campestris* L. ex Fr.  
~~No. 22983~~

PHOTO

Pileus 5-8 cm. broad, convex, expanding, pallid-whitish, densely white-fibrillose, darkening from the margin inward in age, margin even. Flesh white, unchanging, rather thick and firm; odor mild, taste mild-fungoid. Lamellae free, whitish, soon "light cinnamon drab," finally blackish-brown, crowded, medium broad, tapering either way, edges fimbriate. Stipe 3-5 cm. x 8-14 mm., white, unchanging, minutely fibrillose, more or less enlarged downward, spongy. Annulus superior, whitish, rather persistent.

Spores 4.8-5.7 x 4-4.6  $\mu$ , ellipsoid, in mass: "fuscous-black."

Habitat and Distribution. -



22983

22983 - *Agaricus campestris* L. ex Fr.

22994

AGARICUS CAMPESTRIS L. ex Fr.

PHOTO

Hesler's lawn, June 2, 1959

Pileus 2.5-4 cm broad, white, appressed white-fibrillose.

Lamellae "light congo pink" then "cinnamon drab."

Spores in mass: "fuscous."





22994 - *Agaricus campestris* Fr.



22994

22994 - *Agaricus campestris* Fr. ex Fr.



23222 - *Agaricus campestris* Fr. ex Fr.



23575 - *Agaricus campestris* ~~#~~ Fr. ex Fr.

22994

AGARICUS CAMPESTRIS L. ex Fr.

PHOTO

Hesler's lawn, June 2, 1959

Pileus 2.5-4 cm broad, white, appressed white-fibrillose.

Lamellae "light congo pink" then "cinnamon drab."

Spores in mass: "fuscous."

24911

AGARICUS CAMPESTRIS L. ex Fr.

PHOTO

On lawn, Hesler's, September 20, 1962

White throughout, with rather inconspicuous fibrillose  
scales.



24911 - *Agaricus campestris* Fr. ex Fr.

24929

ACARICUS CAMPESTRIS L. ex Fr.

On lawn, Hesler's, August 9, 1962

White throughout, densely more or less appressed  
fibrillose. Gills bright pink.



28061

AGARICUS CAMPESTRIS L. ex Fr.

Hesler's lawn, June 5, 1965

Pileus pure white, appressed-scaly, tips of scales slightly discolored (dingy brown) when rubbed.

Lamellae bright pink, then purple-brown.

Stipe white. Veil leaving a superior, more or less persistent ring.

Agaricus citrinidiscus Murrill

Murrill's description (Jour. Fla. Acad. Sci.  
8:193. 1945):

"Pileus convex to slightly depressed, solitary, 5 cm. broad; surface slightly squamulose, citrinous at the center and fading out toward the appendiculate, even margin; context very thin, white, unchanging, odorless, mild; lamellae free, inserted, ventricose, about 7 mm. broad, rounded behind, crowded, entire, purplish-brown at maturity; spores subellipsoid, smooth, dark purplish-brown, about  $5 \times 3 \mu$ ; cystidia none; stipe enlarged downward, bulbous, smooth, glabrous and white above, pruinose and sulphureous below, 6-8 x 0.5-0.8 cm.; annulus ample, fixed 2 cm. from apex, sulphureous, citrinous when dry.

"Type collected by W. A. Murrill on the ground in a high hammock at Gainesville, Fla., Aug. 11, 1944 (F 32719). A rare and delicate woodland species."

14480

AGARICUS CITRINIDISCUS Murr.

In humus, in woods, Indian Creek, GSMNP, coll. L. R. Hasler,  
det. B. F. Isaacs, August 23, 1942.

Pileus 7 cm broad, whitish, stringly tinted "light  
drab," glabrous (appressed silky under lens).

Spores 4-6 x 3-3.5  $\mu$ , smoky purplish brown in mass  
(not matched).

AGARICUS COM~~T~~TULIFORMIS Murrill

Mycologia 14:203. 1922

*good species  
2-1-22*

Pileus 3-4.5 cm. broad, convex, expanding, "pinard yellow" in buttons, mature caps pallid vinaceous, near "pale vinaceous drab," disk "pinard yellow," radiately silky, disk yellow fibrillose-squamulose, marginal half with scattered yellow fibrils and squamules. Flesh white, unchanging, medium on disk, thin on margin; odor and taste mild. Lamellae free, narrow, ventricose, white with yellow margins (young), then pink, finally "bone brown," crowded, edge whitish fimbriate. Stipe 3-5 cm. x 4-8 mm., with numerous yellowish fibrils (young), then whitish fibrillose, pallid, apex concolor to pileus, bulbous, stuffed with a white pith, "cortex" concolor to pileus. Annulus apical, yellow below, whitish above, rather persistent.

Spores short elliptical to ovoid, 4.5-5 x 3.5  $\mu$ , brown.  
Cheilocystidia clavate.

Habitat and Distribution. - On soil, pine woods, Tennessee and Alabama, July-August.

13825

AGARICUS COMPTULIFORMIS Murr.

On soil, in pine woods, Knoxville, coll. L.R. Hesler, det.  
A.H. Smith, July 13, 1941.

Pileus 3-4.5 cm broad, convex, expanding, button stage "pinard yellow, " mature caps, pallid vinaceous, near "pale vinaceous drab," disc "pinard yellow," radiately silky, disc yellow fibrillose-squamulose, marginal half with scattered yellow fibrils and squamules. Context white, unchanging, medium on disc, thin on margin; odor and taste mild.

Lamellae free, narrow, ventricose, white with yellow margins (young), then pink, finally "bone brown," crowded, edge whitish fimbriate.

Stipe 3-5 cm long, 4-8 mm thick, with numerous yellowish fibrils (young), then whitish fibrillose, pallid, apex concolor to pileus, bulbous, stuffed with a white pith, "cortex" concolor to pileus. Annulus apical, yellow below, whitish above, rather persistent.

Spores short elliptical to ovoid, 4.5-5 x 3.5  $\mu$ , brown, Cheilocystidia clavate.

20051

AGARICUS COMPTULIFORMIS Murr.

On soil, road bank, Timberlake Road, Knoxville, coll. L.R.  
Hesler, det. B.P. Isaacs, June 13, 1951.

Pileus 3-5 cm broad, obtusely umbonate, dry, "warm buff" to whitish, with "amber yellow" streaks or tints on disc, entirely "amber yellow" in button-stage, fibrillose to scaly, disc finally minutely scaly, margin appendiculate-crenate. Context white, firm, medium thick on disc, abruptly thin on margin; odor and taste pleasant.

Lamellae free, crowded, "pale pinkish cinnamon," then "fuscous," finally near "blackish brown (2)," edge even or rough.

Stipe 3-4 cm long, 6-11 mm thick, apex white, striate, pruinose, white to yellow floccose-squamulose downward, tapering upward, dry. Annulus ample, apical to nearly median, flaring, somewhat persistent, fibrillose-membranous, white above, yellow beneath.

Spores 5-6 x 4-4.5  $\mu$ , ellipsoidal.



23709

AGARICUS COMPTULIFORMIS Murr.

On lawn, Hesler's yard, Knoxville, coll. L. R. Hesler, det.  
E. F. Isaacs, June 10, 1960.

Pileus 4.5 cm broad, basically white but with numerous golden-yellow fibrillose scales giving the surface a golden-yellow tint, disc dingy-brown scaly. Odor fungoid.

Lamellae free, subventricose, crowded, medium broad, grayish-pink.

Stipe tinged yellowish, base clavate; veil forming a near-median, collapsing annulus.

Spores in deposit: "blackish brown (3)".

AGARICUS COMTULUS Fr.

Epier. Myc., p. 215. 1838

No records in  
NY, FLAS, or TENN  
B&D

Illustration:

Atkinson, Studies Amer. Fungi, fig. 24. 1900

(from Murrill, Mycologia 14: 202)

"Pileus subfleshy, campanulate to plane, 2-3 cm. broad; surface dry, appressed-silky or glabrous, white with a yellowish or rosy tint, becoming yellow on drying or when bruised, often darker at the center and with age; context thin, white, tinged with yellow, with mild taste and no characteristic odor; lamellae free, crowded, broad in front, pale-pink to purplish-brown; spores broadly ellipsoid, almost subglobose, very rounded at the ends, pale-purplish-brown under the microscope, about  $4.5 \times 3.5 \mu$ ; stipe tapering upward, hollow, whitish, luteous at the base, becoming yellow on drying or when bruised, 3-6 cm. long, about 4 mm. thick; annulus delicate, yellowish-white, often fugacious."

Habitat and Distribution. - On soil, in open, mixed woods, Tennessee and Alabama, July.

AGARICUS CRETACELLUS Atk.

Jour. Mycology 8:110. 1902

Illustration:

Plates

Pileus 6-8 cm. broad, finally plane, margin slightly upturned, appressed fibrillose-squamulose, <sup>glabrescent,</sup> white to "pale pinkish buff" becoming vinaceous tinted on margin, disk somewhat smoky, subviscid, pellicle separable to disk. Flesh soft, thick, abruptly thin outward, white; odor of anise, taste fungoid. Lamellae free, rounded behind and in front, white then pinkish, becoming "benzo brown," finally "fuscous black," relatively broad, ventricose, tapering either end, crowded, edges even. Stipe 7-9 cm. x 8-18 mm., whitish, tapering upward, slightly ventricose, bulbous, fibrillose, solid. Annulus superior, <sup>white,</sup> ~~not~~ <sup>or at times not persisting and then</sup> persisting, leaving a slight ring.

Spores 4.8-6 x 3-3.5  $\mu$ , short-ellipsoidal, color in mass: "light seal brown." Cheilocystidia none.

Habitat and Distribution. - On soil and leaf-mold in conifer and <sup>deciduous</sup> ~~frondose~~ woods, Tennessee, May-August.

16365

AGARICUS CRETACELLUS Atk.

On soil, in woods, Knoxville, coll. R. M. Boarts, det.  
A. H. Smith, May 27, 1944.

Pileus 6-8 cm broad, finally plane, margin slightly upturned, appressed fibrillose-squamulose, "pale pinkish buff" becoming vinaceous tinted on margin, disc somewhat smoky, pellicle separable to disc. Context soft thick, abruptly thin outward, white; odor of anise, taste fungoid.

Lamellae free, rounded behind and in front, pinkish becoming "benzo brown," finally "fuscous black," relatively broad, ventricose, tapering either end, crowded, edge even.

Stipe 6 cm long, 18 mm thick, whitish, slightly ventricose, short-radiculate, fibrillose, solid. Annulus evanescent, leaving slight ring.

Spores 4.8-6 x 3-3.5  $\mu$ , short-ellipsoidal, color in mass: "light seal brown."



12854 - *Agaricus crotaceus* ~~Stk~~ Atk.





12854 - *Agaricus crotaceus* Atk.

24499

AGARICUS CRETACELLUS Atk.

PHOTO

Pileus white, shining, glabrous. Lamellae bright pink. Stipe white, base bulbous. Annulus superior or sub-median.

Agaricus cylindriceps Murrill

Murrill's description (Lloydia 7:322-323. 1944):

"Pileus cylindric to broadly convex and truncate, not fully expanding, gregarious, up to 8 cm. broad; surface dry, minutely squamulose, white or pale yellowish-white, the disk in old plants often rosy-avellaneous, margin even, entire; context white, sweet, with an amygdaline odor when young; lamellae adnexed, ventricose, crowded, inserted, entire, pale-pink, show in darkening; spores broadly ellipsoid, smooth, purplish-brown,  $5-6 \times 3.5-4 \mu$ ; stipe tapering upward, up to  $7.5 \times 1.3$  cm. above the large bulb, white, smooth, glabrous, solid; veil ample, white, forming a large, fixed, median annulus.

"Type collected by W. A. Murrill in bare soil under a laurel oak on the campus of the University of Florida, in Gainesville, Aug. 13, 1937 (F 16050). Also collected many other times in and about Gainesville on shaded lawns, in oak woods, etc."



Agaricus cylindriceps aureus Murrill

Murrill's description (Jour. Fla. Acad. Sci.  
8:194. 1945):

"Pileus usually cylindric at first, solitary or gregarious; surface pallid with small yellow scales, becoming luteous when handled or on drying; context with strong amygdaline odor; lamellae very pale; spores 5-6 x 3.5-4  $\mu$ ; stipe equal, yellowish at the base, luteous when handled or dried; veil ample.

"Type collected by W. A. Murrill on an open lawn in Gainesville, Fla., Oct. 23, 1942 (F 20495). Also collected frequently in the vicinity from spring to fall on exposed or slightly shaded lawns or bare soil. Readily recognized by its strong amygdaline odor and its golden color when handled or dried. It quickly changes to yellow in KOH. Pleurocystidia are sometimes found. This is A. amygdalinus of Curtis, a name which was never published, but is not A. auricolor of Krieger, described from Maryland in 1927. I have observed this fungus closely for several seasons and am convinced that it is only a variety of my A. cylindriceps. At Camp O'Leno, in Columbia Co., Fla., I found the two growing together in a small opening in oak-pine woods. On the campus of the University of Florida the colonies are found closely associated and always appear as varieties rather than species. Dr. Coker kindly sent me specimens of Curtis's A. amygdalinus (nomen nudum) for comparison."

AGARICUS DIMINUTIVUS Pk.

Buffalo Soc. Nat. Sci. Bul. 1:53. 1873

Illustration:

Kauffman, Agar. Mich. 2, pl. 50. 1918

Coker, Elisha Mitchell Sci. Soc. Jour. 13, pl. 39. 1928

Pileus 2-2.5 cm. broad, dry, felty-fibrillose, at times with fibrillose-recurved scales, ashy white, disk darker, margin even. Flesh thin, white; odor and taste mild. Lamellae free, white, finally "light seal brown," linear to sub-ventricose, crowded, edges slightly roughened. Stipe 2-3 cm. x 3-4 mm., white becoming dingy; equal, dry, silky, stuffed. Annulus superior, membranous, delicate.

Spores 4-5 x 3-3.5  $\mu$ , ellipsoidal, brown.

Habitat and Distribution. - On soil and humus, in deciduous woods, Tennessee, North Carolina, September-October.

18168

AGARICUS DIMINUTIVUS Pk.

On humus, attached to leaves, frondose woods, Cades Cove,  
GSMNP, coll. L.R. Hesler, det. A.H. Smith, Oct. 18, 1947

Pileus 2-2.5 cm broad, dry, felty-fibrillose, at times with fibrillose recurved scales, ashy white, disc darker, margin even. Context thin, white; odor and taste mild.

Lamellae free, white, finally "light seal brown," linear, crowded, edge slightly roughened.

Stipe 2-3 cm long, 3-4 mm thick, dingy, dry, silky, stuffed. Annulus superior, membranous, evanescent.

Spores 4.5-5 x 3-3.5  $\mu$ , ellipsoidal.

22317

AGARICUS DIMINUTIVUS Pk.

On damp soil, in deciduous woods, Timberlake Road, Knoxville,  
coll. L.R. Hesler, det. B.F. Isaacs, July 12, 1956.

Pileus 1.5-3.5 cm broad, buttons hemispheric-convex, finally expanding, broadly and obtusely umbonate, white or whitish, but disc "vinaceous drab" from dense fibrils which are more scattered outward, margin white-fibrillose and rimose. Context white, thin; odor and taste mild.

Lamellae free, rounded behind, narrow, close to crowded, whitish at first, then "ecru drab," finally "brownish drab" or darker, edge even to slightly rough.

Stipe 2-3 cm long, 3-4 mm thick, equal above the sub-clavate base, white, silky, hollow. Veil white, fibrillose-submembranous, forming a collapsing or fugaceous, superior annulus.

Spores 4.5-6 x 3-3.5  $\mu$ , ellipsoid, smooth, in mass:  
"chaetura drab." Pleurocystidia and cheilocystidia none.

AGARICUS ECHINATUS Fr.

Syst. Myc. 1:286. 1821

Psalliota echinatus Quéél., Champ. Jura et Vosges, p. 536. 1875

Hypholoma vinosum Kauff., Agar. Mich. 1:261. 1918

Illustration:

Smith, Mushrooms, Reel 27, No. 189. 1949  
(from Smith, Mushrooms pp. 535-6. 1949)

"Pileus 1.5-3.5 cm. broad, obtusely conic to broadly convex when young, becoming broadly convex to slightly umbonate in age or finally nearly plane, surface with fine pointed scales at first but these soon broken up and surface merely dry and powdery, opaque, even or at times slightly wrinkled to rugose around the disc, the scales made up of powdery veil remnants, color pale vinaceous drab to dark dull brownish drab ("fawn color" to "light cinnamon-drab" or "olive-brown" young, "drab" in age), margin at first appendiculate from the remains of the veil; flesh whitish, thin, odor and taste not distinctive; lamellae bright haematite-red ("Prussian red") when young, gradually fading and finally becoming drab in age, close, moderately broad, free at first but rounded next to the stipe and frequently touching it or at times spuriously attached; stipe 3-7 cm. long, 1-3 mm. thick, equal, fragile, tubular, base bulbous from adhering dirt and debris, surface concolorous with the gills toward the apex and glabrous or only pruinose, lower half usually covered by a granulose coating of drab veil

remnants terminating in a very evanescent annulus of the same material, in age becoming drab over all and nearly glabrous.

"Spores 5-7 x 2.5-3  $\mu$ , appearing hyaline under the microscope when fresh but giving a cocoa-brown deposit, sub-cylindric, smooth; basidia 18-22 x 5-7  $\mu$ , four-spored; pleurocystidia and cheilocystidia not differentiated; gill trama of large cylindric cells (10-14  $\mu$  broad), homogeneous and subparallel, not amyloid; pileus trama floccose beneath a surface covering of globose cells 10-14  $\mu$  in dia. having smoky brown walls, clamp connections present on the hyphae of the stipe (S-18423)."

Habitat and Distribution. - In deep humus, mixed woods, North Carolina, August.

Observations. -

20791

AGARICUS EDULIS Bull. ex St. Amans

From a cultivated bed (commercial), Winfield, Pa., det.  
B.F. Isaacs, March 1, 1953.

Pileus 3-6 cm broad, ovoid-globose, soon hemispheric-convex, finally expanding-convex, dingy whitish, sub-shining, with scattered pale brownish fibrils, at times disposed as appressed squamules (buttons with white, silky fibrils), dry, margin at first incurved and appendiculate from veil, finally even or nearly so, not striate. Context firm, thick, abruptly thin on margin, white; odor and taste pleasant.

Lamellae free, rounded behind, pallid whitish in buttons, then pink, then "light cinnamon-drab," narrow (up to 3 mm broad), crowded, edge even.

Stipe 5-7 cm long, 12-24 mm thick, dingy white, dry, white-fibrillose, equal or tapering downward, at times sub-bulbous at base, solid-stuffed, easily separating from pileus; in one case, stipe forked (see photograph). Veil ample, floccose-membranous, breaking to leave an evanescent, simple, annulus and an appendiculate evanescent fringe on margin of pileus.

Spores 6-7.5(8) x 4.5-5.5  $\mu$ , ellipsoidal, smooth.

23438

AGARICUS <sup>7</sup>~~7~~ABACEUS <sup>Peck.</sup>~~Peck.~~

PHOTO

In deciduous woods, near Chimneys Camp Ground, GSMNP,  
coll. A.J. Sharp & L.R. Hesler, det. B.F. Isaacs,  
October 11, 1959.

Pileus 5-7 cm broad, oblong-conic, finally expanding,  
white, disc turning yellowish when rubbed, shining, appressed  
fibrillose. Flesh dull white, slightly yellow where bruised,  
medium thick.

Lamellae free, rounded behind, whitish, then near  
"avellaneous," finally "benzo brown," crowded, medium  
broad.

Stipe 7-11 cm long, 8-10 mm thick, white, fibrillose,  
abruptly bulbous, bulb more or less marginate, hollow.  
Veil membranous, floccose below, forming a loosely-attached  
annulus.

Spores 5-6 x 3.5-4.2  $\mu$ , ellipsoid, in mass: "fuscous"  
to "chaetura drab."

Isaacs (letter, June 24, 1967) says this is what  
American authors have called A. sylvicola; and  
is also what Peck called A. abruptibulbas.





23438 - *Agaricus fabaceus* Berk. ~~B. & C.~~

AGARICUS FLORIDANUS Pk.

N. Y. State Mus. Bul. 150:50. 1911

*Agaricus floridanus* (Pk.) Murrill  
= *Agaricus floridanus* (Pk.) Murrill  
= *Agaricus floridanus* (Pk.) Murrill

Illustration:

Murrill, Elisha Mitch. Sci. Soc. Jour. 54, pl. 14. 1938  
(from Murrill, Mycol. 14:207. 1922)

"Pileus hemispheric or campanulate, becoming nearly plane, solitary or subcespitose, 9-15 cm. broad; surface rimosely areolate or slightly strigose, becoming glabrous, whitish with a yellow or yellowish center; lamellae at first white, then pink, and finally dark-brown or blackish; spores globose or broadly ellipsoid, 5-6 x 4-5  $\mu$ , stipe easily separable from the pileus, equal or slightly thickened at the base, solid, becoming fibrous when old, whitish, 5-10 cm. long, 1.5-3 cm. thick; annulus small."

Habitat and Distribution. - On sandy soil, in open fields, Florida, March.

14090

AGARICUS PAMPEANUS Speq.

(= A. argentatus)

On lawn, Knoxville, Tenn., coll. by Mrs. L. R. Hesler,  
det. by B. F. Isaacs, December 4, 1941.

Pileus 4-8 cm broad, convex, finally almost plane, at first whitish, then "pale vinaceous-fawn", appressed fibrillose, fibrils disposed into appressed scales (or squamules), disc becoming cracked, margin even. Flesh dingy white, thick on disc, thin on margin; odor and taste pleasant (nutty).

Lamellae almost attached to free, close, broad, ventricose, rounded both ends, not quite reaching margin of pileus, pink, then "natal brown" to "bone-brown", finally "deep brownish drab," edge even.

Stipe 2.5-5 cm long, 7-13 mm thick, tapering downward, white-shining, fibrillose, solid, annulus median or slightly apical, fibrillose, evanescent.

Spores 7.5-10 x 5-6  $\mu$ , elliptical, color in mass:  
"bister."

Smith (3-28-42) says close to A. campestris but spores broader.

On lawns, Knox and Sevier (Park) Counties, Tennessee,  
May - December.

19495

AGARICUS PANPHEANUS Speq.

On lawn, Kneberg's yard, Knoxville, Tenn., coll. Madeline  
Kneberg, det. B.F. Isaacs, October 29, 1949.

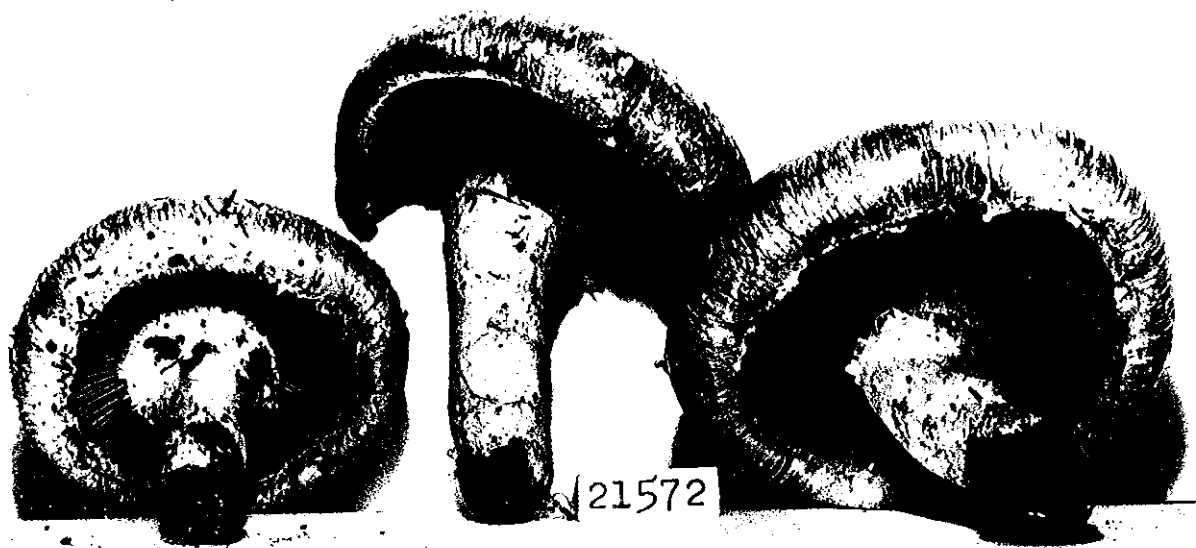
Densely fibrillose-hairy, fibers pale ashy to smoky-  
blackish. Gills white, pink then dark.

21572

AGARICUS *pampeanus* Speg.  
~~NO. 21572~~Photo

Pileus 3-6 cm. broad, near "light grayish olive," more whitish when young, shining, with radiating, appressed fibrils. Flesh white, unchanging when bruised, firm, thick, yellow in 15% KOH; odor and taste mild. Lamellae free, rounded, close, broad, "vinaceous pink" then near "benzo brown" or darker, edges concolor, even. Stipe 3.5-5 cm. x 9-12, white-fibrillose to floccose below, equal or tapering downward, solid. Veil superior, white, cottony, appendiculate and forming a rather persistent annulus.

Spores 8-10 x 5-6  $\mu$ , ellipsoid. Color in mass: near "olive brown." Basidia 33-40 x 7-9  $\mu$ , 4-spored. Pleurocystidia none; cheilocystidia clavate, blunt, variable, 24-33 x 9-14  $\mu$ .



21572 - *Agaricus pampolanus* Speq.

24600

AGARICUS PAMPEANUS Speq.  
(=A. argentatus)

PHOTO

On Hesler's lawn, December 10, 1961

Pileus 4-7 cm broad, densely fibrillose, the fibrils brownish, disc areolate-scaly, the scales brownish, unchanging when bruised, margin appendiculate. Context white, unchanging.

Lamellae pinkish, finally "Hayes brown."

Stipe 2.5-3 cm long, 10-12 mm thick, dingy, white-fibrillose; veil soft, white, median, scarcely persistent.



24600 - *Agaricus pampeanus* Speg.  
(= *A. argentatus* PK.)



14479

AGARICUS PLACOMYCES Pk.

C. PHOTO

On soil, Sevier Co., GSMNP, coll. A. J. Sharp, det. A. H.  
Smith, August 12, 1942.

Notes by Sharp

Pileus brown on umbo with a lighter zone around it.  
The outer third rather smoky brown in older specimens.  
All caps rather finely punctate.

Stipe white, at first, turning brown with age.

Agaricus pocillator Murrill

(= A. placomyces?)

Murrill's description (Mycologia 33:446-447. 1941):

"Pileus truncate-convex to plane, gregarious or subcespitose, 7-10 cm. broad; surface dry, smooth, white, decorated with minute, dark, floccose scales, fuscous on the disk; context thin, white, unchanging, sweet, edible; lamellae close, rather narrow, white, turning pink and finally blackish-brown; spores ellipsoid, smooth, purplish-brown, about  $4-5 \times 3 \mu$ ; stipe slender, 6-8 x 0.6-0.8 cm., smooth, subglabrous, white, enlarged at the base, usually in the form of a shallow cup about 1.5 cm. broad and 4 mm. high; annulus apical, membranous, ample, persistent, simple, white.

"Type collected by W. A. Murrill under a laurel oak in Gainesville, Fla., June 4, 1938 (No. F 16476). Also collected by various persons under hardwoods in and about Gainesville (F 16428, F 16352, F 16344, F 16277, F 16477, F 16429, F 16353). This is a shade-loving species, attractive in appearance and excellent for the table. The cup at the base of the stem is quite remarkable and unexpected. In drying, the cup usually becomes finely rimose-striate from the splitting of the cuticle and the disk turns almost black."

Smith thinks this is one of the forms of A. placomyces (Mich. Acad. 25: 178. 1940). He places it as a synonym in Mushrooms, p. 542.

AGARICUS PLACOMYCES Pk.

New York State Mus. Ann. Rept. 29:40. 1878

Agaricus pocillator Murr., Mycologia 33:446. 1941

Illustration:

Plate

Pileus 5-10 cm. broad, hemispherical, then convex, dry, white, covered with small <sup>"Prout's brown"</sup> ~~dark brown~~ squamules except on dark disk, subumbonate, umbo smooth and "bister." Flesh white, 8 mm. thick near disk, thinner in front, brownish-lavender when cut or bruised; odor mild or slight; taste slightly astringent and unpleasant. Lamellae free, white at first then pinkish, later smoky grayish-brown (near "drab") then blackish-brown, color often variable, up to 7 mm., free, many short, none forked, broadest behind, narrowed in front, <sup>edges even.</sup> Stipe <sup>9</sup>10-15 cm. x <sup>7</sup>9-15 mm., tapering somewhat upward, base bulbous, bulb ovoidal, up to 18 mm. diam., subemarginate, white, with brownish-lavender stains at base, innately fibrillose, shining, stuffed then hollow, some connate at base. Annulus superior, ample, double, white above, pinkish tawny below, thick and somewhat cottony, persistent.

Spores 5-6<sup>5</sup> x 3.5-4<sup>5</sup>  $\mu$ , in mass: smoky brown <sup>or "Prout's brown"</sup> (near "drab"), elliptical, 1-nucleate, smooth, brownish, under microscope. Pleurocystidia none; cheilocystidia clavate to saccate, 12-20<sup>?</sup> x 8-12  $\mu$  (Smith).

Habitat and Distribution. - On soil and humus, in deciduous and conifer woods, Tennessee, North Carolina, Alabama, and Florida (as A. pocillator Murr.), June-October.

20555

Agaricus *pocillator* Murr.  
~~No. 20555~~

Photo

Pileus 4-5 cm. broad, convex, broadly and obtusely umbonate, surface basically white but densely provided with brownish (not matched) silky hairs.

Lamellae free, "pale cinnamon pink" at first, then "avellaneous," narrow, crowded, edge even.

Stipe 6-8 cm. x 5-6 mm., pallid-whitish, silky-appressed, equal, base bulbous, - the bulb conspicuously emarginate and ovoid (up to 12 mm. diam.).

Spores 4-5.5 x 3.2-3.6  $\mu$ .

On soil, frondose woods, Blount County (Park), Tennessee, September.



20555

20555 - *Agaricus pocillator* Murr.

20924

AGARICUS POCILLATOR Murr.

PHOTO

In frondose woods, Highlands, N. C., coll. & det. by  
L. R. Hesler, July 23, 1953.

Pileus 10 cm broad, whitish with dense, small, black  
fibrillose scales, disc sooty black; odor mild.

Stipe 11 cm x 9 mm, tubular, bulbous, bulb ovoidal,  
18 mm diameter. Annulus ample, superior, white above,  
pinkish-tawny below, persistent.



20924 - *Agaricus placomyces* O.K.  
*poellator* Murr.

21564

AGARICUS POCILLATOR Murr.

Tennessee, October

Pileus 3-4.5 cm broad, hemispheric to conic, expanding convex, grayish, with minute, black, fibrillose scales which are dense at center, fewer on margin, Flesh white, medium thick on disc, thin on margin; odor mild, taste strong fungoid.

Lamellae free, not remote, at first ashy-white, finally "avellaneous" to drab, narrow, crowded, edges rough.

Stipe 5-7 cm long, 5-9 mm thick, equal above the more or less emarginate, prominent bulb, whitish or dingy, shining, stuffed then hollow. Veil copious, whitish, leaving an inconspicuous annulus.

Spores "light seal brown" in mass, ellipsoid-ovoid, 3.8-4.5 x 2.5-2.8  $\mu$ , smooth.

All parts turn quickly yellow in 15% KOH.



10883

AGARICUS PRAEMAGNUS Murr.

On humus-debris, along river bank, Knoxville, coll. L.R.  
Hesler, det. B.F. Isaacs, October 11, 1937.

Pileus up to 10 cm broad, hemispherical, broadly umbonate, finally expanded plane, with fibrils which are appressed and aggregated into scale-like patches, fibrils Sayal Brown to Cinnamon-Brown (R.). Context thick, white, unchanging; taste mild and pleasant.

Lamellae white, then pinkish (Light Russet Vinaceous, R.), finally purplish-black, broad, crowded, narrowed toward either end.

Stipe 8-10 cm long, 12-15 mm thick, whitish, pulverulent, solid, hollow in age, bulbous at base. Annulus superior, single, cottony-fibrillose.

Spores 5-5.5 x 3.5-3.8  $\mu$ , elliptical.

19221

AGARICUS PRAEMAGNUS Murr.

PHOTO

On garbage dump, Tobler Road, Knoxville, Tenn., coll.

A.J. Sharp, det. B.P. Isaacs, August 24, 1949.

Pileus up to 18 cm broad, hemispheric at first, then convex, at last expanded-upturned, basically white but covered with "wood brown" fibrillose, appressed squamules which are more scattered toward margin, disc "wood brown," fibrillose, not scaly. Context thick (15 mm) on disc, thin on margin, white, unchanging, moderately firm; odor and taste mild or slight.

Lamellae free, rounded behind, crowded, medium broad (up to 10 mm) tapering slight each way, at first white, then pale pink, finally "natal brown."

Stipe 15-20 cm long, 18-25 mm thick, equal, white, solid; annulus apical, heavy, membranous, white with brown patches below, double (evidenced by patches ?).

Spores 5.5-7 x 3.5-4.5  $\mu$ , ellipsoidal.

22443

AGARICUS *praemagnus* Murr.  
~~no. 22443~~

Pileus 8-12 cm. broad, hemispheric, then convex, finally expanded and slightly upturned, basically white, fibrillose, fibrils loosening to form scales which are dingy to brownish with a vinaceous-pinkish tinge. Flesh white, yellow when bruised or treated with 2% KOH; odor mild; taste mildly-fungoid to nutty. Lamellae free, white, soon purplish-black (no pink seen), medium broad, crowded. Stipe 10-13 cm. x 12-16 mm., white, yellow in KOH, silky, equal, bulbous, stuffed. Veil white, ample, brownish-floccose on lower surface, forming a pendant, apical, persistent annulus.

Spores 5-6.5 x 4-4.5  $\mu$ , ellipsoid to subovoid, "blackish brown (3)" in mass, smooth. Pleurocystidia none; cheilocystidia clavate, short, 18-20 x 4-6  $\mu$ .

Habitat and Distribution. - Compost heap, Tennessee, October.



19221 - *Agaricus* <sup>st.</sup> ~~cervinifolius~~ Zeller  
praemagnus Muor.

Agaricus praemagniceps Murrill

Murrill's description (Elisha Mitch. Sci. Soc. Jour.  
54:140-141. 1938.)

"Pileus cylindric-truncate to convex, expanding and finally depressed, gregarious, reaching fully 15 cm. in diameter; surface uniformly rosy-avellaneous when young, becoming pallid at maturity with the disk sprinkled over with minute avellaneous fibrils; context white, scarcely changing, of good flavor but too tough and stringy for enjoyment; lamellae white when young, almost black with age; spores ovoid, smooth, dark-brown,  $6 \times 3.5-4 \mu$ ; stipe very white, smooth, glabrous, nearly equal, abruptly bulbous, about  $6-10 \times 1-1.5$  cm.; annulus white, single, ample, persistent.

"Type collected by W. A. Murrill under a laurel oak in Gainesville, Florida, August 15, 1937 (No. 16051). Also collected by the author several other times under evergreen oaks about Gainesville in late summer or early fall. In view of its size and attractive appearance, it was quite disappointing to find it rather an exception for the genus from the standpoint of the mycophagist."

Agaricus projectellus Murrill

Murrill's description (Mycologia 33:447. 1941):

"Pileus convex to plane, gibbous at times, scattered or gregarious, 6-8 cm. broad; surface dry, smooth, white, sometimes cremeous on the disk, glabrous or with minute, erect, floccose scales; margin projecting 5 mm. at times; context white, unchanging, sweet, edible; lamellae narrow, crowded, pallid for some time before turning pink, finally purplish-brown; spores ellipsoid, smooth, purplish-brown, uniguttulate,  $5.5-6 \times 3.5-4 \mu$ ; stipe smooth, white, subglabrous, subequal, 5-8 x 0.8-1.5 cm.; annulus white, median, ample.

"Type collected by E. West, L. Arnold and W. A. Murrill in a pasture south of Gainesville, Fla., June 3, 1938 (No. F 16219). Also collected here several times by the author (F 16431, F 16507, F 16355, F 16299, F 16430, F 16506) on lawns and in pastures, where it is mistaken by mycophagists for Agaricus campester. The young gills, however, are whiter; the margin more projecting; and the spores considerably shorter than in the common meadow mushroom."

Agaricus pseudoplacomyces Murrill

Murrill's description (Jour. Fla. Acad. Sci.

8:194-195. 1945):

"Pileus convex to plane or slightly depressed, gregarious, 8 cm. broad; surface covered except on the disk with pale purplish-brown scales, margin less scaly, entire; context white, unchanging, about 5 mm. thick, with agreeable odor and taste but not amygdaline; lamellae free, narrow, ventricose, crowded, entire; spores ellipsoid or ovoid, smooth, 1-guttulate, dark purplish-brown, 5-6 x 3-4  $\mu$ ; stipe much enlarged downward, solid, smooth, white, unchanging, glabrous, 4-5 x 1-2 cm.; annulus ample, simple, white, fixed near apex of stipe, fragile and apt to be lost in age.

"Type collected by W. A. Murrill on a rich grassy lawn under a Canary-Island palm in Gainesville, Fla., May 24, 1944 (F 20483). Suggesting A. placomyces but having a much shorter stipe and less slender spores. In old dark caps the scales have mostly disappeared."

Agaricus Rhoadsii Murrill

*A. bambusigenus*  
B+C.  
278

Murrill's description (Bul. Torrey Bot. Club 66:29. 1939):

"Pileus truncate-conic to expanded, solitary, about 6.5 cm. broad; surface dry, finely fibrillose-squamulose, pale dilute-vinous, castaneous on the flat disk; margin white, sterile, widely projecting, appendiculate and fringed; context firm, white, unchanging, odorless; lamellae free, narrow, inserted, crowded, entire, whitish to dull-pink and finally purplish-brown; spores ovoid, smooth, 1-guttulate, purplish-brown, about  $5 \times 3 \mu$ ; cystidia none; stipe tapering upward, smooth, white, glabrous, bulbous,  $8 \times 0.6-1$  cm.; veil very large, membranous, fixed, apical, persistent, double, smooth and white above, decorated with isabelline scales below.

"Type collected by A. S. Rhoads and W. A. Murrill under oaks in a high hammock at Gainesville, Fla., Sept. 7, 1938 (F 18117). The color is very unusual for the genus, being pale-purple while the flesh is still firm and milk-white. Lepiota was at first suggested but the truncate cap was more like Agaricus. I know of no other species that approaches it."

Singer says it is same as A. bambusigenus B+C.



AGARICUS SILVATICUS Fr.

Epier. Syst. Myc., p. 214. 1838

Agaricus subplacomyces badius Murr., Mycologia 33:447. 1941.

Fileus 4-9 cm., convex, plane, dry, basically whitish, with "cinnamon brown" to "snuff brown" fibrils or squamules which are dense on disk, more scattered outward, often with recurved tips, margin even. Flesh thin, white or tinged pink; slowly brownish; odor and taste pleasant, fungoid. Lamellae free, "light grayish vinaceous," then "light congo pink" or "cinnamon drab," finally "Hay's brown" or "mummy brown," narrow, crowded, edges even. Stipe 5-10 cm. x 6-15 mm., white or tinged pink, slightly clavate or bulbous, or equal, hollow. Annulus superior to median, single, ample, membranous, white or vinaceous, collapsing.

Spores 5-7 x 3-3.5 (4)  $\mu$ , broadly ellipsoid, in mass: "mummy brown" (dull chocolate-brown in mass: Smith, Mich. Acad. 25:122. 1940). Pleurocystidia none; cheilocystidia saccate to clavate, usually sessile, 12-18 x 7-10  $\mu$ .

Habitat and Distribution. - On soil and humus, deciduous woods, Tennessee, North Carolina, South Carolina, Alabama, and Florida (as A. subplacomyces badius Murr.), June-October.

On soil, in ashes, & charcoal, Elkmont, Tenn., GSMNP,  
coll. A. J. Sharp, det. B. P. Isaacs, Aug. 11, 1936.

Pileus 5-8 cm broad, hemispherical, then convex, dry, white, covered with a small dark-brown fibrillose scales except on disc, subumbonate, umbo smooth and darker than scales ("bister"). Context white, 8 mm thick, near disc, thinner in front, brownish-lavender when cut or bruised; odor slight; taste slightly astringent and unpleasant.

Lamellae free, white at first then pinkish, later smoky grayish-brown (near "drab") then blackish-brown, (up to 7 mm), free, many short, none forked, broadest behind, narrowed in front.

Stipe 10-15 cm long, 1.5 mm thick, tapering somewhat upward, base bulbous, submarginate, white, with brownish lavender stains at base, innately fibrillose, shining, solid, some connate at base. Annulus superior, double, thick and somewhat cottony, persistent.

Spores 5.4-6.3 x 3.2-3.8  $\mu$ , smoky brown, (near Drab, R.), elliptical, 1-nucleate, smooth, brownish, under microscope. Cystidia none.

10398

AGARICUS SYLVATICUS Vitt. non Fr.

On soil, under oak, roadside, Elkmont, GSMNP, coll. L.R.  
Hesler, det. B.F. Isaacs, June 8, 1937.

Pileus 12-14 cm broad. Context whitish, becoming  
pink when bruised or broken.

Stipe 10.5 - 11.5 cm long, 1-1.5 cm thick (apex),  
(2-2.5 cm at base), tapering upward.

18685

AGARICUS SYLVATICUS Fr.

On low, wet ground, in woods, Knoxville, Tenn., coll.

L.R. Hesler, September 16, 1948.

Pileus basically whitish, with "cinnamon brown" to "snuff brown" fibrils or squamules which are dense on disc, more scattered outward, often with recurved tips. Context thin, white or tinged pink; odor and taste pleasant, fungoid.

Lamellae free, "light congo pink" to "cinnamon drab," finally "Hay's brown," narrow, crowded, edge even.

Stipe white to tinged pink, slightly enlarged (clavate) at base or equal. Annulus apical to median, ample, membranous.

21885

AGARICUS SYLVATICUS Vitt.

PHOTO

In mixed (oak-pine) woods, Horse Cave, Highlands, N. C.,  
July 17, 1955.

Pileus basically white with dense, black, fibrillose  
scales, disc blackish-brown.

Spores in mass: "Prout's brown."



21885 - *Agaricus sylvaticus* Vitt.

AGARICUS SYLVICOLA (Vitt.) Fr.

Hymen. Eur., p. 734. 1874

Agaricus campestris sylvicola Vitt., Funghi Mang., p. 43. 1835.

Agaricus abruptibulbus Pk., N. Y. State Mus. Bull. 94:36. 1905.

Pileus 5-8 cm. broad, oblong-conic, then convex-hemispheric, finally expanded-plane, broadly umbonate, dry, shining, whitish but distinctly tinted "empire yellow," disk becoming yellow when rubbed, and with reddish brown "russet vinaceous," stains over disk, distinctly appressed fibrillose, the yellow and reddish color confined to fibrils. Flesh white, soft, reddish-brown on bruising, medium (5 mm.) thick at disk, thin at margin; odor and taste mild and pleasant. Lamellae free, crowded, medium broad (about 5 mm. broad), ventricose, white becoming "avellaneous," "brownish drab" to "warm sepia," or "benzo brown," edges floccose-fimbriate. Stipe 6-11 x 8-10 mm., equal, or enlarged slightly downward, base subbulbous, fibrillose, whitish at apex, elsewhere stained yellowish to brownish, promptly turning yellowish on rubbing, stuffed then hollow. Annulus median, <sup>to superior.</sup> white, floccose below, double, loosely attached.

Spores 4.5-6 x 3.5-4.5  $\mu$ , ellipsoid, color in mass: "deep brownish drab," "fuscous," to "chaetura drab." Pleurocystidia none; cheilocystidia clavate or fusoid-ventricose, 15-28 x 8-15  $\mu$  (Smith).

Habitat and Distribution. - On soil and humus, deciduous woods, Tennessee, North Carolina, Alabama, and Florida, June-August.

12177

ACARTICUS SILVICOLA (Vitt.) Pk.

In oak grove, Norris, Tenn., coll. L.R. Hesler, det.  
A.H. Smith, June 29, 1939

Pileus 6-8 cm broad, expanded-plane, broadly umbonate, whitish but distinctly tinted yellowish, "empire yellow," and with reddish brown, "russet vinaceous," stains over disc, distinctly fibrous, the yellow and reddish color confined to fibrils. Context white, soft, reddish-brown on bruising, 5 mm thick at disc, thin at margin; odor and taste mild and pleasant.

Lamellae free, crowded, ventricose, about 5 mm broad (center), color near "brownish drab" to "warm sepia," edge floccose-fimbriate. (Note: specimen rather dry).

Stipe 6-7 cm long, 8-10 mm thick, equal, base sub-bulbous, fibrillose, whitish at apex, elsewhere stained yellowish to brownish, promptly turning yellowish on rubbings. Annulus median.

Spores 4.5-5 x 3.5-3.7  $\mu$ , elliptical, color in mass: "deep brownish drab."



10481

AGARICUS SILVICOLA (Vitt.) Pk.

In humus, edge of woods, Claxton School, Anderson Co.,  
Tenn., coll. L.R. Hesler, det. A.H. Smith, Aug. 15, 1942.

Pileus 6.5 cm broad, convex, broadly umbonate, dingy white, disc pinkish-tawny, with concentrically arranged, yellow, fibrillose scales. Context white, soft; odor and taste mild.

Lamellae free, rounded, crowded, "warm sepia (R.)", edge floccose-fimbriate.

Stipe 7 cm long, 9 mm thick, smoky-fibrillose above annulus, whitish with yellow, concentric scales below, base sub-bulbous.

Spores 4.5-5.5 x 3.5  $\mu$ .

Agaricus subalachuanus  
Agaricus subalachuanus  
Agaricus subalachuanus

Agaricus subalachuanus Murrill

Murrill's description (Lloydia 5:151. 1942):

"Pileus convex, subumbonate, not fully expanding, gregarious or scattered, 2-3.5 cm. broad; surface dry, white, with rosy-avellaneous scales, darker on the disk, margin even, fringed with fragments of the veil; context thin, white; lamellae free, crowded, entire, white to pink and finally blackish; spores ellipsoid, smooth, purplish-brown, 1-guttulate 5-7 x 3-4  $\mu$ ; stipe equal or tapering upward, white, slightly fibrillose, about 2-3 x 0.5 cm.; annulus white, membranous, persistent, fixed above the middle of the stipe, not becoming yellow on drying.

"Type collected by W. A. Murrill on an open lawn in Gainesville, Fla., Aug. 29, 1939 (F 19900). Also collected by me nearby on Aug. 30, 1939 (F 19920). Differing from A. alachuanus Murrill in its convex cap, larger scales, and persistently white ring. At certain times it is abundant, occasionally forming fairy rings. It loves open grassy ground, while A. alachuanus grows in rich soil under oaks."

114134

AGARICUS SUBALACHUANUS Murr.  
(= *A. alachuanus* Murr. nom. nudum)

On lawn, Tennessee (Timberlake Rd.), coll. L. R. Hesler,  
det. B. P. Isaacs, September 18, 1957.

Pileus 2.5-4 cm broad, conic-convex, expanding plane,  
fibrillose-scaly, the fibrils "vinaceous-drab" to "purple-  
drab," dense on disc, margin white-fibrillose-rimose.  
Context white, thin, soft; odor and taste mild-fungoid.

Lamellae free, "light mouse gray" at first, then  
"mouse gray," finally "fuscous" or blackish, crowded, rather  
narrow, broadest in front, edge rough or fimbriate.

Stipe 3-4 cm long, 3-5 mm thick, equal above the  
sub-clavate base, white, shining, somewhat fibrillose,  
hollow. Annulus superior, white, thin, finally fugaceous.

Spores 4-6 x 2.8-3.5  $\mu$ , ellipsoid, smooth, smoky-  
olive, in mass: "fuscous".

14434

*subalachuanus* Murr.  
AGARICUS No. ~~14434~~

(= *A. alachuanus* Murr. nom. nudum)

Pileus 2.5-4 cm. broad, conic-convex, expanding plane, fibrillose-scaly, the fibrils "vinaceous-drab" to "purple-drab," dense on disk, margin white-fibrillose-rimose. Flesh white, thin, soft; odor and taste mild-fungoid. Lamellae free, "light mouse gray" at first, then "mouse gray," finally "fuscous" or blackish, crowded, rather narrow, broadest in front, edges rough or fimbriate. Stipe 3-4 cm. x 3-5 mm., equal above the sub-clavate base, white, shining, somewhat fibrillose, hollow. Annulus superior, white, thin, finally fugaceous.

Spores 4-6 x 2.8-3.5  $\mu$ , ellipsoid, smooth, smoky-olive (under microscope), in mass: "fuscous."

Habitat and Distribution. - On lawn, Tennessee, September.

Discussion. - Near No. 19136, but spores are smaller than No. 19136 (check again).

19136

*subalachuanus* Murr.  
Agaricus No. ~~19136~~

Photo

Pileus 2-3.5 cm., broadly umbonate, convex, basically white but with vinaceous ("purple drab") fibrillose scales which are dense on disk.

Lamellae free, medium broad, "sorghum brown" at maturity.

Stipe 2-3 cm. x 2-3 mm., dingy brownish, sub-bulbous.

Annulus superior, membranous.

Spores 6.5-8 x 3.2-4.0  $\mu$ , smooth, ellipsoidal, color in mass: near "drab."

On lawn, Knox County, Tennessee, July.

Murrill examined this collection, and suggests that it should be compared with A. diminutivus Pk., approximans Pk., alachuanus Murr., and suboreades Murr.



19136 - *Agaricus subalachuanus* Murr.

Agaricus subarvensis Murrill

Murrill's description (Lloydia 5:151. 1942):

"Pileus convex to expanded, broadly umbonate, solitary, 8 cm. broad; surface pallid with small rosy-avellaneous scales, light-bay and smooth on the disk, margin even, entire, sometimes splitting with age; context thin, white, unchanging, with agreeable odor and taste; lamellae rather narrow, crowded, inserted, entire, pallid, finally blackish; spores ellipsoid, smooth, obliquely apiculate, opaque, purplish-brown, 1-guttulate, about 6-7 x 4-4.5  $\mu$ ; stipe greatly enlarged below, smooth, glabrous, white, shining, unchanging, 12 x 1.5-2.5 cm.; annulus apical, ample, white, persistent, scarcely double.

"Type collected by J. R. Watson and W. A. Murrill in open cultivated soil at Lake Warburg, Alachua Co., Fla., Feb. 17, 1939 (F 19253). Suggesting A. arvensis and having the same habit but differing in color and with narrower spores. The cap does not turn yellow after drying as in A. floridanus and A. auricolor."

AGARICUS SUBCOMTULUS Murrill

Jour. Fla. Acad. Sci. 8:194-195. 1945

"Pileus convex to expanded, broadly umbonate, gregarious, 2-2.5 cm. broad; surface minutely scaly, isabelline, rosy-isabelline on the umbo, margin even, entire, upturned in age; context thin; lamellae free, inserted, broad, ventricose, close, entire, soon purplish-brown or blackish; spores pale, ellipsoid, smooth, 1-guttulate, about 5-7 x 4  $\mu$ ; stipe equal above the enlarged base, smooth, white, about 2.5 x 0.2 cm.; annulus white, fixed about 1 cm. from the apex.

"Type collected by W. A. Murrill in leaf-mold in a high hammock at Gainesville, Fla., July 2, 1938 (F 17335). Also found in the vicinity in a garden. First referred by me to A. comtulus Fr. and also suggesting A. herradurensis Murr. From the latter it differs in its larger spores, more slender stem and paler color."



Agaricus subfloridanus Murrill

Murrill's description (Lloydia 5:151-152. 1942):

"Pileus convex, not fully expanding, subgregarious, 10-12 cm. broad; surface white or pale-yellowish, uniformly ornamented with small brownish scales; margin even, entire; white, glabrous, projecting 2-3 mm.; context very thick, white, unchanging, odor pleasant, flavor pronounced; lamellae free, inserted, very broad, crowded, entire, pallid, at length dark-brown; spores ovoid or ellipsoid, smooth, 1-guttulate, dark purplish-brown, about 5-6 x 3-4  $\mu$ ; stipe short, thick, somewhat bulbous, smooth, glabrous, much reduced at the apex, about 6 cm. long, 1-1.5 cm. thick above and 2-3 cm. below; annulus median, rather ample, simple, white, persistent, skirt-like.

"Type collected by W. A. Murrill in an open field about ten miles northwest of Gainesville, Alachua Co., Fla., Mar. 12, 1939 (F 18611). Loving sterile, open soil and resembling A. floridanus also in shape but squamulose over the entire surface of the cap. A handsome species that should be cultivated if possible."

Agaricus subhortensis Murrill

Murrill's description (Lloydia 9:328. 1946):

"Pileus convex to subexpanded, gibbous, solitary, 5 cm. broad; surface dry, central area reddish-brown with radiating edges, margin pallid, glabrous, even, entire; context white, odorless; lamellae free, broad, close, ventricose, entire; spores subellipsoid, smooth, 1-guttulate, dark-purplish-brown, 7-8 x 4-5  $\mu$ ; cystidia none; stipe equal, smooth, white, 3-4 x 1 cm.; annulus a median white trace, although the veil is ample.

"Type collected by W. A. Murrill on an open dry lawn near longleaf pines in Gainesville, Fla., Jan. 9, 1945 (F 17971). Also collected by the author nearby under longleaf pines, Apr. 26, 1943 (F 9668), and sent to A. H. Smith, who could not place it. In A. campester umbrinus Fr. the entire cap is covered with large fragments of the ruptured cuticle; while in A. campester hortensis Cke. both the habit and the habitat are entirely distinct. My species is very rare and grows in sterile sandy soil without visible manure or leaf-mold."

Agaricus suboreades Murrill

Murrill's description (Lloydia 5:152. 1942):

"Pileus convex to nearly plane, slightly umbonate, scattered, gregarious, subcespitose, or in fairy rings, 2-3 cm. broad; surface roseous, somewhat darker on the disk, squamulose, margin even, entire, not projecting; context thin, white, with agreeable odor and taste; lamellae free, rounded behind, ventricose, crowded, inserted, entire, white to roseous and finally dark-brown; spores ellipsoid, smooth, not opaque, 1-guttulate, purplish-brown, 5.5-7 x 3-4  $\mu$ ; stipe subequal or tapering upward from a clavate base, smooth, glabrous, white at the apex, subconcolorous below, about 3-4 x 0.3-0.5 cm.; annulus fixed above the middle, rather small, white, persistent.

"Type collected by W. A. Murrill on an exposed grassy lawn in Gainesville, Fla., July 14, 1938 (F 17693). Also collected by the author on a clipped lawn under a large pine in Gainesville, June 28, 1938 (F 17257, cotype); and again on a lawn, Sept. 5, 1938 (F 19225). This species lies between A. alachuanus and A. comtulus and is apparently confined to grassy ground, exposed or lightly shaded."

Smith (Mushrooms, p. 544) says this is a synonym of A. silvaticus.

Agaricus subplacomyces badius Murrill

Murrill's description (Mycologia 33:447-448. 1941):

"Pileus convex to expanded, not umbonate, gregarious, 6-12 cm. broad; surface dry, white, conspicuously squamulose, the scales and disk bay; margin entire, even; context rather close, entire, white when young, spores ellipsoid, smooth, uniguttulate, purplish-brown, 5-6 x 3-3.5  $\mu$ ; stipe tapering upward from an ovoid bulb, glabrous above the annulus, floccose below, smooth, white, stuffed to hollow, 5-10 x 0.8-2 cm.; annulus superior, membranous, white, persistent.

"Type collected by W. A. Murrill under a live-oak in Gainesville, Fla., June 7, 1938 (F 16402). A common species here and collected several times about Gainesville in quantity for food, being of excellent flavor even in the raw state. It differs from A. placomyces in its shorter, thicker stem, bay disk and scales, and fragrant odor."

Agaricus subponderosus Murrill

Murrill's description (Jour. Fla. Acad. Sci.  
8:195. 1945):

"Pileus convex to plane, gregarious, 9-12 cm. broad; surface dry, distinctly squamulose, white, unchanging, margin thin, not projecting, appendiculate, soon lacerate, slightly upturned with age; context 2 cm. thick, abruptly tapering at the margin, white, unchanging, tough, with pleasant odor and taste; lamellae free, inserted, much crowded, very narrow, only 5 mm., entire, white, pallid a long time; spores broadly ellipsoid, smooth, purplish-brown, 1-guttulate, about 4-5 x 3.5-5  $\mu$ ; stipe subfusiform, solid, smooth, white, unchanging, subglabrous, 10-12 x 2-4 cm.; veil white, simple, often breaking up, sometimes leaving an imperfect ring 2-4 cm. from the apex.

"Type collected by W. A. Murrill in rich soil in a high hammock at Gainesville, Fla., Apr. 12, 1944 (F 21775). Suggesting A. praemagniceps Murr. and A. subarvensis Murr. but distinct from both. Remarkable for its narrow gills and long, thick stem."

20818

AGARICUS SUBPONDEROSUS Murr.

PHOTO

On lawn, Timberlake Rd., Knoxville, coll. L. R. Hesler,  
det. B. P. Isaacs, May 17, 1953.

Pileus 4-6 cm broad, hemispheric then convex, firm, white, appressed-fibrillose scaly, scales dingy on disc, white elsewhere, staining when rubbed or bruised, margin incurved at first, then straight, appendiculate, even. Context thick, firm, white, turning yellow when cut or bruised; odor and taste fungoid.

Lamellae barely free, narrow, crowded, ivory white at first, then "pale salmon color," finally dark drab, edge serrulate.

Stipe 7-9 cm long, 12-18 mm thick, white, yellowish when handled, scattered-fibrillose, hard and firm, equal, with a white pith. Annulus membranous, white with yellow stains on lower surface, simple.

Spores 4.5-5.5 x 3-3.5  $\mu$ , smooth, ellipsoid, color in mass near "chaetura drab."

21313

AGARICUS SUBPONDEROSUS Murr.

PHOTO

On soil, roadside, & lawn, Knox Co., Tennessee, coll.  
L.R. Hesler, det. B.P. Isaacs, May 1, 1954.

Pileus 6-14 cm broad, caespitose (in clusters of about 8-20 sporophores), hemispherical-convex then convex-expanded, finally plane, dry, white or whitish when young, becoming tawny to "honey yellow" on disc, finally, in age, pale to darker buff, fibrillose, the cuticle breaking to form many concentric flat scales (in some the cuticle cracks), margin even. Context white, unchanging when rubbed, turning quickly to "light greenish yellow" in 15% KOH, firm; odor and taste mild.

Lamellae free, not remote, rounded behind, white when young, becoming bright pink (not well matched), then "ecru-drab," finally "dusky drab," ("light greenish yellow" in 15% KOH), crowded, medium broad, edges even.

Stipe 8-13 cm long, 12-20 mm thick, white, flesh promptly "light greenish yellow" in 15% KOH, at first somewhat squamulose below, glabrescent, equal or tapering slightly either way, solid. Annulus membranous, ample, white, pendant to flaring, rather persistent, superior.

Spores 4.5-5 x 2.8-3.3  $\mu$ , ellipsoid, "fuscous black" in mass. Pleurocystidia none; cheilocystidia clustered, 10-16 x 4-5  $\mu$ , clavate, rather inconspicuous.



21313 - *Agaricus magniceps* PK.  
*subponderosus* Murr.





21313 - *Agaricus magniceps* PK.  
*subponderosus* Murr.



21313 - *Agaricus magniceps* PK.  
*subponderosus* Murr.

21416

*subponderosus* Murr.  
AGARICUS NO. 21416

Pileus 5-12 cm. broad, hemispheric, finally expanded-convex to plane, white, becoming bright yellow over central portion, concentric-squamulose, margin appendiculate. Flesh medium thick, soft, white, unchanging; odor and taste fungoid. Lamellae free, crowded, white, then pink, finally purple brown, medium broad, tapering both ways, edges fimbriate. Stipe 4-7 cm. x 12-18 mm., white, unchanging, minutely squamulose, equal or ventricose or clavate, solid. Annulus median to superior, thin, membranous, whitish (no yellow).

Spores (4) 5-6 x (3) 3.5-4  $\mu$ , ellipsoidal, purplish black in mass. Pleurocystidia none; cheilocystidia clustered, clavate, 20-25 x 7-10  $\mu$ .

Habitat and Distribution. - On lawn, Tennessee, July.

Discussion. - All parts promptly yellowish-green in 15% KOH.

21668

AGARICUS SUBPONDEROSUS Murr.

PHOTO

On lawn, Homer Johnson's, Knoxville, coll. L.R. Hesler,  
det. B.F. Isaacs, May 30, 1955.

Pileus 4-7 cm broad, hemispheric, finally convex, broadly umbonate, white, yellow when rubbed, with numerous, small, brownish scales. Context rather thick, firm, white, slightly yellow when bruised, quickly greenish-yellow in 15% KOH; odor and taste mild.

Lamellae barely free, white then pale cream, then "pale vinaceous pink," finally "mummy brown," broad, crowded.

Stipe 5-8 cm long, 10-15 mm thick, white, silky-shining, yellow on bruising, tapering upward, solid. Annulus membranous, superior, white.

Spores 4.5-5 x 3.3-4.2  $\mu$ , ellipsoid, in mass: blackish brown (not matched). Pleurocystidia none; cheilocystidia clavate, 15-22 x 7-9  $\mu$ .



21668 - *Agaricus subponderosus* Murr.  
~~*xanthodermus* Gen.~~





20818 - *Agaricus subponderosus* Murr.  
~~*xanthodermus* Gen.~~

22581

AGARICUS SUBPONDEROSUS Murr.

PHOTO

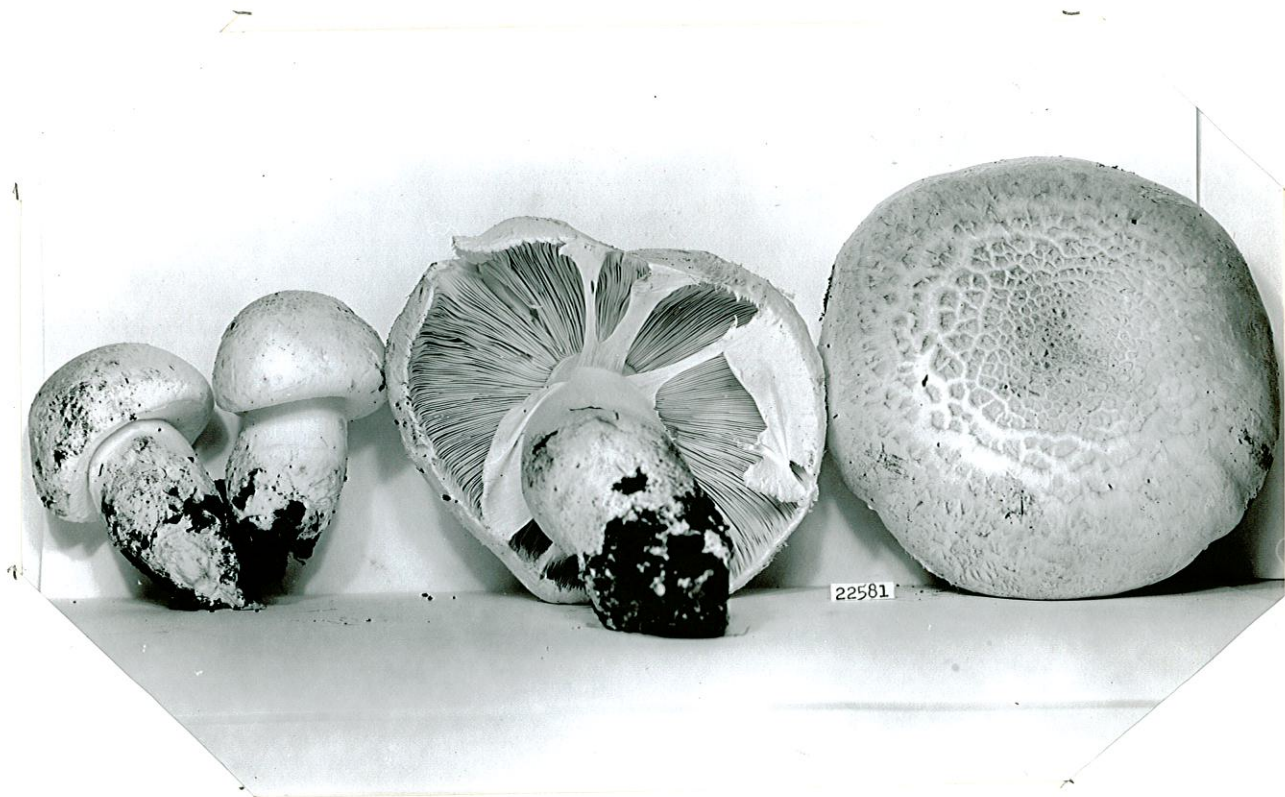
Under box-wood, Timberlake Road, Knoxville, coll. L.R.  
Hesler, det. B.F. Isaacs, June 2, 1957.

Pileus 9-14 cm broad, white, cuticle broken into coarse, "cartridge buff," flat scales, margin even. Context white, unchanging, yellowish in KOH, thick, firm; odor and taste mild.

Lamellae free, crowded, narrow, white, then pinkish, becoming "vinaceous buff," then "light drab," finally blackish.

Stipe 7-13 cm long, 2-5 cm thick, white, base tapering, subradicate, more or less fusiform, solid. Annulus superior, membranous, ample, rather persistent, white.

Spores 4.5-5.5 x 3.2-4  $\mu$ , ellipsoid, thick-walled, sooty-brown (under microscope), in mass: "deep mouse brown."



22581 - *Agaricus subponderosus* Murr.  
~~*Magniceps* PK.~~



23748

*subponderosus* Murr.  
AGARICUS ~~MAGNIFICUS~~ ~~PK.~~

Photo

on lawn, under elm  
Knoxville, May 27, 1961

Pileus 5-8 cm. broad, caespitose, conic-convex to convex, more or less expanding, dull whitish with a tinge of dingy yellowish-brown, dry, appressed-fibrillose, in age the cuticle cracked into areolae or flat scales, even. Context white, slightly yellowish when bruised, promptly "light greenish yellow" in 2% KOH, thick and firm; odor fungoid, taste nutty-sweetish.

Lamellae free, rounded behind, narrow behind, broadest and rounded in front, crowded, white then pallid, dingy flesh, finally "blackish brown (1)".

Stipe 3.5-5 cm. x 10-15 mm., dull white, silky throughout, subequal or enlarged downward, solid, flesh yellow on bruising. Annulus median or almost superior, membranous, somewhat flaring.

Spores 4.5-5.5 x 3-4  $\mu$ , ellipsoid, in mass: "blackish brown (3)" or "fuscous black."



23748 - *Agaricus magniceps* PK.  
*subponderosus* Murr.

AGARICUS SUBRUFESCENS Pk.

N. Y. State Mus. Ann. Rept. 46:25. 1893

*var A. (Cortinarius)*  
*subrufescens Secr.*  
*= A. praelungus Peck.*

Illustration:

Kauffman, Agar. Mich. 2, pls. 48-50. 1918

(from Murrill, Mycol. 14:219. 1922)

"Pileus at first deeply hemispheric, becoming convex or broadly expanded, cespitose, 5-18 cm. broad; surface silky-fibrillose, becoming conspicuously squamulose, whitish, grayish, or dull-reddish-brown, usually smooth and reddish-brown on the disk; margin not striate, often splitting with age; context white, unchanging, with the taste of green nuts and the odor of almonds when crushed; lamellae free, narrow, crowded, at first white or whitish, then pinkish, finally blackish-brown; spores ellipsoid, smooth, dark-purplish-brown under the microscope,  $6-7.5 \times 4-5 \mu$ ; stipe rather long, often somewhat thickened or bulbous at the base, at first stuffed, then hollow, white and subglabrous above the annulus, floccose-fibrillose to somewhat scaly toward the base, 6-15 cm. long, 1-1.5 cm. thick at the top, twice as thick below; annulus rather distant, very ample, reflexed, double, smooth and white above, ornamented with floccose, pale-tawny scales below."

Habitat and Distribution. - On soil and humus, in deciduous woods, Tennessee, September.

Agaricus sulphureiceps Murrill

Murrill's description (Jour. Fla. Acad. Sci.  
8:195. 1945):

"Pileus campanulate to expanded, 3-4 cm. broad; surface slightly viscid when wet, smooth, finely fibrillose, sulphureous, slightly deeper yellow on the disk, margin even, entire, projecting; context thin, pallid, odorless; lamellae free, close, narrow, white to blackish with white edges; spores ellipsoid, smooth, purplish-brown, about  $5 \times 3 \mu$ ; stipe enlarged downward to the rounded base, white, pale-yellow when dried, fibrillose below, about  $3.5 \times 0.5-0.7$  cm., bulb 1.2 cm. thick; annulus ample, fixed 1 cm. from apex, tomentose beneath, becoming pale-yellow.

"Type collected by W. A. Murrill in soil in frondose woods on the Newberry Road, seven miles west of Gainesville, Fla., June 18, 1944 (F 38805). When dried the hymenophore is distinctly yellow with a dark-yellow disk.

A. contuliformis Murr., described from Alabama, is related but differs in color, habitat, length of stipe and the absence of a bulb."



Agaricus Wilmotii Murrill

= A. praemagnum  
Murr.  
25 Oct

Murrill's description (Lloydia 9:328-329. 1946):

"Pileus hemispheric with broad umbo to plane or slightly depressed, caespitose, 7-15 cm. broad; surface dry, uniformly covered except on the disk with close, appressed, fibrillose, umbrinous-avellaneous scales, white beneath the scales, margin entire, even, with smaller avellaneous scales less appressed; context 1 cm. or less thick, white, firm, sweet and nutty with anise odor, unchanging until old; lamellae free, curved, 5 mm. wide, tapering at both ends, inserted, close, white, late in coloring, entire; spores ovoid, smooth, purplish-brown, about  $5 \times 4 \mu$ ; cystidia none; stipe mostly equal, solid to stuffed, smooth, glabrous, white and unchanging without and within, 10-15 x 1.5-2 cm.; veil smooth and white above, cracked and spongy below with avellaneous tint, ring fixed 2.5 cm. from apex, ample to shriveled.

"Type collected by R. J. Wilmot and W. A. Murrill on leaf-mold in a high hammock at Gainesville, Fla., July 20, 1945. Suggesting A. placomyces and A. subrufescens. "

Agaricus xanthodermoides Murrill

Murrill's description (Jour. Fla. Acad. Sci.  
8:195-196. 1945):

"Pileus convex to expanded, scattered or gregarious, 6-9 cm. broad; surface dry, white, silky to slightly scaly, margin even, entire, projecting about 3 mm.; context about 7 mm. thick near stipe, white, unchanging, taste pleasant, odor not amygdaline; lamellae free, close, about 6 mm. broad, abruptly tapering at ends, white, soon pale-pink, entire; spores broadly ovoid, smooth, purplish-brown, about 5-6 x 4-5  $\mu$ ; stipe enlarged below, solid, white, pubescent, 4-7 x 1-1.5 cm.; annulus ample, simple, white, persistent, fixed near apex of stipe.

"Type collected by W. A. Murrill in short grass under a solitary loblolly pine in Gainesville, Fla., Mar. 25, 1944 (F 22503). Resembling A. projectellus Murr. but turning orange in drying except when blackening with age. It is not usually cylindric when young and its odor is not at all amygdaline, thus differing from A. cylindriceps Murr. When the type was collected, A. projectellus was common but A. cylindriceps had not yet appeared. I have collected A. xanthodermoides a dozen times about Gainesville, mostly in early spring in open grassy or weedy ground. Smith says it is perhaps nearest to A. xanthodermus Genev., described from pastures in France. He found the spores very variable, 5-8 x 4.5  $\mu$ , and the abundant yellowish cheilocystidia to resemble basidia, measuring 18-22 x 8-12  $\mu$ . The cuticle of the pileus turns yellow in KOH."

AGARICUS ~~XANTHODERMUS~~ Genevior

*A. subpendens*  
Lam.  
1864

Pileus 4-7 cm. broad, hemispheric then convex, broadly umbonate, firm, white, staining yellow when rubbed or bruised, appressed-fibrillose brownish scaly, margin incurved at first, then straight, appendiculate, even. Flesh thick, firm, white, yellow when cut or bruised, quickly greenish-yellow in 15% KOH; odor and taste mild or fungoid. Lamellae barely free, rather broad, crowded, ivory white at first, then "pale salmon color" or "pale vinaceous pink," finally "mummy brown," edges serrulate. Stipe 5-9 cm. x 10-18 mm., white, yellowish when handled, scattered-fibrillose, silky-shining hard and firm, equal or tapering upward, solid with a white pith. Annulus membranous, superior, white with yellow stains on lower surface, simple.

Spores ellipsoidal, smooth, 4.5-5.5 x 3-4  $\mu$ , color in mass near "chaetura drab." Pleurocystidia none; cheilocystidia clavate, 15-22 x 7-9  $\mu$ .

Habitat and Distribution. - On lawn, Tennessee, May.

AGARICUS No. 9239

(Same as #21689)

Pileus 4-8 cm. broad, buttons hemispheric and with dense, flat, "primuline yellow" fibrillose scales in button stage, becoming convex, pallid, with the yellow fibrils scattered. Flesh white, medium thick, firm; odor and taste mild. Lamellae free, crowded, rather narrow, white, becoming pale pink, then "olive brown" to "mummy brown," edges floccose. Stipe 5-6 cm. x 7-10 mm., white above, base yellowish, stuffed to hollow. Annulus superior, white above, tinged yellow below, somewhat persistent.

Spores 4.5-5.7 x 3.5-4  $\mu$ , smooth, ellipsoid.

Habitat and Distribution. - On lawn, Tennessee, June.

Discussion. - Same as No. 21689.



14051

AGARICUS

on soil, roadside, near Elkmont, GSMNP, coll. L.R. Hesler  
& A.J. Sharp, November 2, 1941.

Pileus 3-5 cm broad, convex, finally plane, fibrillose, becoming fibrillose-scaly (especially on disc), basic color dingy whitish, fibrils dingy brownish. Context thick, firm, white; odor mild or strongly nutty; taste pleasant (nutty).

Lamellae free, rounded behind and in front, bright pink, soon darker, successively: "brownish drab," "deep brownish drab," finally brownish black, crowded, edge uneven.

Stipe 2-3 cm long, 8-15 mm thick, dingy whitish, equal, brownish fibrillose, stuffed. Veil copious white, leaving, definite apical annulus.

Spores 5-7 x 3.5-4  $\mu$ , elliptical.

AGARICUS No. 19557

Pileus 4-5 cm. broad, convex, dry, densely fibrillose-scaly, scales "sage brown," margin even. Flesh soft, medium-thin, white; odor and taste mildly fungoid. Lamellae free, medium broad, crowded, whitish, soon "vinaceous fawn," finally "Natal brown," edges darker. Stipe 6-7 cm. x 6-7 mm., whitish, sparsely fibrillose, sub-clavate below, dry, tubular. Annulus membranous, single, white, superior, rather large, persistent.

Spores 4.5-5.5 x 3-3.5  $\mu$ , ellipsoid to subovoid, smooth, "mummy brown" in mass. Pleurocystidia none; cheilocystidia clustered, pyriform, saccate, to sub-clavate, 18-30 x 10-15  $\mu$ , with pale yellowish-brown contents.

Habitat and Distribution. - In deciduous woods, Tennessee, September.

20162

AGARICUS  
(near sanguinarius but distinct)

On lawn (new dirt, sawdust, etc.), Timberlake Road, (F.  
C. Smith's), coll. L.R. Hesler, Sept. 23, 1951.

Pileus densely covered with brown ("snuff brown")  
fibrillose squamules or scales, tips of scales more or less  
erect. Flesh medium thick, white with a pink tint; odor  
and taste pleasant.

Lamellae free, crowded, "light congo pink" (very young  
not seen).

Stipe whitish but with a pink tint above or through-  
out, equal, solid. Veil apical, ample, membranous, at  
first fibrous-membranous.

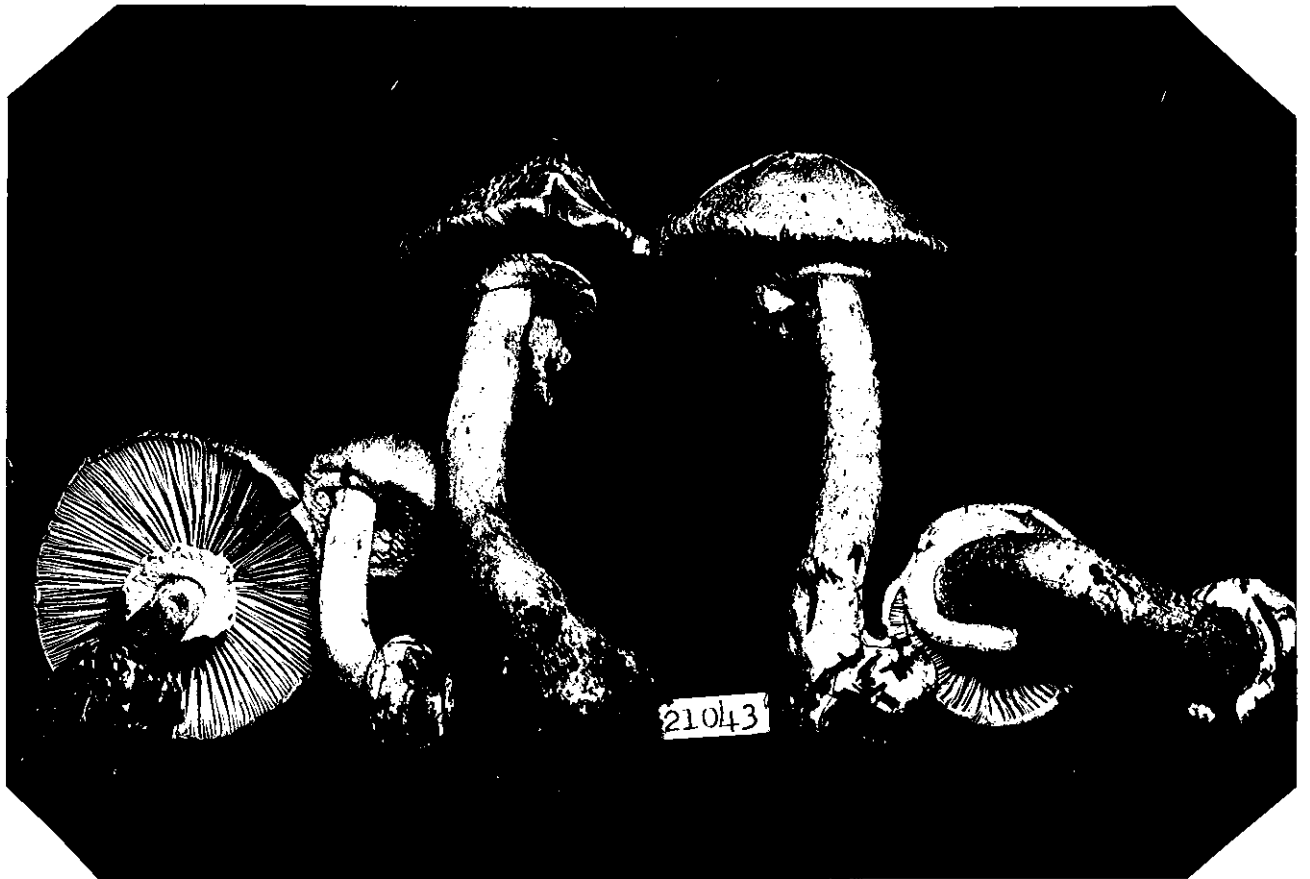
21043

Agaricus No. ~~21043~~Photo

Pileus conic, expanding-convex, whitish, tinged rosy,  
disk tawny, minutely fibrillose-scaly, margin even. <sup>Context</sup>~~Flesh~~  
white, medium on disk, thin on margin; ~~odor~~ slightly fragrant.  
# Lamellae free but close to stipe, at first "tulleul buff,"  
then "light vinaceous-fawn" to "pale vinaceous pink," finally  
narrow, tapering each way, nearly crowded, edge even. # Stipe,  
5-11 cm. x 6-9 mm., dingy, white silky, separable from pileus,  
equal above the conspicuous, emarginate bulb (23 mm. diam.),  
stuffed with a cottony pith. Annulus superior, white, smooth  
and silky above, floccose-squamulose below, ample.

Spores, 5-7 x 3-3.5  $\mu$ , ellipsoidal; color in mass:  
"fuscous black."

In deep humus in pine woods, Leon County, Florida,  
December.



21043 - *Agaricus*

21498

AGARICUS

On soil, deciduous woods, near Cherokee, N. C., in GSMNP,  
coll. & det. by L.R. Hesler, August 10, 1954.

Pileus 4-7 cm broad, campanulate-expanded, nearly  
plane, with dense, brownish, appressed fibrillose scales,  
margin incurved for a time. Flesh white when wounded,  
thick on disc, thin on margin; odor and taste mild, pleasant.

Lamellae free, crowded, medium broad, white then rosy-  
flesh-color, finally brown, edges fimbriate.

Stipe 4-6 cm long, 5-12 mm thick, pallid, equal or  
base enlarged, floccose-fibrillose, glabrescent, stuffed  
then hollow. Annulus membranous, persistent, superior,  
simple, white.

Spores 5.5-7 x 3-4  $\mu$ , ellipsoid, purplish-brown, smooth.  
Pleurocystidia none; cheilocystidia clavate, apex rounded,  
22-26 x 7-9  $\mu$ .

Near A. sanguinarius Karst., but distinct.

AGARICUS NO. 21564

Pileus 3-4.5 cm. broad, hemispheric to conic, expanding convex, grayish, with minute, black, fibrillose scales which are dense at center, fewer on margin. Flesh white, medium thick on disk, thin on margin; odor mild, taste strong fungoid. Lamellae free, not remote, at first ashy-white, finally "avellaneous" to drab, narrow, crowded, edges rough. Stipe 5-7 cm. x 5-9 mm., equal above the more or less emarginate, prominent bulb, whitish or dingy, shining, stuffed then hollow. Veil copious, whitish, leaving an inconspicuous annulus.

Spores "light seal brown" in mass, ellipsoid-ovoid, 3.8-4.5 x 2.5-2.8  $\mu$ , smooth.

Habitat and Distribution. - Tennessee,  
October.

Discussion. - All parts turn quickly yellow in 15% KOH.

AGARICUS NO. 21689

Pileus 4-6 (9) cm. broad, hemispheric, finally expanding, "primrose yellow" in button-stage, margin fading, disk remaining yellowish, fibrillose-scaly, margin appendiculate. Flesh white, unchanging when cut, yellow in 15% KOH, pale yellow next to cuticle, medium thick on disk, thin on margin; odor and taste mild. Lamellae free, rounded and narrowed behind, broad and rounded in front, medium broad in middle, crowded, bright pink, finally blackish, edges fimbriate. Stipe 3-6 cm. x 5-12 mm., slightly tapering upward, fibrillose-scaly below annulus, silky above, whitish throughout; veil fibrillose-membranous, apical, leaving a flaring then collapsed, annulus.

Spores 4.2-4.5 x 2.2-3 u, ellipsoid, blackish in mass, smooth.

Habitat and Distribution. - On lawn, Tennessee, May.



AGARICUS NO. 21690

Pileus 4-5 cm., convex, not fully expanding, white, unchanging, shining, appearing glabrous but appressed silky-fibrillose (under lens). Flesh white, unchanging, firm. Lamellae free, not remote, crowded, broad, at first white, soon "light cinnamon drab," finally "benzo brown," edges fimbriate. Stipe 4-5 cm. x 8-12 mm., white, tapering downward, silky, solid. Annulus delicate, submembranous, fugaceous.

Spores 6.5-8.5 x 5-5.5 u, ellipsoid, in mass: "fuscous."  
Pleurocystidia none; cheilocystidia clavate, 15-22 x 6.5-9 u.

Habitat and Distribution. - On lawn, Tennessee, June.

AGARICUS No. 22581

Pileus 9-14 cm. broad, white, cuticle broken into coarse, "cartridge buff," flat scales, margin even. Flesh white, unchanging, yellowish in KOH, thick, firm; odor and taste mild. Lamellae free, crowded, narrow, white, then pinkish, becoming "vinaceous buff," then "light drab," finally blackish. Stipe 7-13 cm. x 2-5 cm., white, base tapering, subradicate,  $\pm$  fusiform, solid. Annulus superior, membranous, ample, rather persistent, white.

Spores 4.5-5.5 x 3.2-4  $\mu$ , ellipsoid, thick-walled, sooty-brown (under 'scope), in mass: "deep mouse brown."

Habitat and Distribution. - On soil, Tennessee, June.

23013

AGARICUS

Cades Cove, under pine-oak, Aug. 3, 1964

Pileus white, appressed-fibrillose, or appressed-scaly.

Lamellae white, soon very dull buff-pink.

AGARICUS No. 23709

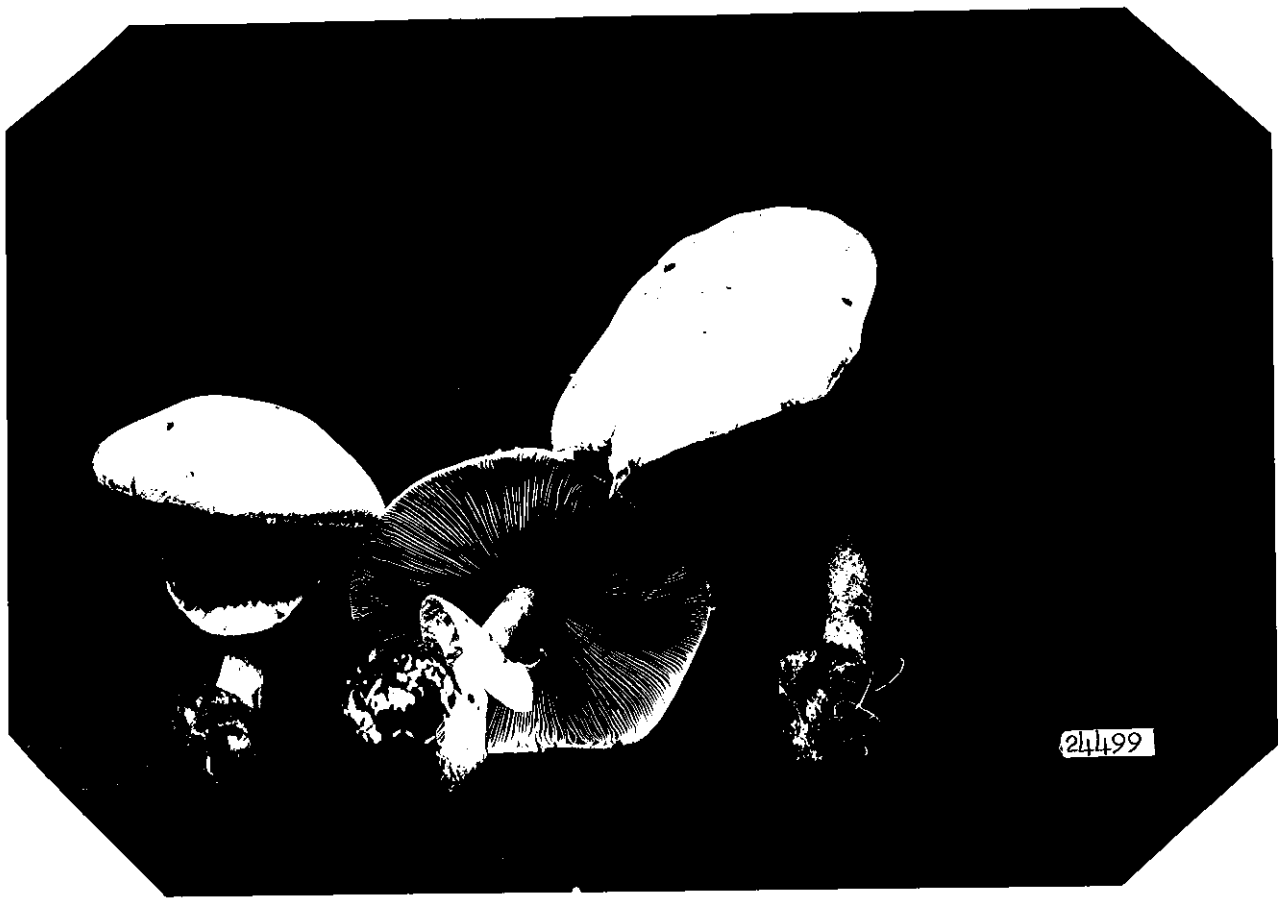
Hesler's Lawn June 10-60

Pileus 4.5 cm., basically white but with numerous golden-yellow fibrillose scales giving the surface a golden-yellow tint, disk dingy-brown scaly. Odor fungoid.

Lamellae free, subventricose, crowded, medium broad, grayish-pink.

Stipe tinged yellowish, base clavate; veil forming a near-median, collapsing annulus.

Spores in deposit: "blackish brown (3)"



24499 - *Agaricus*

25526

AGARICUS

on lawn, Sharp's, Knoxville, May 30, 1963.

Pileus 3-8 cm. broad, plano-convex, expanding more or less wavy, more or less densely yellowish fibrillose, the fibrils finally separating into flat scales which become dingy. Context white, soft; odor and taste mild.

Lamellae rounded-free, white, soon pink, finally "natal brown" to "bister" or darker, medium broad or narrow, close or crowded, edges denticulate.

Stipe 3-5.5 cm. x 6-9 mm., dingy whitish, at first white a slight covering of yellow fibrils, then glabrescent above the base, the base clavate-enlarged, becoming hollow. Veil whitish to pale yellowish, finally somewhat appendiculate, collapsing on the stipe.

26312

AGARICUS

*new species  
cf. L. decoloratus  
2570. BFD*

PHOTO

soil, oak-pine woods, Cades Cove, Aug. 20, 1964

Pileus 4-8cm broad, densely scaly, scales of erect, twisted, brown fibrils, disc "sage brown", pallid ground-color. Context white; odor and taste mild, pleasant.

Lamellae free, whitish, then dull pink, finally dark brown, crowded, medium broad.

Stipe 4-6 cm x 6-9 mm, white below, dingy above.  
Annulus superior, membranous,  $\pm$  flaring.



26312 - *Agaricus* sp. nov.

(near sanguinarius Karst., but distinct) - Isaacs



27942

AGARICUS

On lawn, Hesler's, May 24, 1965

Pileus white, appressed fibrillose, in age the fibrils becoming tawny and aggregated into scales.

Lamellae white, then bright pink, finally dark purple-brown.

Stipe white. Veil superior, membranous, persistent.

29223

AGARICUS

on lawn, Dale Lambert, Knoxville, Aug. 18, 1966

Pileus 3-5 cm broad, hemispheric-conic, finally more or less expanding, basically white, disc brownish, central portion black fibrillose scaly, scales less dense outward. Context white; odor and taste mild-fungoid.

Lamellae free, white then bright pink (about "pinkish vinaceous"), crowded, narrow.

Stipe 4-7 cm long, 5-8 mm thick, white, shining, glabrous, hollow-stuffed, equal above the more or less bulbous base. Veil white, membranous, fragile, superior.

Spores in deposit: "hair brown."



29223 - Agaricus

29447

AGARICUS

Coll. A. J. Sharp, Oak Ridge, Oct. 16, 1966

Pileus white, shining, with dense, coarse brownish fibrils, margin even.

Lamellae ventricose, close, blackish-brown (near "fuscous black").

Stipe whitish, shining, appressed-fibrillose, solid, slightly enlarged upward.

29908

AGARICUS

PHOTO

Soil, under white pine, Cashiers, August 27, 1967.

Pileus pallid, disc brown, with brown appressed fibrils. Taste pleasant.

Stipe pallid. Veil forming a white membranous annulus.

29943

AGARICUS

LaFollette, August 3, 1967, leg. Y. Lee

Pileus densely, yellow, appressed-fibrillose-squamulose,  
disc brighter yellow, no change on bruising.

Lamellae free.

Stipe white with scattered yellow fibrils, tapering  
upward.

# 7  
sp. (near sanguinarius but distinct)  
AGARICUS HAEMORRHOIDARIUS Schulzer (sensu Kauffman)

In: Kalchbrenner, Icon. Hymen. Hung., p. , 1873

= *A. sanguinarius* Karst.  
Bfd

Pileus 4-7 cm. broad, campanulate-expanded, nearly plane, with dense, brownish, appressed fibrillose scales, margin incurved for a time. Flesh white when wounded, thick on disk, thin on margin; odor and taste mild, pleasant. Lamellae free, crowded, medium broad, white then rosy-flesh-color, finally brown, edges fimbriate. Stipe 4-6 cm. x 5-12 mm., pallid, equal or base enlarged, floccose-fibrillose, glabrescent, stuffed then hollow. Annulus membranous, persistent, superior, simple, white.

Spores 5.5-7 x 3-4  $\mu$ , ellipsoid, purplish-brown, smooth, Pleurocystidia none; cheilocystidia clavate, apex rounded, 22-26 x 7-9  $\mu$ .

Habitat and Distribution. - On soil, deciduous woods, North Carolina, August.

Observations. - Pilat (The Bohemian species of the genus *Agaricus*, p. 72) believes that the American *A. haemorrhoidarius* is merely a <sup>small-</sup>spored form of *A. silvaticus* and not conspecific with the larger-spored, European *A. haemorrhoidarius* (which he says has spores 8.5-10 x 4.5-5.5  $\mu$ , and cheilocystidia 25-35 x 13-20  $\mu$ , clavate-cylindrical).